Suryadi, S. & Kustiawan, U. (2018). Children's songs creation technique development for kindergarten teachers. *International Online Journal of Education and Teaching (IOJET)*, *5*(2), 219-233. http://iojet.org/index.php/IOJET/article/view/361/231

Received: 11.12.2017
Received in revised form: 16.03.2018
Accepted: 20.03.2018

CHILDREN'S SONGS CREATION TECHNIQUE DEVELOPMENT FOR KINDERGARTEN TEACHERS

*Suryadi Suryadi
State University of Malang, Indonesia
suryadium@gmail.com

Usep Kustiawan
State University of Malang, Indonesia
usepkustiawan@gmail.com

Suryadi is a lecturer at Department of Primary School and Preschool Education, Faculty of Education, State University of Malang, Indonesia. He is currently teaching various courses to undergraduate and graduate students.

Usep Kustiawan is a lecturer at Department of Primary School and Preschool Education, Faculty of Education, State University of Malang, Indonesia. He is currently teaching various courses to undergraduate and graduate students.

CHILDREN'S SONGS CREATION TECHNIQUE DEVELOPMENT FOR KINDERGARTEN TEACHERS

Suryadi Suryadi

suryadium@gmail.com

Usep Kustiawan

usepkustiawan@gmail.com

Abstract

This study aims to produce a creation in a form of techniques to create decent children's songs used by kindergarten teachers. In addition, this study also aims to produce an advance creation in the form of technical guidebooks that can facilitate kindergarten teachers in creating children's songs. Data obtained from experts' evaluations consisting of one material expert and two teaching experts. In addition, the data were also obtained from product trial conducted in three steps; individual trial conducted on Al-Fadholi kindergarten and kindergarten group III – IGTKI Lowokwaru sub-district Malang Indonesia. One group pretest posttest design is conducted within the product trials. Based on the experts' evaluations data and product trial related to the feasibility and effectiveness of the product obtained the result of creating children's songs technique for kindergarten teachers is very feasible and effective to be applied. It is shown from the overall score of 1368 with percentage of 85,5% in excellent category. From the description, it can be defined that result of creating children's songs technique for kindergarten teachers is very feasible and effective to be applied. The score is 688 with percentage of 86% in excellent category. For the technical guidebook of children's songs trial result shows that posttest's result is better than the pretest's result, quantity is obtained with a score of 60 with a percentage value of 81.08% in a very good category, and obtained a score of posttest 211 with a percentage value of 71.28% in good category. This indicated that technical guide product obtained can ease kindergarten teachers to understand the process of creating children's songs, thus the development required to be done.

Keywords: Children's songs creation techniques, Kindergarten, Teachers

1. Introduction

Kindergarten as a Formal Early Childhood institution should function to develop all the students' potentials. Several studies show that the development of children's intelligence at the age of 4 to 6 years has increased from 50% to 80% because at this age children have a sensitive period of the maturation of physical and psychic functions that are prepared to respond to the stimulus provided by the environment. This period is ideal for positioning the first and foremost foundation in developing children's full potentials including potential development in musical skills.

Children's song is a material that must exist as an exploration, expression, and appreciation substantial in accordance with the concept of art learning in early childhood (AUD). The more the number of children's song repertoire, the process of exploration, expression, and appreciation in children becomes richer. But that is not the case. Currently, there is no more popular children's songs are so favored by children.

Reference to children's songs is not much developed. Songs that are taught by teachers in the school are materials that are passed on from generation to generation and there are times when the songs are less appropriate with the children's characteristics. Even less relevant to the reality faced and experienced by children in the present. As a result, children prefer adult's music which at all times crammed children's ears with adults typical lyrics which inevitably make children step in a mature phase earlier despite their real ages. This is relatively distressing for children's growth and character development. The education level and competence of Kindergarten Teachers varies greatly, some are still graduates from public schools who have never received any educational knowledge, some are graduates from Diploma Degree of Kindergarten Education Teachers (PGTK) until Diploma Degree of Elementary Education Teachers (PGSD), and some are graduates of Bachelor of Early Childhood Education Programs (PAUD) and Bachelor of Elementary Education Teachers (PGSD) even bachelor graduates outside Early Childhood Education Programs (PAUD). With such variations of course each teacher's ability is very different both in the field of general education especially in specific areas, such as music art. With the difference is also then not all kindergarten teachers have an understanding of how to teach learning materials that is appropriate for the students especially when it comes to special field materials such as music, and this will make it difficult for the children as students to be able to follow the learning process well.

Kindergarten teachers as facilitators in children's potential development are expected to equip themselves with the insight and skills of various areas of children's potential development; therefore they can run their role well to help facilitate children in following lesson. In other words, kindergarten teachers must have good competence and qualifications in accordance with their field. Without a sufficient knowledge, kindergarten teachers will not be able to develop the children's potentials optimally.

In fact, teachers who are expected as the ultimate support in meeting the needs of children's songs cannot do much. Teacher competence related to the problem is also not enough to help. Based on the conditions in the field, from the results of the training through the researcher who once conducted and asked directly to the participants who are kindergarten teachers, obtained information that only 10% of kindergarten teachers who have the ability to create songs, let alone to create children songs. Because in quantity only 2% of teachers and prospective kindergarten teachers who get supplies about music theory, especially the theory of children's song creation, even if there are only 10% teachers who can use and practice their knowledge. On the other hand, books' references on the method of creating children's songs are also rarely circulated in the market; therefore this enlarges the lack of knowledge to create songs for kindergarten teachers. However, if you look at the potential and existing conditions recently, both from the physical, social, economic and environment actually kindergarten teachers in learning activities can be improved and developed both the ability and creativity in developing learning, therefore that will facilitate the learning process for students. Potentials are owned by most experienced kindergarten teachers teaching more than 10 years, many graduates of Diploma Degree and Bachelor of Early Childhood Education Programs (PAUD) and Elementary Education Teachers (PGSD) and educational scholars who have basic knowledge of education.

According to the conditions described above, it is required a simple and easy way that can help kindergarten teachers in overcoming the problems faced and also able to develop competence through the ability to create children's songs. Later it is expected that the songs taught by the teacher to the children will be more in accordance with the psychology of children development. Because the song is created by the teacher and based on the circumstances that occur around the children. The way in question is the development of

children's songwriting techniques using 7 steps as the procedure with the tone area boundaries between "do" to "la" according to the characteristics of good songs for early childhood according to Swanson (in Rachmi, 2008), described in a manual as an attempt to provide an alternative problem solving to the difficulties faced by kindergarten teachers related to children's songs and other basic musical theories.

Through this technique all kindergarten teachers will easily create songs for their students. This activity can be done independently or collaboratively with other teachers based on what is and is happening in the environment around the children. After following the steps in the new technique using the existing guidebook, it is expected that kindergarten teachers will have a competence improvement especially in creating children's songs. Therefore, the songs taught by the teacher will be much more meaningful and more characteristically appropriate to the children characteristics' development because the contents and lyrics of the song is a reality that is experienced and felt by the children. In addition, of course, the accumulation will enrich children's songs. Furthermore, it is expected that no kindergarten teacher who felt lack of material to teach the songs to children, especially the songs that are more appropriate to the conditions where children live and learn and more relevant to the context of the development of the era.

If it can be done then the songs taught by the teacher to the children not only can satisfy the sense of fun for children but also able to support and maximize the increasing of children's potentials in developing cognitive, affective, and psychometric abilities remarkably as expected in the conversion of children's achievement aspects development as a form of multiple intelligences. This is in line with Gardner's statement (in Seefelt, 1994: 418-419) "Music can enhance children's creativity and their social, physical, intellectual, and emotional development". Therefore, it is required to design a research method that can facilitate the way mentioned above to be applied validly and authentically so that the resulting product can be achieved correctly and in accordance with the desired expectations.

2. Method

2.1. Development Model

The development of children's songwriting technique is an experimental research using pre-experimental posttest design which is one group pretest posttest design, with a quantitative approach. That is done by describing the data in the form of numbers that are quantitative therefore it can be used to predict the wider conditions of the population and the future. The quantitative approach can be interpreted as a research approach based on positivism philosophy, which is used to examine a particular population or sample. Data collection techniques using research instruments where data analysis is quantitative / statistics directed to answer the formulation of problems and hypotheses proposed (Sugiono, 2009: 31).

The method used in this research is R & D (Research and Development) method, which is the result of research which finally produce a product, either product development from existing or new product altogether. This study aims to develop new techniques in order to help facilitate kindergarten teachers in applying the steps to create children's songs. The resulting product is a technique in the form of procedures that must be performed by kindergarten teachers as users.

Following Dick and Carey's model that consists of 10 steps in research and development implementation, which are: (1) identifying an instructional goal or analysis of needs and objectives, (2) conductional an instructional analysis or conducting learning analysis, (3) identifying entry behaviors and (5) developing criterion – referenced tests or developing assessment instruments, (6) developing an instructional strategy or developing learning strategies, (7) developing and selecting instruction or developing and selecting instructional

materials, (8) designing and conducting the formative evaluation (designing individual, small group trials with 6-8 subjects, field trials with 15-30 subjects), (9) revising instruction or revision, (10) summative conduction or design and develop summative evaluation.

2.2. Research and Development Procedures

According to Dick and Carey's research and development model, out of ten existing development steps, the researcher took nine steps in this process. This is done because as Setyosari (2013: 235) says, "For development purposes researchers usually only use up to the ninth step, that is formative evaluation where the design, process or program has been considered completed". The steps taken in this study are as follows:

2.2.1. Requirement and Purpose's Analysis

Before determining the product to be developed, the researcher held the data collection first through the requirements analysis, as well as identifying the problems that occur and real condition that exists, in the form of difficulties faced by kindergarten teachers in creating children's songs, therefore it can be determined the alternative problem solving. This is done to realize the circumstances that should exist. In which kindergarten teachers can apply techniques to create children's songs with ease. In the early stages, the researcher conducted observations and interviews of kindergarten teachers related to the knowledge and ability in creating songs, through training activities to create children's songs.

Based on the information collected, the obtained data show that the average of every 100 kindergarten teachers only 10% who have the ability to create songs, let alone to create a child song. This is because in quantity shows that only 10% of teachers and prospective kindergarten teachers who get knowledge about music theory and children's songs theory; moreover some teachers do not apply the theory and practice their knowledge. This condition causes the knowledge and understanding of kindergarten teachers about the concepts related to the song creation theory to be insignificant.

2.2.2. Learning Analysis

At this stage, researcher observe and analyze kindergarten teachers' understanding, especially those related to the creation of children's songs, and the procedure of creating songs performed by some kindergarten teachers so far. Afterward, determine techniques' development with more appropriate procedures as required. The requirement things are needed to be identified and then put into the product's design. At this stage the researcher also collected previous research data to be able to support the products design to be developed. This stage is very significant to do in addition to support the problem solving will be done, also to know the existence of research to be done, whether to develop something that already exist or develop something new.

2.2.3. Learner Analysis

This analysis is conducted simultaneously with the analysis of learning. Learner analysis is an activity to analyze characteristics, attitudes, and abilities of kindergarten teachers before development materials are prepared and provided. This analysis aims to obtain information about kindergarten teachers as research subjects, in order to solve problems that are done on target and worth using.

2.2.4. Formulate Learning Objectives

At this stage, the content structure analysis and the objective's formulation are conducted in giving the materials according to the level of kindergarten teachers' understanding in general. In the content structure analysis, the activity undertaken is to analyze the scope of supporting

facilities in the form of procedures that will be performed in the process of creating children's songs. While in the formulation of objectives contain achievements that must be achieved in these development activities, therefore that the resulting product is feasible and effective to use.

2.2.5. Developing Assessment Instruments

The next activity is the development stage of the feasibility instrument and product effectiveness. In this activity, the assessment instruments preparation will be used in individual trials, small group trials, and field trials. This assessment instrument as well as a test tool for expert validation of the developed product. The results of the trial and validation are used to determine the feasibility and effectiveness of the technique as the development product with the criteria of attractiveness level, convenience level, accuracy level, clarity level, and conventionality level. If the product developed still requires improvement then it will be revised according to input from experts and users.

2.2.6. Developing Learning Strategies

Given the importance of learning strategies to support successful development, especially when the provision of materials (treatment) and the instruction delivery on children's song creation activities, it is required to design an effective and efficient learning scenario that is outlined in the form of the design of development material or guidance. The design of this learning scenario will assist the researcher when conducting a product trial conducted in a one day training activity.

2.2.7. Develop and Select Teaching Materials

Based on the steps that have previously been done, the researcher can develop the product design into a ready-to-test product. The product of this development is the technique in the form of steps or procedures that must be followed, therefore the activity can be done easily in order to create children's songs by kindergarten teachers. Furthermore, by following the procedures that have been established then the activities of creating children's songs will be easier to do.

2.2.8. Formative Designing and Developing Formative Evaluations

After product development and ready to be tested, the next step is to conduct formative evaluation. Formative evaluation in this study was conducted in individual trials, small group trials, and field trials, as well as expert evaluation. This stage aims to determine the feasibility and effectiveness of the product through the assessment level of attractiveness, level of ease, the level of accuracy, clarity level, and conventionality level. If in trial and evaluation of experts there are still deficiencies and weaknesses, then further revision to obtain a decent and effective final product to be used for development purposes.

2.2.9. Revise

Based on expert evaluations, individual trials, small group trials, and field trials, the next step is to revise the product. This stage is conducted to produce the final product that has the feasibility and effectiveness level according to the development objectives by taking into account the suggestions and responses from experts and users.

2.3. Product Trials

These product trials are conducted to collect data used as a basis for establishing the feasibility and effectiveness of developed products. (1) Design trials, (2) Test subjects, (3) Data types, (4) Data collection instruments, and (5) Data analysis techniques, which are used

as a basis for determining the attractiveness level, level of ease, accuracy level, clarity level, and product conventionality level.

2.3.1. Design Trials

The design of this product trial is divided into two parts, which are expert evaluation and product trial. Expert evaluation is done by three people, each one a material expert and two teaching experts. While the product trial conducted in three stages, namely individual testing, small group trials, and field trials.

a. Expert Evaluation

Expert evaluation is done by taking the questionnaire data in the form of questionnaires from material experts and learning experts. The determination of experts is based on competence and qualifications in the field of teaching, which consists of;

1) Material Expert

He is a lecturer in music majors, Performing Art Faculty, Indonesian Art institute of Yogyakarta, who has a teaching qualification in music, and he is a children's music psychologist.

2) Learning Expert 1

He is a lecturer of Educational Technology (TEP), Faculty of Education, State University of Malang, who has a teaching qualification in instructional media field.

3) Learning Experts 2

He is a lecturer in Early Childhood Education (PAUD), Faculty of Education, State University of Malang. He is very competent in the field of methodology learning with the production of research works and books on methods learning.

Furthermore, the results are analyzed and used as the basis for product development's revision.

b. Product Design Trial

Product design's trial is done by giving test and takes questionnaire data in the form of questionnaire and interview from user through three phases which have been planned. The three stages are;

1. Individual trials. Individual trial was conducted on Al-Fadholi kindergarten teacher, Malang.
2. Small group trials. A small group trial was conducted on 6 teachers of Al-Fadholi Kindergarten members of group III – IGTKI Lowokwaru sub-district, Malang.
3. Field trials. Field trial was conducted on 30 kindergarten teachers in group III – IGTKI Lowokwaru sub-district, Malang, consisting of:
   a. 4 teachers of Al-Fadholi family planning and kindergarten
   b. 3 teachers of Surya Buana kindergarten
   c. 7 teachers of Sunan Giri kindergarten
   d. 2 kindergarten teachers
   e. 3 teachers of Al-Furqon Playgroup and Kindergarten
   f. 4 teachers of Kenanga kindergarten
   g. 4 teachers of Flamboyan kindergarten
   h. 3 teachers of Nusa Indah Kindergarten

Product design trial is done by experimental approach using pre-experimental research design through one group pretest posttest design, that is research which only involving one

group of subjects. The first measurement of the variables before being given treatment, then done the process of manipulating through the provision of treatment particular to the subject of research, then performed a second measurement which is a T test related samples to determine the impact of the treatment given. As Wiyono (2008: 70) says "T-test of the corresponding sample is used to see whether there is a mean difference between two variables, there are independent variables and dependent variables whose samples are not taken alone". In other words, that the corresponding sample T tests is used to see any difference in conditions in one group between before and after treatment. According Sugiyono (2009: 72) "In experimental research, there is treatment whereas in naturalistic research there is no treatment, therefore, the method of experimental research can be interpreted as a research method used to find the effect of certain treatment against others in controlled conditions."

In this study, experiments were conducted with nonrandomized pretest posttest non control group design. As Wiyono (2008: 21-22) states, "Pre experimental design is an experimental research design that uses only experimental groups only, without control groups. The sample subjects were picked randomly without using randomization." The following is an experimental design drawing used in product development trials according to Tuckman (1972):

O1	X	O2

Description:

O1 = pretest

X = treatment

O2 = posttest

(Source: Tuckman, 1972)

In the experimental design, the procedures to be performed are the provision of pretest delivery schedule, treatment schedule and posttest delivery schedule. The steps or procedure of the experiment are as follows:

1. Pretest's Provision. The stage of pretest delivery is done before the technique is introduced. Pretest given in the form of assignments in making children's songs with commonly used technique. This is done to determine the condition of the beginning of the subject, whether with techniques that have been common can easily implement and complete the task or just the opposite.
2. Treatment's Provision. The stage of treatment is given after the pretest has been completed. Treatment is in the form of introduction and teaching techniques that contain procedures in the development results.
3. Posttest's Provision. Posttest provision stages are given in the form of assignments to make children songs using the procedures established in the form of assignment that has been given. This stage is a T test on the corresponding sample. This is done to determine the condition of the subject, whether there are any differences, before and after the treatments; especially the positive difference is in the form of improved the results. Whether with the established technique the subject can easily execute and complete the task or just the opposite. The final result of the development after the trial is the technical product contains the steps procedures that must be followed by kindergarten teachers in facilitating the process of children's song creation.

2.3.2. Subject Trial

The subjects of this development trial are:

a. The subject of analysis requirement is the kindergarten teacher as users, consisting of:

1) The individual test subject is a teacher of Al-Fadholi Kindergarten Malang.
2) The subjects of small group trial were 6 teachers of Al-Fadholi Kindergarten in Lowokwaru sub-district, Malang and
3) The field trial subjects are kindergarten teachers in group III – IGTKI Lowokwaru sub-district, Malang as many as 30 people.

b. Subject of the evaluation consisted of material experts, media experts and learning experts.

2.4. Data Type

The type of data obtained is quantitative and qualitative data. Quantitative data obtained from the questionnaire in the form of a questionnaire containing a statement or sentence, which will be changed in the form of numbers. While the qualitative data obtained from the suggestion of the responses, and input from the interviews' results conducted during the trial process of this development product.

2.5. Data Collection Instrument

The instruments used in the development of this children's songwriting technique are questionnaire in the form of questionnaires and interview result to measure all aspects related to the feasibility and effectiveness of the product through the assessment of attractiveness level, convenience level, accuracy level, clarity level, conventionality level of the development results with the research subjects. The questionnaire or interview is used to collect data on:

a. Expert evaluation, assessment of product design to be made.
b. Assessment/response of kindergarten teacher in group III – IGTKI Lowokwaru sub-district, Malang about product development that has been made.

Based on the research conducted, it is acknowledged that in order to test the product's validity, used the instrument in the form of a questionnaire given to experts and users (kindergarten teachers). This questionnaire instrument is based on Likert scale, used to measure attitudes, opinions, and perceptions of subjects on product designs developed (Sugiyono, 2009: 93). In addition, interviews were also conducted to the research subjects. Interviews were conducted to find out the advantages and disadvantages of the product which being developed. While the questionnaire is used to test the feasibility and effectiveness of the development results in the level of attractiveness, level of ease, accuracy level, clarity level, and product suitability level.

2.6. Data Analysis Techniques

Techniques used in this research consisting of 2 parts, which are data analysis techniques in the form of descriptive qualitative and descriptive statistical analysis techniques / descriptive quantitative form of percentage. Qualitative descriptive analysis techniques used to process data in the form of suggestions and inputs, as well as interviews obtained from experts and users. While quantitative descriptive analysis techniques used to process data obtained from user subjects and expert validation's results. The result of data analysis becomes the basis of product development improvement.

To analyze quantitative data in this study used the comparison formula and percentage according to Sugiyono (2009). Before calculating the average yield of the developed product, it must first determine the ideal score / criterion for the product development.

Regarding the feasibility and effectiveness of the notation media and the technique of creating a developed children songs, a feasibility validity score is determined if the aspects assessed on the product obtain a minimum score either based on established criteria. To determine the effectiveness of the product besides based on the acquisition of a good minimum score, it is also seen from its function to facilitate the teacher in creating children songs. Furthermore, after obtained the score of feasibility and effectiveness, it can be determined how the level of validity of the product developed.

3. Result and Discussion

3.1. Techniques to Create Decent and Effective Children's Songs used by Kindergarten Teachers

Based on the results of the previous chapters, the following will examine the experts' data review and data obtained from product trials related to the feasibility and effectiveness of developed techniques. Experts' reviews will be explained by one material expert and two learning experts. The trials data consisted of individual trials, small group trials, and field trials obtained from kindergarten teachers in group III - IGTKI Lowokwaru sub-district, Malang.

3.1.1. The Discussion of Experts' Data Evaluation

The design of children's songwriting techniques for kindergarten teachers has been evaluated by three experts consisting of one material expert and two learning experts. According to experts, the technique of creating children's songs for kindergarten teachers is very feasible and effective to use. From the data table, the experts' evaluation results showed the average of the technique component validity to obtain a score of 52 with an ideal score of 60. Based on the description of data analysis above, material experts and learning experts stated that the technique of creating children's songs for kindergarten teachers that have been developed, feasible and effectively used with a score of 52 and a percentage value of 86.67% in very good category. The technical product of this development result can be said to be feasible and effective because it has fulfilled the aspects assessed by obtaining the minimum score either based on validity classification table (Arikunto 1998).

3.1.2. Discussion of Data Test

From all experiments conducted to kindergarten teachers in group III - IGTKI Lowokwaru sub-district, Malang, have known the level of eligibility and effectiveness of product development result. According to user subjects, the technique of creating children's songs for kindergarten teachers is very feasible and effective to use. From the data table the overall trial results show the validity average of the components and techniques with a score of 636, while the ideal score for the technical component is 740. Based on the description of the data analysis above, the test subjects stated that the technique of creating children's songs for kindergarten teachers who have developed, highly feasible and effective use with a score of 636 and a percentage of 85.95% in excellent category. The technical product of this development result can be said to be feasible and effective because it has fulfilled the aspects assessed by obtaining the minimum score either based on validity classification table (Arikunto 1998).

3.1.3. Discussion of Experts' Evaluations Data and Trials

From the overall evaluation by three experts and three trial stages conducted to kindergarten teachers in group III IGTKI Lowokwaru sub-district, Malang, have known the level of feasibility and effectiveness of product development result. According to experts and user subjects, it shows that the technique of creating children's songs for kindergarten teachers is very feasible and effective to use. From the data table the results of the evaluation of experts showed the average of the validity of the technique components to score 688 with an ideal score of 800. Based on the description of data analysis above, material experts and learning experts stated that the technique of creating children's songs for kindergarten teachers that have been developed, feasible and is effectively used with a score of 688 and an 86% percentage in excellent category. Techniques to create children's songs result of this development can be said to be feasible and effective because it has met the aspects assessed by obtaining a minimum score both based on the classification of validity table. The product has fulfilled the element of attractiveness, clarity, and ease (Sumanto, 2012). In addition it can be said also that the techniques developed to achieve high power as a tool to achieve goals. Effective products are those that have high reaching power in their goals (Akbar, 2013).

3.2. Guidebooks that can Facilitate Kindergarten Teachers in the Process of Creating Children's Songs

Based on the results of the previous chapter, the following will be discussed is data obtained from product trials related to technical guidebooks that can facilitate kindergarten teachers in creating children's songs through developed products. Trial data consists of individual trials, small group trials, and field trials derived from tests given to kindergarten teachers in group III - IGTKI Lowokwaru sub-district, Malang.

After the design of the technique of creating children's songs for kindergarten teachers packed in the form of guidebooks tested try to the subjects, from the whole experiment conducted known that:

1. According to the subject of individual trials, technical guidebooks to create children's songs for kindergarten teachers are very precise and interesting. In addition the subject also stated that the technical guidebook is appropriate and very helpful because it is easy to follow and understand.
2. While the subjects of small group trials stated that the technical guidebooks used to create children's songs are very easy and very interesting. In addition, the subject also stated that the technical guidebooks is very useful and help teachers in creating songs.
3. The subject of field trials stated that the technical guidebooks used to create children's songs are very interesting, as they are new to the subject and are very important. In addition, the subject also stated that the guidebook technique is very helpful to facilitate teachers to create songs and understand theories and concepts required in a short time.

3.2.1. Test Results Based on Quantity

Based on the data in the table above, it can be seen that before being given the treatment, that is, when the pretest is done with the task of making children songs using an existing technique, all subjects cannot produce the melody, only one subject in the field trial produces poetry in the task of making the song, the pretest results obtained a score of 1 from a poem that was successfully made by a subject, while the ideal score for the test result based on the quantity of the whole trial was 74. Conversely, when treatment was administered and posttest was performed with the same task using the resultant development technique, the subject

succeeded complete the whole song both melodic and lyrical, therefore can obtained 60 results with the ideal score expected 74. From pretest and posttest data comparison, it appears that the posttest results are much higher than the pretest results. Based on the description of data analysis above, it can be stated that the quantity of techniques to create children's songs for kindergarten teachers that have been developed, feasible and effective use with comparison of pretest score 1 percentage value 1.35% and posttest score 60 percentage value 81.08% in excellent category. This means that the products that have been developed can make it easier for kindergarten teachers to create children's songs. Therefore, the quantity for the feasibility aspect and the effectiveness of this development product obtained a minimum score either based on the classification table of validity (Arikunto 1998).

3.2.2. Quality Test Results

Based on the data in the table above, it can be seen that before being given treatment, that is when the pretest is done with the task of making children's songs using existing techniques, all subjects cannot fulfill the assigned tasks, and cannot be judged based on predetermined aspects, therefore, the pretest results obtained score of 0, while the ideal score for the test result based on the quality of the whole trial is 296. Conversely, when treatment has been given and posttest done with the same task using the technique of development results, the subjects successfully completed the complete song both melodic and lyrical, therefore it can be assessed based on the specified aspect and the obtained result score is 211, with the ideal score for the test result based on the quality of the overall trial is 296. From the comparison of pretest data and posttest data, it shows that the posttest result is much higher than the pretest result. Based on the description of data analysis above, it can be stated that the quality of songwriting techniques for kindergarten teachers that have been developed, feasible and effective is used with comparison of pretest score 0 percentage 0% and posttest score 211 percentage value 71,28% in good category. This means that the products that have been developed can make it easier for kindergarten teachers to create children's songs. Therefore, the quality for the feasibility and effectiveness aspects of this development product obtained a minimum score both based on the classification table of validity (Arikunto 1998).

3.2.3. The Comparison of Test Results

From the data show that based on the quantity as a whole, the result of pretest get score 1 with ideal score 74. While the result of posttest get score 60 with ideal score 74. Based on the description of data analysis above, it can be stated that the technique of creating children songs for kindergarten teachers that have been developed, feasible and effective use with comparison of pretest score 1 value of 1.35% percentage and posttest score 60 81.08% percentage value in very good category.

In addition, the data table above also shows that based on the overall quality, pretest results obtained score 0 with an ideal score of 296 while the posttest results obtained score 211 with an ideal score of 296. Based on the description of data analysis above, it can be stated that the technique of creating children's songs for kindergarten teachers that have been developed, feasible and effective use with comparison of pretest score 0 percentage 0% and posttest score 211 percentage value 71,28% in good category.

From the comparison of pretest data and posttest data, it appears that posttest results are much higher than the pretest results. The product of this development can be said to be feasible and effective because it has fulfilled the aspects assessed by obtaining a minimum score both based on the classification table of validity (Arikunto 1998). The product has fulfilled the element of attractiveness, clarity, and ease (Sumanto, 2012). In addition, it also can be assumed that the product developed high power as a means to help achieve the goal of

facilitating the kindergarten teachers in creating children's songs. Effective products are those that have high reaching power in their goals (Akbar, 2013).

Through the completion of this research, it will increase the number of similar researches conducted by Asri Kusumaning Ratri (2014) with the title of Thesis Development of Song-Based Kids Creation Method for Kindergarten Teachers. With so many similar studies will help kindergarten teachers to promote love of children's songs through the activities of songwriting. In addition it is expected to provide an alternative problem solving concerning the need for children's songs.

4. Conclusion and Suggestion

4.1. Conclusion

After the research and development of children's songwriting technique for Kindergarten teachers, through expert evaluation and product trial, it is concluded that the developed technique meets the feasibility and good effectiveness. This is demonstrated by an excellent overall score of 1368 in 85.5% with an ideal score of 1600. Based on the description above, it can be explained that the material experts, learning experts, and product trials stated that the technique of creating children's songs for kindergarten teachers that have been developed, feasible and effective use with a score of 688 and the value of 86% percentage with an ideal score of 800 in the very good category.

From the test results during product trials, it is concluded that the developed technical guidebook can assist in facilitating the understanding of kindergarten teachers about children's songs creation process. Furthermore, it can be stated that the techniques quantity to create children’s songs for kindergarten teachers that have been developed, feasible and effective use with comparison of pretest result get score 1 percentage value of 1.35% with ideal score 74, and posttest result get score 60 percentage value 81,08 % with an ideal score of 74 in very good category. While the quality can be stated that the technique of creating children's songs for kindergarten teachers that have been developed, feasible and effective use with the comparison of pretest results obtained a score of 0 percentage 0% with an ideal score of 296, and posttest results obtained score 211 percentage value of 71.28% ideal score 296 in either category. From the pretest and posttest data comparison, it appears that posttest results are much higher than the pretest results.

4.2. Suggestion

The result of the development is the beginning of the expected research achievement, it is necessary to present some suggestions regarding the developed product, including suggestion of utilization, suggestion of dissemination, and further development suggestion.

4.2.1. Suggestion of Utilization

Techniques that have been developed can be used as a tool to make it easier for kindergarten teachers to create children's songs. However, in terms of utilization based on experience in the field that the results are not optimal when the use of products is not according to the rules. Therefore it is recommended that users really understand the guidelines and follow the rules systematically according to the stages that have been set so as to obtain maximum results.

4.2.2. Suggestion Dissemination

For product socialization to the broader users the researcher gives the following suggestions:

a. Before disseminating, the product should be re-evaluated and adapted the situation and conditions of the intended target.

b. Prior to dissemination should be socialized through meeting forums or written down in scientific documents in order to gain recognition and can be assessed for the reliability of the product for a larger scale.

4.2.3. Further Development Advice

In terms of research for further development, the researcher gives the following suggestions:

a. For research subjects, can be done on a broader subject, with attention to the advantages and disadvantages of the product is mainly related to the subject's age and ability.
b. For developmental kindergarten teachers can add insight and new knowledge about the technique of creating songs as a training material as well as a means of creating children's songs in a more interesting and easy way. In the end, it is expected that the reference and appreciation of the children's songs will be more developed.
c. For the institution, the resulting product can enrich the number of references and scientific documentation in the field of research development.

REFERENCES

Ardhana, W. (2002). *Konsep penelitian pengembangan dalam bidang pendidikan dan pembelajaran*. Malang: Universitas Negeri Malang.

Banoe, P. (2013). *Metode kelas musik*. Jakarta: PT. Indeks.

Borg, W.R., & Gall, M.D. (1983). *Educational research and introduction*. London: Longman.

Budidharma, P. (2001). *Belajar sendiri mencipta lagu*. Jakarta: Elex Media Komputindo.

Budidharma, P. (2001). *Pengantar komposisi & mencipta aransemen*. Jakarta: Elex Media Komputindo.

Burden, P. R., & Byrd, D. M. (1990). *Method for effective teaching* (Second edition). Boston: Allyn and Bacon.

Campbell, D. (2007). *Efek Mozart*. Jakarta: Gramedia Pustaka Utama.

Creswell, J. W. (2003). *Research design, qualitative, quantitative, and mixing methods approaches*. London: Sage Publications.

Creswell, J. W. (2003). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. University of Nebraska-Lincoln.

Campbell, D. (2007). *Efek Mozart*. Jakarta: Gramedia Pustaka Utama.

Depdikbud. (1996). *Musik dan Anak.* Jakarta: Proyek Pendidikan Tenaga Akademik Depdikbud.

Dick, W., Carey, L. & Carey, J. O. (2009). The sysematic design of instructional (6th ed). London: Scott, Foresman and Company.

Feriyadi. (2012). *Pengaruh Musik Terhadap Kesehatan, Jiwa, Fungsi dan Kerja Otak Manusia*. Posted by siipe2r007.

Griffee, D. T. (1992). *Songs in action*. New Jersey: Prentice-Hall International (UK) Ltd.

Jamalus, D. (1986). *Musik.* Jakarta: Proyek Pendidikan Tenaga Akademik Depdikbud.

Lina, N. (2003). *Theory of music made easy*. Malaysia: Penerbit Muzikal.

Lwin, M. D. (2008). *How to multiply your child's intelligence*. Jakarta: PT. Indeks.

Mack, D. (1994). *Komposisi Musik.* Yogyakarta: PML.

Mack, D. (1994). *Ilmu Melodi*. Yogyakarta: PML.

Mahmud, A. T. Dan Fat. (1994). *Musik dan Anak.* Jakarta: Proyek Pendidikan Tenaga Akademik Depdikbud.

Martuti, A. (2008). *Mengelola PAUD*. Yogyakarta: Kreasi Wacana.

Merritt, S. (1996). *Simfoni Otak.* Bandung: Kaifa.

Moeslichatoen, R. (1999). *Metode pengajaran di taman kanak-kanak.* Jakarta: Rineka Cipta.

Mulia, F. (2010). Pengertian Pendekatan, Strategi, Metode, Teknik, Taktik dan Model. Diunduh pada 18 September 2012 pada http://www.trigonalworld.com/2010/12/pengertian-pendekatan-strategi-metode.html.

Ottman, R. W. (1961). *Elementary harmony theory and practice*. America: Prentice Hall, INC.

Palmer, K. (1952). *Teach yourself to compose music*. London: English Universities Press LTD.

Prier, K. E. (1996). *Ilmu bentuk musik*. Yogyakarta: PML.

Prier, K. E. (1991). *Sejarah musik 1*. Yogyakarta: PML.

Rachmi, T, dkk. (2008). *Keterampilan musik dan tari*. Jakarta: Universitas Terbuka.

Regelski, T. A. (1981). *Teaching general music*. London: Schimer Book A Division of Macmillan Publishing Co.,Inc.

Safrina, R. (1999). Pendidikan Seni Musik. Jakarta : Depdikbud.

Seefeldt, C., & Nita, B. (1994). *Early childhood education: An introduction* (Third edition). New York: Macmillan College Publishing Company, Inc.

Setyosari, P. (2013). *Metode penelitian pendidikan dan pengembangan*. Jakarta: Kencana.

Shepperd, P. (2005). *Music makes your child smarter*. Artemis Music Limited.

Soeharto, M. (1989). *Belajar notasi balok*. Jakarta: PT. Gramedia

Sousa, D. A. (2012). *Bagaimana otak belajar*. Jakarta: PT. Indeks.

Stein, L. (1992). *Structure & style: The study and analysis of musical forms*. Summy-Birchard Music.

Sugiyono. (2009). *Metode penelitian kuantitatif kualitatif dan R&D*. Bandung. Alfabeta.

Sugiyono. (2009). *Metode penelitian pendidikan: pendekatan kuantitatif, kualitatif dan R&D*. Bandung: Alfabeta.

Sukmadinata, N. S. (2012). *Metode penelitian pendidikan*. Bandung: RemajaRosdakarya.

Sudijono, A. (2009). *Pengantar statistik pendidikan*. Jakarta: PT. Raja Grafindo Persada.

Tuckman, B. W. (1972). *Conducting educational research*. New York: Harcourt Brace Jovanovich, Inc.

Wiyono, B. B. (2008). *Metode penelitian (Pendekatan kuantitatif, kualitatif, dan action research)*. Malang: Depdiknas FIP UM.

Charkova, D., & Charkova, K. (2018). Exploring the connection between second language vocabulary learning strategies and vocabulary knowledge. *International Online Journal of Education and Teaching (IOJET)*, *5*(2), 235-250. http://iojet.org/index.php/IOJET/article/view/317/232

Received: 03.11.2017
Received in revised form: 23.12.2017
Accepted: 14.01.2017

EXPLORING THE CONNECTION BETWEEN SECOND LANGUAGE VOCABULARY LEARNING STRATEGIES AND VOCABULARY KNOWLEDGE

Denitza A. Charkova
Faculty of Mathematics and Informatics, Plovdiv University "Paisii Hilendarski", Bulgaria
dcharkova@gmail.com

Krassimira D. Charkova
Department of English Philology, Plovdiv University "Paisii Hilendarski", Bulgaria
sharkova@siu.edu

Denitza Charkova is a PhD candidate, currently teaching English language and technology classes in the Faculty of Mathematics and Informatics at Plovdiv University "Paisii Hilendarski". Her research pertains to the area of second language teaching with a focus on cloud-based course development and learner-centered methodology.

Dr. Krassimira Charkova is currently an adjunct lecturer in the Department of English Philology at Plovdiv University "Paisii Hilendarski". Her research examines issues related to second language acquisition and teaching.

EXPLORING THE CONNECTION BETWEEN SECOND LANGUAGE VOCABULARY LEARNING STRATEGIES AND VOCABULARY KNOWLEDGE

Denitza A. Charkova
dcharkova@gmail.com

Krassimira D. Charkova
sharkova@siu.edu

Abstract

The present study sought to explore and identify vocabulary learning strategies that lead to the attainment of depth of vocabulary knowledge in a second language. For the purpose, 110 Bulgarian language learners of English took Qian and Schedl's (2004) depth of vocabulary knowledge test and completed a related survey. After dividing the sample into a limited knowledge group and a superior knowledge group, the data were analyzed through discriminant function analysis which showed eight vocabulary learning strategies as significantly associated with the superior knowledge group. These strategies were named linguistically-driven strategies since they involve regular attention to linguistic features, including: paradigmatic associations (synonyms, antonyms), morphological structure (prefixes, roots, and suffixes), syntagmatic associations (collocations) and pronunciation. The results suggest that regular use of linguistically-driven vocabulary learning strategies helps build deep knowledge of second language vocabulary.

Keywords: vocabulary learning strategies, depth of vocabulary knowledge, second language teaching, second language learning

1. Introduction

Vocabulary knowledge together with grammatical competence constitute the linguistic foundation of any of the four language skills, all of which collectively partake in the composite construct of language proficiency. The important role of vocabulary has been eloquently described by Wilkins (1972) in the famous quote: "Without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (p. 111). Nonetheless, the need for a systematic and effective teaching of vocabulary has started to be recognized only recently. As noted by Schmitt (2000) not long ago "most approaches did not really know how to handle vocabulary, with most relying on bilingual word lists or hoping it would just be absorbed naturally" (p. 15.).

A renewed interest in vocabulary knowledge in the past few decades has led to a re-evaluation of second language vocabulary theory and research as specialists in the field have started to ask the question "*What does it mean to know a word*?" An extensive treatment of this question has been given in the works of a great number of authors (e.g. Chapelle, 1998; Hudson, 2007; Hunston, 2002; Lewis, 2002; Nation 1990, 2001, 2008; Read, 1993, 1998, 2000; Richards, 1976; Schmitt, 2000, 2010; Qian, 1998, 1999, 2002; Wesche & Paribakhht, 1996) who discuss the multiple levels of word knowledge, including phonological, morphological, paradigmatic and syntagmatic aspects. As observed in Qian and Shedl (2004), despite some differences in their frameworks, contemporary vocabulary researchers share the

belief that vocabulary knowledge is not a one dimensional, but "a multidimensional construct" (p. 290).

Depending on the angle from which the construct is viewed, different categorizations have come into existence. For example, one paradigm classifies vocabulary knowledge into receptive and productive knowledge (Nation 2001), whereas another classification categorizes it into size of vocabulary knowledge and depth of vocabulary knowledge (Nation, 2001; Read 1993; Schmitt, 2000; Qian, 2000; Wesche & Paribakht, 1996). The different classifications are not mutually exclusive, but closely linked. For instance, size refers to the number of words known receptively, i.e. words that the learner can recognize and know or vaguely know what they mean. Although size does not exclude depth, depth of vocabulary knowledge presupposes both receptive and productive knowledge at all levels of knowing a word, including pronunciation, spelling, meaning, part of speech, morphological structure, syntactic behavior, frequent collocates, and appropriate register of use.

The categorization of second language vocabulary knowledge into size and depth has also been reflected by recent research which has tried to find valid and reliable ways of measuring the two types of knowledge (Schmitt, 2010) and their relationship to language proficiency. Alongside the attempt to identify, describe, and measure the different types of vocabulary knowledge, researchers have also tried to examine and understand learners' vocabulary learning strategies (e.g. Fan, 2003; Gu, 1994; Gu & Johnson, 1996; Schmitt, 1997). Empirical evidence has been provided about the most frequently used strategies (Chamot, 1987; Fan, 2003; Schmitt, 1997), strategies perceived as the most effective (Fan, 2003), strategies employed by learners with good vocabulary knowledge vs. learners with poor vocabulary knowledge (Gu, 1994; Gu & Johnson, 1996; Fan, 2003), and strategies significantly associated with overall language proficiency (Bialystok, 1981; Gu & Johnson, 1996).

Undeniably, research about frequently employed strategies and learners' perceptions about their effectiveness is necessary and useful. Yet, for the purposes of language teaching and learning, it seems even more important to identify, if possible, an inventory of vocabulary learning strategies which lead to good learning outcomes. However, only a few studies have tried to examine vocabulary learning strategies in view of learning outcomes (e.g. Fan, 2003; Gu & Johnson, 1996), mainly focusing on strategies associated with size of knowledge and overall proficiency. On the other hand, there seems to be a lack of research about vocabulary learning strategies and depth of vocabulary knowledge. Considering the scarcity of such research, the present study set up to examine whether the attainment of depth of vocabulary knowledge can be linked to the employment of specific vocabulary learning strategies. Before this study's methodology and results are presented, there follows a brief overview of literature about the two main constructs that this study tries to put together, namely depth of vocabulary knowledge and vocabulary learning strategies.

1.1. Depth of Vocabulary Knowledge

Depth of vocabulary knowledge is a multidimensional construct (Qian & Schedl, 2004) encompassing all levels of word knowledge, including "pronunciation, spelling, meaning, register, frequency, and morphological, syntactic, and collocational properties" (p. 29). Due to its complex nature, operationalizing depth of vocabulary knowledge into measurable elements is a challenging task and impossible to capture with one test or research instrument. For the sake of brevity, the present paper does not include an overview of existing measures of depth of vocabulary knowledge, but focuses on the tool used in the present study, *namely* the Word Associates Format (WAF). Created and further developed by Read (1993, 1998, 2000), WAF has been used in a number of studies (Greidanus, Bogaards, van der Linden, Nienhuis, & de Wolf, 2004; Qian, 1999; Qian & Schedl, 2004) as in each study modifications

have been made to the original version (Schmitt, 2010). The version used in the present study was developed by Qian and Schedl (2004) and a team of TOEFL specialists in order to test its power as a predictor of reading performance. The test uses a multiple choice format, covering two levels of vocabulary knowledge for each of the 40 target words: a) paradigmatic associations, testing knowledge of words' multiple decontextualized meanings (polysemy) and their respective synonyms, and b) syntagmatic relationships, testing knowledge of the target words' collocates.

To test its validity for a possible inclusion in a new TOEFL test, Qian and Schedl (2004) administered their depth of vocabulary knowledge test, together with a reading test and a traditional vocabulary TOEFL test, to a sample of 207 international students, enrolled in an English language program at a Canadian University. After rigorous analyses, the researchers observed that the depth of vocabulary knowledge test showed similar predictive power about test-takers' reading ability as the traditional TOEFL vocabulary section. The findings corroborated the results of an earlier study by Qian (1999) which examined the relationship between English second language speakers' depth and size of vocabulary knowledge and their reading comprehension performance. The results showed that both size and depth of vocabulary knowledge scores were significant predictors of reading comprehension, and that depth of vocabulary knowledge had a unique contribution as a predictor of reading ability. In his concluding remarks, Qian (1999) recommends that second language vocabulary learning should go beyond superficial word knowledge as special attention is given to developing learners' depth of knowledge. Particularly, his research provides empirical evidence for the importance of knowing not only the primary meanings of words, but their multiple meanings (polysemy), respective synonyms, and their common collocations.

1.1. Vocabulary Learning Strategies

As described in Schmitt (2010), research about vocabulary learning strategies dates back to the 1970s, when the issue of "how the actions of learners might affect their acquisition of language" (p. 89) began to occupy the minds of researchers. Since then a number of studies (Bialystok, 1981; Chamot, 1987; Gu, 1994; Gu & Johnson, 1996; Fan, 2003; Schmitt, 1997) have been devoted to investigating multiple issues related to vocabulary learning strategies. All of these studies used self-reported data, elicited through Likert scale surveys. However, as noted by Schmitt (2010), existing survey instruments differ across studies in the way they categorize vocabulary learning strategies. This diversity of survey instruments is attributed to a lack of a common framework for measuring learning strategies. For example, in one categorization (O'Malley & Chamot, 1990), learning strategies are classified into three big categories: metacognitive, cognitive, and social strategies. In Gu and Johnson's research (1996), strategies are classified into two main types, metacognitive and cognitive, as each type includes a wide range of related strategies, totaling 74. In the work of Schmitt (1997, 2000), two broad categories are distinguished: a) discovery strategies, including social and determination strategies; and b) consolidation strategies, encompassing memory, cognitive, metacognitive, and social strategies. Another categorization is found in Fan (2003) with nine categories of strategies, including management, sources, guessing, dictionary, repetition, association, grouping, analysis, and known words.

Within the existing research framework, the most relevant findings to the purpose of the present study are those reported in Gu (1994), Gu and Johnson (1996) and Fan (2003). All three studies have found a substantial difference in the type of strategies used by learners with good vocabulary knowledge and learners with limited vocabulary knowledge. For instance, in a case study with two Chinese ESL learners, one a good learner and one a poor learner, Gu (1994) observed that the good learner had a systematic approach to dealing with

new words as he paid attention to the context in which they occurred, found the most appropriate meanings in the dictionary, checked the pronunciation of more difficult or longer words, and looked for synonyms and examples of use.

In contrast, the poor learner's main strategy was the use of a bilingual dictionary to check the meaning of every unfamiliar word. Regarding polysemous words, the poor learner often chose the core meaning, overlooking the context in which the word was used. This learner did not pay attention to pronunciation, synonyms or examples of use. The main strategy involved mechanical copying of the English words and their Chinese translation. The conclusion is that better learning outcomes are associated with a conscious effort to acquire deeper knowledge of target words on a paradigmatic and syntagmatc level, through the use of monolingual dictionaries which provide examples of use and pronunciation tips/practice.

Differences between strategies used by learners with good and poor vocabulary knowledge were also found in another study conducted by Gu and Johnson (1996). Differently from Gu' qualitative study (1994), this was a large scale quantitative study involving 850 second year non-English majors at Beijing Normal University. The survey of vocabulary learning strategies examined 91 specific behaviors, categorized into two main types, metacognitive and cognitive strategies. The participants' vocabulary knowledge was measured by a vocabulary size test, adapted from Goulden, Nation and Read (1990) in combination with Nation's (1990) vocabulary levels test at the 3000 word level. Overall proficiency in English was established through a composite score, including listening comprehension, vocabulary, structure, reading comprehension, cloze test, and sentence translation from Chinese into English.

Metacognitive strategies were the most significant predictor of size of vocabulary knowledge and general proficiency. Self-initiation was the best predictor of size of vocabulary knowledge, whereas self-initiation and selective attention were predictors of general proficiency. At the cognitive level, dictionary-related strategies, note-taking, time devoted to learning words outside of regular classes, intentional activation of newly learned words, paying attention to word forming elements (suffixes, prefixes, and roots) were significantly associated with either one or both of the criterion variables (size of vocabulary knowledge and general proficiency). In contrast, visual repetition and imagery encoding were found to be significant negative predictors.

Similar issues were examined by Fan (2003) in a study with 1067 Cantonese speakers of English. One of the findings particularly relevant to the research interest of this present study points at the fact that there is a difference in the strategies employed by learners with high levels of vocabulary knowledge and learners with limited vocabulary knowledge. Specifically, Fan observed 24 strategies that were significantly associated with the high performing group. They used monolingual and bilingual dictionaries significantly more frequently in order to check words' definitions, pronunciation, derived forms, grammatical patterns, collocations, and appropriate use of the new words. The same group employed morphological analysis by breaking new words into prefixes, roots, and suffixes, as well as consolidation strategies, such as revising new words and paying attention to recently learned words in new contexts. In comparison, the lower achieving participants reported significantly higher use of repeated writing and sound-meaning association strategies as a way to remember new words.

The lack of uniformity of research instruments across studies related to vocabulary learning strategies makes it difficult to draw direct comparisons between their results. Nevertheless, it should be noted that all of these studies have found empirical evidence that the strategies used by learners with demonstrated good vocabulary knowledge and learners

with limited vocabulary knowledge differ significantly. The most prominent differences are summarized in Table 1 below.

Table 1. *Vocabulary learning strategies and learning outcomes in related studies*

Vocabulary learning strategies associated with L2 learners with **good vocabulary knowledge**	Vocabulary learning strategies associated with L2 learners with **limited vocabulary knowledge**
○ Regular **pronunciation** check	○ Use of **bilingual dictionaries**
○ Complementary use of **monolingual and bilingual** dictionaries	○ Learning new words trough **translation**
○ Focus on **contextualized meaning**	○ **Repeated mechanical writing** of new words
○ Paying attention to **grammatical patterns**	○ Visual **repetition**
○ Paying attention to **word building elements** (*prefixes, roots, and suffixes*)	○ Focusing on **decontextualized meaning**
○ Focusing on **collocations** rather than single words	○ Imagery encoding
○ Intentional learning of **synonyms**	○ Sound-meaning memorization strategies
○ Intentional **activation of new words** through use in written and spoken form.	
○ Self-initiation strategies	
○ Selective attention	

Note: *The strategies in this table are extrapolated from the research of* Gu (1994), Gu & Johnson (1996) and Fan (2003).

As mentioned earlier, all of the above strategies were identified in relation to L2 learners' size vocabulary and general proficiency. None of the studies (at least to the knowledge of the authors) has linked vocabulary learning strategies with depth of vocabulary knowledge. Exploring this relationship constitutes the main purpose of the present study, described in the remaining part of the paper.

2. Methodology

The study presented in this paper was designed in a quantitative framework, employing Qian and Schedl's (2004) depth of vocabulary knowledge test and a Likert scale survey of vocabulary learning strategies. Particularly, it aimed to identify through statistical analyses a repertoire of vocabulary learning strategies which may lead to a deeper knowledge of second language vocabulary. The following research questions guided the process of data collection and analysis:

1. Do English language learners who demonstrate significantly superior knowledge of L2 vocabulary on paradigmatic and syntagmatic level employ different vocabulary learning strategies than learners with limited knowledge?

2. Which strategies are significantly associated with learners who have superior knowledge of L2 vocabulary?
3. Which strategies are significantly associated with learners who have limited vocabulary knowledge?

2.1. Participants

The participants who took part in this study included 110 Bulgarian college students as foreign language learners of English. Their ages ranged between 19 and 23, with a mean age of 20. Among them, there were 47 male and 63 female participants. All of them had studied English between 7 and 8 years in the Bulgarian school system and were enrolled in English language classes required by their majors in business, economics, international studies, legal studies, and sciences.

Based on the depth of vocabulary knowledge test, the participants were placed in two groups of more knowledgeable and less knowledgeable learners. For this purpose, participants' vocabulary scores were rank-ordered and the cut-off point between the less and more knowledgeable participants was set at the 50th percentile. Thus, the sample was split into two groups, named limited knowledge group (N= 53) and superior knowledge group (N= 57). The scores of the limited knowledgeable group ranged between 23.50 to 77.50 and the scores of the superior knowledge group ranged between 78 and 146.50 (out of maximum possible 160).

2.2. Instruments

The data collection instrument included three parts: a) a demographic section; b) Qian and Schedl's (2004) depth of vocabulary knowledge test and c) a Likert scale survey of vocabulary learning strategies. The depth of vocabulary knowledge test which Qian and Schedl developed based on Read's Word Associates Format (1989, 1993, 1995), includes 40 target words, all of them adjectives, which appear in TOEFL reading sections. The test aims to tap on a deeper level of word knowledge by testing both paradigmatic and syntagmatic word associations. For each target word, test-takers see four synonym options and four collocate options. They are expected to select all options that can be synonyms to any of the possible meanings of the target word and all options that can form acceptable collocations with the target word. The right answers can vary within the synonym and collocation options across words, but the number of right answers for all target words is always four. For example, it is possible to have one correct synonym and 3 correct collocations, 2 correct synonyms and 2 correct collocations, or 3 correct synonyms and 1 correct collocation.

In the context of the present study, the items and the choices were exactly the same as those used in Qian and Schedl's (2004), with slight modifications in the procedure and scoring. In Qian and Schedl's study, the participants were told that the maximum of correct answers for each word was four. In the present study, the participants were not given this information. They were only told that the number of correct synonyms and collocations may vary and they should carefully select all that are correct, based on their knowledge of the target words. This was deemed necessary to rule out guessing, so that the participants scoring above the 50th percentile could be rightly categorized as having superior vocabulary knowledge than those scoring below the 50th percentile.

Another modification, which also made achieving a high score more difficult, was the penalty imposed on wrong answers. In Qian and Schedl's study (2004), there was no penalty for wrong answers, as each correct answer was given 1 point. In the present study, each correct answer was still awarded 1 point, but for each wrongly selected synonym or

collocation, .05 points were deducted from the total of possible points. For example, if the right answers included three correct synonyms and one correct collocation, and a participant selected two correct synonyms, one wrong synonym, and one correct collocation, then the participant would be awarded 1.5 points for synonyms and 1 point for collocations, yielding a total score for this item of 2.5 rather than 3. As mentioned previously, the maximum possible score on the depth of vocabulary knowledge test is 160 as reported in Qian and Schedl (2004), but in the context of the present study the highest obtained score was 146.50.

Three Cronbach's alpha tests were performed to establish the internal consistency of the 40 items in the depth of vocabulary knowledge test. The purpose of the reliability analysis was to find out whether all items "measure the same thing" (George & Mallery, 2003, p.223). The first test, performed with the items measuring paradigmatic associations (synonyms), yielded a value of α = .895. The second test examined the items measuring syntagmatic associations (collocations) and produced a reliability coefficient of α = .898. Finally, all items (both testing paradigmatic and syntagmatic associations) were subjected to reliability analysis, which produced a coefficient of α = .942. According to George and Mallery, *alpha* values > .8 indicate good internal consistency.

The second part of the instrument consisted of a Likert scale survey which aimed to elicit participants' frequency of use or non-use of common vocabulary learning strategies. Fourteen questions were adopted from the survey used by Kaya & Charkova (2014), each describing a specific cognitive behavior related to vocabulary learning regardless of the source in which the word would be encountered. Among the fourteen vocabulary learning strategies, eight were bottom-up linguistically-founded strategies (synonyms, antonyms, collocations, suffixes, prefixes, roots, pronunciation, and translation); two were related to type of dictionary use (monolingual vs. bilingual); one was a top-down strategy (guessing from context), one was a use strategy (use in sentences); the remaining two were memorization strategies (decontextualized learning through word lists and repeated writing of the target word). The reliability analysis through Cronbach's alpha test showed good internal consistency of α =. 839 (George & Mallery, 2003).

2.3. Data Analysis

The data was analyzed through the Statistical Package for the Social Sciences (SPSS), Version 24 (2016). The lower and higher level groups of learners were determined through a t-test for independent samples, whereas the association between strategy use and vocabulary knowledge was established through a discriminant function analysis. Effect size values were calculated (Cohen, 1988) to help interpret the practical importance of the statistically significant results.

3. Results

The first step in the analyses included a *t-test* for independent samples, the purpose of which was to ascertain that the categorization of the participants into two groups of limited and superior knowledge was substantiated by a statistically significant difference in their performance on the depth of vocabulary knowledge test. Since Levene's test showed that the assumption of equal variances was not observed at alpha =.05 ($F(108) = 5.95$, $p = .016$), the *t-test* statistics for *equal variances not assumed* were used in interpreting the results. These statistics ascertained that the categorization of the two groups into *limited knowledge* and *superior knowledg*e group was supported by a significant statistical difference, t (102,689) = -14.173, $p < .001$. As shown in Table 2, the group whose vocabulary scores ranged above the 50th percentile had a significantly higher mean than the group ranked below the 50th percentile. The high value of *Cohen's d* = 2.69 signifies a very high magnitude of the

difference in vocabulary knowledge where the higher ranking group showed a 64% overall achievement on the test, whereas the lower ranking group showed a much lower achievement level of 39%.

Table 2. *Statistical comparison of limited and superior knowledge groups*

Group	N	Mean	% achievement	SD	95% CI Lower	95% CI Upper	t (102,7)	Sig.	Cohen's *d*
limited knowledge	53	62.10	39%	11.40	58.9	65.3	- 14,17	.000**	2.69
superior knowledge	57	98.73	62%	15.51	94.6	102.8			

Note: % achievement was calculated as the group mean was divided by the maximum possible score of 160; ** Significant p < .01

Once the lower and superior knowledge groups were established on the basis of the *t-test* results, the next step in the analysis was to find whether the participants with limited and superior vocabulary knowledge were employing different vocabulary learning strategies. For the purpose, a discriminant function analysis was performed, the first part of which involved univariate comparisons between the two groups on each of the 14 vocabulary learning strategies. The results are summarized in Table 3.

Table 3. *Limited vs. superior knowledge groups in relation to vocabulary learning strategies*

	Limited knowledge (N=53)		Superior knowledge (N=57)				
Vocabulary Learning Strategies	Mean	SD	Mean	SD	F (df 1,108)	Sig.	Cohen's d
monolingual dictionary	2.50	1.40	4.24	1.28	45.66	.000**	1.28
bilingual dictionary	3.81	1.92	3.54	1.70	.60	.441	-.15
synonyms	1.77	1.14	3.00	1.25	28.73	.000**	1.03
antonyms	1.54	1.08	2.40	.96	19.27	.000**	.84
collocations	1.92	1.01	2.79	.93	21.50	.000**	.90
prefixes	2.39	1.51	3.43	1.45	13.61	.000**	.69
suffixes	1.98	1.08	3.59	1.32	48.77	.000**	1.34
roots	1.79	1.70	2.45	1.84	3.83	.053	.37
check pronunciation	2.19	1.34	3.71	1.29	37.04	.000**	1.16
translation	3.05	1.68	2.78	1.76	.66	.418	-.15
repeated writing	2.96	2.19	2.08	1.68	5.55	.020*	-.45
word lists	2.81	2.33	2.17	1.96	2.40	.124	-.30
use in sentences	2.28	1.24	3.50	1.21	27.34	.000**	1.00
guess from context	2.74	1.60	2.68	1.27	.04	.852	-.04

** Significant $p < .01$, * Significant, $p < .05$.

In interpreting the results, the reader should be reminded that the use of vocabulary learning strategies was measured on a scale ranging from 1 (not used) to 5 (regular use). Thus, a mean score between 4 and 5 suggests frequent or regular use, whereas a mean score

between 1 and 2 signifies no use or very limited use, and a mean score around 3 indicates occasional use.

Of the two strategies related to type of dictionary use, *monolingual dictionaries* were significantly more frequently used by the superior knowledge group, p <.001, which reported very frequent to almost regular use (*mean* = 4.43) vs. infrequent or occasional use by the limited knowledge group (*mean* = 2.63.). *Bilingual dictionaries* did not show significant differences in use as both groups reported occasional to frequent use with a slightly higher mean for the limited knowledge group (limited knowledge group *mean* = 3.80 vs. superior knowledge group *mean* = 3.50).

Bottom-up linguistic strategies, such as paying attention to words' *synonyms*, *antonyms* and *collocations* revealed further significant differences between the two groups as all three strategies were significantly more frequent among the superior knowledge group (*p-values* <. 001). Specifically, the superior knowledge group reported occasional use of these strategies vs. rare use by their counterparts. Judging from the effect size (*Cohen's d* = 1.34), the most significant difference was in the use of collocations with the superior knowledge group paying attention to word partners significantly more often than the other group.

The other three bottom-up linguistic strategies, involving attention to *prefixes*, *suffixes*, and *roots*, also showed significant differences between the two groups (*p-values* <. 001) as the superior knowledge group indicated more frequent attention to word parts. Of the three word forming elements, *suffixes* yielded the most significant difference, based on the value of the effect size (*Cohen's d* = 1.43) as the superior knowledge group reported frequent attention to suffixes, whereas the limited knowledge group reported rare use. The last linguistic bottom-up strategy, *pronunciation check*, was also significantly more frequent among the superior knowledge group (*mean* = 3.64) than the limited knowledge group (*mean* =. 2.69), *p* <. 001.

The next significant difference concerned *the use of words in sentences* as the superior knowledge group employed this strategy frequently (*mean* =. 3.61) vs. rare use by the limited knowledge group (*mean* =. 2.28), *p* < .001. The only significant difference (*p* < .0035) where the limited knowledge group had a higher mean score (*mean* 2.92 vs. 2.07) was observed in relation to the *repeated writing of new words* as a means of remembering them. The other memorization strategy, *oral repetition of words* was employed with similar frequency (*p* =. 569) as both groups indicated occasional use (limited group 3.06 and superior group 2.92). The *use of word cards*, another memorization strategy, was reported more frequently by the limited knowledge group (*Mean* = 2.92) than by their counterparts (*mean* =. 2.12), but the difference was not significant at *alpha* =.0035, *p* = .010.

Regarding the only top-down strategy, *guessing word meanings from context*, both groups reported occasional use with the limited knowledge group yielding a slightly higher mean of 3.07 vs. 2.85 by the superior knowledge group. However, the difference was not significant, *p* =. 310. In Figure 1, the bars represent the absolute values of *Cohen's d* in descending order. Higher bars are associated with bigger practical importance of the significant differences between the superior and limited knowledge group. The first nine strategies, starting from *suffixes*, *collocations*, *synonyms*, *monolingual dictionaries*, *use in sentences*, *antonyms*, *pronunciation check*, *prefixes* and *roots* were significantly more frequent among the superior knowledge group than among the limited knowledge group. *Repeated writing* was more prevalent among the limited knowledge group, whereas strategies 11 through 14 showed no significant differences between the two groups.

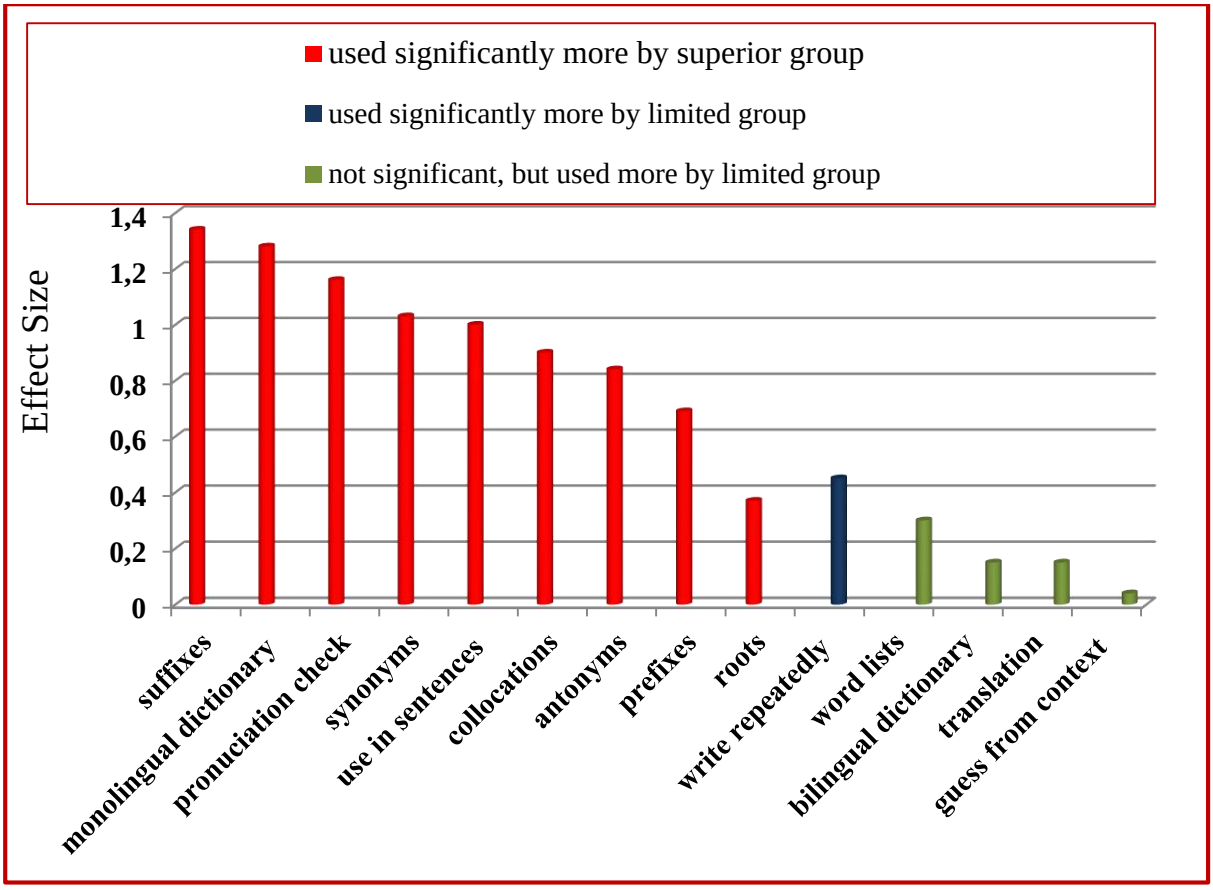


Figure 1. Bars represent effect size in descending order. Higher bars are associated with a bigger practical importance of the significant difference between the superior and limited knowledge group.

The other two research questions attempted to find out which vocabulary learning strategies could be used as predictors of superior and limited vocabulary knowledge. For this purpose, a discriminant function analysis (DFA) was performed where the 14 vocabulary learning strategies served as predictor variables, and group membership served as the criterion variable with two levels, limited vs. superior knowledge groups. This analysis complemented the multiple comparisons results as it offered a slightly different perspective on the data.

To check for violations of the assumption of equal covariance matrices, on which DFA is based, Box's M test was performed. The results showed that the assumption was observed at *alpha* = .004, F (105, 98708.201) = 1.498. Subsequently, the DFA revealed one canonical discriminant function as discriminating 57% between the two groups, *canonical correlation* =.752, *eigenvalue* = 1.30, λ = .435, $\chi^2(14) = 84.09$, $p < .001$. Total structure coefficients were calculated in order to identify vocabulary learning strategies significantly associated with the superior knowledge group (See Table 4). The discriminant function was named *linguistically-motivated* strategies since all seven of them involved bottom-up linguistic practices, such as consistent attention to morphological, paradigmatic and syntagmatic properties of words, as well as use of monolingual dictionaries which usually provide more comprehensive linguistic information about words' meanings, lexical categories, derivatives, and syntactic behavior (examples of use) than bilingual dictionaries.

Table 4. *Total structure coefficients*

Semantic Category	*Sig. 2-tailed*	*Discriminant Scores*
1. suffixes	.000	.742**
2. monolingual dictionaries	.000	.725**
3. pronunciation check	.000	.672**
4. synonyms	.000	.610**
5. use in sentences	.000	.598**
6. collocations	.000	.542**
7. antonyms	.000	.518**
8. prefixes	.000	.445**
9. roots	.009	.246**
10. repeated writing	.002	-.294
11. word lists	.040	-.196
12. translation	.281	-.104
13. bilingual dictionary	.305	-.099
14.guess from context	.803	-.024

** Discriminant scores significantly associated with the superior knowledge group, $p < .01$.

The classification function in discriminant function, which uses reverse analysis to check the accuracy of the results, showed that of the total number of participants (N =110), 86.4% were correctly classified in the limited or superior knowledge group based on their use of certain strategies. The classification statistics suggest that by knowing what vocabulary learning strategies participants are using, it can be predicted whether they will develop high or low level of vocabulary knowledge. Those learners who use linguistically-driven strategies are more likely to gain deep knowledge than the ones who use bilingual dictionaries and translation as their main strategies.

4. Discussion

As pointed out by Nation (2008), Qian (1999) and Schmitt (2000), depth of vocabulary knowledge includes multiple levels of knowing a word. The findings of the present study provide further empirical evidence in support of vocabulary learning theory which postulates that in order for second language learners to develop deeper vocabulary knowledge, they need to be involved in a deeper process of learning that goes beyond the basic word meaning and taps on multiple aspects of knowing a word, on phonological, orthographic, semantic, morphological, syntactic, pragmatic, and stylistic level. The analyses of the data showed significant differences in the strategies used by the superior and limited knowledge groups, a finding which supports the conclusions drawn by Gu (1994), Gu and Johnson (1996) and Fan (2003). The participants who scored high on the depth of vocabulary knowledge test were significantly associated with the use of linguistic strategies that allow the learner to explore new words in view of phonological, morphological, paradigmatic, syntagmatic, and contextual features.

Specifically, the participants from the superior knowledge group reported paying regular attention to target words' synonyms and antonyms, strategies associated with a higher ability of making paradigmatic associations between words. This finding is not new or surprising. It rather confirms postulations made by Nation (2008), Qian (1999) and Schmitt (2000) that systematic and conscious effort in learning word's synonyms and antonyms contributes to a deeper knowledge of the target words. In the context of the present study, the depth of vocabulary knowledge test included decontextualized paradigmatic associations between the

target words and the given synonym options, among which there were also antonyms. The task is rather challenging because it requires from the test taker to consider all possible meanings of the target word and select all correct synonyms by eliminating the wrong ones. Stemming from these observations, it seems that time given to learning words' multiple meanings and their appropriate synonyms can be very beneficial for expanding learners' vocabulary knowledge at levels deeper than the surface one.

The superior knowledge group was also significantly identified by regular attention to syntagmatic relationships by focusing on words' common collocates rather than single words This finding collaborates Fan's (2003) research and also supports recent theory (Hunston, 2002; Lewis, 2008; Schmitt, 2000) about the important role of collocational knowledge in acquiring a second language. Regular attention to word partners was the second most important identification marker of the superior knowledge group as shown by the discriminant function analysis.

However, a number of issues remain unanswered regarding this strategy due to the limitations of Likert scales which only suggest a tendency based on the majority of responses, but do not provide explanations about the process itself. Collocational knowledge and how learners acquire it needs a thorough investigation, especially given the affordances of the present-day technologically advanced world, where learners have numerous opportunities for finding, checking, and learning collocations through corpus-based dictionaries which include common collocates, Google or other internet search engines, linguistic corpora such as the Corpus of Contemporary American English, Bank of English, and many other. The superior knowledge group reported regular attention to how target words are used in context, which may also help them acquire collocational knowledge. By searching for examples, learners are also likely to notice the most common collocates that occur with the target word.

Another strategy significantly associated with the superior knowledge was morphological analysis in the following order of priority: suffixes, prefixes and roots. Regular attention to suffixes was shown as the strategy most significantly associated with the superior knowledge group. This finding seems to fit logically with the morphological structure of the 40 target words and the given synonym options in the depth of vocabulary knowledge test, a great number of which were formed through derivational or inflectional suffixes like *ful*, *ible*, *able*, *ly*, *ive*, *al*, *ing*, *ed*, and *some*. Knowing the meaning of these adjectival suffixes would increase a test taker's chance of selecting the right answer.

Similarly, a number of target words and synonym options in the test contained prefixes like *in*, *un*, *dis*, *ir*, *im*, and *re*, a fact that may provide further support for the connection between the superior knowledge group's reportedly higher attention to prefixes and their better performance on the test.

Attention to word roots was also a significant characteristic of the superior knowledge group which seemed to have a higher level of awareness of word structure elements. Morphological awareness was also associated with higher levels of vocabulary knowledge in the research by Gu and Johnson (1996) and Fan (2003) and has been emphasized in vocabulary learning theory (e.g. Nation, 2008; Schmitt, 2000). As pointed out by Nation, the morphological approach in learning vocabulary should be carefully planned and graded according to proficiency level, age, and other learner characteristics. Follow-up studies can confirm and expand on this issue.

Attention to the pronunciation of the new/target words by using on-line dictionaries or other sound enabled dictionaries was another strategy associated with the superior knowledge group. The importance of pronunciation in vocabulary learning has been emphasized by a

number of authors (e.g. Nation, 2008; Schmitt, 2000) and supported by the findings of related research (Gu, 2004; Fan, 2003). Subvocalization, the ability to convert words into sounds while reading, has also been recognized in first and second language reading theory as an important factor in comprehension and retention in short and long term memory (Hudson, 2007). This study's findings provide further evidence in support of the important role of pronunciation in attaining high levels of vocabulary knowledge in English. It seems logical that if learners can correctly decode a new word into sounds, this will increase their likelihood of remembering, internalizing and using that word.

Participants also indicated their preferred type of dictionaries, monolingual and/or bilingual. The superior knowledge group was significantly characterized by the use monolingual vs. bilingual dictionaries, whereas the limited knowledge group had a higher tendency of using bilingual dictionaries. This finding can have different interpretations, but one that follows logically from the rest of the findings described so far is that monolingual dictionaries usually provide more comprehensive coverage of words' multiple meanings (polysemy), synonyms, collocates, and examples of use. Thus, monolingual dictionaries fit with the superior knowledge group's more persistent attention to all of these linguistic elements of knowing a word. Although bilingual dictionaries were more often used by the limited knowledge group, it should also be mentioned here that the participants in the superior knowledge group also reported occasional use of bilingual dictionaries. This fact supports Nation's observation (2008) that the appropriate and effective combination of both monolingual and bilingual dictionaries may lead to better learning outcomes than the use of one type of dictionary only. In the same light, effective dictionary look-up strategies were found to be linked to better vocabulary knowledge in the study by Gu and Johnson (1996).

In contrast, the participants in the limited knowledge group were significantly associated with vocabulary learning strategies involving mechanical memorization of target words' basic meanings, such as repeated writing of the target words. They also tended to use bilingual dictionaries more frequently than monolingual ones. The latter finding implies that these participants were resorting more to L1 translations in the process of learning the meaning of new words than to definitions and/or synonyms. These findings corroborate the ones reported in Gu (1994), Gu and Johnson (1996) and Fan (2003).

The close connection between vocabulary learning practices and learning outcomes was confirmed by the re-classification statistics which showed that 87.5% of the participants could be correctly placed in the limited or superior knowledge group, solely based on the type of strategies they were using, without other testing. Only 12.5% of the participants were misclassified based on their strategy use, indicating that there were a few participants in both groups who did not exactly fit into the two patterns. Such exceptions are normal and present interesting cases for follow-up qualitative research which can explain behavior that does not fit into that of the majority.

It should also be noted that the present study did not explore the circumstances under which the superior knowledge group had acquired these effective vocabulary learning strategies. Did they acquire them on their own or as part of their English language education? Understanding the process and reasons for acquiring effective vocabulary learning strategies is as important as identifying the strategies which lead to good learning outcomes.

5. Conclusion

Based on the findings of this study, it can be extrapolated that there is a close link between vocabulary learning strategies and learning outcomes. Our results suggest that there is a set of strategies shared by effective language learners which contribute to the attainment of a deeper

knowledge of the second language lexicon. These strategies are linguistically motivated and involve noticing and paying close attention to linguistic features on the phonetic, morphological, semantic, collocational, contextual, and pragmatic level.

The findings have direct implication for the teaching practice. First of all, second language teachers should be aware of the importance of teaching learners to use these strategies when learning second language vocabulary. Moreover, they should provide regular systematic practice in order to turn the use of these strategies into a habit. Teachers should encourage and motivate learners to focus their attention on the important linguistic features of the target words. They should also motivate and train their students to use dictionaries effectively. One time exposure will not be sufficient; it is important to make strategy use a regular practice. Use of appropriate linguistically-founded strategies should be incorporated in classroom activities and in specifically designed homework assignments. The activities and tasks should challenge learners to notice phonetic features, contextual meanings, collocation partners, morphological patterns through problem-based discovery learning tasks. They should also provide opportunities for further practice and consolidation of what students have noticed and discovered. The ultimate goal of teacher-regulated activities should be to help second language learners become independent users of linguistically-driven strategies through self-initiation and self-regulation.

References

Bialystok, E. (1981). The role of conscious strategies in second language proficiency. *Modern Language Journal, 65*, 24-35.

Chamot, A.U. (1987). The learning strategies of ESL students. In A. Wenden & J. Rubin (Eds.), *Learner strategies in language learning*. New York: Prentice Hall.

Chapelle, C. (1998). Construct definition and validity inquiry in SLA research. In L. F. Bachman & A. D. Cohen (Eds.). *Interfaces between second language acquisition and language testing research* (pp. 32-70). Cambridge: Cambridge University Press.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd edition).* Mahwah, NJ: Lawrence Erlbaum Associates.

Fan, M. Y. (2003). Frequency of use, perceived usefulness, and actual usefulness of second language vocabulary strategies: A study of Hong Kong Learners. *The Modern Language Journal, 87*, 222-241.

George, D., & Mallery, P. (2006). *SPSS for windows step by step: A simple guide and reference*. New Jersey: Allyn & Bacon.

Greidanus, T., Bogaards, P., van der Linden, E., Nienhuis, L., & de Wolf, T. (2004). The construction and validation of a deep word knowledge test for advanced learners of French. In P. Bogaards & B. Laufer (Eds.). *Vocabulary in a second language* (pp.191-208). Amsterdam: John Benjamins.

Goulden, R., Nation, I. S. P., & Read, J. A. S. (1990). How large can a receptive vocabulary be? *Applied Linguistics, 11*, 341-363.

Gu, Y. (1994). Vocabulary learning strategies of good and poor Chinese EFL learners. Paper presented at TESOL 94, Baltimore. (ERIC Document Reproduction Service No. ED370 11).

Gu, Y., & Johnson, R. K. (1996). Vocabulary learning strategies and language learning outcomes. *Language Learning*, *46*, 643-697.

Hudson, T. (2007). *Teaching second language reading*. New York: Oxford University Press.

Hunston, S. (2002). *Corpora in applied linguistics*. Cambridge, UK: Cambridge University Press.

Kaya, J., & Charkova, K. (2014). The most and least frequent vocabulary learning strategies of high school English language learners. *International Journal of English Language Education*, 2(2), 122-141.

Lewis, M. (2002). *Implementing the lexical approach: Putting theory into practice.* Boston, MA: Heinle Thomson Corporation.

Nation, I.S.P. (1983). Testing and teaching vocabulary. *Guidelines, 5*, 12-25.

Nation, I. S. P. (1990). *Teaching and learning vocabulary*. Boston: Heinle & Heinle.

Nation, I.S. P. (2001). *Learning vocabulary in another language*. Cambridge, UK: Cambridge University Press.

Nation, I. S. P. (2008). *Teaching vocabulary: Strategies and techniques*. Boston: Heinle and Heinle.

O'Malley, J.M., & Chamot, A.U. (1990). *Learning strategies in second language acquisition.* Cambridge: Cambridge University Press.

Qian, D. D. (1999). Assessing the roles of depth and breadth of vocabulary knowledge in reading comprehension. *The Canadian Modern Language Review*, *56*, 282-307.

Qian, D. D., & Shedl, M. (2004). Evaluation of an in-depth vocabulary knowledge measure for assessing reading performance. *Language Testing*, *21*, 28-52.

Read, J. (1993). The development of a new measure of L2 vocabulary knowledge. *Language Testing*, *10*, 355-371.

Read, J. (1998). Validating a test to measure depth of vocabulary knowledge. In A. Kunnan (Ed.). *Validation in language assessment* (pp.41-60). Mahmah, NJ: Lawrence Erlbaum.

Read, J. (2000*). Assessing vocabulary*. Cambridge: Cambridge University Press.

Richards, J. C. (1976). The role of vocabulary teaching. *TESOL Quarterly*, *10*, 77-89.

Schmitt, N. (1997). Vocabulary learning strategies. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: description, acquisition, and pedagogy* (pp.199-227). Cambridge: Cambridge University Press.

Schmitt, N. (2000). *Vocabulary in language teaching*. New York: Cambridge University Press.

Schmitt, N. (2010). *Researching vocabulary*. London: Palgrave Macmillan.

SPSS for Windows, (Version 24) [Computer software]. (2016). Chicago, IL: SPSS, Inc.

Wesche, M., & Paribakht, T. S. (1996). Assessing L2 vocabulary knowledge: Depth versus breadth. *Canadian Modern Language Review*, *53*, 13-40.

Wilkins, D. A. (1972). *Linguistics in language teaching*. London: Arnold.

Dolgunsöz, E. (2018). Word familiarity effects in EFL reading: An eye tracking study. *International Online Journal of Education and Teaching (IOJET), 5*(2), 252-265.
http://iojet.org/index.php/IOJET/article/view/383/233

Received: 01.02.2018
Received in revised form: 12.02.2018
Accepted: 13.02.2018

WORD FAMILIARITY EFFECTS IN EFL READING: AN EYE TRACKING STUDY

Emrah Dolgunsöz

Bayburt University, Dept. of ELT

edolgunsoz@gmail.com

Emrah Dolgunsöz is an assistant professor at Bayburt University, Department of ELT. He is also head of Foreign Languages Education Department of Bayburt University, Faculty of Education. He received his MA and PhD from Hacettepe University. His main research areas are psycholinguistics and eye-tracking.

WORD FAMILIARITY EFFECTS IN EFL READING: AN EYE TRACKING STUDY

Emrah Dolgunsöz

edolgunsoz@gmail.com

Abstract

Do you know what happens in mind when we encounter a novel word while reading a newspaper, a paragraph or a short story? Via eye tracking technique, this study aimed to gather clues about how our mind reacts to an unknown word while we read in another language by examining word familiarity effects on eye movements during EFL reading. After a vocabulary test, eye movements of 60 EFL learners at intermediate level were recorded while they read identical sentence pairs including words with different length and frequency. The results showed that (1) total time spent on words and reanalysis times were predicted by vocabulary knowledge, (2) initial word processing was not predicted by vocabulary size (3) unfamiliar words attended more attention and required more cognitive effort than familiar words, (4) familiar words are processed in similar time spans for English as L1 and L2 but unfamiliar words cause more cognitive load in EFL. The results were discussed in comparison to L1 eye movement research in reading and were evaluated regarding EFL reading in terms of noticing hypothesis, incidental vocabulary acquisition and EFL reading instruction.

Keywords: EFL reading, eye movements, word familiarity, word processing

1. Introduction

As a commonly known, the number of words known in a language highly predicts reading comprehension success. There is a causal relationship between vocabulary knowledge and reading; larger vocabulary size improves reading performance and improved reading leads to higher amounts of vocabulary growth (Stanovich, 2009). Knowing a word is a multifaceted process involving numerous components such as orthography, spelling, pronunciation and meaning (Nation, 2013). Not only reader oriented components exist to recognize a word, linguistic characteristics also greatly influences how readers process words during text processing. When a reader encounters a word while reading, he processes the word depending on several linguistic factors such as word frequency, length, contextual constraints and familiarity. Being the foci of this study, word familiarity refers to how well known a word is and can simply be explained by "reader's lexical access to the word". In English, a two years old baby starts with 300 words and reaches up to approximately 12000 words at the age of 12 by accumulatively increasing this capacity depending on academic and social factors in the upcoming years (Crystal, 2002). For a university graduate, vocabulary size may easily reach over 20000 words (Goulden, Nation, & Read, 1990). Some related research even argues that a high school graduate in USA knows 40000 words in average (Anderson, 1996; Cunningham, 2005; Stahl, 2005). For English language learners, the scenario is quite different as they already have another language in their linguistic rucksack and prone to cross-linguistic effects as they start to learn English at a quite a late age. As a rule of thumb, 15000 words would be an optimal number for a text coverage of nearly 98% (Kucera, 1982). According to Hirsh and Nation (1992), although it may not provide successful guessing of words from context, a learner with a vocabulary size of 2000 words may know every 1 word

out of 5 in a text. For reasonable successful inferences, at least 95% coverage is needed (Laufer, 1989). For Nation (2006), 10000 words are required for reading instructionally. In this respect, a learner should know primarily 3000 words which are mostly highly frequent ones in a rough estimate. After this threshold, low frequency words should be added in time to enlarge vocabulary size (Nation, 1990). As the vocabulary size enlarges, reading performance improves and boosts vocabulary growth, however, the learning process gets complicated: New words are acquired but there is no guarantee; the acquired linguistic input may be lost while trying to learn a new one. This enlargement period involves dense cognitive processes. Hence, it is crucial to know how learners of EFL process new vocabulary when compared to the ones that they already know to evaluate EFL vocabulary size expansion. By using eye tracking technique, the main aim of this study is to reveal how EFL learners process familiar and novel words and to examine the predictive power of vocabulary size on word processing times by controlling length and frequency effects.

2. Literature Review

2.1. Word Processing and Familiarity in L1 Reading: An Eye Movement Perspective

How readers process words during L1 reading has long been examined both by lexical decision tasks and eye tracking technique (Balota, Pilotti, & Corteze, 2001; Chaffin, Morris, & Seely, 2001; Connine, Mullenix, Shernoff, & Yelen, 1990; Ferraro & Sturgill, 1998; Gordon, 1985; Juhazs & Rayner, 2003; Whalen & Zziga, 1994; Williams & Morris, 2004). The general findings for all previous research showed that if a reader is familiar with the word encountered in text, it is processed much faster than unfamiliar ones. The level of familiarity with the words directly predicts the time needed to process that word.

Two studies in L1 context is significant to mention as the current research has a number of similarities with them. Chaffin et al. (2001) recorded readers' eye movements as they read pairs of sentences containing a target word from one of three subjective familiarity conditions: high familiar, low familiar, or novel. The novel words were pseudowords which were pronounceable but totally unknown for the readers. Their results showed that readers spent more time on novel words than they did on high familiar or low familiar ones. However, the initial processing times (first fixation and gaze duration) did not significantly differ. In a similar research by William and Morris (2004), the general consensus persisted. In this study, two eye tracking experiments scrutinized the effects of word familiarity on word processing and text comprehension during silent L1 reading. The text stimuli were consisted of words varied in familiarity and frequency and a multiple-choice test was implemented to assess comprehension. According to the results, time spent on high and low frequency words did not differ when familiarity was controlled for moderately familiar words. Readers clearly spent more initial processing time on novel words than familiar words. Vocabulary test scores also showed that readers successfully acquired some novel word meanings. Both research took attention spent on unfamiliar words as the vantage point. The present study also adopts this with a difference; not in L1 but in L2. L1 is quite abundant regarding familiarity and word processing studies. On the contrary, except a few studies indirectly mentioning values for known and unknown words (Dolgunsöz, 2015; Godfroid et al., 2013), there is still a gap in the literature about EFL word processing and familiarity effects.

2.2. Recent Eye Movement Research in Language Learning

Using eye tracking in L2 research has been recently gaining momentum and picked up by many L2 researchers as it can present moment-to-moment cognitive processes. It can represent robust and objective data acquisition due to its process-oriented nature. This

advantages have made eye tracking technique a trendy data collection tool for a number of language learning research recently.

Brunfaut and McCray (2015) examined the cognitive processes in testing and assessment. Eye movements of 25 test-takers were recorded while they complete "Aptis reading tasks". In addition to eye movement data, retrospective interviews were conducted. The results revealed that testees involved in wide range of cognitive processes during Aptis reading tasks. The study also showed that only a few potential threats to the test's construct validity were identified. Being directly related to SLA, the study by Godfroid et al. (2015) examined the grammatical judgement test (GJT) performances of 20 native and 40 non-native English speakers via eye tracking. The findings indicated that both natives and non-natives employed regressions on untimed, grammatical items. Secondarily, their results argued that timed and untimed GTJs assess different constructs; implicit and explicit knowledge. In their study, Prichard and Atkins (2016) evaluated the previewing strategies of 38 Japanese EFL learners by using eye tracking. They adapted a text from Wikipedia consisted of 471 words and recorded eye movements while learners previewed the text. In general, the findings showed that learners barely previewed the text. In another similar research, Prichard and Atkins (2017) utilized eye tracking to examine global text processing of Japanese EFL learners. They used a text with Wikipedia-style formatting and recorded eye movements of 55 participants while they process the text. Their results showed that most learners did not read selectively and preferred to read linearly by paying no selective attention to important units such as the topic sentences. As for pedagogical implications, they emphasized that most learners lack strategic competence and suggested reading instruction activities such pre-reading, previewing and summarizing.

Recently, Godfroid et al. (2017) examined how readers acquire new words incidentally in natural reading context by using eye tracking. Their primary aim was to reveal any effect of accumulation exposure to unfamiliar words and how attention changes after certain number of exposures. Native and non-native English speakers read an English novel including Dari words while their eye movements were recorded. After reading, an unannounced posttest was utilized. The findings showed that number of exposures strongly predicted time spent on unfamiliar words and learning gains. Carroll and Conklin (2017) examined how idioms are processed in L1 and L2 in a cross-linguistics perspective via eye tracking. Both English and Chinese learners participated in the study. For textual stimuli, Chinese idioms were used. The results of 2 experiments showed that native speakers of Chinese showed recognition of the L1 form in the L2, but figurative meanings were read more slowly than literal meanings, suggesting that the non-compositional nature of idioms makes them problematic in a non-native language. Révész and Gurzynski (2017) aimed to reveal ESL teachers' perspectives on task difficulty by using eye tracking and think aloud protocols. 16 ESL teachers were asked to judge the linguistic ability required for four pedagogic tasks, and express how they would manipulate the tasks to suit the abilities of skilled and non-skilled ESL learners. Throughout the experiments, teachers though aloud and their eye movements were recorded. The results showed a consistency between eye tracking data and think aloud comments; teachers were mostly concerned with linguistic factors when assessing task difficulty. Conceptual demands such as pictorial manipulation and reasoning were usually ignored. Interactional demands, on the other hand, were totally ignored.

As the most recent L2 research suggested above, eye tracking has been used both for instructional and theoretical language learning research. This study mostly falls into the theoretical camp attempting to describe word processing in EFL reading. In this respect, the primary aim of the current study is to shed light on EFL word processing regarding

familiarity effects during reading. This study sought answers for the following research questions:

1. Is there a predictive effect of word familiarity on Total Fixation Duration?
2. Is there a predictive effect of word familiarity on Gaze Duration?
3. Is there a predictive effect of word familiarity on Second Pass Time?

3. Method

3.1. Participants

60 learners of EFL in an ELT department with and age range of 19 to 22 (M=19.7, SD=3.4) participated in the study voluntarily and received course credit for their participation. All of the participants scored over 50 in the reading proficiency exam conducted in the beginning of 2017-18 Fall Semester and started to learn English after a certain age in Turkey with the same L1 background.

3.2. Apparatus and Software

For the data acquisition, Tobii TX300 with a sampling rate of 300hz equivalent to a temporal resolution of 3.3 ms was utilized. As for software, all data acquisition, visualization and analysis was conducted via Tobii Studio Enterprise Software 3.2.3.

3.3. Text Stimuli

To assess the effect of word familiarity by controlling word length and frequency effects, both long-short and low-high frequency words were used. 16 words in different length and frequency were defined through COCA (Corpus of Contemporary American English). These words are presented in identical simple sentence pairs to control proficiency effects as shown in the sample below:

*"In this part of the country, an **elk** can be seen at any time of the day."*

*"In this part of the country, the **conflict** between these radical groups never ended."*

Length and frequency characteristics of the words used are as follows:

Table 1. *Length and frequency characteristics of 16 words*

Long words with low frequency	**Word Length (letters)**	**Word Frequency**
cathedral	9	4402
formulate	9	1493
ineffective	11	2727
ambitious	9	6963
Short words with low frequency		
flee	*4*	*2899*
fry	*3*	*2707*
ale	*3*	*1386*
elk	*3*	*4616*
Long Words with High Frequency		
decided	*7*	*57388*
influence	*9*	*38307*
development	*11*	*96195*
conflict	*8*	*30043*

Short Words with High Frequency		
cup	3	57106
pass	4	44611
fat	3	43607
nice	4	51477

3.4. Vocabulary Test

To assess learner familiarity with the words, a vocabulary test was applied a day before the eye tracking experiment. In this test, learners were given 16 words in bold in 16 different sentences. They were required to recognize and write down the Turkish meaning(s) of the words directly in 20 minutes. Each correct answer was calculated as 1 point. Maximum score that could be taken was 16.

3.5. Procedure

One day before starting the eye tracking experiment, the participants were required to complete the vocabulary test in given time. For the eye tracking experiment, each participant was tested individually within the control of the researcher. Calibration procedure was done with 9-point grid calibration setting. Then the sentences were presented in pairs in Times New Roman, 18-pt font, on a 23'' monitor with 1920x1080 screen resolution set up at 67 cm from the participants' eyes. At this distance, 4.0 character spaces equaled 1° of visual angle. To avoid cognitive reactivity, no time limit is given; participants were asked to read the sentence pairs freely and pass by clicking with the mouse.

3.6. Research Design and Data Analysis

This research has a within subject design in which each participant was tested for the same 16 words. In this respect, 3 main eye movement measures were analyzed by drawing homogeneous AOIs on 16 items. Time spent on AOIs were then averaged to reveal mean total fixation duration, gaze duration and second pass time. To measure the predictive effect of word familiarity on three eye movement measures, a linear regression procedure was conducted eye movement measure as the dependent variable and vocabulary score as the predictor variable. Descriptives were calculated with General Linear Model (GLM) analysis.

3.7. A Brief Description of the Measures Used

Three main eye movement measures were used in this study: Gaze Duration, Second Pass Time and Total Fixation Duration. While gaze duration is concerned with the initial processes (i.e. the first encounter with the word), second pass time is a late measure indication re-analysis. Total fixation duration is also a late measure, but more than that, it draws a general cognitive map.

3.7.1. Gaze Duration

Figure 1. Sample gaze duration

Gaze duration refers to the sum of initial fixations made before exiting the AOI. In the sample above, the reader processed the pseudoword "smang" initially with 154th and 155th

fixation then exits. The sum of these two fixations (561+361 milliseconds) equates gaze duration on that AOI.

3.7.2. Second Pass Time

Figure 2. Second pass time

Second Pass Time is a measure of re-analysis. Sometimes readers need to revisit and reread certain parts in a text due to various reasons. Revisiting a pre-read unit (i.e. a word or any AOI) lasts for a certain time and the time spent during this reanalysis process is called second pass time. In the sample, the pseudoword "goomb" was initially analyzed with 94th and 95th fixations and the reader exited. However, the reader re-analyzed the AOI with 101st fixation with a time span of 164 milliseconds. Thus, second pass time for this AOI is 164 ms.

3.7.3. Total Fixation Duration

Figure 3. Total fixation duration

Total fixation duration refers to the total time spent on an AOI regardless of fixational feature (i.e. gaze duration, second pass time, first pass time). In the sample above, total fixation duration for the pseudoword "zirgs" is calculated by summing up all the fixations on it; 79th, 80th, 81st and 82nd.

4. Findings

The data was observed to have distributed normally. As a general finding, learners mean test score was 11 (min=7, max=14) with a standard deviation of 1,50. Mean eye movement measures on 16 words were given in the table below:

Table 2. *Mean metrics*

	Min*	Max*	Mean*	Std. Deviation*
Total Fixation	203	677	405	111
Gaze Duration	229	572	384	88
Second Pass	0	220	56	50

**values in milliseconds (ms)*

4.1. Predictive Power of Vocabulary Knowledge on Total Fixation Duration

For a detailed analysis of descriptives for familiarity values for total fixation duration, GLM procedure with a linear scale response was employed total fixation as the dependent variable and familiarity as the binary factor (known vs unknown). This procedure was conducted in long data format. The descriptives were given below:

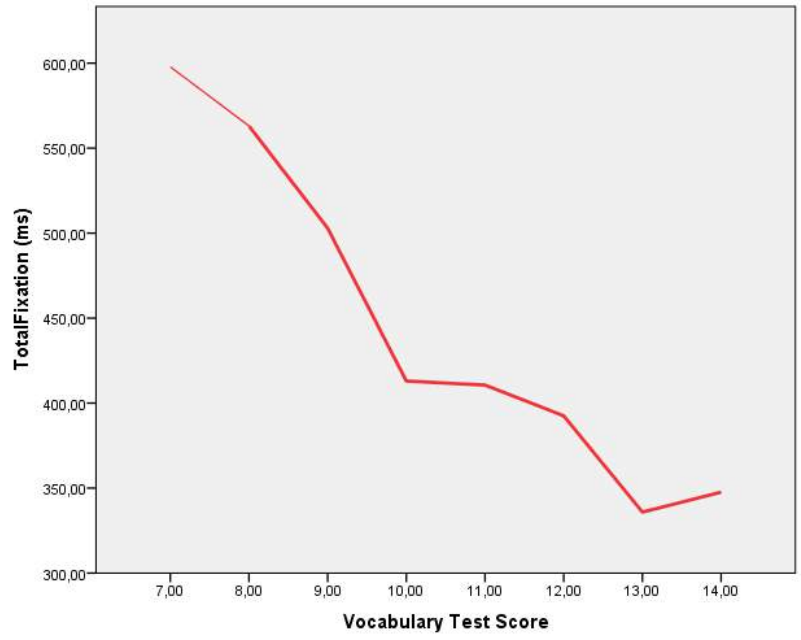
Table 3. *Descriptives for total fixation duration*

Word Type	Mean (ms)	Std. Error	95% Wald Confidence Interval	
			Lower	Upper
Unknown	567,413	19,328	529,531	605,295
Known	409,975	10,165	390,052	429,898

In general, learners were observed to have spent more total time and cognitive load on the words they know (M=410, SE=10) than they did on unfamiliar words (M=567, SE=19).

Additionally, Pearson correlation results showed a strong negative relationship between total fixation duration and vocabulary test scores; as vocabulary knowledge increases, total time spent on words decreases; r (60) = -437, p=.000.

To reveal the predictive power of word familiarity on total fixation, a simple linear regression was employed total fixation as the dependent variable and vocabulary score as the predictor covariate. A significant regression equation was found (F(1,58)= 13.680, p = .000, with an R^2 of .191. Participants' predicted weight is equal to 766 + -32. Total fixation duration decreased 32 milliseconds (ms) for each point gained in the vocabulary test.



Graph 1. Line graph for total fixation and vocabulary test scores

4.2. Predictive Power of Vocabulary Knowledge on Gaze Duration

Same procedure was employed for gaze duration. Descriptives are as follows:

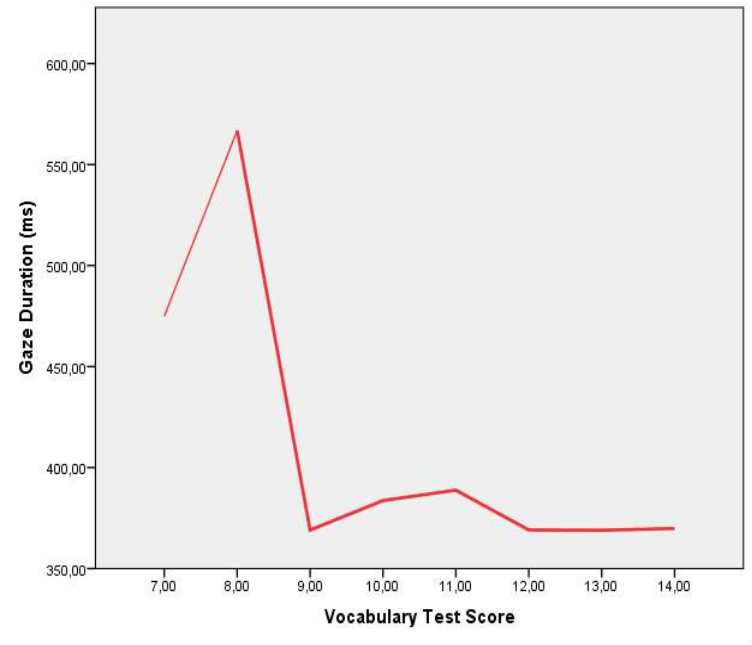
Table 4. *Descriptives for gaze duration*

Word Type	Mean (ms)	Std. Error	95% Wald Confidence Interval	
			Lower	Upper
Unknown	488,313	15,955	457,041	519,584
Known	354,759	8,391	338,313	371,206

Depending on the descriptive statistics, learners relatively spent more time on unfamiliar words in their initial encounter (M=488, SE=16) than they did on familiar words (M=355, SE=8).

Pearson correlation results indicated a negative relationship between gaze duration and vocabulary test scores; as vocabulary knowledge increases, the initial processing of the words decreases; r (60) = -226, p=.041.

To reveal the predictive power of word familiarity on total fixation, a simple linear regression was employed gaze duration as the dependent variable and the vocabulary test score as the predictor covariate. Contrary to the descriptives and simple correlation results, no significant regression equation was found in p<.05 level; (F(1,58)= 3.123, p = .082, with an R^2 of .035. Thus, this finding showed that the level of word familiarity cannot predict learner's initial processing.



Graph 2. Line graph for gaze duration and vocabulary test scores

4.3. Predictive Power of Vocabulary Knowledge on Second Pass Time

The descriptives are as follows:

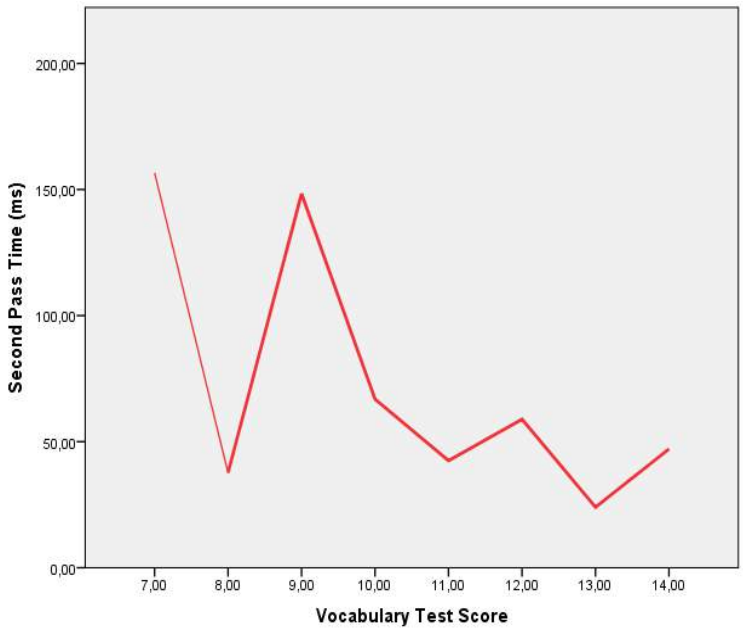
Table 5. *Descriptives for second pass time*

Word Type	Mean (ms)	Std. Error	95% Wald Confidence Interval	
			Lower	Upper
Unknown	74,226	10,647	53,359	95,093
Known	46,598	5,599	35,624	57,573

According to the Table X, learners tend to turn back in the text and reread unknown word more (M=74, SE=11) than they revisited familiar words (M=47, SE=6).

Moreover, confirming descriptives above, a strong negative correlation was observed between second pass time and vocabulary test scores; learners tended to reread and re-process the words that they were not familiar with; r (60) = -412, p=.001.

To see whether word familiarity predicts second pass time, a simple linear regression was calculated second pass time as the dependent variable and the vocabulary test score as the predictor covariate. A significant regression equation was found (F(1,58)= 11.858, p = .001, with an R^2 of .170. Participants' predicted weight is equal to 210 + -14. Second Pass Time decreased for 14 ms for each point gained in the vocabulary test.



Graph 3. Line graph for second pass time and vocabulary test score

5. Discussion

Controlling length and frequency effects, this study aimed to investigate the effect of word familiarity on word processing during EFL reading by adopting eye tracking technique. To fulfill this aim, total fixation duration, gaze duration and second pass time was analyzed with vocabulary score as the predictor variable. The results showed that EFL vocabulary size

significantly predicted total time spent on words and reanalysis duration, but not initial word processing.

The results of this study is consistent with previous research and fits the hypothesis that L2 word processing requires more cognitive effort than in L1. A detailed table is given below:

Table 6. *Mean fixation values for similar studies*

Study	Gaze Duration		Second Pass Time		Total Time	
	Familiar	Unfamiliar	Familiar	Unfamiliar	Familiar	Unfamiliar
L1 Research						
Chaffin, Morris & Seely (2001)	302	461	437	952	-	-
William & Morris (2004)	310	432	30	77	-	-
Frisson & Pickering (2007)	358	392	68	157	429	551
L2 Research						
Godfroid et al., (2013)	268	506	42	182	321	707
Dolgunsöz (2015)	364	479	297	405	379	569
Current Research	354	488	46	76	409	567

Note: All values are in milliseconds

5.1. Gaze Duration and Initial Word Processing

When compared to general findings of L1 research, there is not a huge gap between present findings and previous L1 research in terms of gaze duration on familiar word processing. In a rough estimate, readers in L1 initially spent about 320ms on a familiar word when they first met it in the text. Same value for current research was 354ms, slightly above L1 value. In L1 reading, initial processing for unfamiliar words are higher than familiar ones; readers spent approximately 420ms on initial processing of unfamiliar words. This value is higher for L2 reading; EFL learners spent roughly 490ms when they first encountered an unknown word in a text. In this respect, while familiar words are processed in similar time spans for both L1 and L2; initial processing of unfamiliar words in L2 needs more effort.

The findings of the present research are quite consistent with previous results. It can be inferred that EFL learners spent about 250-350ms to process familiar words during EFL reading. Initial processing times increases on unfamiliar words; learners spent up to 500ms while they process these words. It should be noted that no significant difference was found for gaze duration in this study, but 2 previous research mentioned in Table 6 found a significance at $p < .05$ level. It may be related to sample size.

5.2. Second Pass Time and Reanalysis Duration

The results of this study showed that learners reread unfamiliar words more than familiar ones. As seen in Table 6, previous L1 studies also showed that readers spent more rereading time on novel words. The results for the study by Chaffin, Morris and Seely (2001) seems fairly inflated but other 2 studies show that L1 readers only spend roughly 30 to 70ms to re-process familiar words. In L2 this value does not differ much as second pass findings for Dolgunsöz (2015) seems inflated. However, re-analysis times for unfamiliar words increases for unfamiliar words. In L1 this value is roughly 120ms. For L2, learners spent slightly higher time for rereading an unfamiliar word; it is about 130ms. These values are valid by not

counting 2 inflated results. In this respect, it can be proposed that re-analysis features do not differ much across L1 and L2 as it is a more syntactic and contextual reading behavior rather than being completely lexical.

5.3. Total Fixation Duration and General Cognitive Effort

The results of the current research indicated that total time spent on words are strongly predicted by word familiarity in EFL reading; unknown words need more cognitive effort than familiar ones. It is hard to give a certain value for familiarity effects in both L1 and L2 reading as there are numerous factors affecting it. It is assumed that L1 readers process words in 225ms in average during silent reading including factors such as word length, frequency, familiarity and contextual constraints (Rayner, 1998). First two L1 studies in Table 6 did not analyze total time, but according to Frisson and Pickering (2007), L1 readers process familiar words in 429ms and unfamiliar ones in 551ms. In EFL word processing, this value is much higher for unfamiliar words. While processing of familiar words did not differ much between L1 and L2; EFL learners spent over 600ms in average to process unfamiliar words. Thus, it can be argued that processing of unfamiliar vocabulary during EFL reading requires considerable amount of cognitive effort than L1 reading.

As for mentioned L2 studies, the results confirm each other. While processing of known words finished around 350ms, unfamiliar or novel words attract more total attention reaching up to 600ms. Indeed, it is natural especially for learning new vocabulary depending on noticing hypothesis (Schmidt, 1990). This long-known attention based hypothesis assumes that attention and learning cooperate for learning and retention and learners are required to pay attention to linguistic input to convert them into intake through memory mechanisms. (Schmidt, 2010). The facilitative effect of exposure and attention was examined by previous L2 research by using eye tracking (Godfroid et al., 2013; Dolgunsöz, 2015; Godfroid et al., 2017) and the amount of attention on novel L2 vocabulary was observed to have improved learning gains.

6. Conclusions and Pedagogical Implications

The results of this study indicated that EFL readers spent more cognitive effort to process unfamiliar or novel words when compared to familiar ones even when length and frequency effects were held constant. Vocabulary size strongly predicts total attention on words and reanalysis time during reading. In contrast to previous L2 eye movement research, initial processing times were not predicted by vocabulary knowledge. Findings also showed consistency with L1 reading research and it was concluded that EFL reading requires more amount of cognitive effort especially for texts including unfamiliar and novel words.

Depending on these findings, it can be argued that word processing in EFL reading is highly related to linguistic characteristics of words. Turkish learners already starts with cross-linguistic disadvantages and hence were required pay higher amounts of cognitive effort to process words, especially novel ones. Teachers, material designers and language policy makers walk on a tightrope; including too much novel items in EFL reading instruction may lead cognitive exhaustion. Additionally, they need to balance between familiar and unfamiliar word load in EFL texts by regarding frequency and length effects. On the other hand, when designed in a balanced fashion, an EFL text consisting of both novel and familiar words suited to learner proficiency may provide facilitative attention which boost working memory mechanism and retention of new vocabulary. In this respect, it can be concluded that incidental vocabulary acquisition in instructional EFL setting can be possible by regarding length, frequency and familiarity of the target words.

References

Anderson, R. C. (1996). Research foundations to support wide reading. In V. Greaney (Ed.), *Promoting reading in developing countries* (pp. 55-77). Newark, DE: IRA.

Balota, D. A., Pilotti, M., & Corteze, M. J. (2001). Subjective frequency estimates for 2,938 monosyllabic words. *Memory and Cognition*, *29*, 639–647.

Brunfaut, T., & McCray, G. (2015). *Looking into test-takers' cognitive processes whilst completing reading tasks: A mixed-method eye-tracking and stimulated recall study*. Lancaster: British Council.

Carrol, G., & Conklin, K. (2017). Cross language lexical priming extends to formulaic units: Evidence from eye-tracking suggests that this idea 'has legs'. *Bilingualism: Language and Cognition*, *20*(2), 299-317.

Chaffin, R., Morris, R. K., & Seely, R. E. (2001). Learning new word meanings from context: a study of eye movements. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *27*(1), 225-235.

Connine, C. M., Mullenix, J., Shernoff, E., & Yelen, J. (1990). Word familiarity and frequency in visual and auditory word recognition. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *16*, 1084–1096.

Crystal, D. (2002). *The English Language*. UK: Penguin.

Cunningham, A. E. (2005). Vocabulary Growth through Independent Reading and Reading Aloud to Children. In E. H. Hiebert & M. L. Kamil (Eds.), *Teaching and learning vocabulary: Bringing research to practice* (pp. 45-68). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Dolgunsöz, E. (2015). Measuring attention in second language reading using eye-tracking: The case of the Noticing Hypothesis. *Journal of Eye Movement Research*, *8*(5), 1-18.

Ferraro, F., & Sturgill, D. (1998). Lexical effects and lexical properties associated with National Adult Reading Test (NART) stimuli in healthy young adults and healthy elderly adults. *Journal of Clinical Psychology*, *54*, 577–584.

Frisson, S., & Pickering, M. J. (2007). The processing of familiar and novel senses of a word: Why reading Dickens is easy but reading Needham can be hard. *Language and cognitive processes*, *22*(4), 595-613.

Godfroid, A., Ahn, J., Choi, I., Ballard, L., Cui, Y., Johnston, S., & Yoon, H. J. (2017). Incidental vocabulary learning in a natural reading context: an eye-tracking study. *Bilingualism: Language and Cognition*, 1-22.

Godfroid, A., Boers, F., & Housen, A. (2013). An eye for words. *Studies in Foreign Language Acquisition*, *35*(03), 483-517.

Godfroid, A., Loewen, S., Jung, S., Park, J. H., Gass, S., & Ellis, R. (2015). Timed and untimed grammaticality judgments measure distinct types of knowledge: Evidence from eye-movement patterns. *Studies in Second Language Acquisition*, *37*(2), 269-297.

Gordon, B. (1985). Subjective frequency and the lexical decision latency function: Implications for mechanisms of lexical access. *Journal of Memory and Language*, *24*, 631–645.

Goulden, R., Nation, P., Read, J. (1990). How large can a receptive vocabulary be? *Applied Linguistics, 11*, 341-363.

Hirsh, D., Nation, P. (1992). What vocabulary size is needed to read unsimplified texts for pleasure? *Reading in a Foreign Language, 8*(2), 689-696.

Juhasz, B. J., & Rayner, K. (2003). Investigating the effects of a set of intercorrelated variables on eye fixation durations in reading. *Journal of Experimental Psychology: Learning, Memory & Cognition, 29*, 1312-1318.

Kucera, H. (1982). *The mathematics of language. In The American Heritage Dictionary*. Boston: Houghton Mifflin. 2nd ed.

Laufer, B. (1989). *What percentage of text-lexis is essential for comprehension*? In C. Lauren and M. Nordman (eds.), Special Language: From Humans Thinking to Thinking Machines. Clevedon: Multilingual Matters.

Na, L., Nation, P. (1985). Factors affecting guessing vocabulary in context. *RELC Journal 16*(1), 33-42.

Nation, I. (2006). How large a vocabulary is needed for reading and listening?. *Canadian Modern Language Review*, *63*(1), 59-82.

Nation, I. S. (2013). *Learning vocabulary in another language.* Cambridge: Cambridge University Press.

Nation, P. (1990). *Teaching and learning vocabulary*. New York: Newbury House.

Prichard, C., & Atkins, A. (2016). Evaluating L2 readers' previewing strategies using eye tracking. *Reading Matrix*, *16*(2), 110–130.

Prichard, C., & Atkins, A. (2017). L2 readers' global processing and selective Attention: An eye tracking study. *TESOL Quarterly*, 1-12.

Rayner, K. (1998). Eye movements in reading and information processing: 20 years of research. *Psychological Bulletin*, *124*(3), 372-422.

Révész, A., & Gurzynski-Weiss, L. (2016). Teachers' perspectives on second language task difficulty: Insights from think-alouds and eye tracking, *Annual Review of Applied Linguistics, 36*, 182-204.

Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics, 11*(2), 129-158.

Schmidt, R. (2010). *Attention, awareness, and individual differences in language learning*. In W. M. Chan, S. Chi, K. N. Cin, J. Istanto, M. Nagami, J. W. Sew, T. Suthiwan, & I. Walker, Proceedings of CLaSIC 2010, Singapore, December 2-4, 721-737). Singapore: National University of Singapore, Centre for Language Studies.

Stahl, S. (2005). Four problems with teaching word meanings. In E. H. Hiebert & M. L. Kamil (Eds.), *Teaching and learning vocabulary: Bringing research to practice* (pp. 95–114). Mahwah, NJ: Erlbaum.

Stanovich, K. E. (2009). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Journal of Education, 189*(1-2), 23-55.

Whalen, D. H., & Zziga, E. (1994). Subjective familiarity of English word/name homophones. *Behavior Research Methods, Instruments, and Computers*, *26*, 402–408.

Williams, R., & Morris, R. (2004). Eye movements, word familiarity, and vocabulary acquisition. *European Journal of Cognitive Psychology*, *16*(1-2), 312-339.

Erton, I. (2018). The essence of semiotics as a mediator of communication and cognition. *International Online Journal of Education and Teaching (IOJET)*, *5*(2), 267-277.
http://iojet.org/index.php/IOJET/article/view/351/234

Received: 05.12.2017
Received in revised form: 20.02.2018
Accepted: 25.03.2018

THE ESSENCE OF SEMIOTICS AS A MEDIATOR OF COMMUNICATION AND COGNITION

İsmail Erton

Atılım University

ismail.erton@atilim.edu.tr

İsmail Erton is the Assistant Professor at the Faculty of Arts and Sciences, Department of Translation and Interpretation, Atılım University, Ankara / TURKEY. He is also the Director of Academic Writing & Advisory Center (AWAC), Atılım University.

THE ESSENCE OF SEMIOTICS AS A MEDIATOR OF COMMUNICATION AND COGNITION

İsmail Erton

ismail.erton@atilim.edu.tr

Abstract

Studies in modern linguistic theory to determine the scope and vision of human communication have shifted their attention to semiotics, in which actions speak louder than words as some say. The semiotic capacity of an individual reflects the effective and efficient usage of pragmatic competence in which the language user has the awareness of sociocultural and anthropological conventions processed and produced in the course of communication. Such a capacity also enables a systematic usage of cognitive skills, thereby developing the value of the communicative context and the perception of the individuals in various discourses. This paper attempts to identify, decode, and proceed utterances in a systematic mixture of psychological, physiological, sociological and anthropological procedures, in which non-verbal expressions appear as signs and symbols to communicate information. It is also argued that not only do individuals attain semiotic information naturally, they also do so with proper curricular semiotic education (especially in language learning & teaching environment) and research. In this respect, studies in biosemiotics explore the micro and the macro cosmos of human nature which are in a continuous cycle of interaction to process language. It is further established that the curiosity to discover the value systems in human communication through semiotic decoding means more than the mere study of language and its linguistic properties.

Keywords: Pragmatics, Competence, Semiotics, Cognitive Theory, Communication, Cognition, Semiotic Education, Biosemiotics

1. Introduction

Scholarly research and studies to determine the limits of competence have been among the fundamental fields in linguistics and communication studies since the 1960s. After Chomsky published his book titled ‘Aspects of the theory of Syntax’, in 1965, the vision of linguistic studies shifted from a structural approach to a communicative frame. In his book, the notion of linguistic competence was put forward as the complete knowledge of the ideal speaker-listener in a homogenous speech community. Though this approach was at first appreciated by many scholars, the notion of linguistic competence was criticised for keeping the knowledge of language in isolation.

Wales and Marshall (1966) claimed that the theory of linguistic competence limits other verbal mechanisms that pave the way for more efficient human communication. Fodor and Merill (1966) emphasized the ease and the necessity of psychological mechanisms that help the language user formulate and produce accurate linguistic strings at the cognitive production stage. Choraih (2016) added that the integration of sociolinguistic factors to better understand the notion of ‘competence’ is a lot more important than framing linguistic knowledge in its own set of rules. In this respect, it is possible to say that the 60s decade came to an end upon a discussion to determine the limits of competence.

Yet, all the debate that was carried out throughout that era did not seem to be enough. Gumperz and Hymes (1989) further focused on the communicative aspects of language in varying sociocultural contexts that offered discourses in which verbal and non-verbal language would be practised critically and creatively. Canale (1983) drew the attention of linguistic studies to the development of personal skills and capabilities. For Canale, the development of such skills would help the language user establish better and more effective communication with the addressee. Widdowson (1983) studied the term 'schemata' which includes various cognitive processes that operate in a systematic manner. In turn, Bachman (1990) and Van Dijk's (1977) attempts to frame competence introduced a new dimension in the study of linguistics. Then, the term 'pragmatics' and its functions in linguistic interaction, its frame and use came under scrutiny, with Crystal (2008) defining it as:

> *"The study of language from the point of view of users, especially of the choices they make, the constraints they encounter in using language in social interaction and the effects of their use of language has on other participants in the act of communication" (p. 379).*

Crystal (2008) approached pragmatics as a tool which operates functionally in various social discourses as well as intercultural communications. Leech (1983) studied how social conventions influence pragmatic processes. Linguistic studies in the 70s and 80s helped linguists to structure a fundamental basis for human communication, leading to a better understanding of perception and action. Especially, the studies to define the scope of competence, the cognitive and meta-cognitive processes it accommodates, and the ease of developing human skills and capabilities for a more successful social interaction all set up the foundations for semiotic studies. By concentrating on the principles of non-verbal interaction, semiotics finally completes the linguistic puzzle and gives more clues about human nature. As Kattsoff and Thibaut (1942) state:

> *"Since scientific knowledge is acquired to a large degree through the process of symbolisation, the role and properties of signs are extremely important. If we further realise that a sign is anything which denotes or means something to someone, then the importance of semiotic is extended to all spheres of human activity" (p. 475).*

This definition appears to solve the puzzle upon future scientific studies. Today, semiotics, as will be investigated in further sections in this study, is a multidisciplinary linguistic field helping scholars to better understand the nature of human communication, its value systems and cognitive properties.

2. The Secret in Visuality : A Semiotic Approach to Human Interaction

The mechanisms to identify, decode and proceed utterances is a systematic mixture of psychological, physiological, sociological and anthropological procedures in which non-verbal expressions appear as signs or symbols to communicate information. The knowledge of signs and symbols exist in all competence types and operate functionally in human interaction to guarantee affluent interaction. Competence in semiotics was first studied by A. J Greimas. According to Pikkarainen (2014), Greimas:

> *"... tries to replace and generalise the Saussurean concepts of a language and parole with competence and performance respectively. Competence is something virtual which is actualised and realised in performance. He applies these concepts in all action instead of just linguistic or communicative action" (p. 626).*

To understand the notion of 'action' in the Greimas process, which prepares the basis of the final act, should be taken into account together with the notion of competence. In this respect, competence is a neutral process which operates systematically and critically in the course of performing an act by referring to whatever verbal and visual is stored in an ideosyncratic manner. Here, we understand that human performance in the course of action have to be considered as a process performed in a certain time interval in which verbal and audiovisual cognition work together to respond likewise. In understanding 'what is said' and 'what is done', not only do verbal strings play a significant role, but also human's perception of understanding the sign and signals around him - body language - is a key factor that helps the individual to communicate meaningfully. Barley (1983) states that:

> *"… semiotics concerns the principles by which signification occurs. Signification refers both to the processes by which events, words, behaviours, and objects carry meaning for the members of a given community, and to the content they convey. Therefore, semiotics is ultimately the study of how communication is possible, since all communication presumes shared codes. The essence of semiotics is the isolation of systems of signification and the rules that govern their use" (pp. 394-5).*

For Goodman (1968), the sign represents a definition resulted from a human action who intentionally picks an object as a sign to represent something different. Moreover, Adler (1991) adds that:

> *"translating meanings into words and behaviours - that is, into symbols - and back again into meaning is based on a person's cultural background and is not the same for each person. The greater the difference in background between senders and receivers, the greater the difference in meanings attached to particular words and behaviours" (p. 2).*

Adler (1991) also presents a 'Communication Model' as in the following figure:

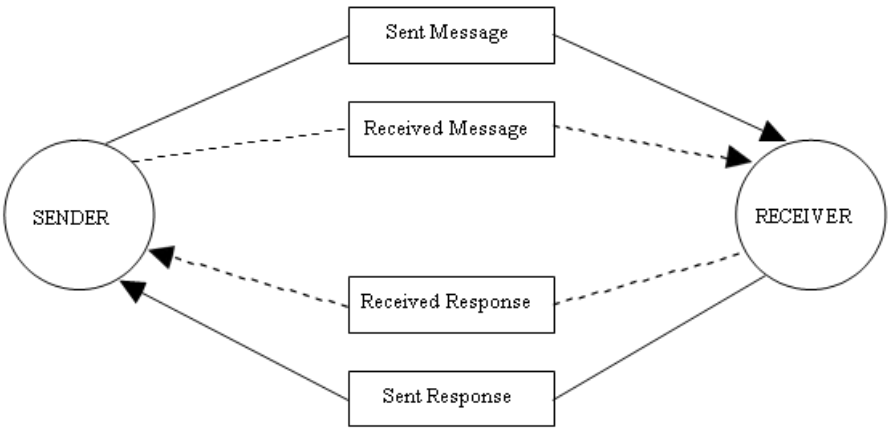


Figure 1. Adler's Communication Model

Considering Adler's explanations and the figure represented, the key point in this respect is perhaps how successfully the message sender and the message receiver are able to get the intended message, respond likewise, avoid miscommunication and continu the flow of information. In this respect the definition of semiotics by Seel, perhaps, brings together different visions:

"… semiotics aims at bringing together those scientists of different disciplines who are interested or engaged in the investigation of the use and manipulation of signs in different settings such as communication and instruction" (p. 2).

The use of signs for multiple purposes in human interaction is a neutral process to convey information. The addresser and the addressee exchange information by making use of signs either to approve or stress their verbal message, save energy, or mean more by making use of signs that would possibly cost tens of words.

3. The Development of Semiotic Ability

The recognition and comprehension of signs in the environment does not occur naturally; nor does it require special training. It is related to several factors. One of them is how successfully the individual has acquired the necessities of a language so far. The development of grammatical and communicative competences call for the use of signs specific to purpose in various discourses. To illustrate, Bachman's (1990) notion of communicative language ability holds an integrated model of linguistic, strategic and psycho-physiological mechanisms in which language is critically sequenced within certain mentally initiated stages and processed in a multidimensional manner based upon an action to be performed.

Next is how the linguistic and the social behaviours are structured in the language user and to what extend the knowledge of the world is developed. About this, Mey (1993) states that the communicative context in which a linguistic interaction takes place has its roots in any given society which accommodates social, political, and economic rules and regulations, norms and perspectives (p. 186-187).

Here, it is important to note that an individual should be knowledgeable about various contexts that take place in multiple discourses. Several examples can be given in this respect. Think of a university lecturer who is teaching a linguistics course at the 8:30 slot at the faculty, and students who could hardly arrive at school because of the heavy snow. Though the she asks her students how they feel, by carefully focusing on the body language of the students, the placement of the desks and stationery, even the frequency of the verbal responses of the students appear as signs and give clues to her about the extent she should push them in the early hours of a morning course. The grasp of the silent message conveyed by the classroom could only be achieved by training the mind to recognise codes in the extralinguistic environment.

Relatedly, another example can be given from the world of politics. A politician who uses the lectern effectively in his speech is commonly favoured over those who do not, but what does precisely lie in that 'efficient usage'? Posture - the position of the body - in the course of speech, the position of the hands on the lectern, facial impressions, gestures and movements to add/approve/stress meanings in his speech, the tone, intonation and junctures used during the speech, selection of culture-specific symbols and their usage in the speech, other signs or symbols around the lectern that would come to various sociocultural meanings, the way the politician dresses and even the colours he prefers to dress in are some of the semiotic tools that not only value interaction but add more meaning to what is said and meant.

The third factor is how successfully a cross-cultural interactional competence has been developed by the language user. The establishment of cultural awareness plays a significant role to detect and use signs to flourish successful interpersonal communications. For Kress (2012):

"Given the way I use the terms 'culture' and 'society' - society as the domain of action and power and culture as the repository of cultural/semiotic resources…Communication, for me, is a social practice/event, in which cultural/semiotic resources are used" (p. 24).

Kress (2012) emphasizes the existence of two resources: the 'society' as the source of action and 'culture' as the source of semiotics. For him, meaning in any kind of interaction should include these two. He adds that, "What is needed however is an adequately large frame which includes all aspects of meaning, of meaning-making, of society, culture, power. In social semiotics that frame is an apt understanding of communication" (p.24). However, being a member of a given society does not guarantee the awareness of cultural and traditional practises and semiology produced within. Individuals indirectly or unconsciously acquire some of the cultural signs in their lifetime and practice them consciously or unconsciously in various sociocultural discourses. However, becoming aware of a broader sense of semiology requires intercultural training. Parent and Varnhagen (2011), in their article 'Designing a semiotic-based approach to intercultural training', offer to design a semiotic-based course in intercultural training in which the students/trainees would find the opportunity to obtain more input as to the world around them, expand their horizons and develop their global personality. They state that "Intercultural education, therefore, called for a process by which to assist learners in working with different social constructs and world views (values and beliefs) so as to resolve, at least partially, often complex and urgent issues, through process and products for exchange'' (p.155). Without doubt, such a carefully planned course will not only lay a strong background for semiotic competence, but also create more opportunities to exchange information in different contexts coming up in varying sociocultural discourses.

Parent & Varnhagen (2011) add that ''The multidimensional design for a semiotic-based training model subsequently began with a hypothesis that the semiotics of culture might further assist in defining how meaningful initiatives could be created and communicated through the process of exchange''(p.155). To illustrate, some airline companies and tourism agencies provide their passengers with the opportunity to travel to foreign countries by giving them a handbook that includes both verbal and non-verbal (or gesture) language tips to communicate. The use of hands, position of the body, arms, and facial expressions can convey different meanings and their unconscious use could lead to unexpected results as you one interacts with others abroad. A handbook such as this, then, is essential material - a little freelance opportunity for intercultural training for people who travel abroad.

Another factor that paves the way to more purposeful semiotic communication is the development of cognitive flexibility. Shaumyan (1987) states that '' Cognitive flexibility is a fundamental property of any natural language. Owing to this property, any natural language is remarkably rich, complex, and infinitely variable and productive of signs'' (p.18). In this respect, Shaumyon's words "rich & complex" need more emphasis.

The wealth of the English language can be given as an example. English has a concoction and a rich variety of synonyms for words with similar meanings. As for the word 'love', there are many alternatives and the richness of the English Language vocabulary enables its users to express their emotions for specific contexts depending on how their cognitive perception of love adds extra meanings to the stem depending on the context in which it is used. A native may use such alternatives which share the same basic roots, yet convey different meaning on the surface.

-passion : the strong emotion of love;

-amour : the romantic aspect of love;

-worship : the honour/glory aspect of love;

-admire : appreciation for love;

-cherish : how deeply one cares about something they love.

A similar example can be given for the word ‘holiday’:

-trip : A journey, excursion.

-tour : A journey to various addresses.

-break : A fissure, a short stop to work.

-vacation : A previously planned time interval for not working.

-sojourn : A brief period to travel.

-voyage : Sea travel.

All of these words conveyed the intention to ‘stop working for a while and take some rest’ the way a person wishes. Again, though on the surface level all of the words have different intentions ‘to have a holiday’, at deep level all have them have the same single theme. Here, it might be useful to concentrate on how the mind finds the right words and images them as signs. A voyage which means a sea travel is imaged by a ship, sea, sun, perhaps even people freezing on board, etc. Yet, it is not the same for the word ‘tour’. Whether you do it by plane, in your own car or by sea, it does not matter and the symbolic image that refers to the word ‘tour’ represents visiting several cities, countries, different food, customs, traditions, touristic places and interaction with different people. About this, Seel (1999) states that ‘’ Thinking and reasoning are considered as a symbol manipulation process that enables individuals to form and express subjective experiences, ideas, thoughts and feelings’’ (p.3). Seel’s ‘manipulation of symbols’ enables the formation of multi-perspectives in the cognitive perception of the individual to achieve the appropriate message specific to that particular discourse. Seel adds that ‘’… the term of ‘mental representation’ became one of the most important theoretical concepts of cognitive psychology’’ (p.4). In this regard, the cognitive perception of an utterance as a sign/symbol in the mind is studied within cognitive psychology which R. G. Gross, in the ‘Dictionary of Theories’ (2002), defines as:

> *“..... a collective term for psychological theories seeking to explain thought processes with reference to the relationship between subject and object, thought and world. Cognitive theory is principally concerned with investigating the conditions for cognition: the structural and functional architecture of the knowing or cognising organism or system” (p.98).*

The linguistic interpretation of Gross’s definition of cognitive psychology can be the critical evaluation of a particular linguistic discourse in psychological processes in which verbal and non-verbal linguistic systems act together to communicate information. In a broader sense, Zimmer M. R. in the ‘Dictionary of Theories’ (2002) state that the psychological meaning in the context of occurrence in a combination of 3 factors are explained as follows:

1) Individual Characteristics: (e.g. attitudes) perceptual selectivity, cognitive consistency and personality.

2) Social Characteristics: (e.g. gender) social class, marital status and occupation.

3) Situational Characteristics: (e.g. level of familiarity) number of available choices, time to make decision, while on vacation, while at work. (p. 33).

Briefly put, Zimmer’s definition and classification of psychological meaning represents a summary of the first three factors that are required for semiotic comprehension. Therefore, it can be said that both semiotic comprehension and communication require a series of

linguistic, psychological, sociological and anthropological conventions in which the language itself, along with the context it is embedded in, provides semiotic tools to value and better understand human communication.

4. The Significance of Developing Semiotic Awareness in Education

Previously it has been argued that human cognition, anthropological properties of human existence, pscho-social processes and the experiences achieved under certain biological factors are in continuous interaction in the process of communication. In this respect, the question is whether this interaction can be developed through proper education at school so that semiotic awareness could find more room to develop its assets.

Over the last 50 years, a considerable number of language learning and teaching methods have been developed and put into practice. Undoubtedly, the common aim shared by these methods was to teach a language in the most influential way as possible. Meanwhile, the course materials, activities, content of lectures and practises, physical classroom environments, and even the teachers' attitudes to students - pedagogically or behaviourally - were structured carefully. It has been understood that unless the teaching and learning approaches/methods are designed visually in a careful manner, verbal instruction fails to achieve its desired purpose in language learning and teaching. Every language learning method/approach addresses a different aspect of human competence and intelligence. Robinett (1978) states that "each word used in the EFL classroom is conditioned on the part of 'both speaker and hearer' by each person's own particular, personal experiences and those experiences that are common to the culture of which he or she is a part" (p.113). Each language class encodes cultural, social and humanistic features which embody the skills and capabilities required to provide better communication in the target language. Danesi (2010) considers signs and symbols as an integrated system in which the roles of every signifier imply messages to the audience. He states:

"Semiotics is ultimately a form of inquiry into how humans shape raw sensory information into knowledge-based categories through the use of forms that stand for the categories. Signs that penetrate the flux of information are intelligent selections which are taken in by our senses or our intuitions, allowing us to encode what we perceive as meaningful in it and thus, to learn and remember it" (p.ix).

In the language classroom, it is not possible to isolate the theory of language from its sociocultural aspects. If one has the desire to learn a language to realise better communication in the target context, the socioculturally-oriented signs and symbols help learners to more easily remember specific features if presented verbally; otherwise, it would take many pages to read in books or paragraphs. Indeed, one might call it thinking and perceiving through signs and symbols. A language learner in this respect is in a continuous process to establish a psychosocial connection between their senses - that receive information - and conscious - that process information.

Semiotics, on the other hand, has been in continuous interaction with education since its birth. Nöth (2010) claims that "Semiotics is relevant to education in two respects: On the one hand, teaching and learning have semiotic implications since they are both processes of semiosis; on the other, the study of processes of learning and teaching are part of, and contribute to, the study of the ontogeny of signs and communication, which is a branch of semiotics" (p.1). Since both disciplines overlap in the interest of each other, it will be groundless to discuss the extent that educative practices contribute to the development of global semiology. However, it is possible to say that the more foreign languages an individual learns, the more his perception of the world develops since he not only obtains

linguistic data through verbal influx, but also with the help of visual input which consolidates the efficiency and the effectiveness of language learning and development of communicative and pragmatic competences, which again critically and creatively co-operate in the course of language production.

About teaching semiotics in primary, secondary and in higher education, Morris (1946) argues:

> *"Semiotics as a separate discipline need not be introduced into the early levels of the school system. The acquisition of skills is not facilitated by undue attention about such skills. Skill in the use of signs would not be best served in the early THE SEMIOTICS OF TEACHING 7 years of education by the too early introduction of a technical semiotical vocabulary. But in a non-technical language, and throughout every phase of the educational system, it would be possible to acquaint students with the main kinds of signs, and the purposes which they serve. . . . At the level of higher education, a specific and detailed study of semiotic can serve to raise to fuller awareness the training in the adequate use of signs which should have occurred throughout the earlier levels" (pp.325-26).*

However, despite the ideas of Morris, Thomas (1984) and Mariana Ciampicacigli (1985) were in favor of developing a curriculum with course materials that would offer the fundamentals of semiotics in various discourses in authentic contexts.

Briefly, semiotic data has been achieved through visual and verbal input as a baby is born and continues its development in school years in different activities and discourses. Yet, about teaching semiotics at the university level Semetsky states:

> *"Semiotics as an explicit subject of teaching is primarily a matter of classes, courses, and programs at the university level. It is taught as a course in programs of semiotics as well as in language, communication, and media studies, but it is also offered as an element of classes not only dedicated to semiotic topics in language, cultural, or media studies. Introductions to semiotics have been written for purposes of orientation, giving a survey, or in order to be uses as course books" (p.10).*

Taking all the above discussions into account, it can be said that semiotics needs to be accepted as an interdisciplinary subject with room to be covered in various academic discourses. However, to give value to learning and teaching activities, semiotic elements can be consciously used to increase the efficiency, effectiveness and value of teaching-learning activities designed pedagogically in a proper curriculum.

5. Conclusion: Biosemiotics and The Essence Of Developing Semiotic Knowledge

The reality that individuals experience everyday has an objective existence and is independent of human cognition and interpretation. The verbal processing of information conveyed by the language producer cannot be isolated from its visual interpretation. Individuals who have increased their awareness about semiology become successful interpreters of language. In this way not only the clarity, appropriacy and effectiveness in language production are to be provided, but also doors to a stronger intercultural communication need to be opened. This brings us to the concept of semiotics as a global phenomenon, the biosemiotics, which explain semiotic interaction as a natural process. It is "… the investigation of the biological nature of signs and semiotic base of biology" (Sharov, p.345). Biosemiotics does not distinguish between nature and culture; rather, it is a link that matures human communication. For Hoffmeyer (1999), regarding biosemiotics: "..... living nature is understood as essentially driven by, or actually consisting of, semiosis, that is to say,

process of sign relations and their signification -or function- the biological process of life" (p. 4).

For Brier (2015), the social and biological behaviour which embodies the sender and the receiver's communication of signs is based on bio-psychological meanings. Brier's definition of biosemiotics is considered within the bio-psychological processing of information which helps us to better understand the principles of information processing in human communication. In this respect, the biosemiotic model can also be considered as the mediator of disciplines that contribute to language production for communicative purposes. The macro and the micro cosmos in which human nature interacts provides further details to understand more of communication. Hofstadter further emphasizes the significance of influence of symbols in human behaviours, not just in communication. Also, according to Kravchenko (2006):

> *"Living systems are unities of interactions which exist in an environment. From a purely biological point of view they cannot be understood independent of their niche (the part of the environment with which they interact). Likewise, the niche cannot be determined independent of the living system which specifies it" (p. 59).*

For Hofstadter (1983) "Not only are we not symbol manipulators; in fact, quite to the contrary, we are manipulated by our symbols" (p. 279). Brier (2015) adds that "… there is a complicated psycho-biological development and dynamic system organized behind the embodied, embedded and enacted perception, thinking and communication" (p. 578). The study of semiotics in this respect means more than the study of signs. Human cognition, the anthropological realties of human existence, the psycho-social processes, the biological factors, the living cosmos of human nature are all in a continuous process of interaction to process language. Morris (1974), as some scholars do, consider semiotics, independent of linguistics, as a new discipline in science. For Morris:

> *"Semiotic has a double relation to the sciences: it is both a science among sciences and an instrument of the sciences. The significance of semiotic as a science lies in the fact that it is a step in the unification of science, since it supplies the foundations for any special science of signs, such as linguistics, logic, mathematics, rhetoric and (to some extent at least) aesthetics. The concept of sign may prove to be of importance in the unification of the social, psychological and humanistic sciences in so far as these are distinguished from the physical and biological sciences" (p. 2).*

Therefore, it can be said that the essence of studying semiotics lies in the curiosity to discover the value systems in human communication. The value systems, the intrinsic and natural messages they convey, the way they are produced, transferred or perceived in human mind definitely require more than the study of language and its linguistic properties. However, there can be no doubt that studies in linguistics as an independent field of science paved the way to explore more of what there is in sign systems. It is seen that the nature of human language needs to be considered as a living organism which also reflects the evolutionary development of science. Here, the nature of signs and the value systems they hold, can be accepted as the engine that powers this system. As long as the evolution of sciences and their value systems evolve, there will be more to talk about semiotics as a mediator of communication and cognition.

References

Adler, Nancy J. (1991). *International dimensions of organizational behaviour* (2nd ed.) Boston, MA: PWS-KENT Publishing Company.

Bachman, L. F. (1990). *Fundamental considerations in language testing*. Oxford: Oxford University Press.

Barley, S. R. (1983). Semiotics and the study of occupational and organizational cultures. *Administrative Science Quarterly, 28*(3), 393-413.

Brier, S. (2015). Can biosemiotics be a "science" if its purpose is to be a bridge between the natural, social and human sciences?. *Progress in Biophysics and Molecular Biology, 119*(3), 576-587. doi:10.1016/j.pbiomolbio.2015.08.001

Canale, M. (1983). From communicative competence to communicative language pedagogy. In J. C. Richards & R. W. Schmidt (Eds.), *Language and communication (*pp. 2-27). London: Longman.

Chomsky, N. (1965). *Aspects of the theory of syntax*. Massachusetts: M.I.T.

Choraih, M. A., Loutfi, A., & Mansoor, A. (2016). The importance of pragmatic competence in the EFL curriculum: Application and implications. *Arab World English Journal, 7*(4), 183-195.

Cognitive Theory Psychology. (2002). *Dictionary of theories*, 98.

Crystal, D. (2008). *Dictionary of linguistics and phonetics*. Malden, MA: Wiley-Blackwell.

Danesi, M. (2010). Foreword: Edusemiotics. In I. Semetsky (Ed.), *Semiotics education experience (p.ix).* Roterdam, Netherlands: Sense Publishers.

Fodor, J. & Merill G. (1996). *Psycholinguistics papers: The proceedings of the 1966 Edinburgh Conference*. In J. Lyons, & R. J. Wales (Eds.), Edinburgh: Edinburgh University Press.

Goodman, N. (1968). *Languages of art. The approach to a theory of symbols*. Indianapolis. IN: Bobbs-Merill Comp.

Gumperz, J. J., & Dell H. H. (1989). *Directions in sociolinguistics: The ethnography of communication*. Oxford: Basil Blackwell.

Hoffmeyer, J. (1999). The vague boundaries of life. In E. Taborsky (Ed.), *Semiosis, evolution, energy. Towards a reconceptualization of the sign*. Aachen: Shaker Verlag.

Hofstadter, D.R., (1983). Artificial intelligence: Subcognition as computation. In F. Machlup & U. Mansfield (Eds.), *The study of information* (pp. 263-285) Wiley: New York.

Hymes, D. H. (1972). On Communicative Competence. In J. B. Pride & J. Holmes (Eds). *Sociolinguistics: Selected readings* (pp. 269-293). Harmondsworth: Penguin.

Kattsoff, L. O., & Thibaut, J. (1942). Semiotic and psychological concepts. *Psychological Review, 49*, 475-485.

Kravchenko, A. (2006). Cognitive linguistics, biology of cognition and biosemiotics: Bridging the gaps. *Language Sciences, 28*(1), 51-75. doi:10.1016/j.langsci.2005.02.002

Kress, G. (2012). Thinking about the notion of "Cross-cultural" from a social semiotic perspective. *Language and Intercultural Communication, 12*(4), 369-385.

Leech, G. N. (1983). *Principles of pragmatics*. London: Longman. Mey, L. J. (1993). *Pragmatics: An introduction*. Oxford: Blackwell.

Mariani Ciampicacigli, F. (1985). *Guida a una Semiotica per la Scuola.* Roma: Riuniti.

Morris, C. W. (1946). *Signs, language and Behaviour.* New York: Braziller.

Morris, C. (1974). Fondements de la theorie des signes (Foundations of the theory of signs). *Languages*, *8*(35), 15-21.

Nöth, W. (2010). Zeichen und semiose. In O. Braun & U. Lüdtke (Eds.), *Enzyklopadisches Handbuch der Behinderten Padagogik, Bd. 8. Sprache und Kommunikation*, Stuttgart: Metzler.

Parent, R., & Varnhagen, S. (2011). Designing a semiotic-based approach to intercultural training. *Sign Systems Studies*, *39*(1), 145-182.

Pikkarainen, E. (2014). Competence as a key concept of educational theory: A semiotic point of view. *Journal of Philosophy of Education*, *48*(4), 621-636. doi:10.1111/1467-9752.12080

Robinett, B. W. *Teaching English to speakers of other languages: Substance and technique.* Minneapolis: University of Minnesota Press.

Seel, N. M. (1999). Semiotics and structural learning theory. *Journal of Structural Learning & Intelligent Systems*, *14*(1), 1.

Semetsky, I. (2010). *Semiotics education experience.* Rotterdam: Sense Publishers.

Sharov, A. A. (1992). Biosemiotics: Functional-evolutionary approach to the analysis of the sense of information. In: Sebeok, T.A., & Umiker-Sebeok, J. (Eds.), *Biosemiotics: the Semiotic Web* (pp. 345-373). Mouton de Gruyter, New York.

Shaumyan, S. (1987). *A semiotic theory of language*. Bloomington: Indiana University Press.

Thomas, D. W. (1984). Project semiotics and the Schools. In T. Borbe (Ed.), *Semiotic unfolding* (Vol. 1, pp. 630-640). Berlin: Mouton.

Van Dijk, T. A. (1997). Context and cognition: Knowledge frames and speech act comprehension. *Journal of Pragmatics*, *1*(3), 211-231.

Wales, R. & John M. (1996). *Psycholinguistics papers: The proceedings of the 1966 Edinburgh Conference*. In J. Lyons, & R. J. Wales (Eds.), Edinburgh: Edinburgh University Press.

Widdowson, H. G. (1983). *Learning purpose and language use.* Oxford: Oxford University Press.

Othman, M. S., & Kılıç, M. (2018). An analysis of the relationship between perceived teacher support and motivational/emotional responses. *International Online Journal of Education and Teaching (IOJET)*, *5*(2), 279-293.
http://iojet.org/index.php/IOJET/article/view/386/235

Received: 08.02.2018
Received in revised form: 11.03.2018
Accepted: 12.03.2018

AN ANALYSIS OF THE RELATIONSHIP BETWEEN PERCEIVED TEACHER SUPPORT AND MOTIVATIONAL/EMOTIONAL RESPONSES

Murad S. OTHMAN
Hawler Medical University
muratumutlu0@gmail.com

Mehmet KILIÇ
Gaziantep University
mehmet416@gmail.com

Murad OTHMAN has received his MA in ELT from Gaziantep University. He has been working as an English Instructor at Hawler Medical University since 2011.

Mehmet KILIÇ has had his Ph.D. in English Language Teaching from Çukurova University, Turkey. He is a teaching staff at Gaziantep University, Faculty of Education. He conducts research in second language phonology, second language writing and affective variables in language learning.

* This paper has been extracted from an MA thesis written by the first and supervised by the second author.

AN ANALYSIS OF THE RELATIONSHIP BETWEEN PERCEIVED TEACHER SUPPORT AND MOTIVATIONAL/EMOTIONAL RESPONSES

Murad S. Othman

muratumutlu0@gmail.com

Mehmet Kılıç

mehmet416@gmail.com

Abstract

Teacher support has an important role in effective language learning, because it helps students have successful motivational and emotional responses. It leads to decreases in anxiety and increases in intrinsic motivation, help-seeking behavior, and effort, factors of productive language learning. Based on this fact, the current study aims to analyze the relationships between EFL students' perceptions of emotional/instrumental support and their motivational/emotional responses. The participants were 200 EFL learners at a state university in Turkey. The data were collected through a questionnaire and a semi-structured interview. Correlation coefficients were obtained to detect the relationships of emotional/instrumental support with anxiety, intrinsic motivation, help-seeking behavior, and effort. Finally, independent-samples t-tests were administered to find potential differences between genders concerning emotional/instrumental support, anxiety, intrinsic motivation, help-seeking behavior, and effort. The findings showed that emotional and instrumental support are two related types of teacher support. Besides, significant positive correlations of emotional/instrumental support with intrinsic motivation, help-seeking behavior, and effort were detected, along with negative correlations of emotional/instrumental support with anxiety. Furthermore, the results showed no significant difference between genders concerning emotional support, anxiety, intrinsic motivation, and effort, but significant differences concerning instrumental support and help-seeking behavior were obtained based on gender. Moreover, the findings of the interviews supported those of the quantitative analyses.

Keywords: emotional support, instrumental support, anxiety, intrinsic motivation, help-seeking behavior, effort

1. Introduction

Learning a second language is a challenging process, which displays variability from learner to learner. Some can simply learn it, while others need more time and energy. Learners face many difficulties in the process of learning. Many factors come into play while learning a second language. Researchers have concentrated on the main factors and outcomes of this situation. The major ones seem to be related to social support for academic learning. The expression "social support for academic learning" is used to classify certain relationships between teachers and students. Students are able to get this type of support from several sources. It may be derived from families stimulating their children to do their best at school, from teachers supporting students emotionally (e.g. providing attention, care, reverence etc.) and instrumentally (e.g. adequate and accurate description of the topic), and from classmates

encouraging each other to ease the work at school. Young children obtain support commonly from their parents, but as they age, they begin to have prolonged social contacts. They create rapport with their teachers at school because they spend lots of time with each other particularly when their teachers are of cooperative and friendly nature.

Research considering motivational vividness in universities frequently centers on specific variances in students' fundamental opinions and abilities, such as academic self-concept, self-efficacy, aims, and principles (Furrer & Skinner, 2003). Researchers have also observed the importance of social factors in students' motivation (e.g., Deci & Ryan, 2000; Furrer & Skinner, 2003; Wentzel, Battle, Russell, & Looney, 2010). Particularly, researchers have indicated the superiority of the teacher-student relationship and how it connects to diverse methods of motivation for assignment. Various studies have delivered appropriate indications that a positive teacher-student relationship is a determinant of student participation and motivation, effort, adaptable learning strategies, accomplishment and well-being (Marchand & Skinner, 2007).

The current study focuses on the specific kinds of support provided by EFL teachers, which include emotional and instrumental support. Patrick, Kaplan, and Ryan (2011) defined emotional support as "…students' feeling of love, friendliness, confidence, and a sense of belonging and relatedness," (p. 368). Students' perception of emotional support is linked to their feelings of belonging, relatedness or connectedness (Marchand & Skinner, 2007). According to an investigation by Furrer and Skinner (2003), a student's feeling of belonging and relatedness is linked to emotional support. Instrumental support can be defined as students' perception of being offered instrumental means and real-world support (Malecki & Demaray, 2003). It involves teachers' inquiring, illuminating, adjusting, explaining, and displaying behavior that donate to comprehending, problem-solving or proficiency improvement (Malecki & Demaray, 2003).

Motivational and emotional responses are also the concern of the current study. These responses include anxiety, intrinsic motivation, help-seeking behavior, and effort. They are significant factors for effective language learning. Socio-psychological literature explains that effective practice is closely related to social support. People with social support and relationships have much more satisfaction and pleasure and less hesitation and anxiety than those with no social support (Baumeister & Leary, 1995).

The current study aims to discover the relations between students' perceptions of emotional and instrumental support in the EFL classes and their motivational and emotional responses. Another aim is to detect the potential difference between genders in terms of emotional/instrumental support. The last aim is to detect the association between gender and motivational/emotional responses.

Furthermore, the study has its own significance because it tries to show how students' perceptions of emotional and instrumental support in the EFL classes have relation with their motivational and emotional responses. We decided to conduct the existing study, because a review of the existing EFL teaching literature did not yield any studies concerning emotional and instrumental support in Turkey. EFL learners have many problems due to the lack of emotional and instrumental support. For successful achievement, they need to be respected, loved, motivated, and their anxiety should be decreased. The outcomes of the present study have the potential to describe the effect of emotional/instrumental support in the learning of EFL. The findings will also have implications for teachers of EFL to apply emotional/instrumental support during their teaching process to decrease students' anxiety and increase their motivation, help-seeking behavior, and effort.

For the reasons mentioned above, this study tries to respond the following research questions:

1. Do students' perceptions of emotional and instrumental support provided by their EFL teachers constitute different aspects of teacher support?

2. How does participants' perception of emotional support relate to their English anxiety, intrinsic motivation, help-seeking behavior, and effort?

3. How does participants' perception of instrumental support relate to their English anxiety, intrinsic motivation, help-seeking behavior, and effort?

4. Does a statistically significant difference exist between genders regarding emotional support, instrumental support, English anxiety, intrinsic motivation, help-seeking behavior, and effort?

2. Literature Review

The general scope of social support embraces emotional, instrumental, informational, and appraisal supports (Malecki, & Demaray 2003). Their teachers provide students with various forms of support. One of them is emotional support, which can be defined as the students' feelings of veneration, friendliness, trust and love as well as the ability of understanding and caring by their teacher (Langford, Bowsher, Maloney, & Lillis, 1997). According to some opinions, two types of emotional support exist - general and specific. General emotional support includes students' general opinion of warmth, friendliness and inspiration by their teacher. Specific emotional support includes the type of support in specific conditions. For example, when a student is new at school and has no friends or the student has a very complicated assignment, the teacher's emotional support is required for these specific situations. This is also totally connected to general emotional support (Wentzel et al., 2010).

Emotional support has a crucial effect on students' motivation and well-being. The feelings of comfort, satisfaction and comprehension reveal that effect. According to Baumeister and Leary (1995), the feeling of comfort and relaxation is the central point for individuals to be motivated and attracted by others and to create social links.

Instrumental support can be defined as students' perception of being offered instrumental means and real-world support (Malecki & Demaray, 2003). It involves teachers' inquiring, illuminating, adjusting, explaining, and displaying behavior that donate to comprehending, problem-solving or proficiency improvement (Malecki & Demaray, 2003). Such kind of support can be prominent in numerous motivational principles. It leads to increases in motivation and performance products and decreases in anxiety and hesitation (Bandura, 1977).

In our study, motivational/emotional responses are categorized into four categories: (1) anxiety, (2) intrinsic motivation, (3) help-seeking behavior, and (4) effort. We categorize English anxiety as common public anxiety. Public anxiety is an emotional reaction that happens infrequently, displays itself in specific states, occurs for a short time, and embraces functional answers. It mostly happens during the examination in the school life and shows itself as a general anxiety while being at work, for example working with English. Students become less distressed when they get teacher's emotional and instrumental support (Baumeister & Leary, 1995). Teacher support is mainly important. Outcomes from Abu-Rabia's (2004) study presented that teacher support were adversely related with nervousness of language learning. Horwitz (1986) claimed that language instructors are able to comfort the nervousness and anxiety of language learners by assisting them to identify their anxiety and hesitation. Besides that, instructors ought to correct learners' errors mildly, by means of

humor and competitions to produce a stress-free and low-anxious atmosphere, and involve learners into smaller groups to make learners happier.

As for intrinsic motivation, it can be explained as a performance that is motivated by internal rewards. Strictly speaking, the motivation to take part in a performance arises from within the individual because it is internally rewarding. (Ryan & Deci, 2000). It leads individuals to take part in various activities because they are internally stimulated. They feel that it is an enjoyment and gratification to perform an activity. According to Bezzina (2010), intrinsic motivation is assuredly connected to effort, help-seeking behavior, and performance and adversely connected to state anxiety. Ryan and Deci (2000) refer to self-determination theory to explain and understand why students are intrinsically motivated in a specific field. The theory indicates that students' intrinsic motivation and gratification of essential needs are based on social factors and social support such as emotional support.

Help-seeking behavior refers to looking for assistance from both specialists and non-specialists to solve a variety of difficulties including academic, social, and medical problems (Kuhl, Jarkon-Horlick, & Morrissey, 1997). Help seeking is a communicative self-regulatory policy that comprises cognitive, motivational, emotional, and social aspects (Sakiz, Pape, & Hoy, 2012). Students face many difficulties in their school activities; therefore, they need help and supervision. Help seeking is valuable in education (Karabenick, 2004) and it is a vital self-government policy in the students' learning process (Newman, 2000). Help seeking is one of the reasons to gain knowledge and mastery through the learning process, in addition to providing the capacity of working with academic difficulties. Neglecting help seeking is destructive and harmful to students because they certainly need help during their educational life. It might result in lack of knowledge, inability for problem solving, and confusions. Two distinct aspects of help-seeking exist; one is called instrumental, when students ask questions about the material and get a clarifying detail. The other is called executive or expedient when help-seeker tries to avoid work by asking other questions far from the topic (Newman, 2000).

Effort refers to the physical and mental energy that is needed to do something. It is supposed that teacher support is also, directly and indirectly, connected to the students' effort by dint of intrinsic motivation (Sakiz et al., 2012). Learning needs worthy effort and learners ought to use respectable effort to get their achievement. Besides, respect, friendliness, effort, and educational ethics will be enhanced, while the instructors support their learners emotionally and instrumentally. Social Cognitive Theory indicated the people who were trusted in society and had countless effort to do their responsibility in contrary with those who were disagreed with their capacity by society to lead challenging conditions. It displayed that social support has increased effort. Concerning education, the teacher has a significant role in students' enhancement in class while helping them. As the teacher responds to questions and gives instructions, students are automatically motivated and use energy to learn a foreign language. Thus perceived teacher support may be the key factor to the students to have better effort (Dubow & Tisak, 1989).

3. Methodology

3.1. Participants

This study sampled 200 students through cluster sampling and was conducted at a foreign language school of a state university in Turkey as the school implements a system in which all major skills are given equal focus and each skill is assessed.

To choose the sample for the study, cluster sampling method was used. The method was preferred due to the convenience of having clusters for the administration of the research tool. The questionnaire was administered to the students in all existing levels. Then, seven

participants, who had been participants of the sample of the quantitative section, were randomly selected for the interview.

In Table 1, participants' socio-demographic information can be seen:

Table 1. *Participant socio-demographics*

		F	%
Age group/years	17-20	179	89.5
	21-24	16	8
	25-28	5	2.5
Gender	Male	136	68
	Female	64	32
Level	A1	187	93.5
	A2	8	4
	B1	4	2
	B2	0	0
	C1	1	0.5
Year	0-6	93	46.5
	6-12	6	3
	12-18	11	5.5
	more than	90	45
Native language	Turkish	186	93
	Arabic	6	3
	Kurdish	8	4

As can be seen in Table 1, regarding their age, 89.5% of the participants are between 17 and 20, 8% of them are between 21-24, and only 2.5% are between 25-28 ages. Concerning gender, 68% of them are male, and 32% are female. Regarding their level, 93.5% of them are from A1, 4% are from A2, 2% are from B1, 0.5% are from C1, and none of them is from B2. As regards their duration of English learning, 46.5% are between 0-6 months, 3% are between 6-12 months, 5.5% are between 12-18 months, and 45% have more than 18 months. Concerning their native language, 93% is Turkish, 3% is Arabic, and 4% is Kurdish.

3.2. Instruments

Data were collected through the use of a questionnaire (Federici & Skaalvik, 2014), to analyze the relationships between the perceptions of EFL students of emotional and instrumental support by their teachers in relation to their motivational and emotional responses. To strengthen the results and add a mixed-method nature to the research, semi-structured interviews were also conducted.

3.2.1. Questionnaire

The basic instrument used in the present study was developed and validated by Federici and Skaalvik (2014). The researchers used the questionnaire to investigate the relationship between students' perceptions of emotional/instrumental support provided by their teacher and their motivational/emotional responses. The structural equation modeling done by

Federici and Skaalvik (2014) proved that emotional and instrumental support are separate but related constructs.

The questionnaire consists of two main parts. The first part is about socio-demographics of the participants (i.e. age, gender, proficiency level, years of learning English, and native language) and the second part includes six domains: (1) emotional support (5 items), (2) instrumental support (6 items), (3) intrinsic motivation (6 items), (4) math anxiety (5 items), (5) help-seeking behavior (4 items), and (6) effort (3 items). The items for the fourth principal component of the scale (math anxiety) were revised by us to assess language anxiety. In order to scale the questionnaire, a 5-point Likert-type model was used.

The developers have assured the validity and reliability of their research tool. The 6 subscales of the questionnaire have their own Cronbach's alpha values (i.e. $\alpha^{\text{emotional support}}$ =.94., $\alpha^{\text{instrumental support}}$ =.95, $\alpha^{\text{intrinsic motivation}}$ =.93, α^{anxiety} =.87, $\alpha^{\text{help-seeking}}$ =.83, and α^{effort} =.77).

As the participants were all learners of English, their level was not sufficient to fill out the questionnaire in English; for this reason, the questionnaire was primarily translated into their native languages, which were Turkish and Arabic. Then, the Turkish and Arabic copies were provided to some Turkish and Arabic experts for validation purposes and finally, they were back-translated into English for comparison. In cases of uncertainty and obscurity, items were rephrased. After certifying the correctness and modifying several items of the copies, Turkish and Arabic versions were distributed to the students.

3.2.2. Semi-Structured Interview

In modern research practice, it is suggested to use multiple instruments to triangulate results in order to make the information more interesting and useful (Gao, 2004). O'Malley and Chamot (1990) assert that using interview supports the researcher to elicit information that may be difficult to obtain through questionnaires. Therefore, in this study the most common qualitative instrument, semi-structured interview, was used. This interview enriched the results to be more effective and assured the researchers about the findings obtained from the questionnaire.

A semi-structured interview guide was used as a basic instrument during the interview. The interview occurred in a welcoming atmosphere with a group of participants, 4 male and 3 female students from various levels in order to obtain more specific information about students' perceptions of emotional/instrumental support and their emotional/motivational responses. The interview was conducted individually. Also, the students were permitted to express their additional views. The interview scale included fourteen open-ended questions. The procedure lasted 15 to 20 minutes for each student. The interviews were recorded and transcribed for later analysis.

3.3. Procedure

3.3.1. Reliability and pilot study

Piloting procedure is a central part of conducting a research and must be implemented with excessive attention. Lewin (2005) describes piloting procedure as a test of the questionnaire with a definite number of samples, which is equal to the directed sample. The main objectives of the pilot study were to determine the reliability of the items of questionnaire; whether they were clear, understandable, culturally suitable, and accepted by the respondents, identify the best approach to gain their cooperation, and find out the difficulties that the researcher may face during the interviewing process. The piloting procedure of this study was carried out to understand the potential difficulties, which can influence the reliability and validity standards of the study. The pilot study was conducted at

the same school with the participation of 60 students. The results pointed out that the questionnaire was reliable with a Cronbach's Alpha value of .80.

3.3.2. Data collection

In both the piloting and actual data collection phases, all the required permissions were received and the researcher abided by ethical rules in conducting the study. Ethical approval is one of the most important principles before collecting data to protect the students' values and dignity. The researcher obtained permission from the administration of the school of foreign languages. The researcher promised to keep students' information confidential and use the data for the current study only. Then he explained the purpose of this study to every participant. In addition to the explanation, the researcher told every participant that this is an optional work, and they can leave at any time during the process. The questionnaire was administered to 200 students. Written informed consents were obtained from all the participants. Before conveying the questionnaire, all the students were informed about the study and the fundamental role of their honesty in replying the items. The questionnaire was handed out to the students during the classes and they were collected in the same class time. As a final point, a semi-structured interview was conducted with 7 participants who were also participants in the quantitative section. The students were enthusiastic to participate and they were not rewarded materially at all for their participation. During the interview, the students were permitted to speak either in their native language or English in order to decrease their anxiety and hesitation. The interview continued for one hour and 10 minutes. The participants were assured of the confidentiality of information.

3.3.3. Data analysis

The data collected through the questionnaire were fed into the SPSS. Descriptive statistics were gained for all demographic variables on the questionnaire. These descriptive statistics included the means, standard deviations, percentages and ranges of the dependent and independent variables and socio-demographic characteristics of the sample. Frequency distributions were also provided. Independent-samples t-tests were run to find out any potential difference between participants' based on gender in terms of emotional/instrumental support and their motivational/emotional responses. The other demographic variables were not included in data analysis because the dispersion of scores between and among groups for those variables violated the conditions for the use of either parametric or nonparametric test as can be seen from Table1. Pearson product-moment correlations were used to explore the relationship between teachers' emotional and instrumental support with their motivational and emotional responses.

Lastly, after transcribing the interviews, a deductive content analysis was utilized to analyze the qualitative data. It is a procedure, which is initiated with a general viewpoint to the analysis of a particular circumstance to confirm or disconfirm the theory (Tracy, 2013).

4. Findings

4.1. Quantitative Findings

Findings for Research Question #1 Do students' perceptions of emotional and instrumental support provided by their EFL teachers constitute separate dimensions of teacher support?

This research question tries to point out the relationship between emotional and instrumental support regarding separate dimensions of teacher support. In order to answer this research question, a Pearson product moment correlation was used, which revealed a significant positive correlation between emotional support and instrumental support (r= .779,

p>.01). It means that as emotional support increases, instrumental support also increases. This relation is an appropriate indicator of the connection between emotional support and instrumental support.

Findings for Research Question #2 How does participants' perception of emotional support relate to their English anxiety, intrinsic motivation, help-seeking behavior, and effort?

To find out the relationship between perceived teacher emotional support by the teacher and students' anxiety, intrinsic motivation, help-seeking behavior, and effort, Pearson product moment correlations were utilized. Table 2 shows the correlations:

Table 2. *Correlations of emotional support with English anxiety, intrinsic motivation, help-seeking behavior, and effort*

		English Anxiety	Intrinsic Motivation	Help-seeking Behavior	Effort
Emotional Support	r	-.147*	.271**	.485**	.252**
	p	.038	.000	.000	.000
	n	200	200	200	200

* p<.05, ** p<.001

The results, as illustrated in Table 2, pointed out that there is a significant negative correlation between teachers' emotional support and students' anxiety (r= -.147, p>.05). It means that as teachers' emotional support increases, students' anxiety about English decreases and vice versa. On the other hand, statistically significant positive correlations were obtained between emotional support and intrinsic motivation (r= .271, p>.001), help-seeking behavior (r= .485, p>.001), and effort (r= .252, p>.001). In other words, when teacher's emotional support is deployed recurrently, students' intrinsic motivation, help-seeking behavior, and effort enhance.

Findings for Research Question #3 How does participants' perception of instrumental support relate to their English anxiety, intrinsic motivation, help-seeking behavior, and effort?

To answer the third research question and to identify whether there is a relationship between teacher's instrumental support and students' anxiety, intrinsic motivation, help-seeking behavior, and effort, Pearson product moment correlations were run. Table 3 displays the correlations:

Table 3. *Correlations of instrumental support with English anxiety, intrinsic motivation, help-seeking behavior, and effort*

		English Anxiety	Intrinsic Motivation	Help-seeking Behavior	Effort
Instrumental Support	r	-.144*	.349**	.571**	.223**
	p	.038	.000	.000	.000
	n	200	200	200	200

* p<.05, ** p<.001

According to Table 3, a statistically significant negative relationship exists between teacher's instrumental support and students' anxiety (r= -.144, p>.05). This implies that as

instrumental support increases, anxiety decreases and vice versa. Also, the relationships of teacher's instrumental support with students' intrinsic motivation (r= .349, p>.001), help-seeking behavior (r= .571, p>.001), and effort (r= .223, p>.001) are statistically significant as well. Therefore, it can be asserted that when students are provided with more instrumental support, their intrinsic motivation, help-seeking behavior, and effort increase.

Findings for Research Question#4 Does a statistically significant difference exist between genders regarding emotional support, instrumental support, English anxiety, intrinsic motivation, help-seeking behavior, and effort?

To answer this question, independent-samples t-tests were conducted. Independent-samples t-test is a trustworthy measure to indicate statistically significant differences between two independent groups (Kilic, 2007). This assumption is consistent with the current study in which male and female groups are definitely independent of each other. Table 4 shows the findings obtained from the t-tests:

Table 4. *T-test findings on the differences between male and female participants*

	Gender	N	Mean	P
Emotional Support	Male	136	19.0446	0.057
	Female	64	20.2656	
Instrumental Support	Male	136	23.1471	0.006*
	Female	64	25.2031	
Intrinsic Motivation	Male	136	18.4118	0.115
	Female	64	19.5156	
English Anxiety	Male	136	13.0221	0.174
	Female	64	14.0313	
Help-Seeking Behavior	Male	136	14.3750	0.047**
	Female	64	15.3125	
Effort	Male	136	9.4559	0.964
	Female	64	9.4375	

* p<.01, ** p<.05

The findings from the t-tests indicated that the differences between males and females in terms of emotional support, anxiety, intrinsic motivation, and effort are not statistically significant (p>.05). Thus, gender is not a distinguishing factor for these variables. However, concerning students' perceptions of their teachers' instrumental support, we obtained a statistically significant difference (p<.01) in favor of females (M=25.2031 vs. M=23.1471). This can be interpreted saying females' perceived instrumental support is higher than that of males. Another statistically significant difference (p<.05) between males and females have been found to be related to help-seeking behavior. A comparison of means illustrates that females (M=15.3125) engage into more help-seeking behaviors than males (M=14.3750) do.

4.1. Qualitative Findings

The comments and justifications of the participants displayed that teachers' emotional and instrumental support has a central role for them in the learning of English. All participants reported the existence of teachers' emotional and instrumental support inside and outside the class. The participants' explanations also showed the negative and positive relations between

teachers' emotional and instrumental support in terms of anxiety, intrinsic motivation, help-seeking behavior, and effort.

Concerning emotional and instrumental support, all the participants reported that their teachers were kind and friendly to them and they respected them. They also pointed to the fact that their teachers explain everything in detail. P2 related teachers' emotional support effectively to their instrumental support by wording "Teachers are friendly with us because they explain everything in detail and like teaching". P3 also referred to the relation between emotional support and instrumental support by explaining "I feel that teachers are friendly and they respect us. When we don't understand any point, they will explain it in more detail."

P6 made a connection between teachers' emotional support and students' motivation for learning. She said, "My teachers are friendly and very gentle. They think that we should be enthusiastic for learning and we really like it"

P7 described that their teachers made them comfortable during learning English. She indicated teachers' emotional support contrarily with their psychological issues. She explains, "Teachers are very gentle and they respect our feelings and our thoughts. When we make a mistake, they understand us and respect our feelings."

P5 spoke of her effort by indicating, "We can practice with our teachers during breaks. They definitely help us." Moreover, she related teachers' instrumental support to their own effort by saying: "In the class, they make us speak; we speak with each other. Everyone expresses their own opinions".

P2 referred to the negative relation between his anxiety and his teachers' emotional support by saying: "At first, I felt bad while making mistakes, and then my teachers explained that we should be relaxed. Now I don't have any difficulty, I feel relaxed and comfortable".

Considering intrinsic motivation all the participants (P1, P2, P4, P5, P6, and P7) stated that they are motivated and they like English lessons.

P4 talked about his like for English which is a lot and he related the reason partially to their English teacher. P4 points to a positive relationship between teachers' emotional support and student's intrinsic motivation by expressing, "I do like English partially due to my teachers. They are very lovely and respectful".

P7 described English lessons as enjoyable and lovely because she enjoys them and feels happy in them. She mentioned the positive relation between teachers' emotional support and her intrinsic motivation by saying: "I like English because it is enjoyable and I feel happy and the teachers are very respectful and kind with us".

All the participants stated that they do not hesitate to ask for help from their teachers. They presumed that teachers were the best source to get help. They expressed a relation between their help-seeking behavior and teachers' instrumental support.

P1 expressed his seeking for help by stating: "I do ask for help from my teachers. We are in the beginning of the learning process, we don't know everything. So we must seek for help and I ask for it from my teachers". P2 elaborated teachers' instrumental support in the class by say: "When I don't understand a point, I will raise my hand and ask my teacher. They usually re-explain in more detail".

Five participants addressed the use of watching English movies and listening to English music. P4 showed the relation between emotional and instrumental support with his effort when he talked about his practice in English. He said: "The lessons help me to learn English.

When I watch English movies and read some English texts, I can understand them. Then I feel happy and comfortable"

P7 created a strong relation between her effort and teacher's support, when she practices English by saying: "We mostly do practice in English lessons. We speak with our speaking teachers".

5. Discussion

The primary concern of the current study was to discover the relationships between EFL students' perceptions of emotional/instrumental support provided by their teachers and their motivational/emotional responses. More specifically, the relationship between emotional support and instrumental support, along with the relationships of emotional/instrumental support with anxiety, intrinsic motivation, help-seeking behavior, and effort, was investigated.

The study revealed that emotional and instrumental support correlates negatively with anxiety and positively with intrinsic motivation, help-seeking behavior, and effort. A significant positive relationship was also found between emotional support and instrumental support. Moreover, it was found that significant differences between male and female participants existed in terms of instrumental support and help-seeking behavior and non-significant difference was obtained between male and female participants in terms of emotional support, anxiety, intrinsic motivation, and effort

The present study findings are supported by Federici, and Skaalvik (2014). They found a positive relation between emotional support and instrumental support. Also, they discovered a negative correlation of emotional/instrumental support with anxiety, and a positive correlation with intrinsic motivation, help-seeking behavior, and effort. The outcomes of the existing study also align with Carney-Crompton and Tan's (2002) study, in which a negative relationship was found between anxiety and emotional support.

The findings of the current study are also in line with with Kozanitis, Desbiens, and Chouinard's, (2007) study, which found that students' perception of teacher support has a direct impact on instrumental help-seeking and indirect impact on self-efficacy.

The outcomes of the current research agree with those of Wentzel (1998) as well. Wentzel discovered that teachers' support is linked to motivation. The same study also indicated that distress is related significantly and negatively to perceived social support.

In terms of gender, the present study findings are supported by Federici and Skaalvik, (2014) again since that study also displayed that gender has a significant relationship with help-seeking behavior.

The results of the current study are in respect of DeWit, Karioja, Rye, and Shain (2011) which found non-significant gender differences for teacher support regarding emotional support.

6. Conclusion

This research has been planned on four research questions. Based on the findings, it can be iterated that the research questions have been validated as mentioned in the findings section. The central concern of this study has been to show the prominence of emotional and instrumental support in a students' achievement in their academic life and their success in language learning.

To learn a foreign language, students need assistance and support by their teacher (especially emotional and instrumental support) in order to have less anxiety and be

motivated intrinsically. Thus, their effort is increased and they achieve in their academic lives. Learning a second language is not conditional; the significant goal of learning a second language is to provide meaning in a more communal situation.

Emotional and instrumental support is closely related to learning a foreign language. They lead to better performance. According to Krashen (1981), second language acquisition is a perplexing procedure, causes stress and anxiety thus a pressure on students, but the provision of emotional and instrumental support by the teacher can decrease the level of stress and anxiety. In this way, students can better manage the task of learning a foreign language. Most students describe language classrooms as the most aggressive course that they have to mention and they feel their minds are jammed and desperate (Argaman & Abu-Rabia, 2002). Students can have less stress and anxiety through receiving emotional and instrumental support by their teacher because teacher's support is the best factor to decrease the level of students' anxiety.

Studies about teachers' emotional and instrumental support have begun to be a part of second/foreign language learning. However, many areas of the relationship between language learning and emotional/instrumental support exist which are not still uncovered. In this regard, it is challenging to make generalizations about the potential of this study. As for the limitations of the study, the most important point is the number of participants. This study was conducted with 200 students at School of Foreign Languages in Gaziantep University. As the findings of the study are restricted to one school, they cannot be generalized to all schools in Turkey. A bigger sample is required in order to make generalizations. Even so, the number of participants can not threaten the validity of the research. Lastly, the current study is a correlational one; therefore, a causal relationship cannot be claimed.

The pedagogical implications that can be derived out of our research are promoting teachers to concentrate further on emotional and instrumental support, including respect, friendliness, helping the students to solve their problems with English, and bringing diversity to the classroom so as to decrease students' anxiety about English and increase their help-seeking behavior, effort and particularly their intrinsic motivation.

Moreover, the findings of the present study can be evaluated in the educational dimension. Having the notion of improving teacher's emotional and instrumental support by training and schooling, and having the idea that it can be possible to decrease anxiety and increase intrinsic motivation, help-seeking behavior, and effort of students and help them enhance their capacities to be better familiar with their feelings, to better word, and to better standardize them (Mayer & Geher, 1996) can instruct language teaching procedure architects to design and create training programs to decrease the anxiety level of the students and increase their intrinsic motivation.

Our suggestion for further research in this area is that the present study has been conducted only in one school, but it can be done in more than one school and include a larger number of participants to be able to generalize. In addition to that, a study may be conducted only as a quantitative study with a large number of students to include emotional and instrumental support because there might be some teachers who are unaware of these types of support which are the keys of success for students. Another study might be done as a qualitative study. Similarly, a study can be conducted on the motivational and emotional responses. Auxiliary studies might be done on the variables in isolation such as students' anxiety, intrinsic motivation, help-seeking behavior, and effort in order to get more information about teacher's support. Moreover, further research is essential to reveal the relationships between EFL students' perceptions of emotional/instrumental support and their motivational/emotional responses in detail.

References

Abu-Rabia, S. (2004). Teachers' role, learners' gender differences, and FL anxiety among seventh-grade students studying English as a FL. *Educational Psychology*, *24*(5), 711-721

Argaman, O., & Abu-Rabia, S. (2002). The influence of language anxiety on English reading and writing tasks among native Hebrew speakers. *Language Culture and Curriculum*, *15*(2), 143-160.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191-215.

Bandura, A. (1997). Editorial. *American Journal of Health Promotion*, *12*(1), 8-10.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497-529.

Bezzina, F. H. (2010). Investigating gender differences in mathematics performance and in self-regulated learning: An empirical study from Malta. *Equality, Diversity and Inclusion: An International Journal*, *29*(7), 669-693.

Carney-Crompton, S., & Tan, J. (2002). Support systems, psychological functioning, and academic performance of nontraditional female students. *Adult Education Quarterly*, *52*(2), 140-154.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, *11*(4), 227-268.

DeWit, D. J., Karioja, K., Rye, B. J., & Shain, M. (2011). Perceptions of declining classmate and teacher support following the transition to high school: Correlates of increasing student mental health difficulties. *Psychology in the Schools*, *43*(6), 556-572.

Dubow, E. F., & Tisak, J. (1989). The relation between stressful life events and adjustment in elementary school children: The role of social support and social problem-solving skills. *Child Development*, *60*(6), 1412-1423.

Federici, R. A., & Skaalvik, E. M. (2014). Students' perceptions of emotional and instrumental teacher support: Relations with motivational and emotional responses. *International Education Studies*, *7*(1), 21-36.

Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology*, *95*(1), 148-162.

Gao, X. (2004). A critical review of questionnaire use in learner strategy research. *Prospect*, *19*(3), 3-14.

Horwitz, E. K. (1986). Preliminary evidence for the reliability and validity of a foreign language anxiety scale. *TESOL Quarterly*, *20*(3), 559-562.

Karabenick, S. A. (2004). Perceived achievement goal structure and college student help seeking. *Journal of Educational Psychology*, *96*(3), 569-581.

Kilic, M. (2007). *The sources and relations of foreign language listening anxiety with respect to text type and learner variables: A case study at Gaziantep University*. Unpublished MA Dissertation, Gaziantep University, Gaziantep.

Kozanitis, A., Desbiens, J. F., & Chouinard, R. (2007). Perception of teacher support and reaction towards questioning: Its relation to instrumental help-seeking and motivation to learn. *International Journal of Teaching and Learning in Higher Education*, *19*(3), 238-250.

Krashen, S. (1981). Bilingual education and second language acquisition theory. In C. F. Leyba (Ed.), *Schooling and language minority students: A theoretical framework* (pp. 51-82). Los Angeles: California State Department of Education.

Kuhl, J., Jarkon-Horlick, L., & Morrissey, R. F. (1997). Measuring barriers to help-seeking behavior in adolescents. *Journal of Youth and Adolescence*, *26*(6), 637-650.

Langford, C. P. H., Bowsher, J., Maloney, J. P., & Lillis, P. P. (1997). Social support: a conceptual analysis. *Journal of Advanced Nursing*, *25*(1), 95-100.

Lewin, C. (2005). Elementary quantitative methods. In B. Somekh & C. Lewin (Eds.), *Research methods in the social sciences* (215-225). London: Sage Publications.

Malecki, C. K., & Demaray, M. K. (2003). What type of support do they need? Investigating student adjustment as related to emotional, informational, appraisal, and instrumental support. *School Psychology Quarterly*, *18*(3), 231-252.

Marchand, G., & Skinner, E. A. (2007). Motivational dynamics of children's academic help-seeking and concealment. *Journal of Educational Psychology*, *99*(1), 65-82.

Newman, M. (2000). Learning, education and social action. *Understanding Adult Education and Training*, 267-281.

O'Malley, J., & Chamot, A. (1990). *Learning strategies in second language acquisition*. Cambridge: Cambridge University Press

Patrick, H., Kaplan, A., & Ryan, A. M. (2011). Positive classroom motivational environments: Convergence between mastery goal structure and classroom social climate. *Journal of Educational Psychology*, *103*(2), 367.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*(1), 54-67.

Sakiz, G., Pape, S. J., & Hoy, A. W. (2012). Does perceived teacher affective support matter for middle school students in mathematics classrooms?. *Journal of School Psychology*, *50*(2), 235-255.

Tracy, S. (2013). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. West Sussex: Wiley-Blackwell.

Wentzel, K. R. (1998). Social relationships and motivation in middle school: The role of parents, teachers, and peers. *Journal of Educational Psychology*, *90*(2), 202-209.

Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social supports from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology*, *35*(3), 193-202.

Akbaşlı, S. (2018). The evaluation of nature education training. *International Online Journal of Education and Teaching (IOJET)*, *5*(2), 295-311. http://iojet.org/index.php/IOJET/article/view/385/236

Received: 03.02.2018
Received in revised form: 14.02.2018
Accepted: 20.02.2018

THE EVALUATION OF NATURE EDUCATION TRAINING

Sait Akbaşlı

Hacettepe University

sakbasli@gmail.com

Sait Akbaşlı is a graduate of Hacettepe University, Faculty of Education, division of Educational administration. He has served as teacher and inspector assistant at the Ministry of National Education. In 1995, he was appointed as a lecturer at the Selcuk University, Faculty of Education. As of 2015, he has been working as an associate professor at Hacettepe University Faculty of Education Department of Educational Sciences.

THE EVALUATION OF NATURE EDUCATION TRAINING

Sait Akbaşlı

sakbasli@gmail.com

Abstract

Within the scope of "Nature Education" project by TUBITAK Science Department, which aims to provide a wide ecology vision and teach the language of nature to young research assistants from different departments, master and doctorate students and scoutleader teachers; in July, five years time the Project of "Ecology-Based Nature Education around Göksu Valley and Delta" was carried out. 149 people participated in this program. In the research, qualitative and quantitative research methods are used together. A form consisting of 20 questionnaires and 3 open-ended questions was used and the obtained data was analyzed. Codes were created in the direction of the answers given to the open-ended questions, and the opinions of the participants were interpreted by associating the generated codes. As a result of this research, the participants' expectations of the nature education projects were met and achieved the result of leaving it with a vision of a wide ecology.

Keywords: nature education, training, participant expectations, expectations met

Significance Statement

The study is aimed to reveal the extent to which expectations of participants were met in relation to environmental awareness and environmental literacy by the nature education titled as "Göksu Valley and its Eco-based Nature Education Project in Delta" and implemented in cooperation with Mersin University and TUBITAK-Science and Society Department in July 2010-14. The answers were sought to these questions below:

1. To what extent do the nature education projects meet the expectations of the participants?
2. What is your reason for choosing and participating in the Göksu Nature Education project you participated in?
3. What are your expectations from the Göksu Nature Education project you participated in?
4. To what extend do you think the Göksu Nature Education project met your expectations?

1. Introduction

The birth development, and spread of environmental education correspond to the awakening of environmental degradation on Earth and the search for environmental protection. Significant steps have been taken to develop human resources that will support the sustainability of life on earth since the time of Roman Club's historic warnings and people's having consciousness about the necessity to draw the boundaries of economic growth and development by the nature's carrying capacity (Özdemir, 2016). The human consciousness is the story that really reaches (Oppermann, 2009). The individual started to question his existence, the society and the phenomenon of domination tried to be set up on nature, which led the the passage of enlightenment from the dogmatic way of thinking (Meydan, Bozyiğit, & Karakurt, 2012). The societal development, positive attainment of thought and the search for cause-effect connection in inter-factual relationships have also been the starting point of individual and social reactions. The human being who has the quality of being an individual and questioning started to realize the importance of having the consciousness of sustainable development, maintaining the balance of nature and protecting the nature itself. Raising awareness to protect nature converges national governments and international organizations on the idea of the universality of natural values, as a result certain

protection statues based on scientific criteria, have been arranged for this field (Mamedov, 1996).

The organizations, most of which are volunteer organizations have been arranging free lectures, programs, camping training, which are becoming increasingly popular. This is an important development that helps increase the environmental awareness of families, children, and other participants. The number of organizations which only give out-of-school education is increasing day by day. One of the most important of these activities is the project titled "Scientific Environmental Education in National Parks" initiated by TUBITAK in Termessos National Park in 1999. The number of national parks host nature education increased to four with the inclusion of Kaçkar Mountains National Park in 2000, Kazdağı National Park in 2003, and Cappadocia National Park in 2004 (Ozaner & Yalçın, 2001). This number has increased every year since 2005 and has reached 49 regions in 2010 by combining summer nature education with summer science schools. In 2014 it reached 50 in this way. The decrease in the following years is due to the change in the format of the projects. The format has been transformed from a more general 'nature education' approach to more specific and narrower science camps, targeting mostly the boarding region primary school students, younger age groups and disadvantaged groups as participants. Eco-based nature education projects are based on the fact that the natural and cultural values of the protected area and its surroundings are processed on the basis of participatory education with the contributions of university lecturers and other specialists.

The ever-increasing ecological deterioration is a global threat. It is known that even if measures can be taken in the fields of technology, law, politics and economics, problems can not be solved unless a sustainable society is established and significant changes are made in the lifestyles of the people all around the world (Kawashima, 1998). Developments in agriculture and medicine brought together population growth and consequent pressure on nature. This pressure revealed itself with the rapid population growth, technological developments, urbanization, especially unplanned urbanization, and accelerated the process of deterioration of natural balance. All these negative developments have caused people to take an action about this, individually or as an organization. In nature, which is a synthesis product, the processes related to different disciplines have been intertwined and interacted with each other, resulting in different ecosystems and different landscapes. For this reason, nature education has a multidisciplinary character in its content and environmental education takes place through the combination of "in-school" and "out-of-school" programs (Bogner, 1998; Carrier, 2009; Dresner, & Gill, 1994; Durmuş & Yapıcıoglu, 2015; Meydan *et al*., 2012; Ozaner, 2004). The organizations, most of which are volunteer organizations have been arranging free lectures, programs, camping trainings, which are becoming increasingly popular. This is an important development that helps increase the environmental awareness of families, children and other participants. The number of organizations which only give out-of-school education is increasing day by day. One of the most important of these activities is the project titled "Scientific Environmental Education in National Parks" initiated by TUBITAK in Termessos National Park in 1999. The number of national parks host nature education increased to four with the inclusion of Kaçkar Mountains National Park in 2000, Kazdağı National Park in 2003, and Cappadocia National Park in 2004 (Ozaner & Yalçın, 2001). This number has increased every year since 2005 and has reached 49 regions in 2010 by combining summer nature education with summer science schools. In 2014 it reached 50 in this way. The decrease in the following years is due to the change in the format of the projects. The format has been transformed from a more general 'nature education' approach to more specific and narrower science camps, targeting mostly the YIBO and PIO students, younger age groups and disadvantaged groups as participants. Eco-based nature education projects are based on the fact that the natural and cultural values of the protected area and its

surroundings are processed on the basis of participatory education with the contributions of university lecturers and other specialists.

Environmental education includes the processes of informing, awareness raising, warning, balancing, development, protection etc. and it aims to create behaviors in this way in humans. It is also aimed at recognizing and distinguishing values, attitudes and concepts related to the human biophysical and social environment (Gillett, Thomas, Skok, & McLaughin, 1991; Goucide, 2008; Güler, 2009; Meydan *et al*., 2012; Orr, 1990; Ozaner, 2004; Salamon, 2000). In environmental education, in addition to formal education in the classroom to create environmental literacy, non-formal education is also mentioned (La Belle, 1982). In some sources, out-of-class education and environmental education are considered synonymous (Ford, 1986; Powers, 2004; Siegel, 2007).

At the end of the program, the participants are aimed to develop a personal manner to look at the nature and read the nature, to be able to perceive the diversity, unity, originality in nature's shape-color and aesthetics and the balance in the nature. They are also aimed to pose questions that arouse their curiosity and interests (Hungerford, & Volk, 1990; Kruse, & Card, 2004; Marcinkowski, 2010; Meydan *et al*., 2012; Ozaner, 2003).

It is emphasized by many researchers that this type of nature education, although implemented in a limited time, has contributed to individual's becoming more independent, creative and critical thinker and the nature education allows individuals to learn about natural processes, to increase their susceptibility to nature, to be more sensitive and conscious towards nature (Demirsoy, 2004; Durmuş & Yapıcıoglu, 2015; Meydan *et al*., 2012; Ozaner, 2004; Palmberg & Kuru, 2000; Pauw, & Petegem, 2011; Payne, 2006; Shuman, & Ham, 1997; Yanık, 2006). Despite some positive developments in our country and in other countries, manmade destruction of nature continues rapidly. If we do not take action as soon as possible, there will not be a natural area to protect even an environmentally educated human army in the future (Külköylüoğlu, 2006).

With the review of the literature on ature, it is understood that there is a necessity to educate individuals with nature education to raise their consciousness about the environmental issues. (Erdoğan, 2011; Erentay & Erdoğan, 2009; Keleş, Uzun, & Varnacı Uzun, 2010; Kıyıcı Balkan, Yiğit Atabek, & Selcen, 2014; Ozaner, 2004). Environmental education activities should be based on experiential learning (Auer, 2008; Brookes, 2004; Goudie, 2008).

To realize this, an environmental project was implemented by researchers in the natural environment of the Göksu Valley and Delta, which has an effective history and culture, rich biological diversity and water resources. The participants were chosen from individuals who will have an important role in raising environmental literate individuals and they were given the opportunity to learn by doing and experiencing in the natural environment. It was aimed to provide the participants with basic knowledge, skills, attitudes, behaviors, and awareness about the environment and make them learn by having fun with nature education. The project was supported by TUBITAK.

In this study, it is aimed to reveal the extent to which the expectations of the participants were met in relation to environmental awareness and environmental literacy by the nature education titled as "Göksu Valley and its Eco-based Nature Education Project in Delta" and implemented in cooperation with Mersin University and TUBITAK-Science and Society Department in July 2010, 2011, 2012, 2013 and 2014.

In this respect, the answers were sought to these questions below:

1. To what extent do the nature education projects meet the expectations of the participants?
2. What is your reason for choosing and participating in the Göksu Nature Education project you participated in?

3. What are your expectations from the Göksu Nature Education project you participated in?

4. To what extend do you think the Göksu Nature Education project met your expectations?

2. Methodology

2.1. Research Design

In this study mixed method was utilized which includes both quantitative and qualitative analyses. A mixed method is a scientific approach in which the researcher collects both quantitative and qualitative data together in order to find a scientific probing answer and evaluates the findings together (Creswell, 2016). Qualitative and quantitative research methods have been used in this research which aims to investigate the extent to which the projects of nature education meet the expectations of the participants. Quantitative research methods came out of positivist thinking. This method claims that social reality consists of observable, measurable, and expressible phenomena. In quantitative research methods, the main goal is to produce knowledge that explains generalized causal relationships. On the other hand, it seems that the qualitative research method emerged as an interpreting approach in the social sciences rather than a cause-effect relationship. With the qualitative research it was aimed to obtain the in-depth information from the people who participated in the study (Saban & Ersoy, 2016; Tabachnick & Fidel, 2007; Yıldırım & Şimşek, 2005) and with quantitative research it was aimed to get the reliability and validity of the research by increasing the number of applications (Balcı, 2005; Karasar, 2006). Comparative studies are research models aimed at determining which variables influence the dependent variable and in what way (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2010). The questionnaire used in the study was prepared by the researcher and consisted of 20 questionnaires and 3 open ended questions.

2.2. Study Group

The study group is composed of 149 people who participated in the "Göksu Valley and Delta Ecology Based Nature Education" project implemented in July 2010, 2011, 2012, 2013 and 2014. The personal information of the participants is given in Table 1:

Table 1. *Demographic information of participants*

Variables		F (Frequency)	% (Percentage)
Gender	Female	72	48,32
	Male	77	51,68
Age	20-25	76	51
	26-30	43	28,85
	31-35	21	14,09
	35 and over	9	6,06

Professions	Teacher as Leader of Scout	23	15,43
	Res. Asis. Student of postgraduate	114	76,51
	Member of NGO	12	8,06
Branch/Area of specialization	Classroom teacher	33	22,14
	Science education	14	9,39
	Physics	8	5,36
	Chemistry	7	4,69
	Biology	9	6,04
	Geography	13	8,72
	Pre-school education	11	7,38
	Physical education and training	5	3,37
	Turkish/Turkish language and literatüre	11	7,38
	Vocational courses	13	8,72
	Philosophy Group	5	3,37
	History	5	3,37
	Mathematics	9	6,04
	English	6	4,03

2.3. Data Collection

In this research, the form including 20 questionnaires developed by the researcher and 3 open-ended questions was applied to 149 people who participated in "Göksu Nature Education" projects in 2010, 2011, 2012, 2013 and 2014. While the questionnaire was developed; Ecology-based nature education projects and publications related to environmental science, the project "Ecology-Based Nature Education in the Beysehir Lake National Park and Konya Surrounding" project conducted by Meydan was investigated and literature related to program development and evaluation was searched. In addition, field expert opinions were consulted for possible questionnaire items. The questionnaire, which was prepared as 25 questions at the beginning of the research, was applied to the study group and a reliability of the questionnaire was found to be 0.94 by using the Cronbach alpha formula. Thus, the questionnaire was finalized as 20 items.

2.4. Data Analysis

The frequency and percentage distributions of respondents' responses to the questions in the survey and their level of meeting the expectations of participants in the analysis and interpretation phases of the questionnaire were obtained with the "SPSS 20" statistical program and they were tried to be interpreted. Dependent t- test technique was applied to determine the difference between the participants' expectations from "Ecology-based Nature Education Projects" and their level of satisfaction (expectation-satisfaction level). In addition, descriptive analysis approach was used to analyze and interpret the data obtained from the open-ended questions in the research. Miles and Huberman (1994) interrater reliability formula "(reliability = number of agreements/(total number of agreements + disagreements)" was used to prove the reliability of the research. According to this formula, in order to obtain the reliability of the participants' views, who consist of 72 females and 77 males, it was found that the interrater reliability of the themes was ranged from %80.8 to %88.6. as the interrater reliability was calculated to be more than %80, it was concluded the themes of the study could be used. According to this approach, the obtained data is summarized and interpreted according to the previously determined subjects. Direct citation has often been given in order to reflect the views of the interviewed individuals in a striking way.

3. Findings and Discussion

This section includes findings and interpretations of the survey and interview results.

3.1. Findings related to the first sub-problem and interpretations

1. To what extent do the nature education projects meet the expectations of the participants? Table 2:

Table 2. *Expectations and the level of participants' satisfaction about their expectations*

Expectations	Expectation		Level of satisfaction		t	p
	$\overline{x}$	S	$\overline{x}$	S		
The project takes into account participants' wishes and recommendations	3.53	0.72	3.84	0.68	3.04	.002
Carrying out various activities related to social, cultural and educational activities in which the project is carried out	3.74	0.72	4.19	0.60	4.28	.000
The project is organized according to the interests and needs of participants from different disciplines	3.54	0.73	4.08	0.72	3.46	.001
Providing the project with sufficient activities related to the adaptation of the participants	3.78	0.64	4.15	0.65	3.42	.001
The project staff and the trainers are caring and close to the participants	3.79	0.77	4.49	0.63	6.99	.000
The project efficiently encourages the	3.81	0.64	4.39	0.66	5.19	.000

participants to join the activities						
The project has the ability to enhance the academic achievement of the participants	3.75	0.75	4.34	0.62	5.68	.000
Ensuring that participants are actively involved to improve the quality of the Project	3.59	0.70	4.17	0.77	3.36	.001
The ability of the project to discover and develop your interests and capabilities	3.18	0.71	3.89	0.69	1.09	.277
The project provides technological tools and materials that will help the project's teaching activities to be carried out successfully	3.78	0.74	4.40	0.58	7.29	.000
The project ensures sufficient opportunities for discussion, entertainment, leisure time activities for the participants	3.84	0.72	3.75	0.89	0.81	.422
The characteristics of the project that enhance participants' ability to research and develop projects	3.73	0.70	4.21	0.60	4.29	.000
Science is being offered with a popular language	3.73	0.68	4.33	0.71	5.83	.000
Ensure that participants can communicate with project staff and trainers during the Project	3.77	0.70	4.54	0.60	7.34	.000
Providing first aid services in case of possible injuries and accidents during the Project	3.82	0.74	4.45	0.66	7.03	.000
The project leads the participants to scientific, social and cultural activities in their environment	3.78	0.66	4.33	0.68	6.86	.000
The project is in constant self-development effort	3.77	0.70	4.44	0.68	7.06	.000
The project gives participants a sense of responsibility	3.73	0.77	4.47	0.52	8.06	.000
The project raises nature awareness and environmental awareness of the participants	3.89	0.69	4.71	0.47	10.4	.000
The ability of the project to radically change the way participants view and comprehend nature	3.86	0.75	4.64	0.55	8.85	.000

The dependent t-test technique was applied to relate the two variables (expectation-satisfaction level) in predicting the difference between the ecology-based nature education project participants' expectations and their level of satisfaction.

The t value at the level of expectation and satisfaction of the project "to take into account the participants' wishes and recommendations" was calculated as 3.04. According to this result, there is a significant difference between expectation ($\overline{X}$ = 3.53) and satisfaction level ($\overline{X}$ = 3.84) in favor of satisfaction level (p <0,05).

The t value at the level of expectation and satisfaction of "carrying out various social, cultural and educational activities in which the project is carried out" was calculated as 4.28. According to this result, there is a significant difference (p <0,05) in favor of the satisfaction level between expectation ($\overline{X}$ = 3.74) and satisfaction level ($\overline{X}$ = 4.19).

The t value at the level of expectation and satisfaction with respect to "the project is regulated according to the interests and needs of the participants from different disciplines" was calculated as 3.46 and as a result there is a significant difference (p <0,05) in favor of the satisfaction level between expectation ($\overline{X}$ = 3.54) and satisfaction level ($\overline{X}$ = 4.08).

The t value at the level of expectation and satisfaction about "the project provides enough activities related to the adaptation of the participants" was calculated as 3.42. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.78) and the satisfaction level ($\overline{X}$ = 4.15) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction that "the project staff and the trainers are caring and close to the participants" was calculated as 6.99. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.79) and the satisfaction level ($\overline{X}$ = 4.49) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction of " the project efficiently encourages the participants to join the activities " was calculated as 5,19. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.81) and the satisfaction level ($\overline{X}$ = 4.39) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction of "the project has the ability to enhance the academic achievement of the participants" was calculated as 5.68. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.75) and the satisfaction level ($\overline{X}$ = 4.34) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction of "ensuring that participants participate actively in order to improve the quality of the project" was calculated as 3.36. According to this result, there is a significant difference between expectation ($\overline{X}$ = 3.59) and satisfaction level ($\overline{X}$ = 4.17) in favor of satisfaction level (p <0,05).

The t value at the level of expectation and satisfaction of the project is "the ability of the project to discover and develop your interests and capabilities" was calculated as 1,09. According to this result, there is a significant difference between expectation ($\overline{X}$ = 3,18) and satisfaction level ($\overline{X}$ = 3.89) in favor of satisfaction level (p <0,05).

The t value at the level of expectation and satisfaction of "the project provides technological tools and materials that will help the project's teaching activities to be carried out successfully" was calculated as 7.29. According to this result, there is a significant difference (p <0,05) between the level of expectation ($\overline{X}$ = 3.78) and level of satisfaction ($\overline{X}$ = 4.40) in favor of satisfaction level.

The t value at the level of expectation and satisfaction of "the project ensures sufficient opportunities for discussion, entertainment, leisure time activities for the participants" was calculated as 0.81. According to this result, there is no difference between expectations ($\overline{X}$ = 3.84) and satisfaction level ($\overline{X}$ = 3.75) (p <0.05). When we look at the average, it is seen that the expectation level is high but the level of satisfaction is low.

The t value at the level of expectation and satisfaction with "the characteristics of the project that enhance participants' ability to research and develop projects " was calculated as 4.29. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.73) and the satisfaction level ($\overline{X}$ = 4.21) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction about "science is being offered with a popular language" was calculated as 5.83. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.73) and the satisfaction level ($\overline{X}$ = 4.33) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction about “ensuring participants’ communication with project staff and trainers during the project” was calculated as 7.34. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.77) and the satisfaction level ($\overline{X}$ = 4.54) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction with respect to "giving first aid services in case of possible injuries and accidents during the project" was calculated as 7.03. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.82) and the satisfaction level ($\overline{X}$ = 4.45) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction that "the project leads the participants to scientific, social and cultural activities in their environment" was calculated as 6.86. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.78) and the satisfaction level ($\overline{X}$ = 4.33) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction about "the project is in constant self-development effort" was calculated as 7.06. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.77) and the satisfaction level ($\overline{X}$ = 4.44) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction of "the project gives participants a sense of responsibility " was calculated as 8.06. According to this result, there is a significant difference between the expectation ($\overline{X}$ = 3.73) and the satisfaction level ($\overline{X}$ = 4.47) in favor of the level of satisfaction (p <0,05).

The t value at the level of expectation and satisfaction about "the project raises nature awareness and environmental awareness of the participants " was calculated as 10.41. According to this result, there is a significant difference between expectation ($\overline{X}$ = 3.89) and satisfaction level ($\overline{X}$ = 4.71) in favor of satisfaction level (p <0,05).

The t value at the level of expectation and satisfaction about " the ability of the project to radically change the way participants view and comprehend nature" was calculated as 8,85. According to this result, there is a significant difference between expectation ($\overline{X}$ = 3.86) and satisfaction level ($\overline{X}$ = 4.64) in favor of satisfaction level (p <0,05). The participants’ expectations and satisfaction level is given in Table 3:

Table 3. *The participants’ expectations and satisfaction level*

	N	$\overline{X}$	S	df	T	P
Expectation	185	75,5647	9,97192	148	8,391	,000
Satisfaction Level	185	86,3647	7,91600			

According to the results of the participants' expectation and level of satisfaction: the arithmetic mean at the expectation level was 75.56, the standard deviation was 9.97; the arithmetic mean at the satisfaction level was 86.36 and the standard deviation was 7.91. The t

value between the expectation and the satisfaction level was calculated as 8.39. There is a significant difference between expectation and satisfaction level at the level of significance of 0.05. We see that this difference is in favor of the satisfaction level. In this case, we can say that the projects are taking place above the participants' expectations.

3.2. Findings related to the second sub-problem and interpretations

The second research question is “What is your reason for choosing and participating in the Göksu Nature Education project you participated in?” Table 4:

Table 4. *Participants' reasons to choose and participate in Göksu Nature Education Project*

Answers	N
Getting to know the nature closely, learning by living	49
Self-improvement on curriculum issues	42
To gain awareness	28
I do like nature very much	28
Getting to know Göksu Valley and Delta more closely	19
Understanding the language of the nature and telling this to students	17
My desire to develop similar projects	11
Observing the effects of human on environment and environmental effects on human	9
Having benefit and advantage for my postgraduate education	21
Finding opportunities to practice theoretical knowledge in the field	9

When the Table 4 is examined, the responses are generally gathered under these statements: "getting to know nature well and learning by living", “self-improvements on curriculum subjects", "raising awareness", "having love of nature" and "providing benefits for postgraduate education".

Here are some examples from the participants' comments: one participant; "The necessity of observing the effects of natural occurrences and environment on human life, human being's effects on environment, developing academic knowledge through practical training" Another participant; "To share the knowledge of recognizing, understanding and protecting nature with my students who will be administrators in the future " Another participant; "With this education, I knew that I would be able to learn new information, fix my shortcomings, and see what I have never seen before, as the region has many geological formations and different ecosystems in it."

3.3. Findings related to the third sub-problem and interpretations

The third research question is “What are your expectations from the Göksu Nature Education project you participated in?”

Table 5. *Expectations of the participants from Göksu Nature Education Project*

Answers	N
To know the natural and cultural characteristics of the project area better	35
Introducing the project area through an interdisciplinary approach	29
To be able to improve myself about my branch	26
To do similar implementations in my region	19
To be nested with nature and gain awareness	17
To know the plant structure of the project area and their types	11
Being in activity-based implementations	10
Developing nature protection awareness through synergy created	9
Raising awareness about nature education and providing a vision	10

When we look at Table-5, it is seen that the view that the participants responded to this question in general is "to know the natural and cultural characteristics of the project area better", "to introduce the project area with an interdisciplinary approach", "to be able to improve myself about my branch ", "to do similar implementations in my region ", “to be nested with nature and gain awareness”. Here are some examples from the participants' comments: one participant; "I hope that the project will reach to wider masses, helping the recognition of the geography of our country and the effective and efficient use of natural resources." Another participant; "Getting to know the theoretical and practical knowledge about nature in the field of activities, getting to know the environmental problems on the spot, understanding the knowledge and approaches of expert people" Another participant; "With the nature education I have received, I think as a science and technology teacher, I will be able to give more concrete information to the students on the topics covered in the training content and to guide them better in their environmental-nature projects."

3.4. Findings related to the fourth sub-problem and interpretations

The fourth research question is “To what extend do you think the Göksu Nature Education project met your expectations?” Table 6:

Table 6. *Opinions of the participants about the extent to which Göksu Nature Education project met their expectations*

Answers	*N*
Completely and exceedingly	49
I learnt about the Göksu Valley and the Delta ecosystem	43
Learning outcome I got about nature and the environment	29
It was above my expectations	28
I think I started to understand the language of natüre	24
It was satisfying academically.	17
It could be a more relevant group	5

When we look at Table-6, respondents gave answers to this question in general by saying "Completely and exceedingly", "I learnt about the Göksu Valley and the Delta ecosystem", "Learning outcome I got about nature and environment". Here are some examples from the participants' comments: One participant; "I think I learned very good things about nature. It contributed too much to my development. Everything I learned here was the kind of information I could use in my professional life. Nature consciousness was adequately raised". Another participant; "It was a better education than I expected. The project team was very friendly and caring to us, the project team had a high quality; the education program was relevant and disciplined. " "Thanks to the positive communication between the participants, especially the project director, the intensive and exhausting training process has become one of the few examples of mutual self-sacrifice and unity. During the project, mutual dialogue and sharing with people with different professional discipline, different social and cultural characteristics, added people's unique talents to the project in group discipline and harmony, ensuring more than the goals of the project.

4. Conclusion and Suggestions

4.1. Conclusion

In this study, where we examined the level of satisfaction of the participants 'expectations in the context of the project "Göksu Valley and Delta Ecology Based Nature Education" within the context of ecology-based nature education projects, it was determined that participants' expectations were met in large scale. For this reason, eco-based environmental education is needed to protect nature and raise awareness. 15 years after the educational program changed in 1997 in Turkey, new primary and secondary curriculum development studies started in cooperation with TUBITAK and MEB in 2012. In this context, according to project outputs supported by TUBITAK; both academic publications and project outputs indicate that the benefits of nature education for sustainable development can not be denied and nature education was mentioned during the negotiations for European Union's acceptance of Turkey (Berberoğlu, 2015; Kıyıcı, Yiğit, & Selcen, 2014).

Participants explained why they chose Göksu Nature Education project with these statements: "getting to know nature well and learning by living", “self-improvements on curriculum subjects", "raising awareness", "having love of nature" and "providing benefits for postgraduate education". At the end of the education they declared that they have realized their aims.

According to the results of this study, despite the fact that the project activities were carried out within a period of ten days, it can be seen that positive attainments can be achieved in terms of environment consciousness, acquiring responsibility, developing, transferring acquired knowledge to future generations and acquiring scientific knowledge. Based on the results of the study, it can be said that environmental awareness, consciousness and environmental literacy levels of the participants are increased and the project has encouraged the participants to transfer these achievements to future generations. For this reason, it can be stated that the similar projects need to be realized and disseminated with academicians, teachers and different participants who will raise the next generation in order to achieve significant gains.

Participants Expectations from the Göksu Nature Education Project are "to know the natural and cultural characteristics of the project area better ", "to introduce the project area with an interdisciplinary approach", "to be able to improve myself about my branch ", "to do similar applications in my region" "And emphasized that the project meets these expectations. Participants stated that they were fulfilling expectations of the Göksu Nature Education Project and they gave the answers as "completely and exceedingly satisfied", "I

learnt about the Göksu Valley and the Delta ecosystem ", "learning outcome I got about nature and the environment".

Nature education means that the nature of the organism is, in general, a meaning as a whole. This concept can also be defined as the understanding and raising awareness of individuals via making various associations with nature. In addition, nature education helps individuals to raise awareness, get knowledge and understanding towards nature and natural problems, and nature education contributes to the development of positive attitudes toward environmental values (Meydan *et al*, 2012). It is difficult to achieve the desired output in environmental education with the existing school programs (Storksdieck, Ellenbogen, Heimlich, 2005). It has been seen that when participatory fieldwork is practiced, it is possible to develop responsible behaviors towards the environment, which is one of the main objectives of nature education (Erdoğan & Erentay, 2009) and having a sense of responsibility towards the environment (Peyton, Campa, Peyton, & Peyton, 1995; Yerkes & Haras, 1997). Individuals who have knowledge about different aspects of the environment, value the environment and have a sense of responsibility tend to take an active role in protecting the natural environment and resources (Dresner & Gill, 1994). When all these results are taken into account, it can be seen that the positive gains of the mentioned projects are undeniable. This situation shows the importance of the projects implemented within the scope of TUBITAK 4004 - Nature Education and Science Schools and new projects should be implemented. (Avcı *et al*., 2015; Erdoğan, 2011; Meydan *et al*., 2012; Tekbıyık *et al*., 2013).

The summer nature trainings supported by TUBITAK, organized by universities and non-governmental organizations, provide opportunities for students to practice on field trips and help to establish interrelationships between concepts and learning areas by improving their interdisciplinary outlook. It is important to increase the number of science and nature education programs over 50, implemented in 2014, in order to reach wider masses.

4.2. Suggestions

Based on the findings obtained in this study, the following suggestions can be made.

• Education and training programs on nature and environment should be made adequate in practice and awareness-raising should be essential.

• Ecology-based nature education projects should be disseminated, participation should be increased and participation of different occupational groups should be ensured.

• Individuals should be firstly aware of their natural environment.

• Individuals participating in the project should be encouraged to cooperate with different institutions and organizations and civil society organizations to make new projects.

•The participants should be directed to activities such as observation in nature and orientation to scientific research in order to get continual learning outcomes.

• In-service trainings can be arranged for teachers in order to prepare active learning environments and to learn by living with the students in line with the research results. Trainings can be given about project preparation for TUBITAK 4004 Nature Education and Science Schools program in order to spread such activities. Informing activities can be done to introduce the program to the personnel in the project units of National Education Directorate.

References

Auer, M. A. (2008). Sensory perception, rationalism and outdoor environmental education. *International Research in Geographical and Environmental Education, 17*(1), 6-12.

Avcı, E., Özenir Su, Ö., Kurt, M., & Atik, S. (2015). TÜBİTAK 4004 Doğa eğitimi ve bilim okulları kapsamında ortaokul öğrencilerine yönelik gerçekleştirilen "Bizim deniz akdeniz" projesinin değerlendirilmesi [An assessment of the project entitled 'The Mediterranean Sea: Our sea' conducted with secondary education students within the scope of TUBITAK 4004 Nature education and science schools]. *Amasya University Journal of the Faculty of Education, 4*(2), 312-333.

Balcı, A. (2005). *Sosyal bilimlerde araştırma [Research in social sciences].* Ankara: Pegem A Yayıncılık.

Berberoğlu Okur, E. (2015). Ekopedagoji temelli sınıf dışı çevre eğitiminin çevre farkındalığı üzerinde etkisi [The effect of ecopedagogy based out-of-school environmental education on environmental consciousness]. *Journal of the Hasan Ali Yücel Faculty of Education 12*(1), 67-81.

Bogner, F. X. (1998). The influence of short-term outdoor ecology education on long-term variables of environmental perspective. *The Journal of Environmental Education, 29*(4), 17-30.

Brookes, A. (2004). Astride a long-dead horse: Mainstream outdoor education theory and central curriculum problem. *Australian Journal of Outdoor Education, 8*(2), 22-33.

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2010). *Bilimsel araştırma yöntemleri [Scientific research methods]*. Ankara: Pegem Akademi.

Carrier, S. J. (2009). Environmental education in the schoolyard: Learning styles and gender. *The Journal of Environmental Education, 40*(3), 2-12.

Creswell, J. W. (2016). *Karma yöntem araştırmalarına giriş [Introduction to mixed methods research]* (Ed. Sözbilir, M). Ankara: Pegem Akademi

Demirsoy, A. (2004). *Son imparatora öğütler "Bilim toplumu"[Advices to the last emperor: Science society]*. Ankara: Meteksan A. Ş.

Dresner, M. G., & Gill, M. (1994). Environmental education summer nature camp. Journal of environmental education. *The Journal of Environmental Education, 25*(3), 35-41.

Durmuş, Y., & Yapıcıoğlu, E. (2015, February). *Kemaliye (Erzincan) ecology based nature education project in participants' eyes.* Paper presented at 7th World conference on educational sciences, (WCES-2015), Novotel Athens Convention Center, Athens, Greece.

Erdoğan, M. (2011). Ekoloji temelli yaz doğa eğitimi programının ilköğretim öğrencilerinin çevreye yönelik bilgi, duyuşsal eğilimler ve sorumlu davranışlarına etkisi [The effect of ecology-based summer nature education program on primary education students' environmental consciousness, affective tendencies and responsible behaviors]. *Kuram ve Uygulamada Eğitim Bilimleri, 11*(4), 2223-2237.

Erentay, N., & Erdoğan, M. (2009). *22 adımda doğa eğitimi [Nature education in 22 steps]*. Ankara: ODTÜ Yayıncılık.

Erten S, (2005). Okul öncesi öğretmen adaylarında çevre dostu davranışların araştırılması [An investigation of the nature friendly behaviours of pre-school teacher candidates]. *Hacettepe University Journal of Education, 28,* 91-100.

Ford, P. (1986). *Outdoor education: Definition and philosophy*. ERIC Clearinghouse on Rural Education and Small Schools Digest, Las Cruces, NM.

Gillett, D. P., Thomas, G. P., Skok, R. L., & McLaughin, T. F. (1991). The effects of wilderness camping and hiking on the self-concept and the environmental attitudes and knowledge of twelfth graders. *The Journal of Environmental Education, 22*(3), 33-44.

Goudie, C. A. (2008). Institutionalizing ecological literacy: A critical component of the new "Green" Economy". *Business Perpectives, 19*(3), 16-21.

Güler, T. (2009). Ekoloji temelli bir çevre eğitiminin öğretmenlerin çevre eğitimine karşı görüşlerine etkileri [The effects of ecology-based nature education on teachers' nature education opinions]. *Education and Science, 34* (151), 30-43.

Hungerford, H. R., & Volk, T. L. (1990). Changing learner behavior through environmental education. *The Journal of Environmental Education, 21*(3), 8-22.

Karasar, N. (2006). *Bilimsel araştırma yöntemleri [Scientific research methods]*. Ankara: Nobel Yayınları.

Kawashima, M. (1998). *Development of teaching materials.* In S. E., Jorgenson, M. Kawashima & T. Kira (Ed.). A Focus on Lakes/Rivers in Environmental Education (pp. 33-50). Tokyo.

Keleş, Ö., Uzun, N., & Varnacı Uzun, F. (2010). Öğretmen adaylarının çevre bilinci, çevresel tutum, düşünce ve davranışlarının doğa eğitimi projesine bağlı değişimi ve kalıcılığının değerlendirilmesi [An assessment of the change of pre-service teachers' environmental consciousness, environmental attitude, thoughts and behaviours in relation to nature education projects, and its permanence]. *Electronic Journal of Social Sciences, 9*(32), 384-401.

Kıyıcı Balkan, F., Yiğit Atabek, E., & Selcen, E. (2014). Doğa eğitimi ile öğretmen adaylarının çevre okuryazarlık düzeylerindeki değişimin ve görüşlerinin incelenmesi [An investigation of the pre-service teachers' opinions and the change level at their environment literacy by nature education]. *Trakya University Journal of Education, 4*(1), 17-27.

Kruse C. K., & Card, J. A. (2004). Effects of an conservation education camp program on campers' self-reported knowledge, attitude and behavior. *The Journal of Envrionmental Education, 35*(4), 33-45.

Külköylüoğlu, O. (2006). *Çevre ve çevre (İnsan doğa ilişkisi) [Nature and nature (The relationship between human being and nature)]*. Bolu: Abant İzzet Baysal Üniversitesi Vakfı Yayınları.

Mamedow, N. (1996). Toplum ve doğanın karşılıklı etkileşimi: Sosyal ekoloji [The mutual interaction between society and nature: Social ecology]. *Ecology Journals, 21*, 13-15.

Marcinkowski, T. J. (2010). Contemporary challenges and opportunities in environmental education: Whwre are we headed and what deserves our attention? *The Journal of Environmental Education, 41*(1), 34-54.

Meydan, A., Bozyiğit, R., & Karakurt, M. (2012). Ekoloji temelli doğa eğitimi projelerinin katılımcı beklentilerini karşılama düzeyleri [The expectation satisfaction levels of the participants in ecology-based nature education projects] . *Marmara Coğrafya Dergisi, 25*, 238-255.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis.* Thousand Oaks, CA: Sage.

Oppermann, S. (2009). *Eko eleştiri. [Eco critisizm],*

http://www.pen.org.tr/files/GreenPEN%20Ekoeleştiri%20Prof.%20Dr.%20Serpil%20Opperman.pdf [Retrived from: 22.5.2017].

Orr, D.W. (1990). Environmental education and ecological literacy. *The Education Digest*, 55(9), 49-53.

Ozaner, F. S. (2003). Eko turizm etkinliklerinde ve ekoloji temelli çevre eğitiminde coğrafyanın önemi [The importance of geography in eco tourism activities and ecology-based environment education], *E.Ü. Coğrafya bölümü sempozyumları 2. Coğrafi çevre koruma ve turizm sempozyumu,* (pp. 51-54). İzmir.

Ozaner, F. S. (2004). Türkiye'de Okul Dışı Çevre Eğitimi Ne Durumda? Neler Yapılmalı? [What is the status of extra curricular nature education in Turkey? What should be done?] *V. Ulusal Ekoloji ve Çevre Kongresi* (pp. 67-98). İzmir: Abant İzzet Baysal Üniversitesi & Biyologlar Derneği.

Ozaner F. S., & Yalçın, G. (2001). Milli parklarda bilimsel çevre eğitimi [National environment education in national parks]. *V. Uluslararası ekoloji ve çevre sorunları sempozyumu,* (pp. 64-76). Ankara: Alman Kültür Merkezi.

Özdemir, O. (2016). *Ekolojik okuryazarlık ve çevre eğitimi [Ecological literacy and environment education]*. Ankara: Pegem Akademi.

Palmerg, I. E., & Kuru, J. (2000). Outdoor activities as a basis for environmental responsibility. *Journal of Environmental Education, 31*(4), 32-37.

Payne, P. G. (2006). Environmental education and curriculum theory. *The Journal of Environmental Education, 37*(2), 25-35. Pauw JB, Petegem PV, 2011. The effect of flemish eco-schools on student environmental knowledge, attitudes, and affect. *International Journal of Science Education, 33*(11),1513-1538.

Peyton, B., Campa, H., Peyton, M.D. and Peyton, J.V. (1995). "Biological Diversityfor Secondary Education", Environmental Education Module/ UNESCO-UNEP-IEEP

Powers, D. L. (2004). The effects of an outdoor education program on life effectiveness skills of participants. California State University Master of Science Thesis.

Saban, A., & Ersoy, A. (2016). *Eğitimde nitel araştırma desenleri [Qualitative research designs in education]*. Ankara: Anı Yayıncılık.

Salmon, J. (2000). Are we building environmental literacy?. *The Journal of Environmental Education*, 31(4), 4-10.

Shuman, D.K. & Ham, S.H. (1997) Toward a theory of commitment to environmental education teaching. Journal of Environmental Education, *28*, 25-32.

Siegel, H. R. A. (2007). *People on the move: an examination of significant life experiences of outdoor education instructors.* Department of Recreation Leisure Studies California State University, Master of Science Thesis.

Storksdieck, M., Ellenbogen, K. & Heimlich, J. E. (2005). Changing minds? Reassessing outcomes in free-choice environmental education. *Environmental Education Research, 11*(3), 353- 369.

Tabachnick, B. G., & Fidel, L. S. (2007). *Using multivariate analysis.* USA: Pearson Education Inc.

Tekbıyık, A., Seyihoğlu, A., Sezen Vekli, G., & Birinci Konur, K. (2013). Aktif öğrenmeye dayalı bir yaz bilim kampının öğrenciler üzerindeki etkilerinin incelenmesi [An investigation of the effects of a summer science camp based on active learning on students]. *The Journal of Academic Social Science Studies, 6*(1), 1383-1406.

Yıldırım, A., & Şimşek, H. (2005). *Sosyal bilimlerde nitel araştırma yöntemleri [Quantitative research methods in social sciences]*. Ankara: Seçkin Yayınları.

Takkaç Tulgar, A. (2018). Speaking Anxiety of Foreign Learners of Turkish in Target Context. *International Online Journal of Education and Teaching (IOJET)*, *5*(2),313-332.
http://iojet.org/index.php/IOJET/article/view/362/237

Received: 14.12.2017
Received in revised form: 17.01.2018
Accepted: 30.01.2018

SPEAKING ANXIETY OF FOREIGN LEARNERS OF TURKISH IN TARGET CONTEXT

Ayşegül Takkaç Tulgar
Atatürk University
aysegultakkac@hotmail.com

The author is an assistant professor in ELT Department. Her research interests are cross-cultural pragmatics, glocalization and peace education in language education.

SPEAKING ANXIETY OF FOREIGN LEARNERS OF TURKISH IN TARGET CONTEXT

Ayşegül Takkaç Tulgar

aysegultakkac@hotmail.com

Abstract

While there are many studies on speaking anxiety in English, speaking anxiety in Turkish learned in target context remains under-examined. This qualitative study was intended to investigate the sources of speaking anxiety for foreign learners of Turkish as a second language and their coping strategies with these challenges. The data collected through semi-structured observations and open-ended questions from ten foreign learners of Turkish. The results of the content analysis revealed that the participants favored the target context for their speaking development because of the available chances for exposure to and practice in the target language. However, the participants also referred to some challenges increasing their speaking anxiety such as the fear of making mistakes, being negatively evaluated, immediate questions, self-comparison with others and self-evaluation. They also counted such anxiety-creating, context-specific factors as the fear of communicating with native speakers, having native-speaker teachers, accent of the local people, cultural differences between themselves and other interlocutors. They also reported coping strategies like considering mistakes as natural and beneficial, regarding the existence of native speakers and friends from other countries contributory for language development and cultural enrichment, having self-preparation and doing individual listening or watching activities. In the light of these results, some practical suggestions were provided.

Keywords: speaking anxiety, Turkish as a second language, foreign learners of Turkish, language education

1. Introduction

Since language is the basic tool for communication, it is essential to develop speaking skill in language learning process. However, successful development of speaking skill in language learning can be under the influence of different factors, one of which is the notion of anxiety. As an affective variable, anxiety can be defined as a "state of apprehension, a vague fear" (Scovel, 1978, p. 134). Regarding the autonomic nature of variable, Spielberger (1983) describes anxiety as the "subjective feeling of tension, nervousness and worry associated with an arousal of the autonomic nervous system" (p. 15). Specifically focusing on the anxiety felt in language learning process, MacIntry and Gardner (1994) maintain that anxiety can be "the feeling of tension and apprehension specifically associated with second language context including speaking" (p. 284).

There are mainly three types of anxiety influencing the language learning process. One is trait anxiety which is related with the personality of the learner and can be observed in different situations as it is connected to personality characteristics (Brown, 1994; Philips, 1992). Another type is state anxiety which is about the reactions to certain conditions (Young, 1991). The last type is situation-specific anxiety, which is, like state anxiety, created by specific events and situations (Wang, 1998). MacIntry and Gardner (1991) utter that language learning can be an example of situation-specific anxiety.

As the pioneers examining the factors affecting foreign language anxiety in detail and develop the Foreign Language Classroom Anxiety Scale (FLCAS), Horwitz, Horwitz and Cope (1986) define language anxiety as a set of self-perceptions and behaviors connected with the specific act of language learning and propose three anxiety-related dynamics; communication apprehension, fear of negative evaluation and test anxiety. Communication apprehension refers to the uneasiness experienced while interacting with people. Fear of negative evaluation is the nervousness coming along with the case of being evaluated by other people. The last component, test anxiety, is about the fear of failure while performing. Brown (1994) also proposes a distinction between facilitating and debilitating anxiety. While the former type becomes a source of motivation for learner encouraging success, the latter causes negative feelings leading to failure.

Many studies centering on the notion of anxiety in language education reached the common conclusion that speaking is the most anxiety-provoking skill in the process (Effiong, 2016; Gregersen & Horwitz, 2002; Horwitz, 2001; Humphries, 2011; Liu, 2009; Yalçın & İnceçay, 2014; Young, 1990). A majority of these studies have been conducted in foreign language learning context in which the target language was English. In addition, these studies mostly centered on the examination of the sources of speaking anxiety and relatively fewer studies focused on the coping strategies of learners with the challenges (Akkakoson, 2016b; Kondo & Ying-Ling, 2004; Wei, 2013). Therefore, there is scarcity of research focusing on speaking anxiety experienced by foreign learners learning Turkish in second language learning context. Holding this research perspective, this study aims to examine the sources of speaking anxiety experienced by foreign learners of Turkish and their coping strategies with the anxiety-provoking factors in second language learning context.

1.1. Literature Review

Anxiety experienced in speaking skill has been a topic of continuous investigation in the field of language learning. Studies on speaking anxiety have been conducted either in foreign language learning contexts or second language learning contexts. This section is intended to present existing research first in foreign language learning context and then in second language learning context. One of the early examinations belongs to Young (1990). To examine the sources of speaking anxiety, the researcher developed a questionnaire related with foreign language speaking anxiety and conducted the questionnaire with 135 university students and 109 high school learners. The results showed that the challenge was not speaking in the foreign language but mainly speaking in front of class and teachers. With an aim to investigate sources of speaking anxiety for college-level students, Kitano (2001) asked 212 students learning Japanese in America to answer the items in the scale prepared by Horwitz, et al. (1986) and complete a self-rating can-do scale. The results revealed that participants' self-perceptions affected their anxiety level. Students with low self-perceived ability in speaking skill experienced more anxiety compared to those participants with higher self-perceived speaking ability. The researcher also noted that fear of negative evaluation also caused high levels of speaking anxiety. With a purpose to identify the correlation between foreign language anxiety and unwillingness to communicate, Liu and Jackson (2008) asked 547 first-year Japanese learners of English to complete a survey. The results pointed at the positive relationship between unwillingness and foreign language anxiety and indicated that many learners, though not experiencing problems in interpersonal dialogues, did not want to talk in English in the classroom and they head the fear of negative evaluation.

A study on speaking anxiety in Chinese context was offered by Tianjian (2010) who examined the relationship between speaking anxiety and the variables of trait anxiety, gender and proficiency. The results revealed that though there was not a significant correlation

between speaking anxiety and gender, there was a statistically significant negative correlation between proficiency and speaking anxiety. In addition, the researcher also attracted attention to the connection between personality traits and speaking anxiety. Another study in Chinese context was conducted by Mak (2011) who investigated the factors affecting speaking anxiety. The results of the FLCAS showed that fear of negative evaluation, uneasiness while speaking with native speakers, fear of failure, negative self-evaluation and speaking in front of the class without being prepared were among the factors creating anxiety. He (2013) carried out research on the factors causing speaking anxiety for Chinese learners of English. Conducting questionnaires with students and interviews with teachers, the researcher concluded that fear of being orally assessed, worries about fluency, pronunciation and intonation, fear of using the target language with other people, talking about unfamiliar topics and having time limitation in talking were the main factors causing anxiety while speaking.

Focusing on gender differences in speaking anxiety, Sadeghi, Mohammadi and Sedaghatgoftar (2013) worked with 38 male and 38 female Iranian learners of English. The results of the FLCAS revealed that female learners were more anxious than their male counterparts and fear of making mistakes, preparedness, linguistic difficulties, instructor-learner relationships, socio-cultural factors and self-perception were among the factors influencing the participants' speaking anxiety. Hamad (2013) aimed to examine the factors causing speaking anxiety in relation with students, instructors, curriculum, teaching methods and learning environment. The results obtained from a questionnaire and interviews with instructors indicated that the participants experienced anxiety in public speaking, that the curriculum and instructors did not encourage speaking much and that foreign context did not promote speaking development. Akkakoson (2016a) centered attention on the speaking anxiety experienced by Thai learners of English. The results of a questionnaire and semi-structured interview forms with 282 university-level Thai learners showed that limited vocabulary knowledge, self-confidence, attitudes towards the target language and background in the target language were the factors influencing the anxiety levels of the participants. Another research in Thai setting was presented by Wilang and Singhasiri (2017). The researchers developed a scale to examine the anxiety in English as a lingua franca. The answers of 240 Thai graduate EFL learners pointed at interlocutor-related difficulties and language-processing difficulties. The results also revealed that apprehension about interlocutors decreased the comprehensibility and intelligibility of interactions and thus increased anxiety.

Speaking anxiety in foreign language learning context has also attracted attention in Turkish context. In her doctoral dissertation, Aydın (2001) aimed to examine the sources of anxiety for EFL learners in Turkish context in speaking and writing skills. Thirty-six intermediate level learners completed the FLCAS and their anxiety levels were determined. These participants were also asked to keep diaries and one third of them were interviewed. The results showed that there were mainly three sources of anxiety for the participants: learner-related factors such as negative self-assessment, self-comparison with others and high expectations; teacher-related factors like teachers' attitude and teaching-related factors such as making presentations and speaking in front of the class. In an MA thesis, Balemir (2009) also investigated the factor influencing foreign language speaking anxiety as well as the relationship between speaking anxiety and proficiency level. The data were collected from 234 participants through a questionnaire and interviews. The researcher found out that proficiency level did not have major effect on speaking anxiety. Teaching and testing practices, individual reasons, fear of negative evaluation and some linguistic difficulties were among the sources of speaking anxiety for the participants. In his MA thesis, Öztürk (2009) examined the influential factors in foreign language speaking anxiety. The study included

383 prep class students. All the participants were asked to complete a questionnaire and 19 participated in interviews. The results indicated that immediate questions, pronunciation, fear of making mistake and negative evaluation were among the causes of speaking anxiety.

Working with preparatory class EFL learners, Koçak (2010) conducted open-ended questionnaires and interviews. The results showed that lack of vocabulary, grammar and syntax knowledge, fear of failure, lack of chances for practice and fear of speaking in front of others were among the key causes of speaking anxiety. With a purpose to find out the anxiety-creating factors for 12 first year ELT Department students, Yalçın and İnceçay (2014) carried out a mixed-methods research. The results indicated that familiarity/unfamiliarity with the topic on which to speak, time limitation, preparedness and feeling of success/failure were the dynamics affecting the participants' speaking anxiety. Holding a perspective to assess the effectiveness of using paralinguistic features to decrease speaking anxiety, Uştuk and Aydın (2016) conducted an experimental study with 40 advanced-level ELF learners. After providing instruction with paralinguistic features to the experimental group, the researchers noted that instruction in paralinguistic features decreased the participants' speaking anxiety by reducing their communication apprehension and fear of negative evaluation while increasing their test anxiety.

The second category of studies, which are not many in number, centered on speaking anxiety in second language context. Developing a scale for second language speaking anxiety, Woodrow (2006) aimed to examine the relationship between second language oral performance and anxiety levels. 275 advanced level English for academic purposes learners participated in the study. The results pointed at the negative relationship between speaking performance and anxiety levels. The researcher reported oral presentations, role-plays, group discussions and answering teachers' questions as in-class anxiety sources and having interaction with native speakers, talking with more than one native speaker and answering their questions as the out-of-class anxiety sources. The study also indicated that positive thinking, compensation, relaxation techniques and effort to develop language skills as ways to cope with speaking anxiety. To investigate the non-native learners' coping ways with speaking anxiety second language learning context, Terui (2012) conducted iterative interviews with six international students studying in a multilingual and multicultural context. The results showed that protecting self-esteem, keeping conversations flowing and open, benefitting from other clues and taking advantage of status were the tactics to deal with speaking anxiety. Centering on the issue of second language speaking anxiety from the perspective of immigrants, de Blakeley, Ford and Casey (2017) investigated the second language speaking experiences of 90 immigrants. The researchers maintained that the social context, self-perceived language proficiency, extroversion and age were the central causes of speaking anxiety in second language. The researchers also attracted attention to the observation that learners experiencing speaking anxiety may avoid interactions with native speakers or wish to remain silent as a way to cope with stress while speaking.

There are also some other studies examining the anxiety coping strategies of language learners as well as the sources anxiety for them. Examining the overall language anxiety experienced by Japanese learners of English and their coping strategies with the challenges, Kondo and Ying-Ling (2004) reported that the participants adopted five categories of coping strategies: positive thinking, relaxation, peer seeking, resignation and preparation. Sharing a similar perspective with Kondo and Ying-Ling, Kao and Craigie (2013) aimed to study the coping strategies adopted by 120 Taiwanese learners of English at tertiary level. They obtained similar results with the ones in Kondo and Ying-Ling's research, pointing at positive thinking and resignation as strategies used by the participants to cope with language learning anxiety. Working with 25 Chinese learners of English, Wei (2013) also referred to

such similar coping strategies with classroom anxiety as preparation, seeking for help, relaxation, positive thinking and resignation. Yoshida (2013) focused on the speaking anxiety experiences and the coping ways of three learners of Japanese at an Australian university. The researcher collected data through participant diaries, interviews and observations. The results showed that the participants considered making mistakes and maintaining accuracy as the main challenges increasing their speaking anxiety. They explained that they encouraged themselves to understand the importance of participation. They also noted that they began to learn from their mistakes instead of feeling anxious. Akkakoson (2016b) also aimed to examine the sources of speaking anxiety and the coping strategies of 88 EFL learners. The results obtained from the interviews showed that the participants' lack of self-confidence, their limited language background and lack of motivation were the factors increasing the learners' speaking anxiety. The participants stated that they were adopting affective, social, cognitive, meta-cognitive strategies in order to deal with the anxiety sources.

The perusal of literature indicates that speaking anxiety has been a widely-investigated topic in foreign language education, especially English as a foreign language. However, there is still a need for further studies on speaking anxiety in second language learning in different languages. Therefore, with an aim to contribute to research on second language speaking anxiety from a different perspective, this study is intended to examine sources of speaking anxiety experienced by foreign learners of Turkish in the process of learning Turkish as a second language in Turkish context.

2. Method

This study adopted qualitative research design in order to gain in-depth understanding of the experiences of participants (Bogdan & Biklen, 2007) concerning speaking anxiety in learning Turkish as a second language. The main aim is to identify the sources of speaking anxiety exemplified through the lived-experiences of the participants (Miles & Huberman, 1994).

2.1. Participants and Setting

This research was conducted at ATATÖMER (Teaching Turkish Center) at 2016-2017 academic year. ATATÖMER offers one-year-long Turkish language preparatory education to learners coming from different countries to follow their undergraduate or graduate studies in Turkey. The preparatory education lasts for 32 weeks, 960 hours. The Center provides learners with extra-curricular activities besides the curricular ones at school. Therefore, in such a context, the foreign students can be exposed to the target language and have the chance to practice it in its natural setting.

The participants in this study were 10 foreign students receiving Turkish education at ATATÖMER. They were coming from Georgia (one), Bashkortostan (one), Mongolia (one), Kazakhstan (two), Afghanistan (two), Kyrgyzstan (one), Iran (one) and Tajikistan (one). These students stated that they had stated learning Turkish in their countries before coming to Turkey. They were at A2 level of proficiency in Turkish when they started their target language education at ATATÖMER. The participants were at C1 level of proficiency at the end of their preparatory education. So, this learner profile had the experience to compare cases of learning the language in foreign context and target context.

2.2. Data Collection Tools

The data in this study were collected through two instruments. One of the instruments was classroom-observations. The researcher conducted six observations in speaking classes over a period of six months (one for each month). The researcher, based on previous studies, prepared a semi-structured guide to take notes during observations. During the observations,

the items in the guide as well as extra cases that were observed were noted for further evaluation.

The other instrument was open-ended questions. These questions were formed by the researcher in the light of literature and observation notes. The questions were in Turkish. After forming the questions, the researcher consulted two field experts (experts in teaching Turkish) for the understandability and validity of the questions presented below:

1. How can you compare your speaking anxiety during your foreign language education in your home country with your second language education in the target context (at ATATÖMER)?
2. Can you compare your speaking anxiety in the initial phases of preparatory class education with that at present?
3. How did learning Turkish in the second language learning context affect your speaking anxiety?
4. What factors affected your speaking anxiety level in and out of school context?
5. How did you overcome your speaking anxiety?

2.3. Data Analysis

In order to conduct a detailed analysis, the researcher adopted content analysis. Each data set was analyzed separately. First, the observation notes were analyzed to identify the recurring items. As there were six observation notes, the researcher compared the items in the notes. Then, the answers to the open-ended questions were analyzed. The answers of each participant were first analyzed individually and then a compare-contrast process was followed to make a cross analysis among the participants' answers. After each data set was separately analyzes, the researcher conducted a cross analysis again between the data sets. All these steps were followed to ensure validity and trustworthiness of the analysis.

3. Results

This section presents the results obtained through open-ended questions and classroom observation notes. The sources of anxiety experienced by the foreign learners of Turkish in second language learning context and their coping strategies with the challenges are displayed under five sub-sections according to the open-ended questions.

1. How can you compare your speaking anxiety during your foreign language education in your home country with your second language education in the target context (at ATATÖMER)?

Since all the participants in this study had started learning Turkish in their home countries, they could make comparisons between foreign and second language learning contexts regarding their levels of speaking anxiety. In their comparisons, they referred mainly to two contextual differences between two learning settings. The first contextual difference was the lack of native speakers and teachers in their language education in their home countries. Nine out of ten participants noted that not having native teachers to teach the target language and native speakers to practice the language was as a serious limitation in the process of learning Turkish in their home countries, as expressed by a participant as follows:

> "Taking Turkish education at ATATÖMER is more advantageous because we have native teachers at the Center and native speakers out of the school. We can hear and observe how they use the language in communication. In my home country, I could learn the language only in the classroom but here I can learn the language everywhere because it is used everywhere." (participant from Afghanistan)

The limited chances for exposure to and practice in the target language in the foreign context also affected the speaking anxiety of the participants. All of them considered the lack of chances as a drawback increasing their anxiety during speaking because they could not have familiarity with the target language in spoken format. Reflecting this perspective, a participant stated that because she could not have chances to see how the target language should be used in different contexts, she experienced higher levels of speaking anxiety in speaking acts in her own country:

> "The act of speaking in my country was actually a more anxiety-creating experience for me. We were learning Turkish there (in Georgia) but we were not exposed to the target usages in authentic communication. As there were not native speakers of Turkish around, we also could not have much real practice of the language. Therefore, this situation increased my anxiety level in speaking because I was afraid of making mistakes while producing the language. I believe learning Turkish here (at ATATÖMER) is more advantageous and helpful." (participant from Georgia)

The observation notes also revealed that the participants considered having native teachers and speakers always around as a chance for their speaking development, which helped them decrease their speaking anxiety. I observed that while communicating with native teachers in the class or native speakers during the breaks, the participants were trying to learn new things from them as regards the appropriate usages of the language.

2. Can you compare your speaking anxiety in the initial phases of preparatory class education with that at present?

When asked to evaluate their second language learning experiences at ATATÖMER, all the participants maintained that they felt observable improvement in their language skills, speaking skill in particular, and this improvement helped them decrease their speaking anxiety. They explained that in the initial stages, especially in the first few weeks, when they were experiencing the adaptation process to the target environment, they felt high anxiety levels in speaking in the target language. The main reasons for their speaking anxiety were the fear of making mistakes and being negatively evaluated by the native speakers of the language. One of the participants stated that, in the first few weeks, she was feeling so anxious while communicating with her teachers or native speakers that she was making more mistakes than she normally did in her home country:

> "When I came here first, I was really anxious speaking with my teachers at ATATÖMER or with the native speakers around. I experienced the fear of making mistakes and being ridiculed or being understood wrongly. Now, I can better realize how that situation increased my anxiety while speaking." (participant from Kazakhstan)

All the participants, fortunately, reported the chance for positive in their levels of speaking anxiety in time. The more they were exposed to the target language and practiced it in its natural setting, the more self-confident they became and the less anxiety they experienced in using the spoken form of the target language. They expressed their pleasure of their increased levels of confidence and decreased levels of anxiety while providing answers to this question. A participant stated that she was a bit shy at the beginning but she overcame it later and could benefit from the chances for development in the target context:

> "After getting used to the new learning environment, I could better adapt myself to the language learning process and I could benefit from the available chances in the target setting to improve my language skills. In time, I got over my shyness and became

> more willing to engage myself in interaction with the native speakers of the language." (participant from Tajikistan)

As I conducted six observations over a period of six months, I could observe the change in the participants. In my first observation, I saw that all the participants were introverted and they were less willing to participate in speaking activities. They were only providing answers when the lecturer asked them some questions. However, in my following observations, I realized the change for positive in the level of self-confidence of the participants. I inferred that spending time in the target community and getting used to the new environment helped them overcome their shyness and unwillingness in speaking. Especially, in the last three observations, I saw the increase in their motivation and the decrease in their speaking anxiety. My observation notes also highlighted the decrease in the speaking anxiety of the participants.

3. How did learning Turkish in the second language learning context affect your speaking anxiety?

Taking the effect of learning context on their speaking anxiety, all the participants maintained that the second language learning environment had positive influence on their language learning motivation and provided them with an encouraging atmosphere to develop their language skills, especially speaking. The participants noted that though there were still some challenges for them affecting their speaking anxiety levels in initial stages, learning Turkish in the second language context is advantageous, as expressed by a participant:

> "Learning Turkish in Turkey is a more encouraging experience than learning it in my home country. Being in constant contact with the native speakers of the target language is an advantage for us to improve especially our speaking skill. Therefore, even if there are some factors still creating speaking anxiety, learning the language here is more helpful for us." (participant from Mongolia)

4. What factors affected your speaking anxiety level in and out of school context?

The answers of the participants to this question centered around nine factors affecting their speaking anxiety levels in and out of classroom environment. Two of the factors that all the participants pointed at were the fear of making mistakes while speaking with native speakers. The participants explained that they were afraid of making mistakes in communicative situations with native speakers and being wrongly understood by them. Though perceiving interaction with native speakers as an advantage, the participants experienced the pressure of making mistakes because the native speakers were the experts of the language. Referring to this factor as a problem increasing her speaking anxiety, a participant offered the below comment:

> "Talking with native speakers is a great chance for us to develop our speaking skill. However, I felt nervous, especially in the initial phases, while talking with native speakers because it was their language and they had a full command of it. This fact inevitably increased my speaking anxiety because I was afraid of making mistakes while interacting with them." (participant from Bashkortostan)

Fear of negative evaluation was another issue influencing the participants' speaking anxiety. As the participants were still in the process of expanding their language knowledge, they were making mistakes while producing the target language. Seven out of ten participants stated that these mistakes naturally increased their speaking anxiety because of the fear of being negatively evaluated based on their incorrect or inappropriate usages of the target language by their native-speaker lecturers and by the native speakers outside the classroom. Accordingly, a participant stated:

> "I know it is natural to make mistakes while learning the target language. And, the native speakers we are interacting with know that we are still learning the language. But, I still experience the fear of being misunderstood and being negatively evaluated by them." (participant from Kyrgyzstan)

Seven participants pointed at their focus on correct pronunciation as a factor increasing their anxiety levels during speaking. Four of these participants also referred to the focus on grammatical accuracy as an aspect influencing their speaking performances, thus, their speaking anxiety. A comment combining accuracy in grammar and pronunciation can be given as an example reflecting the experiences of these participants:

> "I believe language involves both grammar and pronunciation. Therefore, it is important for me to center my attention on grammatical appropriateness and correct pronunciation while speaking in Turkish. However, I sometimes focus too much on grammar and pronunciation and I make more mistakes than I normally do and this certainly decreases my motivation and increases my anxiety." (participant from Kazakhstan)

Immediate questions posed by native speakers during interaction was also another source of speaking anxiety for half of the participants. They stated that when they receive questions to which they were expected to provide quick answers, they experienced stress and anxiety. The more their anxiety increased, the longer it took for them to think of an answer. A participant not liking immediate questions in the target language explained that such questions increased his anxiety level and negatively affected his speaking performance:

> "I don't like immediate questions in the target language because when someone asks me a question, I need some time to think about it. Immediate questions influence my fluency in speaking and increase my anxiety." (participant from Afghanistan)

The remaining two sources of speaking anxiety were the participants' comparing their speaking performances with their friends and their self-evaluation regarding their own speaking performances. These two sources were reported by seven participants in total. The participants stated that while their classmates were speaking, they were making comparison between their own performances and those of their friends'. When they saw that a friend had better speaking performance, then the participants experienced anxiety. Another challenge for these participants was the act of self-evaluation. The participants were evaluating their own practices during and after speaking performances and these evaluations sometimes resulted in increased levels of speaking anxiety. Having these experiences, a participant remarked as the following:

> "When I speak with a native speaker, I constantly evaluate my own performance and this helps me realize my mistakes. When I make a mistake, however, I become demotivated and my speaking anxiety increases. In addition, while my friends are speaking in Turkish, I pay attention to their language use. When they have better performances than I do, I inevitably make a comparison and feel anxious." (participant from Iran)

An interesting point which was regarded as a challenge by three participants increasing their speaking anxiety was the accent of some local native speakers in target context. These participants reported experiencing anxiety while communicating with speakers who had noticeable accent in their speech. Since they had difficulty in understanding these people, they hesitated to find appropriate answers to maintain the conversation, which increased their anxiety while speaking, as a participant suggested:

> "I like having conversations with local people but some of them have. When I talk with them, I sometimes feel anxious because I cannot understand all the things they say. So, I have difficulty in finding the true words to reply. This increases my speaking anxiety." (participant from Bashkortostan)

Having native-speaker teachers was also perceived as a factor to increase the speaking anxiety levels by two participants. The participants explained that they had native speaker teachers for every course in the target language setting. Although this is a big advantage, these participants reported to experience anxiety while communicating with native-speaker teachers in the initial weeks of their language education. Because it was their mother tongue, the teachers knew everything about the language and if the students made a mistake, they immediately realized it. One of these participants explained that she was sometimes feeling anxious while speaking Turkish with native teachers because of this reason:

> "I know that learning the language from native-speaker teachers is an advantage but I sometimes feel anxious while communicating with my teachers. It is their language; they know everything about it. So, when I say something wrong, they can identify my mistake. When I try to speak with this in my mind, I really feel anxious." (participant from Afghanistan)

The cultural differences between the native speakers and foreign learners were also a source of anxiety for four participants negatively affecting their speaking productions. These participants explained that they experienced speaking anxiety because of the stress of saying something which was not culturally appropriate in the target setting. One of these participants provided an explanation based her experience as follows:

> "When I first came here, I wanted to communicate with the local people so that I could learn more about their culture. In time, I realized that there are several basic cultural differences between my culture and theirs. So, this created a source of anxiety for me while speaking because I was afraid of saying something wrong." (participant from Georgia)

The cultural differences between the students and their classmates from different countries were also a cause of speaking anxiety for three participants. The cultural differences sometimes made it difficult for the participants to understand each other while communicating. The communication breakdowns resulted in increased levels of speaking anxiety for these participants, as maintained by one of them:

> "Having classmates from different countries was nice but I sometimes had difficulty in interacting with them mainly because of our cultural differences. I was becoming anxious when I could not understand what they were saying. I think this, especially in the initial phases, increased my speaking anxiety." (participant from Kazakhstan)

During my observations, I also noted all the factors indicated by the participants, except 'comparison with classmates' item. Especially in my first three observations, the shyness and sometimes anxiety of the participants to make mistakes while speaking to their native-speaker lecturers and to me attracted my attention. I noticed that while they were speaking with us, they experienced the fear to be misunderstood. This tension and anxiety reflected itself in the way these participants were hesitating what to say or how to say things. For example, when the lecturer asked a casual question to one of the participants, I heard that the participant repeated the same thing several times with hesitation. When I asked her the reason for her hesitation and anxiety during the class, she answered that she was afraid of saying something wrong and convey the wrong meaning (participant from Mongolia). In my last two

observations, on the other hand, I realized the chance for positive in the participants' motivation and self-confidence in speaking in the target language with its native speakers.

I also noted that some of the participants were focusing much on true grammar and pronunciation. For example, I one of the participants was constantly checking her own language production while speaking and was immediately correcting her grammatical mistakes. She sometimes focused so much on grammatical correction that she nearly forgot what to say (participant from Kyrgyzstan). Another participant was frequently dealing with his pronunciation mistakes. Whenever he mispronounced a word, he was instantly correcting himself. However, this constant personal interruption distracted the participant's attention and negatively affected his fluency (participant from Kazakhstan). And, to note, the focus on correct grammar and pronunciation continued to be among the items in my observations.

Immediate questions posed during interactions were also a source of anxiety for some of the participants during my initial observations. I realized, for example, that when one of these participants was asked a quick question, she became anxious and tried to gain some time by saying "ımm, well" phrases. I also noticed the quaver in her voice while speaking (participant from Tajikistan). In addition, they could not provide fluent answers. Fortunately, the hesitations and anxiety levels of these participants caused by immediate questions decreased in time.

The observations also revealed that the participants were going through processes of self-evaluation. While they were realizing their grammar or pronunciation mistakes or while having the fear of negative evaluation, the participants were evaluating their own performances at the same time. These self-evaluations were helpful for them to realize the strengths and weaknesses of the participants but increased their speaking anxiety.

5. How did you overcome your speaking anxiety?

The participants referred to some common strategies to overcome the negative effects of speaking anxiety. One of the tactics they were adopting was having been prepared for speaking classes. Seven participants stated that they were studying the subject before the class when they knew the topic of the following session. However, the participants also stated that this tactic was not always useful since what to say is based on the flow of the communication, as expressed by a participant:

> "If I know what we will discuss in the following lesson, I prepare for it in the dormitory. I plan the things I can say during the lesson and this relaxes me and decreases my anxiety. However, it doesn't always work. For example, when I talk with a native speaker outside the school environment, how can I plan what I would say?" (participant from Kyrgyzstan)

Eight participants also referred to having individual inner speech and practicing aloud as ways to overcome their speaking anxiety. When they were practicing the spoken from of the language alone silently or aloud, they felt more comfortable and ready to speak with native speakers. A participant following these strategies commented that they helped her decrease her speaking anxiety since she felt more self-confident:

> "Whenever I have some spare time, I practice the target language on my own. I try to imagine different cases for interaction and then I start talking by myself. It may sound weird but it helps a lot to increase my confidence and decrease my anxiety." (participant from Tajikistan)

Considering mistakes as natural components of language learning process was another way followed by six of the participants to overcome their speaking anxiety. Since they were

afraid of making mistakes and being negatively evaluated, these participants developed a way to protect themselves from the adverse effects of anxiety experienced during their speaking performances. They encouraged themselves to regard their mistakes not as serious problems but as a way to promote their development in the target language. With the help of this strategy, they stated that they began to overcome the fear of making mistakes, as also expressed by a participant in the below comment:

> "When I first came here, I was really afraid of making mistakes and this increased my speaking anxiety. However, in time, I began to realize that mistakes were actually not so bad; instead, when I made a mistake, I could learn something new. Then, I started to value mistakes not as a source to create speaking anxiety but as a way to develop my language ability." (participant from Georgia)

The participants who were experiencing anxiety while communicating with the native speakers of Turkish also tried to deal with this challenge by trying to remind themselves that having native speakers around was actually an advantage for them to be exposed to the authentic language usages and to practice the language with its native speakers in different contexts. One of these participants noted that remembering this fact helped them reduce their speaking anxiety:

> "When I was communicating with a native speaker, I unavoidably felt anxious because of the fear of making mistakes or being negatively evaluated. But, I believe I can cope with this anxiety source better because I am aware of the fact that being with native speakers is a great opportunity for me to develop my speaking skill. Therefore, whenever I experience speaking anxiety, I remember this fact." (participant from Mongolia)

The participants considering cultural differences as an anxiety-provoking source while speaking with native speakers and with their classmates from different cultural backgrounds reported to adopt the strategy to consider cultural differences as a source of richness for them. In order to overcome the fear of saying something culturally inappropriate, two participants having this fear stated that they changed their approach regarding cultural differences. Holding this new perspective, a participant offered the below comment:

> "In the first few weeks, I was afraid of saying something inappropriate because of the cultural differences between home country and Turkey and this situation was negatively affecting my speaking performance. However, I encouraged myself to change my attitude and began to consider the differences as cultural richness to enlarge my world knowledge instead of an anxiety source to influence my speaking performance." (participant from Bashkortostan)

Half of the participants also referred to watching movies or listening to music in the target language as a way to improve their speaking skills and to overcome their speaking anxiety. They maintained that they could identify new items to use while speaking by being exposed to the language through these sources. Listening to these sources increased their self-confidence and decreased their anxiety levels.

Since the coping strategies followed by the participants were not much observable in the classroom setting, I could not note down the ways they were adopting to overcome the sources of speaking anxiety during their class hours. However, while we were having informal talks with the participants outside the classroom environment, they referred to the above-mentioned tactics they were following to deal with speaking anxiety in speaking.

To sum, the results revealed that the participants were more motivated to learn the target language in the second language learning context because of the available chances for

exposure to and practice in the target language compared with the foreign language learning context in their home countries. However, the target context also brought such general challenges for the participants as the fear of making mistakes, fear of negative evaluation, immediate questions, focus on grammar and pronunciation, comparing themselves with other students and self-evaluation as well as such context-specific challenges as fear of communicating with native speakers, having native-speaker teachers, cultural difference between the home country and host country and the accent of the local people. When asked to refer to their coping mechanisms with these challenges, the participants explained that they were encouraging themselves to consider making mistakes as natural and beneficial for linguistic development and having native speakers around as a chance for exposure and practice. They also pointed at individual preparation and practice as ways to overcome their speaking anxiety. Considering cultural differences as a source of richness instead of a source of anxiety was another way to deal with speaking anxiety for the participants.

4. Discussion

Speaking is by itself an anxiety-provoking act for a majority of language learners (Horwitz, 2001; Humphries, 2011; Liu, 2009; Stupar-Rutenfrans, Ketelaars & van Gisbergen, 2017). The complicated nature of speaking which requires learners to follow a series of multifaceted operations while paying attention to different language and culture-specific aspects makes the speaking skill a challenging one for many language learners. In addition to these challenges, speaking skill can also be influenced by some learner-related, teacher-related and context-related factors.

Specifically focusing on the causes of speaking anxiety for the foreign learners of Turkish in the second language learning context and the coping strategies of these learners, this study revealed that the context caused general challenges and context-specific challenges for the foreign learners of Turkish affecting their levels of speaking anxiety in the process of language learning. The results also pointed at some coping strategies that the participants were adopting to deal with the sources of speaking anxiety. This section aims to present some discussion on these challenges and the coping ways in the light of the relevant literature.

The sources of speaking anxiety for the participants can be discussed under two groups: general sources of anxiety and context-specific sources of anxiety. The first group presents the overall reasons why the participants experienced speaking anxiety and includes the fear of making mistakes, fear of negative evaluation, comparison with other students, self-evaluation, immediate questions and focus on grammar and pronunciation. Most of the participants in this study reported to experience the fear of making mistakes while they were using the target language for communication. This result supports previous findings since Öztürk (2009) in Turkish context, He (2013) in Chinese context and Yoshida (2013) in Japanese context pointed at the fear of making mistakes as a factor negatively influencing the speaking skills of language learners. Though sharing common results, the difference between this study and the above-mentioned ones is that while the former was conducted in a second language learning context, the latter were in foreign language learning context.

Another source of speaking anxiety for the participants in this study was the fear of negative evaluation, as also noted by the participants in other studies conducted in EFL settings (Aydın, 2001; Heng, Abdullah & Yosaf, 2012; Kitano, 2001; Ohata, 2005; Tsiplakides & Keramida, 2009). This source can be said to be related with the fear of making mistakes. The participants in this study may have experienced the fear of making mistakes because of their fear of being negatively evaluated by native speakers. Since they did not want to be misunderstood by the interlocutors, they may have suffered from the distress of making mistakes. Fear of making mistakes can be said to trigger the fear of negative

evaluation and vice versa. The participants may have also perceived making mistakes and negative evaluation as threats to their self-images which was reported to be a factor increasing speaking anxiety by Hirsch, Mathews, Clark, Williams and Morrison (2006). Therefore, they may have associated making mistakes with negative evaluation and negative evaluation with a threat to their self-image as adult learners of Turkish.

The participants in this study also maintained that comparing their performances with those of their classmates was another source of speaking anxiety for them, which was also referred to as a challenge for the participants' speaking performances in Aydın's (2001) and Yan and Horwitz's (2008) studies. Comparing their performances with the performances of their friends can sometimes be an encouraging act for language learners as regards motivation. However, having high expectations and high demands for language performance can be challenging for learners. In addition, excessive levels of comparison with peers can be risky for them because of the possible threat to their self-confidence and motivation. If learners compare themselves too much with their friends, learners can feel demotivated by focusing on their weaknesses. In addition, learners' language progress may be negatively affected by the comparisons because they may think that they are already better than their friends and decrease the effort in language learning.

Immediate questions, which were considered as a factor to increase speaking anxiety for the participants in Öztürk's (2009) and Kana's (2015) study, also played a role on the speaking anxiety levels of the participants. Finding appropriate answers to immediate questions in the target language can be particularly challenging for language learners as there are different cognitive, personal, social and contextual processes involved when thinking of an answer. The focus on correct grammar and pronunciation also impacted the anxiety levels of the participants in the present research which renders support to the findings of the study conducted by Öztürk (2009) and He (2013) for the focus on pronunciation, and by Kunt and Tüm (2010) for the focus on grammar. As learners of Turkish, the participants in this study may have centered on the grammatical rules of the language and wanted to reflect this knowledge in their language productions for more precise and clear meanings. They may have placed emphasis on pronunciation because of their desire to sound like native speakers of the language.

The second group of anxiety sources underlines several context-specific factors influencing speaking anxiety of the participants. One of the most frequently mentioned factor was communicating with native speakers. Speaking with the native speakers of the target language was also reported as a source increasing speaking anxiety in previous EFL studies (Çağatay, 2015; He, 2013; Mak, 2011; Thompson & Lee, 2013; Woodrow, 2006). The second language learning environment in this study offered the participants limitless chances for exposure to and practice in the target language. However, as the participants were in constant and inevitable contact with the native speakers, this may have created anxiety for them. The main challenge in communicating with native speakers can be the reality that they are naturally and innately equipped with the knowledge of the language and this can naturally create uneasiness for language learners who are afraid of being negatively evaluated if they produce incorrect or inappropriate language. The on-going feature of the act of speaking which is defined as the "on-line nature of speaking" by Bozatlı (2003, p.11) can also be a dimension creating anxiety for the participants because there is limited time to understand what the native speakers said and to find an appropriate answer. Another problem may be the participants' comparing their language productions with those of native speakers. In such a case, the participants would be demotivated because they have not yet reached a complete language development. It may be due to similar reasons why some of the participants considered having native-speaker teachers as a factor increasing their speaking anxiety.

Therefore, having native-speaker teachers can be said to trigger the participants' fear of making mistakes and fear of negative evaluation.

The accent of the local people was another context-specific factor with indirect negative influence on the participants' speaking anxiety in this study. When they could not understand what native speakers was saying to them, the participants experienced anxiety in negotiating meaning (Bozatlı, 2003) and finding a suitable answer. When the participants could not understand the meaning as listeners, they naturally experienced anxiety in speaking.

The cultural differences between the home country of the participants and the host country as well as the countries of other classmates also turned into a factor effecting some of the participants' speaking anxiety as it was also underlined by the participants in some previous research (de Blakeley, et al., 2017; Pappamihiel, 2001; Sadeghi, et al. 2013). The cultural aspects of a language designate the way native speakers use the language. Different cultures pose different usages in languages which are culturally and contextually appropriate. Having language learning experience in a different country, some of the participants naturally felt the confusion and stress to find culturally-fitting statements in the target language. Since they have already been exposed to the aspects of their own culture, these participants have been fueled with the knowledge of their own culture (Peng & Woodrow, 2010). Therefore, they needed some time for adaptation to the new language and its culture during which they experienced certain levels of speaking anxiety possibly because of the fear of making mistakes and negatively evaluated.

The results of this study also pointed at some of the strategies adopted by the participants to deal with their speaking anxiety. The basic coping strategy seemed to be the change in the participants' perspectives regarding their perceptions of the challenges. Being negatively affected by different anxiety sources, the participants began to develop positive perceptions of the existing conditions and see the things from a more positive angle. Upon this change in the conceptions, Yoshida (2013) utters that students' beliefs are dynamic and based on contextual factors; so they can change over time.

One of the most commonly referred tactics to cope with speaking anxiety was to hold a perspective that mistakes are natural in the process of language development. While most of the participants were feeling anxious about making mistakes in speaking in the early stages, they began to consider mistakes as a natural part of learning the target language. As it was also observed in Yoshida's (2013) study, the participants in this study developed the perception that they could learn from their mistakes instead of feeling anxious about them. Following this strategy was helpful for them to decrease their speaking anxiety and to improve their language development.

The participants also referred to having self-practice before possible speaking events. If they knew the topic beforehand, some of the participants preferred to have preparation for their speaking practices. This strategy was also reported in Akkakoson's (2016a) study as a way to deal with speaking anxiety.

Listening to music or watching movies as an approach to reach better levels of language knowledge was also counted as a strategy to decrease speaking anxiety by some participants in this study, which was also mentioned by the participants in Akkakoson's (2016a) research.

The cultural differences between the participants and the native speakers as well as their classmates were also counted as a challenge causing speaking anxiety for some participants. Regarding this case, Peng and Woodrow (2010) maintain that culture-based beliefs can control the perceptions of learners when they are engaged in interaction with people with different cultural backgrounds. The participants feeling negative the effect of cultural

differences on their speaking performance learned to manage the anxiety by thinking that cultural differences can actually help them expand their world knowledge and raise their understanding of differences as a source of contribution to cultural richness.

5. Conclusion

Learning a new language, either in foreign or in target context, is a demanding process which is prone to the influence of different educational, personal, social and cultural factors. As a productive skill, speaking is one of the basic skills in language development which can also be affected by these factors. This qualitative study revealed that foreign learners of Turkish could benefit from the limitless chances of exposure to and practice in the target language with its native speakers for the development of their speaking skill. However, they also experienced some difficulties which influenced their anxiety levels while speaking. The sources of speaking anxiety for the participants were observed to stem from some general sources which can also be encountered in foreign language learning contexts. Besides the common challenges, there were also context-specific challenges which stemmed from the nature of the second language learning context like having continuous contact with native speakers, having native teachers, the accent of the local native speakers and the cultural differences between the participants and residents of the host country. The results also pointed at some coping strategies that the participants developed over time to deal with the negative effects of anxiety on their speaking performances. In the light of these results, the following suggestions can be provided to decrease the anxiety level experienced by the foreign learners of Turkish:

- The foremost suggestion would be the identification of the source of stress and anxiety for each learner. Teachers of Turkish can observe their learners and reach some conclusions regarding the anxiety-creating factors for them. After identifying the source/s, teachers can collaborate with their learners to deal with the anxiety experienced in the process of language learning, especially in speaking.
- In the process of language education, these learners can be encouraged to benefit from their own mistakes through comprehensive feedback. In this way, they can be encouraged to consider mistakes as natural and beneficial.
- Foreign learners of Turkish can be provided more chances to interact with students from other departments. While interacting with other students from the host country, they can feel more relaxed knowing that they are communicating with their peers who are socially and educationally equal to them.
- Foreign learners receiving preparatory class education can be offered more frequent formal or informal meetings in which they can share their experiences and cultures with their friends and local people. This process can bear fruitful results in cultural exchange. Familiarity with different cultures can help learners develop a constructive cultural understanding and positively improve their approach for interaction and thus speaking. When they better know each other and the native speakers around, they can be more relaxed while communicating with them.

References

Akkakoson, S. (2016a). Speaking anxiety in English conversation classrooms among Thai students. *Malaysian Journal of Learning and Instruction, 13*, 63-82.

Akkakoson, S. (2016b). Reflections from teachers and students on speaking anxiety in an EFL classroom. *Journal of Language and Cultural Education, 4*(3), 46-70. DOI: 10.1515/jolace-2016-0025.

Aydın, B. (2001). *A study of sources of foreign language classroom anxiety in speaking and writing classes.* Unpublished doctoral dissertation, Anadolu University, Eskişehir.

Balemir, S. H. (2009). The sources of foreign language speaking anxiety and the relationship between proficiency level and the degree of foreign language speaking anxiety. Unpublished master's thesis, Bilkent University, Ankara.

Bogdan, C., & Biklen, S. K. (2007). *Qualitative Research for Education: An Introduction to Theory and Methods* (5th Edition). Boston: Pearson Education, Inc.

Bozatlı, İ. (2003). *Academic oral presentation skills instructors' perceptions of the final project presentation rating scale used in the modern languages department at Middle East Technical University.* Unpublished master's thesis, Bilkent University, Ankara.

Brown, H. D. (1994). *Principles of language learning and teaching*. New Jersey: Prentice Hall Regents.

Çağatay, S. (2015). Examining EFL students' foreign language speaking anxiety: The case at a Turkish state university. *Procedia-Social and Behavioral Sciences, 199*, 648-656. doi: 10.1016/j.sbspro.2015.07.594.

de Blakeley, M., Ford, R. & Casey, L. (2017). Second language anxiety among Latino American immigrants in Australia. *International Journal of Bilingual Education and Bilingualism, 20*(7), 759-772. DOI: 10.1080/13670050.2015.1083533.

Effiong, O. (2016). Getting them speaking: Classroom social factors and foreign language anxiety. *TESOL Journal*, *7*(1), 132-161. doi: 10.1002/tesj.194.

Gregersen, T., & Horwitz, E. K. (2002). Language learning and perfectionism: Anxious and non-anxious language learners' reactions to their own oral performance. *The Modern Language Journal, 86(4)*, 562-570.

Hamad, M. (2013). Factors negatively affect speaking skills at Saudi colleges for girls in the south. *English Language Teaching, 6*(12), 87-97.

He, D. (2013). What makes learners anxious while speaking English: a comparative study of the perceptions held by university students and teachers in China. *Educational Studies, 39*(3), 338-350. DOI: 10.1080/03055698.2013.764819.

Heng, C.S., Abdullah, A.N. &Yosaf, N.B. (2012). Investigating the construct of anxiety in relation to speaking skills among ESL tertiary learners. *3L: The Southeast Asian Journal of English Language Studies, 18*(3):155-166.

Hirsch, C. R., Mathews, A., Clark, D. M., Williams, R., & Morrison, A. (2006). The causal role of negative imagery in social anxiety: a test in confident public speakers. *Journal of Behaviour Therapy and Experimental Psychiatry, 37*(2), 159-170.

Horwitz, E. K. (2001). Language anxiety and achievement. *Annual Review of Applied Linguistics, 21*, 112-126.

Horwitz, E.K., Horwitz, M.B., Cope, J.A. (1986). Foreign language classroom anxiety. *Modern Language Journal, 70*(2), 125-132.

Humphries, R. (2011). Language anxiety in international students. *Griffith Working Papers in Pragmatics and Intercultural Communication* 4, 1/2 (2011), 65-77.

Kana, F. (2015). Investigation of preservice teachers' speech anxiety with different points of view. *International Journal of Progressive Education, 11*(3), 140-152.

Kao, P., & Craigie, P. (2013). Coping strategies of Taiwanese university students as predictors of English language learning anxiety. *Social Behavior and Personality: An International Journal, 41*, 411-420. doi: https://doi.org/10.2224/sbp.2013.41.3.411.

Kitano, K. (2001). Anxiety in the college Japanese language classroom. *The Modern Language Journal, 85*(4), 549-566.

Koçak, M. (2010). A novice teacher's action research on EFL learners' speaking anxiety *Procedia-Social and Behavioral Sciences, 3,* 138-143. doi:10.1016/j.sbspro.2010.07.025.

Kondo, D. S., & Ying-Ling, Y. (2004). Strategies for coping with language anxiety: The case of students of English in Japan. *ELT Journal, 58*(3), 258-265.

Kunt, N. & Tüm, D. (2010). Non-native student teachers' feelings of foreign language anxiety. *Procedia Social and Behavioral Sciences, 2,* 4672-4676. doi:10.1016/j.sbspro.2010.03.748.

Liu, M. (2009). Reticence and anxiety in oral English lessons. Bern, Switzerland: Peter Lang.

Liu, M., Jackson, J., (2008). An exploration of Chinese EFL learners' unwillingness to communicate and foreign language anxiety. *Modern Language Journal, 92*(1), 71-86.

MacIntyre, P. D., & Gardner, R. C. (1991). Language Anxiety: Its Relationship to Other Anxieties and to Processing in Native and Second Languages. *Language learning, 41*(4), 513-534.

MacIntyre, P. D., & Gardner, R. C. (1994). The subtle effects of language anxiety on c ognitive processing in the second language. *Language learning, 44*(2), 283-305.

Mak, B. (2011). An exploration of speaking-in-class anxiety with Chinese ESL Learners. *System, 39*, 202-214. doi:10.1016/j.system.2011.04.002.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd Edition). USA: Sage Publications.

Öztürk,G. (2009). *Foreign Language Speaking Anxiety and Learner Motivation: A Case Study at a Turkish State University* (Unpublished master's thesis). METU, Ankara.

Pappamihiel, N. E. (2001). Moving from the ESL classroom into the mainstream: An investigation of English language anxiety in Mexican girls. *Bilingual Research Journal 25,* 31–39. doi:10.1080/15235882.2001.10162783.

Peng, J., & Woodrow, L. (2010). Willingness to communicate in English: A model in the Chinese EFL classroom context. *Language Learning, 60,* 834–876. doi:10.1111/j.1467- 9922.2010.00576.x.

Phillips, E. M. (1992). The effects of language anxiety on students' oral test performance and attitudes. *The Modern Language Journal, 76(1),* 169-176.

Sadeghi, K., Mohammadi, F. & Sedaghatgoftar, N. (2013). From EFL classroom into the mainstream: A socio-cultural investigation of speaking anxiety among female EFL learners. *International Journal of Society, Culture and Language, 1*(2), 117-132.

Scovel, T. (1978). The effect of affect on foreign language learning: a review of the anxiety research. *Language Learning, 28*(1), 129-142.

Spielberger, C. D. (1983). *Manual for the state-trait anxiety inventory.* Palo Alto, California: Consulting Psychological Press.

Stupar-Rutenfrans, S., Ketelaars, L. & van Gisbergen, M. (2017). Beat the fear of public speaking: Mobile 360-video virtual reality exposure training in home environment reduces public speaking anxiety. Cyberpsychology, Behavior, and Social Networking, *20*(10), 624-633. doi: 10.1089/cyber.2017.0174.

Terui, S. (2012). Second language learners' coping strategy in conversations with native speakers. *Journal of International Students, 2*(2), 168-183.

Thompson, A. & Lee, J. (2013). Anxiety and EFL: Does multilingualism matter? *International Journal of Bilingual Education and Bilingualism, 16*(6), 730-749. doi: 10.1080/13670050.2012.713322.

Tianjian, W. *(2010).*Speaking anxiety: more of a function of personality than language achievement, *Chinese Journal of Applied Linguistics, 33*(5), 95-109.

Tsiplakides, I. & Keramida, A. (2009). Helping students overcome foreign language speaking anxiety in the English classroom: Theoretical issues and practical recommendations. *International Education Studies, 2*(4), 39-44.

Uştuk, Ö. & Aydın, S. (2016). The effects of the use of paralinguistic cues on foreign language anxiety among English as a foreign language speakers, *Innovation in Language Learning and Teaching*. doi: 10.1080/17501229.2016.1211133.

Wang, N. (1998). *Beliefs about language learning and foreign language anxiety: A study of university students learning English as a foreign language in Mainland China.* Unpublished master's thesis, University of Victoria.

Wei, J. (2013). A study via ınterviews of the Chinese Bouyei college learners' EFL classroom anxiety coping strategies. *Theory and Practice in Language Studies, 3*(4), 660-668. doi:10.4304/tpls.3.4.660-668.

Wilang, J. & Singhasiri, W. (2017). Out-of-class anxiety in a non-English speaking context and its effects on intelligibility and comprehensibility *Issues in Educational Research, 27*(3), 620-638.

Woodrow, L. (2006). Anxiety and Speaking English as a Second Language. *RELC Journal, 37*(3), 308-328. doi: 10.1177/0033688206071315.

Yalçın, Ö. & İnceçay, V. (2014). Foreign language speaking anxiety: The case of spontaneous speaking activities. *Procedia-Social and Behavioral Sciences, 116*, 2620-2624. doi: 10.1016/j.sbspro.2014.01.623.

Yan, J. X., & Horwitz, E. K. (2008). Learners' perceptions of how anxiety interacts with personal and instructional factors to influence their achievement in English: A qualitative analysis of EFL learners in China. *Language Learning, 58*(1), 151-183.

Yoshida, R. (2013). Conflict between learners' beliefs and actions: speaking in the classroom. *Language Awareness, 22*(4), 371-388. doi: 10.1080/09658416.2012.758129.

Young, D.J., 1990. An investigation of students' perspectives on anxiety and speaking. *Foreign Language Annals, 23*(6), 539-553.

Aşıksoy, G., & Sorakin, Y. (2018). The effects of clicker-aided flipped classroom model on learning achievement, Physics anxiety and students' perceptions. *International Online Journal of Education and Teaching (IOJET), 5*(2), 334-346. http://iojet.org/index.php/IOJET/article/view/389/238

Received: 18.01.2018
Received in revised form: 18.02.2018
Accepted: 01.03.2018

THE EFFECTS OF CLICKER-AIDED FLIPPED CLASSROOM MODEL ON LEARNING ACHIEVEMENT, PHYSICS ANXIETY AND STUDENTS' PERCEPTIONS

Gülsüm Aşıksoy
Near East University
gulsum.asiksoy@neu.edu.tr

Yasemin Sorakın
Near East University
yasemin.sorakin@neu.edu.tr

Gülsüm Aşıksoy is an assistant professor in the Department of Educational Technology at Near East University. Her research interests include flipped learning, gamification in learning and instruction, interactive simulations for teaching and learning physics.

Yasemin Sorakın is a lecturer in the Department of Psychological Counseling and Guidance at Near East University. Her research interests are early child care and education, parent-child relationships.

THE EFFECTS OF CLICKER-AIDED FLIPPED CLASSROOM MODEL ON LEARNING ACHIEVEMENT, PHYSICS ANXIETY AND STUDENTS' PERCEPTIONS

Gülsüm Aşıksoy

gulsum.asiksoy@neu.edu.tr

Yasemin Sorakın

yasemin.sorakin@neu.edu.tr

Abstract

Similar to all stages of education, the use of the flipped classroom model continues to become more widespread in higher education. This paper aimed to provide insights from a pre-test and post-test experimental design-based exploration of the effects of clicker-aided flipped classroom model on learning achievement, Physics anxiety and students' perceptions. The study was conducted with the participation of 61 undergraduate students taking the Physics course. In the in-class component of the flipped classroom model, while the student response system was used with the experimental group, it was excluded during the study conducted on the control group students. The data were collected through Physics achievement test, Physics anxiety questionnaire, and semi-structured interviews, and required statistical analyses were performed: for quantitative data analysis, SPSS was applied whereas for qualitative data analysis, content analysis was performed. The gathered data were analyzed in accordance with whether the student response system was utilized in the in-class component of the flipped classroom model. The results showed that, in comparison to the control group students, the learning achievement of the experimental group students had increased and that their anxiety had decreased significantly. Furthermore, it was determined that the experimental group students had a positive perceptions of student response system's utilization in class. This study may provide aid for lecturers in integrating the student response system to the flipped classroom model.

Keywords: flipped classroom, student response system, learning achievement, anxiety

1. Introduction

In addition to the cognitive elements, the students' achievement during the teaching learning process also depends on affective elements (Turner & Lindsay, 2003). Anxiety is one of the most important elements affecting student achievement (Zeidner & Matthews, 2005). Rachman (1998) defines anxiety as the expectation of an obscure threat or a disturbing suspicion. While a limited amount of anxiety can have a positive effect on increasing learning, excessive amounts also act as a disruptor (Karakaya, 2017; Richardson & Suinn, 1972). Anxiety negatively effects short term memory's functioning ability and prevents the students from developing their knowledge (Sun, 2014; Zeidner & Matthews, 2005). Students experiencing academic anxiety have these four attributes in common which affect their academic life negatively: disruptions in mental activities, psychological distress, misoriented attention and procrastination (Ottens, 1991).

The efficient use of teaching technologies in teaching environments decreases the stress and anxiety on students and increases their participation and achievement (Çoruk & Çakır,

2017; Gilbert, 2003; Martyn, 2007; Sun, 2014). In the last decade, one of the widespread technologies used in teaching environments has been the clicker technology (Hung, 2017). The clicker technology, also known as the student response system, is based on a system which allows all student replies, to the questions asked in a classroom, to be gathered. The system involves clickers with buttons that allow the students to answer the questions, an access point which transfers the answers to the mainframe, a computer which analyses the answers and reflects the results on a screen, a projection device which enables visual aid during the classes and a software that manages the whole system. With the aid of this system, the lecturer can simultaneously ask questions to all students present, self-evaluate according to their feedback, provide necessary verbal feedback or use the visual aids for that feedback and form a discussion environment (Yılmaz, 2017).

The clickers have different uses in teaching environments. It is a solution especially used for increasing student participation in crowded classes and forming an active environment (Hung, 2017). The use of clickers has several benefits such as providing instant feedback, interpolation, recording short quizzes, showing the class's general status with a graphic, increasing reciprocal communication in large classes and managing cooperative learning activities (Beatty et al., 2006). Results in literature can be found of the positive outcomes of using clickers in both large and small classes (Ally, 2013; Cubric & Jefferies, 2015; Hung, 2017; Martyn, 2007; Smith, Trujillo & Su, 2011). However, these studies mainly focus on teacher based approaches, especially on lectures given in conference rooms. Thus, the data concerning the use of clickers in a flipped classroom environment, which is used for encouraging the class and homework components by reversing its traditional manner of functioning, remains insufficient; especially whether the use of clickers would enhance the effectiveness of teaching and learning (Bergmann & Sams, 2014). In other words, there remains a gap in literature concerning the pedagogical value of clickers for the lecturers who would aim to utilize the flipped classroom model to increase the students' learning and decrease their anxiety (Hung, 2017). In this study, clickers were used for the in-class component of the flipped classroom model during Physics lectures. In order to determine its effect on the students learning achievement and anxieties, the following were tried to have been answered:

- Can the clicker-aided flipped classroom model increase learning achievement?
- Can the clicker-aided flipped classroom model decrease anxiety?
- What are the students' opinions on the clicker-aided flipped classroom model?

2. Literature Review

2.1. Overview of Research on the Use of Clickers

When accompanied by innovative education approaches, the use of education technologies, presents an effective learning output in classes (Sarıtepeci, Durak & Seferoğlu, 2016). Used as a product of education technologies, the clickers are widely preferred in classrooms for the recent years (Beatty et al., 2006). For usability, the clickers have become a series of web based applications which allow the students click and participate in activities through any device with an internet connection (Hansu, Adesope & Bayly, 2016). Many studies are present in literature which report the positive effects of the utilization of the clicker technology on the students' learning experiences in learning environments as well as other effects such accessibility and prevalence. For example, in their studies, Blasco-Arcas et al., (2013) have stated that the use of the clicker technology in classrooms had positive effects on the internalization of knowledge and its perpetuation (Chien, Chang & Chang, 2016). In another study, Stevens et al. (2017) have reached the conclusion that the use of clickers aid in interpreting the information and increase the students' interest and motivation

towards the lectures. Furthermore, they emphasized that it decreased the possible misinterpretations while the students construct the gathered information. Another study has also shown that the clickers improve the students' reasoning skills (DeBourgh, 2008). The findings of the study by Hooland, Schwartz-Shea and Yim (2013) on the use of clickers have shown that the students enjoyed learning and displayed willing behaviors towards their lectures. In general, an abundance of studies exists in literature emphasizing on the benefits of using clickers in teaching environments (Chien, Chang & Chang, 2016; Cubric & Jefferies, 2015; Hensu, Adesope & Bayly, 2016).

2.2. Clicker Use and Flipped Classroom

As one of today's most efficient teaching models, Flipped Classroom presents us with a fresh understanding of education with its attribute of eliminating time and place boundaries and great involvement in the use of technology (Bergman & Sams, 2014; Fautch, 2015). In the flipped classroom method, the lecturer shares the content outside the classroom with the help of technology and the teaching takes place asynchronously. The classroom environment is transformed into an environment for activities supporting students' active participation such as problem solving, discussion and laboratorial applications (Ogan & Williams, 2015).

Several findings on the advantages of this model have been found in literature after conducting studies on flipped classroom. Some of these advantages are as follows: the model provides opportunity to students for learning at their own pace (O'Flaherty & Phillips, 2015), it allows the time that would be used for lecturing and revisions to be used in active learning activities (Seamen & Gaines, 2013), it increases in-class lecturer-student interaction and aids students in using their thinking skills (Sarawagi, 2013) and deems the students responsible of their own learning (Lai & Hwang, 2016). In literature, a limited amount of studies exists concerning the integration of clicker activities into the flipped classroom model. For example, Hung (2017) stated that the use of clickers in flipped classroom promotes efficient learning by establishing a bond between pre-class and in-class activities (Hung, 2017). In another study, Hwang, Lai and Wang (2015) have reached the conclusion that the lecturer can manage active learning activities in a trouble-free manner in flipped classrooms. Lucke, Dunn and Christie (2017) have integrated flipped classroom and clickers during the teaching of a third-year engineering course on Fluid Mechanics. The findings of the study have presented an increase in the students' participation and motivation. Yu (2015) has found that the flipped teaching model and the use of clickers improve the EFL proficiency. In another study, Yu & Yu (2017) have stated that clicker-aided flipped classroom had encouraged peer discussion, which may have provided the students with collaborative communication opportunities.

When considering the positive effects of utilizing clickers in active learning environments, it is believed that conducting more studies on its use with the flipped classroom model can aid in remedying the insufficient amount of studies in literature.

3. Methodology

In this study, a pre-test and post-test experimental design with a control group was used. Each student was randomly assigned into the experimental group or control group. The research design is shown in Figure 1.

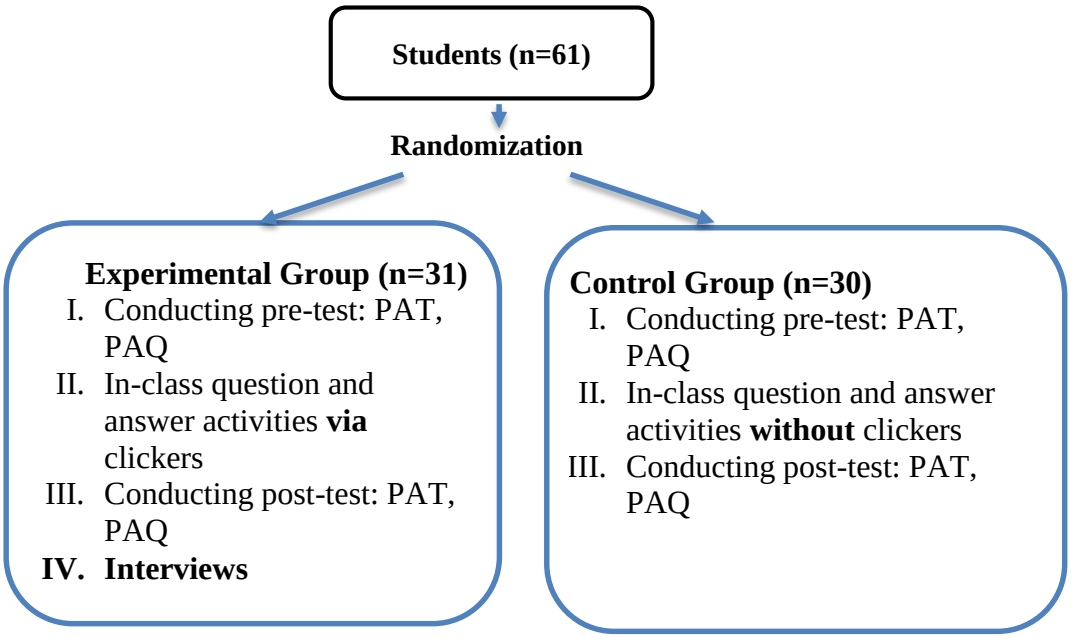


Figure 1. *The research design*

3.1. Participants

A total of 61 first year engineering students enrolled Physics course at Near East University during the fall semester of the 2017-2018 academic year. The students were randomly assigned to experimental (n=31) and control groups (n=30). The experimental group students consisted of 12 males and 19 males while the control group was consisted of 11 females and 19 males. The students were randomly assigned to the experimental and control groups. With the experimental group students, clickers were used in the in-class component of the flipped classroom model. The control group students however, did not use clickers in the in-class component of the model.

3.2. Materials and Procedure

Both groups were given information about the proceedings of their lectures before the beginning of the experiment procedure. Both groups were taught by the same instructor. A Physics course was opened by the instructor on the Learning Management System (Moodle). The students logged into this webpage with a username and a password. Each week, both experimental and control group students could watch the course video uploaded onto the page 2 days prior to their own lecture time. Both groups were taught the same course content for 4 weeks. Furthermore, both groups attended class on different days.

3.2.1. Experimental group

With the experimental group, the Physics course was held in accordance with the flipped classroom model. The students watched the course videos uploaded by the lecturer in their homes; and with the use of clickers, they participated in individual and group based questions-answers activities in class. For individual question-and-answer activities, the Quizizz application was used. The questions prepared in the Quizizz application are in the multiple-choice format and the students have a time limit for answering all the questions. During the first 25 minutes of in-class time, the Quizizz (consisted of 15 questions) was used for the individual questions-and-answers activities. The questions were prepared by the lecturer, in accordance with the basic concept of the course content, to observe whether the students had watched the course video. After the lecturer gave the code for the quiz prepared

on the Quizizz application to the students, they connected to the system via their tablets or laptops and answered the questions. After all the quizzes are completed, Quizizz reports to the lecturer about the students' performance. Thus, the lecturer could observe which questions were answered correctly (and the rate of right/false answers) and in which order the students completed the quiz.

Afterwards, the lecturer gave students 10 minutes to discuss among themselves the false answers given to the questions. The lecturer guided these groups and led them towards the right answers.

Later on, the lecturer gave new codes to the students for their access to the prepared problems uploaded on the Quizizz application. By using Quizizz's feature of extending the quiz time up to 5 minutes, the students were enabled to access the prepared problems. Thus, the results of the in-class problem solving activities were provided to the lecturer as feedback.

At the end of each course, the students were separated into groups and they used the Flipquiz application to work on group-based question-answer activities. Due to the five categories of the application, the students were separated into 5 groups; allowing a competitive environment.

3.2.2. Control group

According to the out of class component of the flipped classroom model, the control group students watched the same course videos, same as the experimental group students, in their homes. During the in-class time, they focused on activities such as questions-answers, problem solving and discussions without the use of clickers.

3.3. Instruments

3.3.1. Physics Achievement Test (PAT)

A multiple-choice achievement test, consisted of 35 questions, has been developed by researchers to determine the effects of Clicker-Aided Flipped Classroom Model on learning achievement by determining the 'Electric charge', 'Electric Fields' and 'Gauss's Law' units target behavior. After the preparation of the test entries, the test was performed with 80 students (excluded from the control and experiment groups) who had already learned the 'Terrestrial Motion' and 'Work-Energy' units in accordance with the flipped classroom (without clickers-aid) approach for determining the test's validity and reliability. After the application of this pilot test, the correct answer ratio (p: entry difficulty index) and the ratio of differentiation, between the students who knew the correct answers and those who did not, (r: entry distinguishing index) was calculated. The aim when choosing the entries is to establish the entry difficulty between .20 and .80, while maintaining the basic aim of keeping an approximate of .50 difficulty ratio without altering the examined behavior. The distinction, with the condition of being in the right orientation, should be as high as possible. 30 entries with a distinguishing index above .30 and an entry difficulty index between .40-.76, were selected to be included in the main test; while 5 entries were excluded. To determine the internal consistency of the Physics achievement test's 30 entries, the calculated KR-20 coefficient was found as .73 and KR-21 was found as .70. These values are of importance for the test's reliability in the manner of showing its questions' internal consistency. To determine the experimental and control group students' state of readiness, the achievement test was firstly used as a pre-test; and afterwards was used again with both groups as a post-test to examine their final state after participating in the application (4 weeks later).

3.3.2. Physics Anxiety Questionnaire (PAQ)

'Anxiety Scale for Science and Technology', developed by Kağıtçı and Kurbanoğlu (2013), was used in this study for determining the students' anxieties towards the Physics course. 'Science and Technology' was replaced with the term 'Physics' and scale's name was modified as the 'Physics Anxiety Questionnaire' (PAQ). The PAQ contained 18 entries that ranged from 1 (strongly disagree) to 5 (strongly agree) on a Likert-type scale. The Cronbach's alpha reliability coefficient was calculated as .89. High Scores from the scale indicate a high level of anxiety towards the Physics course.

3.3.3. Semi-structured interviews

At the end of the study (4 weeks), individual interviews were held, with volunteering students from the experimental group, during the class hours concerning the application of clicker activities. The interview questions had a semi-structured form and were oriented towards determining the students' opinions and preferences concerning the use of clickers in the flipped classroom model's in-class component. The studies present in literature were benefited from during the preparation of the semi-structured interview questions (Hung, 2017; Yu & Yu, 2017). The interview questions were presented to an expert for determining their clarity and expediency. The questions were modified in accordance with the feedback of five consulted experts (3 academicians from the field of education and 2 academicians from the field of Physics). The interview questions were; "what are your opinions on the in-class clicker activities? explain" and "what activities did you like the clicker activities? Face to face interviews were held with volunteering 24 experimental group students after the end of the experimental application. The interviews were held in the students' mother tongue (Turkish) and each lasted approximately 5-7 minutes. To prevent loss of data, the interviews were recorded and later transcribed.

3.4 Data Analysis

ANCOVA was conducted to examine the differences between pre-test and post-test scores of the experimental and control groups related to AT and PAQ. In order to neutralize any possible effects of the pre-test results on the posttest scores of the experimental and control groups, the group's pre-test scores were kept under control and the post-test scores were submitted to covariance analysis to determine the differences. Firstly, for the implementation of ANCOVA, its hypotheses were examined in the manner of whether they were met or not. These hypotheses are as follows: 1-experimental and control groups attended their classes independently and on different days, 2-the dependent variables' score distribution was normal and the variance was homogenous, 3-a linear relationship exists between the dependent variables and covariances; the tendency of the regression line is homogenous for the groups (Büyüköztürk, et. al, 2008).

The content analysis method was used in the analyzing of the qualitative data gathered during the interviews held with the experimental group students. The interviews lasted for 5-7 minutes and voice records were kept. The students' names were coded as S1, S2, S3 … for research ethics.

4. Results

4.1 Students' Learning Achievement of the Physics Course

In this section, the effects of clicker based activities on students' learning achievement were examined. The one-way ANCOVA was used to compare the two groups' learning achievement for the Physics course. Firstly, the experimental group's (Kolmogorov-Smirnov = .171, N=30, p>.05) and the control group's (Kolmogorov-Smirnov =.200, N=31, p>.05)

post-test scores were determined to be within a normal range of distribution. The homogeneity of the variances was checked via the Levene test after the normality hypothesis and no significant statistical difference was spotted (p>.05); afterwards, ANCOVA was used. For comparing the post-test means of the groups, the new averages calculated in accordance with the pretest means have been presented in Table 1.

Table 1. *PAT post-test means and the adjusted means*

Group	**N**	**Mean**	**Adjusted Mean**
Experimental group	30	27.37	26.99
Control group	31	22.26	22.61

As presented in Table 1, the adjusted means of the experimental group was 26.99 when compared to the control group's 22.61. The ANCOVA results showing whether a significant different exists between the two group's adjusted post-test results have been presented in Table 2.

Table 2. *ANCOVA results of post-test scores by group*

Source of variance	**Sum of squares**	**SD**	**Mean of squares**	**F**	**p**
Controlled variable (PAQ pre-test)	481.413	2	240.706	37.192	.000
Group	267.431	1	267.431	41.322	.000
Error	375.374	58	6,472		
Total	38285	61			

In accordance with the covariance analysis results, presented in Table 2, a significant statistical difference has been observed between the adjusted post-test results of the experimental and control groups. ($F_{(1,58)}$= 41.322, p<.05). The adjusted means indicate that the learning achievement rate for experimental group higher than the control group. So, it can be stated that the clicker activities in-class has positive effects on learning achievement.

4.2 Students' Anxiety towards the Physics Course

In this section, the effects of clicker based activities on students' anxiety towards the Physics course were examined.

The one-way ANCOVA was used to compare the two groups' anxiety towards the Physics course. Firstly, the experimental group's (Kolmogorov-Smirnov = .132, N=30, p>.05) and the control group's (Kolmogorov-Smirnov = .200, N =31, p> .05) post-test scores were determined to be within a normal range of distribution. The homogeneity of the variances was checked via the Levene test after the normality hypothesis and no significant statistical difference was spotted (p>.05); afterwards, ANCOVA was used. For comparing the post-test means of the groups, the new averages calculated in accordance with the pre-test means have been presented in Table 3.

Table 3. *PAQ post-test means and the adjusted means*

Group	N	Mean	Adjusted Mean
Experimental group	30	31.13	32.85
Control group	31	55.58	53.92

As presented in Table 3, the adjusted means of the experimental group was 32.85 when compared to the control group's 53.92. The ANCOVA results showing whether a significant different exists between the two group's adjusted post-test results have been presented in Table 4.

Table 4. *ANCOVA results of post-test scores by group.*

Source of variance	Sum of squares	SD	Mean of squares	F	p
Checked variables (PAQ pre-test)	10922.435	2	5461.217	43.783	.000
Group	6179.590	1	6179.590	49.542	.000
Error	7235.614	58	124.735		
Total	133889	61			

In accordance with the covariance analysis results, presented in Table 4, a significant statistical difference has been observed between the adjusted post-test results of the experimental and control groups. ($F_{(1,58)}$= 49.542, p<.05). The adjusted means indicate that the anxiety rate for control group higher than the experimental group. So, it can be stated that the clicker activities in-class have positive effects on anxiety towards the Physics course.

4.3 Students' Perceptions of the Clicker-Aided Flipped Classroom

Semi-structured interviews were held with 24 volunteering experimental group students on the Clicker-aided Flipped classroom model. The students were firstly asked to express their opinions on the in-class clicker activities. The data gathered from the students' answers were divided and examined in two themes; 'benefits' and 'difficulties'. The students chose one or more codes included in each theme. The results have been presented in Table 5.

Table 5. *Student's opinions on clicker activities*

Theme	Code	Frequency
Positive	Encouraged me to participate more actively in class	17
	Reduces my anxiety	16
	Increased entertainment in class	14
	Increased my attention towards the course	11
Negative	The questions-answers caused anxiety	2
	I did not like it	1

A majority of the students (n=17) stated that the clicker activities performed in the classroom had enabled their active participation. A majority of the participants (n=16) stated that their anxiety towards the Physics course had been decreased. Similarly, some stated that the clickers provided a more entertaining environment (n=14) and that they increased the students' attention towards the course (n=11). Some of the student statements are as follows:

> *"The predominance of the clicker activities we performed in the class has increased my attention. The classes were very entertaining. Additionally, the clicker quizes are better than those on paper; because, we could get instant feedback. That made me feel less stressful".* (S9)

> *"Beginning the class with a quiz helped me concentrate quicker. Also, competing with my friends was fun".* (S2)

> *"The traditional methods of conducting classes is more appropriate for me. I cannot concentrate in dynamic environments".* (S19)

During the interviews, the students were asked to identify the activities they liked among the clicker activities. The answers were examined in four themes: 'problem solving', 'discussion', 'individual quiz' and 'group based quiz'. The students chose one or more codes included in each theme. The results have been presented in Table 6.

Table 6. *Favoured clicker activities*

Theme	**Frequency**
Group based quiz	21
Individual quiz	18
Problem solving	11

Most of the students (n=21) stated that they better appreciated the group based quizzes. Also, another majority (n=18) expressed that they better enjoyed the individual quiz activities. Some of the students (n=11) expressed that they would have preferred more hours of clicker-aided problem-solving courses. Some student statement examples are as follows:

> *"I greatly enjoyed the quizzes we took as groups. We determined the correct answers by discussing amongst ourselves. The other groups did the same also. Being a part of a team made me feel good. It was very fun".* (S5)

> *"... if I am to put it in order, my favourite activity was working on the individual quizzes. There were video based questions in the individual quizzes. Those who watched carefully could easily gain success. I also enjoyed the problem-solving activities. The existence of a time limit motivated me".* (S10)

> *"I think solving quizzes as groups was very interesting. They were my favourite activities. In fact, it encouraged me to think. I enjoyed sharing my solution oriented ideas with my friends. In class, we thought about finding the right answers for the group quiz activities and discussed amongst ourselves".* (S8)

5. Discussion and Conclusion

In this study, the integration of clickers activities to the in-class component of the flipped classroom model, the use of which is rapidly widespread in higher education, and its effects on students learning achievements and course oriented anxieties have been examined. Furthermore, the effectiveness of the clicker-aided flipped classroom model activities

(individual and group based question-and-answer activities, problem solving activities) on the students' learning achievement and course oriented anxieties have been compared to that of the classic flipped classroom model (without clickers). Students' perceptions of the clicker-aided flipped classroom model were also determined.

The research results indicated the positive effects of the clicker-aided flipped classroom model on students' learning achievements. In the pre-course component of the flipped classroom model, the lecturer can identify whether the students had watched the course videos and whether they were prepared for the course materials by holding individual clicker quizzes. Additionally, the model provides feedback to both the lecturer and the student, on the students' problem-solving speed. If the student cannot perform within the determined time limit, that indicates the necessity for that student to solve more problems and focus more thoroughly on the course materials. Thus, it is believed that the clicker-aided flipped classroom model encourages students to perform the necessary preparations before class time; thus, having a positive effect on their learning achievement. After a literary review, it has been observed that the existing limited number of applications (also integrating clickers into the flipped classroom model) support the findings of this research (Hung, 2017; Yu & Yu, 2017).

Another finding of the study indicated a significant decrease in the course anxiety level of the experimental group students (who participated in the application of clicker-aided flipped classroom model) when compared to the level of control group students. It is conceived that the in-class group based quizzes had a remedying effect on the students' course anxieties. Behavioral outputs on the use of clickers show a higher possibility of student effort when participating in their classes (Hung, 2017; Oigara & Keengwe, 2013; Termos, 2013).

When the opinions of the students from the experimental group (on the clicker-aided flipped classroom model) are considered, it has been determined that they had a positive perception of the model. The students stated that they were more active during class time, their anxieties were decreased, they enjoyed their classes and their interest in the course was increased. The students' positive inclination towards the model is believed to be the result of the model's enabling attribute of their participation and it's feature of providing feedbacks. Furthermore, group based quizzes can be effective in increasing student interaction, providing a sense of belonging (to a group), decreasing their anxieties and developing positive opinions. Several seconding studies exist in literature which also present the positive student opinions towards clicker activities (Batchelor, 2015; Crossgrove & Curran, 2008; Hunsu, Adesope & Bayly, 2016; Oigara & Keengwe, 2013). The results of this study assert the importance of integrating clickers activities into the application of flipped classroom model; for attaining a better learning achievement and remedying course anxiety problems. Furthermore, it also shows that the clicker activities can be integrated into the flipped classroom model's in-class component with ease.

6. Limitations and Further Research

This research, as with any other empirical studies, has its limitations. Firstly, the participants of the study were students from a single university in North Cyprus. Thus, the results cannot be nationally generalized. It can be performed with more participants from a larger number of universities. Secondly, the interviews were held only with voluntary students from the experimental group; no interviews were held with the control group students. This decreased the qualitative data amount of the study. In future studies, interviews can be held with both experimental and control group students. Another limitation of the study is its 4 weeks long experimental process. Future studies can focus on the outputs of a longer-lasting learning environment, performed by using clicker-aided flipped classroom.

References

Ally, M. (2013). Mobile learning: From research to practice to impact education. *Learning and Teaching in Higher Education: Gulf Perspectives, 10*(2), 1-10.

Batchelor, J. (2015). Effects of clicker use on calculus students' mathematics anxiety. *PRIMUS*, *25*(5), 453-472.

Beatty, I. D., Gerace, W. J., Leonar, W. J., & Dufresne, R. J. (2006). Designing effective questions for classroom response system teaching. *Am. J. Phys. 74*(1), 31–39.

Bergmann, J., & Sams, A. (2014). Flipping for mastery. *Educational Leadership, 71*(4), 24-29.

Blasco-Arcas, L., Buil, I., Hernández-Ortega, B., & Sese, F. J. (2013). Using clickers in class. The role of interactivity, active collaborative learning and engagement in learning performance. *Computers & Education, 62*, 102-110.

Büyüköztürk, Ş., Çakmak, E.K., Akgün, Ö.E., Karadeniz, Ş. & Demirel, F., (2008). *Scientific research methods*. Ankara: Pegem Academy (in Turkish).

Chien, Y. T., Chang, Y. H., & Chang, C. Y. (2016). Do we click in the right way? A meta-analytic review of clicker-integrated instruction. *Educational Research Review, 17*, 1–18.

Çoruk, H. & Çakır, R. (2017). The Effect of Multimedia Usage on Academic Achievement and Anxiety of Primary School Students. *Turkish Journal of Computer and Mathematics Education, 8*(1), *1-27.*

Crossgrove, K., & Curran, K. L. (2008). Using clickers in nonmajors- and majors- level biology courses: Student opinion, learning, and long-term retention of course material. *Cbe-Life Sciences Education, 7* (1), 146-154.

Cubric, M., & Jefferies, A. (2015). The benefits and challenges of large-scale deployment of electronic voting systems: University student views from across different subject groups. *Computers & Education, 87*, 98-111.

DeBourgh, G. A. (2008). Use of classroom "clickers" to promote acquisition of advanced reasoning skills. *Nurse Education in Practice, 8*(2), 76-87.

Fautch, J. M. (2015). The flipped classroom for teaching organic chemistry in small classes: is it effective? *Chemistry Education Research and Practice, 16*(1*)*, 179-186.

Gilbert, A. (2005). New for back-to-school: 'Clickers'. Retrieved on June 20th, 2011, from http://news.cnet.com/New-for-back-to-school-clickers/2100-1041_3-5819171.html.

Holland, L., Schwartz-Shea, P., & Yim, J. M. J. (2013). Adapting clicker technology to diversity courses: New research insights. *Journal of Political Science Education, 9*(3), 273-291.

Hung, H. T. (2017). Clickers in the flipped classroom: bring your own device (BYOD) to promote student learning. *Interactive Learning Environments*, *25*(8), 983-995. doi: 10.1080/10494820.2016.1240090

Hunsu, N. J., Adesope, O., & Bayly, D. J. (2016). A meta-analysis of the effects of audience response systems (clicker-based technologies) on cognition and affect. *Computers & Education, 94*, 102-119.

Hwang, G. J., Lai, C. L., & Wang, S. Y. (2015). Seamless flipped learning: A mobile technology-enhanced flipped classroom with effective learning strategies. *Journal of*

Computers in Education, 2(4), 449-473.

Kağıtçı, B. & Kurbanoğlu, B. (2013). Developing an anxiety scale for science and technology class: Reliability and validity study. *Journal of Turkish Science Education,10*(3), 95-107.

Karakaya, F., Avgin, S. S., Gömlek, E., & Balık, M. (2017). Examination of pre-service teachers' anxiety levels about teaching profession. *International Online Journal of Education and Teaching (IOJET), 4*(2). 162-172. Retrieved from http://iojet.org/index.php/IOJET/article/view/164/160

Lai, C. -L., & Hwang, G. -J. (2016). A self-regulated flipped classroom approach to improving students' learning performance in a mathematics course. *Computers & Education, 100*, 126-140. Retrieved from https://doi.org/10.1016/j.compedu.2016.05.006

Lucke, T., Dunn, P.K., & Christie, M., (2017). Activating learning in engineering education using ICT and the concept of 'Flipping the classroom'. *European Journal of Engineering Education, 42*(1), 45-57. doi: 10.1080/03043797.2016.1201460

Martyn, M. (2007). Clickers in the Classroom: An Active Learning Approach. *Educause Quarterly, 30*(2), 71–74. Retrieved on December 25th, 2017 from http://www.ualberta.ca/~tti/files/Clickers%20in%20the%20classroom.pdf

O'Flaherty, J., & Phillips, C. (2015). The use of flipped classrooms in higher education: A scoping review. *The Internet and Higher Education, 25*, 85-95.

Ogan, G.C., & Williams, C. (2015). Flipped Classroom Versus a Conventional Classroom in the Learning of Mathematics. *British Journal of Education, 3*(6), 71-77.

Oigara, J. & Keengwe, J. (2013). Students' perceptions of clickers as an instructional tool to promote active learning. *Education and Information Technologies,* 18(1), 15-28. doi: 10.1007/s10639-011-9173-9

Ottens, A. J. (1991). *Coping with academic anxiety* (2nd ed.). New York: Rosen.

Rachman, S. (1998). *Anxiety*. East Sussex: Psychology Press.

Richardson, F. C., & Suinn, R. M. (1972). The mathematics anxiety rating scale: Psychometric data. *Journal of counseling Psychology, 19*(6), 551.

Sarawagi, N. (2013). Flipping an introductory programming course: yes you can! *Journal of Computing Sciences in Colleges, 28*(6), 186-188.

Sarıtepeci, M., Durak, H. & Seferoğlu, S. (2016). Examination of teachers' in-service training needs in the field of instructional technology: An evaluation in light of applications implemented at FATIH project. *Turkish Journal of Computer and Mathematics Education, 7*(3*), 601-620.*

Seaman, G., & Gaines, N. (2013). Leveraging digital learning systems to flip classroom instruction. *Journal of Modern Teacher Quarterly, 1*, 25-27.

Stevens, N. T., McDermott, H., Boland, F., Pawlikowska, T., & Humphreys, H. (2017). A comparative study: do "clickers" increase student engagement in multidisciplinary clinical microbiology teaching? *BMC medical education, 17*(1), 70. doi: 10.1186/s12909-017-0906-3

Sun, J. C. Y. (2014). Influence of polling technologies on student engagement: An analysis of student motivation, academic performance, and brainwave data. *Computers & Education*, *72*, 80-89.

Termos, M. H. (2013). The effects of the classroom performance system on student participation, attendance, and achievement. *International Journal of Teaching and Learning in Higher Education*, *25*(1), 66–78.

Turner, R. C. & Lindsay, H. A. (2003). Gender differences in cognitive and non-cognitive factors related to achievement in organic chemistry. *Journal of Chemical Education, 80*(5), 563-568.

Yılmaz, Ö. (2017). Formative assessment and feedback in interactive classroom: Usage of mobile technology. *International Journal of Social Sciences and Education Research*, *3*(5), 1832-1841.

Yu, Z. (2015). Indicators of satisfaction in clickers-aided EFL class. *Frontiers in Psychology*, *6*, 587. Retrieved on November 17th, 2017 from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4421939/ doi:10.3389/fpsyg.2015.00587.

Yu, Z., & Yu, L. (2017). Correlations between learners' initial EFL proficiency and variables of clicker-aided flipped EFL class. *Education and Information Technologies*, *22*(4), 1587-1603. doi:10.1007/s10639-016-9510-0

Zeidner, M., & Matthews, G. (2005). Evaluation anxiety: current theory and research. In A. J. Elliot, & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 141–166). New York: Guilford Press.

Tekerek, B., & Karakaya, F. (2018). STEM education awareness of pre-service science teachers. *International Online Journal of Education and Teaching (IOJET)*, *5*(2), 348-359. http://iojet.org/index.php/IOJET/article/view/310/239

Received: 23.10.2017
Received in revised form: 05.01.2018
Accepted: 15.03.2018

STEM EDUCATION AWARENESS OF PRE-SERVICE SCIENCE TEACHERS

Betül Tekerek

Kahramanmaras Sutçüimam University

btekerek@ksu.edu.tr

Ferhat Karakaya

Gazi University

ferhatk26@gmail.com

Dr. Betül Tekerek is an Assistant Professor at Kahramanmaraş Sütçüimam University, Department of Mathematics Education. Her research interests are STEM education, Science and Mathematics integration, teacher education.

Ferhat Karakaya is working as a research assistant and having his PhD at Gazi University. He is interested in studies related STEM education and environmental education.

STEM EDUCATION AWARENESS OF PRE-SERVICE SCIENCE TEACHERS

Betül Tekerek
btekerek@ksu.edu.tr
Ferhat Karakaya
ferhatk26@gmail.com

Abstract

This research aimed to determine pre-service science teachers' STEM awareness in terms of different variables. Data were collected from 148 pre-service science teachers studying at a state university in Turkey who were chosen through the convenience sampling method. "STEM Awareness Scale (SAS)" was employed as data collection tool, and the data were analyzed using IBM SPSS-21 statistical program. For data analysis, Independent t test, variance analysis (ANOVA) and Tukey significance test were used. No statistically significant difference in pre-service science teachers' STEM awareness in terms of gender, academic achievement score, technology usage frequency, and family income level. While they significantly differ in their STEM awareness with regard to grade level.

Keywords: STEM, STEM education, STEM awareness, pre-service science teachers

1. Introduction

Scientific and technological developments in recent years affected the countries' economical, education and social structures and caused to reveal new approaches. STEM education, which is an approach that aims to students to gain interdisciplinary problem solving skills in the center of engineering development of science, technology, mathematics and engineering knowledge and skills (Karakaya & Avgın, 2016; Buyruk & Korkmaz, 2016; Bybee, 2010b; Dugger, 2010; Rogers & Porstmore, 2004), constitutes the best example for the educational context,. It is a teaching system that provides integrated approach in science, technology, mathematics and engineering disciplines (Corlu, 2012; 2013). It launched in the US in 1990's (Bybee, 2010) and it takes part in countries' educational policies. It aims to make compatible integrity of different disciplines and to make students to understand this integrity (Smith & Karr-Kidwell, 2000), and to educate students who will lead novelties (Buyruk & Korkmaz, 2016; Şahin, Ayar & Adıgüzel, 2014; Roberts, 2012). STEM education, Interdisciplinary integration can be by including all the science, technology, mathematics and engineering or synchronise them in the center of one of them (Karakaya, Avgın, 2016; Yamak, Bulut & Dündar, 2014; Moore, Stohlmann, Wang, Tank, & Roehrig, 2013).

STEM education is capital of importance for countries that wish to have a say on the international platform and accord to knowledge-technological developments (Çorlu, Capraro & Capraro, 2014) considering 21th century skills intended to enhance students' interest and tendency through science, technology, mathematics and engineering in STEM education (Baran, Canbazoğlu-Bilici, Mesutoğlu, 2015). Students are expected to generate solutions for problems by using 21th century knowledge and skills. At this point, the related research concluded that students' interest, attitude, and achievements were affected positively when

STEM disciplines were integrated (Karakaya & Avgın, 2016; Yıldırım & Selvi 2016; Gülhan & Şahin, 2016; Yıldırım & Altun, 2015; Baran, &et al., 2015; Gencer, 2015; Şahin & et al., 2014; Yamak & et al., 2014; Wendell, Connolly, Wright, Roger, Barnett & Marulcu, 2010; Fortus, Dershimer, Krajcik, Marrx & Mamlok-Naaman; 2004; Roth, 2001).

Many studies were conducted about STEM education with an international dimension. For example, Chachashvili, Milner & Lissitsa (2016) investigated factors that affect high school students' interest through STEM education. The results of this study point out that STEM learning experience positively associates with students' interest in pursuing STEM fields in tertiary education. Likewise, Christensen, and Knezek (2017) examined middle school students' STEM interest and carrier intention in STEM disciplines. The results of study invaded that middle school students who have stated that they plan to pursue a career in STEM, also show higher dispositions toward STEM and STEM career measures. Rehmat (2015) searched problem based learning approach for STEM integration in elementary level. In his master thesis, Saad (2014) designed burden experiments together with students, and stated that the relation between engineering and space can be forced by the help of STEM education. Unfried, Faber and Wiebe (2014) investigated students' attitudes towards STEM fields. Similarly, Tseng, Chang and Lou (2013) searched students' attitudes towards STEM fields in project based learning environment. Naizer, Hawthorne and Hanley (2014) examined the effect of a STEM summer camp on the rural place on students' mathematics, science, technology and problem solving skills. Moore, Stohlmann, Wang, Tank and Roehrig (2013) investigated engineering practice and integration in K-12 STEM fields. Wendell, Connolly, Wright, Jarvin, Rogers, Barnett and Marulcu (2010) researched the effect of using engineering design on elementary students' science learning. Doppelt, Mehalik, Schunn, Silk and Krysinski (2008) conducted a case study in order to see design based learning model in the context of science. Wells, Sanchez, and Attridge (2007) executed modelling on the students' interest on science, technology, engineering and mathematics. Fortus, Dershimer, Krajcik, Marx and Mamlok-Naaman (2004) also studied design based science and student learning. Roth (2001) also examined the relation between technology and science learning.

The related literature in Turkey shows that there are studies about scale development studies through STEM education (Hacıömeroğlu & Bulut, 2016; Buyruk & Korkmaz 2016; Gülhan & Şahin 2016; Yıldırım & Selvi, 2015b), and about integration and activity studies (Yıldırım & Selvi 2016; Corlu & Aydın, 2016; Gencer, 2015; Yıldırım, & Altun 2015; Şahin & et al., 2014; Yamak & et al.., 2014; Ercan & Şahin, 2013). Karakaya and Avgın (2016), and Gülhan and Şahin (2016) investigated the students' attitudes towards STEM education in terms of different variables. As a result of the research, it was determined that the STEM attitudes of students differ according to the independent variables. The aim of the research by Aydın, Saka and Guzey (2017) was to adapt science, technology, engineering, mathematic (STEM) attitude scale and to retain whether there was differences or not on the 4-8 grade student's STEM attitude by applying scale on them. Research by Bakırcı and Karışan (2017) aims to investigate the preservice primary school, mathematics and science teachers STEM awareness. In a different study, Tekerek, Karakaya, and Tekerek (2016) examined ethical reasoning levels of lecturers in STEM fields. Yenilmez and Balbağ (2016) examined the STEM attitudes of prospective science and middle school mathematics teachers. The results of this research demonstrates that there is no significant interaction effect for gender and department variables however there is significant difference among different department students. As a result of the research, it was determined that for all independent variables there were no statistically significant difference in ethical reasoning of lecturers.

When the purposes and importance of STEM education were considered, it can be said that it is necessary to introduce in national wide (Çorlu, Adıgüzel, Ayar, Çorlu & Ozel, 2012)

and to increase the awareness. However, these have not been achieved yet (Çavaş, Bulut, Holbrook & Rannikmae, 2013; Çorlu & et al., 2012; Marulcu & Sungur, 2012). In STEM education, significant responsibilities are assigned to teachers in having students integrated and interdisciplinary perspectives. For these reasons, it is very important to determine pre-service teachers' awareness about STEM (Buyruk & et al., 2016). However, to the best of the researchers' knowledge, no study has been carried out with the aim of determining the pre-service teachers' awareness of STEM. In this regard, the present is hoped to contribute to the literature.

1.1. Purpose of Research

The purpose of the present research is to determine pre-service science teachers' STEM awareness in terms of different variables. Accordingly, responses were sought for the following research questions:

1. Does pre-service science teachers' STEM awareness differ in terms of gender?
2. Does pre-service science teachers' STEM awareness differ in terms of grade level?
3. Does pre-service science teachers' STEM awareness differ in terms of academic achievement score?
4. Does pre-service science teachers' STEM awareness differ in terms of technology usage frequency?
5. Does pre-service science teachers' STEM awareness differ in terms of family income level?

2. METHOD

2.1. Research Model

In this research, the relational screening model was used. The relational screening model is a general screening model used in research to determine the changes in two or more variables and the degree of change (Karasar, 2006, 81).

2.2. Data Collection Tool

"STEM Awareness Scale (SAS)" developed by Buyruk and Korkmaz (2016) was used in this study. It was a 5-point Likert type scale and consisted of 17 questions with 2 factors. As the items were pointed from 1 (absolutely agree) to 5 (absolutely disagree) Buyruk and Korkmaz (2016) calculated Cronbach's alpha value of the positive opinion factor as .929, Cronbach's alpha value of negative opinion factor as .806 and Cronbach's alpha of all scale as .927. In this research, Cronbach's alpha value of the positive opinion factor was calculated as .903, Cronbach's alpha value of negative opinion factor was calculated as .912 and Cronbach's alpha of all scale was calculated as .903.

2.3. Data Analysis

Data were analyzed by using IBM SPSS-21 statistical program. Mann-Whitney U-test, variance analysis (ANOVA) and Tukey significance test were used. Significance level was determined as .05. On the other hand, percentage, frequency, average and standard deviation values were given.

2.4. Research Group

In this research, convenience sampling method was used. The study group consisted of 148 pre-service science teachers studying at Kahramanmaras Sutcuimam University, Turkey. It was conducted in the fall semester of 2016-2017 academic year. The demographic information of the participants was given in Table 1.

Table 1. *Demographic information of pre-service science teachers*

		f	%
Gender	Female	133	89.9
	Male	15	10.1
Grade	2nd Grade	51	34.5
	3rd Grade	45	30.4
	4th Grade	52	35.1
Academic achievement score	Others	28	18.9
	2.50-2.99	85	57.4
	3.00-3.49	31	20.9
	3.50-4.00	4	2.7
Technology usage frequency	Sometimes	14	9.5
	Middle	59	39.9
	Very	75	50.7
Family income level	0TL-1500TL	64	43.2
	1501TL-2000TL	44	29.7
	>2000TL	40	27.0
		148	100.0

3. Results

In this section, the findings about pre-service science teachers' STEM awareness in terms of several variables were given. The first research question investigated whether "They differ in their STEM awareness in terms of gender?" t-test was conducted. The results of the test were given in Table 2.

Table 2. *The results of t-test for gender variable*

Scale	Gender	N	$\bar{X}$	sd	t	p
SAS	Female	133	4.00	146	1.486	.05
	Male	15	3.69			

**p<.05*

When the results in Table 2 were examined, there was no significant difference in pre-service science teachers scores in terms of gender ($t_{(146)} = 1.486$; $p \geq .05$).

The second research question searched whether *"They differ in their STEM awareness regarding grade level?"* The results of one-way analysis of variance (ANOVA) were given in Table 3 and Table 4.

Table 3. *Frequency, mean score and standard deviation for grade level*

	N	$\bar{X}$	ss
2nd grade	51	3.83	.58
3rd grade	45	4.13	.46
4th grade	52	3.96	.61
	148	3.97	.56

Table 4. *The results of one-way ANOVA test for grade level*

		Sum of Squares	sd	Mean of Squares	F	*p*	Tukey
SAS	Between Groups	2.253	2	1.127	3.591	.030*	3>2
	Within Groups	45.494	145	.314			
	Total	47.747	147				

When the results in Table 3 and Table 4 were examined, there was a significant difference in pre-service science teachers scores in terms of grade level [$F_{(2,145)}$=3.591; $p< .05$].

The third research question was intended to seek for an answer to the question *"Does pre-service science teachers' STEM awareness differ in terms of academic achievement score?"* The test results were given in Table 5 and Table 6.

Table 5. *Frequency, mean score and standard deviation for academic achievement score*

	N	$\bar{X}$	ss
Others	28	3.87	.50
2.50-2.99	85	3.91	.59
3.00-3.49	31	4.16	.54
3.50-4.00	4	4.25	.36
	148	3.97	.56

Table 6. *The results of one-way ANOVA test for academic achievement score*

		Sum of Squares	Sd	Mean of Squares	F	*p*
SAS	Between Groups	1.967	2	.656	2.063	.108
	Within-Groups	45.780	144	.318		
	Total	47.747	147			

As illustrated in Table 5 and Table 6, there was no significant difference in pre-service science teachers' scores in terms of academic achievement score [$F_{(2,144)}$=2.063; $p>.05$].

Another question of the research searched whether "They differ in *STEM awareness with respect to technology usage frequency?"* The results of one-way analysis of variance (ANOVA) test were presented in Table 7 and Table 8.

Table 7. *Frequency, mean score and standard deviation for technology usage frequency*

	N	$\bar{X}$	ss
Sometimes	14	4.09	.71
Middle	59	3.95	.45
Very	75	3.96	.62
	148	3.97	.56

Table 8. *The results of one-way ANOVA test for technology usage frequency*

		Sum of Squares	Sd	Mean of Squares	F	*p*
SAS	Between Groups	.249	2	.124	.380	.685
	Within-Groups	45.498	145	.328		
	Total	47.747	147			

*$p<.05$

The test results have revealed that there is no significant difference in pre-service science teachers scores in terms of technology usage frequency [$F_{(2,145)}$ =.380*; p>.05*].

The research question investigated whether *"They differ in their STEM awareness in terms of income level?"* The results of one-way analysis of variance (ANOVA) were given in Table 9 and Table 10.

Table 9. *Frequency, mean score and standard deviation for family income level*

Family income level	SAS		
	N	$\bar{X}$	ss
0TL-1500TL	64	3.90	.60
1501TL-2000TL	44	4.00	.61
>2000TL	40	4.02	.43
	148	3.97	.56

Table 10. *The results of one-way ANOVA test for family income level*

		Sum of Squares	Sd	Mean of Squares	F	*p*
SAS	Between groups	.443	2	.221	.679	.509
	Within-Groups	47.305	145	.326		
	Total	47.747	147			

**p<.05*

When the results in Table 9 and Table 10 were examined, there was no significant difference in pre-service science teachers scores in terms of family income level [$F_{(2,145)}$ =.679; *p>.05*].

4. Discussion

STEM teacher has knowledge and practitioner skills in different STEM fields besides the field of expertise (Çorlu, 2014). When the related literature examined, it is seen that both science teachers' and the pre-service science teachers' STEM awareness was not determined. This research aimed to determine pre-service science teachers' STEM awareness in terms of different variables. STEM Awareness Scale (SAS) was used in the research for the aim of the study.

There was no statistically significant difference in pre-service science teachers' STEM awareness in terms of gender. It could be claimed that gender is not an effective factor in STEM awareness of pre-service science teachers. That is, female pre-service science teachers' STEM awareness was found higher than the male pre-service science teachers' STEM awareness. Bakıcı and Karışan (2017) found that gender is not influential on STEM awareness of science teachers. Yenilmez and Balbağ (2016) found that gender is not influential on STEM attitude of pre-service teachers. It may be that men consider themselves more interested in dealing with machines, repairing work, designing new products, and dealing with electronic goods (Yenilmez & Balbağ, 2017). Bolotin and et al. (2016) found that female students who attending secondary education had higher STEM education attention than male students'. Christensen, and Knezek (2017) also found the similar result that the attitudes and knowledge of female students were higher than the attitudes and knowledge of male students after a STEM education camp. Karakaya and Avgın (2016) also reported that female students who attending secondary school had a higher attitude towards STEM than male students. These results supported the findings of this research.

There was a statistically significant difference on STEM awareness of pre-service science teachers in terms of grade level. It can be said that grade level is an effective factor in STEM awareness of pre-service science teachers. Additionally, it was determined that the third grade pre-service science teachers' mean score was higher than the second and fourth grade pre-service science teachers' mean score (Table 3). In order to make differences according to the grade level, the course intensity in the department is influential (Bakırcı &Karışan, 2017). Karakaya and Avgın (2016), Unfried et al. (2014) stated that students' grade level caused to increase in their attitudes and behaviors through STEM education. These results support the findings of the study. However, when the literature is examined, different results are determined (Bakıcı & Karışan, 2017; Yenilmez & Balbağ, 2016; Unfried, Faber, Stanhope Wiebe, 2015; Lamb, Akmal & Petrie, 2015; Mahoney, 2009). This can be explained by the fact that the STEM preparations of the younger students are higher than those of the older students.

There was no statistically significant difference on STEM awareness of pre-service science teachers in terms of academic achievement score. That is, academic achievement score is not an effective factor in STEM awareness of pre-service science teachers. However, it was determined that the more pre-service science teachers' academic achievement, the higher their STEM awareness. High performance of individuals in STEM disciplines depends on their high school education (Table 5). The high academic performance of the student in high school science and mathematics lesson affect the awareness and interest through STEM disciplines (Elliot, Strenta, Adair, Matier & Scott, 1996). Thus, it can be said that in order to increase interest and awareness of individuals in STEM disciplines, increasing the students' academic performance in science and mathematics courses will be effective.

There was no statistically significant difference in STEM awareness of pre-service science teachers in terms of technology usage frequency. That is, technology usage frequency is not an effective factor STEM awareness of pre-service science teachers. However, it was seen that when the technology usage frequency increases, STEM awareness of preservice science teachers decreases (Table 7). Today, rapidly developing technology has become an important point for education and training. The use of technology in education (Yılmaz, 2005) and the use of smart boards in classrooms (Sevindik, 2006) have a positive effect on students' academic achievement and attitudes towards lectures. Therefore, it is necessary to give the required technological advice in STEM education.

There was no statistically significant difference on STEM awareness of pre-service science teachers in terms of family income level. That is, family income level is not an effective factor for STEM awareness of pre-service science teachers. However, the increase in the family income level showed the increase in STEM awareness of preservice science teachers (Table 9). Blotin and et al. (2016) determined that the low level of economic status of the students decreased the interest, attitude, awareness and confidence in the STEM disciplines. These results support the findings of research. However; George-Jackson and Lichtenberger (2012); Lichtenberger and George-Jackson (2013) stated that economically disadvantaged students had more confidence in their STEM core branches than their high-income colleagues.

5. Conclusion

The vision of Turkey in 2023 and the strategic aims determined by the Ministry of National Education, show the importance of STEM education (Çorlu & al., 2012). If a country wants to have a say in scientific, economic or technological fields, it has to be included STEM education into their education system (Lacey & Wright, 2009). The institutions that train teachers have a great responsibility so that STEM education can take

place in line with the goals and objectives of our education system. For this reason, it is necessary to accelerate the efforts to increase the STEM awareness of the pre-service teachers who are studying at the higher education institutions. The increase in awareness of teachers increases their awareness to both themselves and their environment (Buyruk & Korkmaz, 2016). Therefore, educational programs should be organized to include 21st century talents (Corlu & Aydin, 2016).

References

Aydin, G., Saka, M., & Guzey, S. (2017). 4-8. sınıf öğrencilerinin fen, teknoloji, mühendislik, matematik (STEM= FeTeMM) tutumlarının incelenmesi. *Mersin University Journal of the Faculty of Education, 13*(2), 787-802.

Baran, E., Canbazoğlu Bilici, S., & Mesutoğlu, C. (2015). Fen, teknoloji, mühendislik ve matematik (FeTeMM) spotu geliştirme etkinliği. *Araştırma Temelli Etkinlik Dergisi (ATED), 5*(2), 60-69.

Bakırcı, H., & Karışan, D. (2018). Investigating the Preservice Primary School, Mathematics and Science Teachers' STEM Awareness. *Journal of Education and Training Studies, 6*(1), 32-42.

Bybee, R. W. (2010). What is STEM education?. *Science, 329*(5995), 996-996.

Bybee, R. W. (2010b). What is STEM education? *Science, 329*, 996. Doi: 10.1126/science.1194998.

Buyruk, B., & Korkmaz, Ö. (2016). FeTeMM farkındalık ölçeği (FFÖ): geçerlik ve güvenirlik çalışması. *Türk Fen Eğitimi Dergisi, 13*(2), 61-76.

Chachashvili-Bolotin, S., Milner-Bolotin, M., & Lissitsa, S. (2016). Examination of factors predicting secondary students' interest in tertiary STEM education. *International Journal of Science Education, 38*(3), 366-390.

Cohen, L., Manion, L., & Morrison, K. (2000). Research methods in education. (5th) ed. London New York: Routledge Falmer.

Corlu, M.A., & Aydin, E. (2016). Evaluation of learning gains through integrated STEM projects. *International Journal of Education in Mathematics, Science and Technology, 4*(1), 20-29. DOI:10.18404/ijemst.35021

Corlu, M. S. (2014). FeTeMM eğitimi makale çağrı mektubu. *Turkish Journal of Education, 3*(1), 4-10.

Corlu, M. S. (2013).Insights into STEM education praxis: An assessment scheme for course syllabi. *Educational Sciences: Theory & Practice, 13*(4), 2477-2485. Doi: 10.12738/estp.2013.4.1903

Corlu, M. S. (2012). *A pathway to STEM education: Investigating pre-service mathematics and science teachers at Turkish universities in terms of their understanding of mathematics used in science*, (Unpublished doctoral dissertation), Texas A&M University, College Station, Texas.

Christensen, R., & Knezek, G. (2017). Relationship of middle school student STEM interest to career intent. *Journal of Education in Science, Environment and Health (JESEH), 3*(1),1-13.doi:10.21891/jeseh.45721

Çavaş, B., Bulut, Ç., Holbrook, J., & Rannikmae, M. (2013). Fen eğitimine mühendislik odaklı bir yaklaşım: ENGINEER projesi ve uygulamaları. *Fen Bilimleri Öğretimi Dergisi, 1*(1), 12-22.

Çorlu, M. S., Capraro, R. M., & Capraro, M. M. (2014).Introducing STEM education: implications for educating our teachers for the age of innovation. *Eğitim ve Bilim, 39*(171), 74-85.

Çorlu, M. A., Adıgüzel, T., Ayar, M. C., Çorlu, M. S., & Özel, S. (2012, Haziran). *Bilim, teknoloji, mühendislik ve matematik (BTMM) eğitimi: disiplinler arası çalışmalar ve*

etkileşimler. X. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi'nde sunulmuş bildiri, Niğde.

Doppelt, Y., Mehalik, M. M., Schunn, C. D., Silk, E., & Krysinski, D. (2008). Engagement and achievements: a case study of design-based learning in a science context. *Journal of Technology Education, 19*(2), 22-39.

Dugger, W. E. (2010, December). *Evolution of STEM in the United States.* Presented at the (6th) Biennial International Conference on Technology Education Research, Gold Coast, Queensland, Australia. http://www.iteaconnect.org/Resources/PressRoom/AustraliaPaper.pdf.

Ekici, G., & Hevedanlı, M., 2010.Lise öğrencilerinin biyoloji dersine yönelik tutumlarının farklı değişkenler açısından incelenmesi, *Türk Fen Eğitimi Dergisi. 7*(4), 97-109.

Elliot, E., Strenta, A. C., Adair, R., Matier, M., & Scott, J. (1996).The role of ethnicity in choosing and leaving science in highly selective institutions. *Research in Higher Education, 37*(6), 681-709

Ercan, S., & Şahin, F.(2013). *Mühendisliğin fen eğitimine entegrasyonu: mü(fen) dislik integration of engineering into scıence education: mü(fen) dislik/scıen(ce)gineering*. International Symposium on Changes and New Trends in Education, Konya.

Fortus, D., Dershimer, R. C., Krajcik, J. S., Marx, R. W., & Mamlok-Naaman, R. (2004). Design-based science and student learning. *Journal of Research in Science Teaching, 41*(10), 1081-1110

George-Jackson, C. E., & Lichtenberger, E. J. (2012). College confidence: How sure high school students are of their future majors. Illinois Education Research Council. Policy Research: IERC 2012–2. Retrieved from: http://ierc.education/wp-content/uploads/2014/10/EJL_2012_ACT_College-Confidence_final.pdf.

Gencer, A. (2015). Fen eğitiminde bilim ve mühendislik uygulaması: Fırıldak Etkinliği, *Araştırma Temelli Etkinlik Dergisi (ATED), 5*(1), 1-19.

Gülhan, F., & Şahin, F. (2016).Fen-teknoloji-mühendislik-matematik entegrasyonunun (STEM) 5.Sınıf öğrencilerinin bu alanlarla ilgili algı ve tutumlarına etkisi. *International Journal of Human Sciences, 13*(1), 602-620.

Hacıömeroğlu, G., & Bulut, A. S. (2016). Entegre FETEMM* öğretimi yönelim ölçeği türkçe formunun geçerlik ve güvenirlik çalışması/Integrative Stem teaching intention questionnaire: a validity and relaibility study of the Turkish Form. *Eğitimde Kuram ve Uygulama, 12*(3), 654-669.

Karakaya, F., & Avgın, S. S. (2016). Effect of demographic features to middle school students' attitude towards FeTeMM (STEM). *Journal of Human Sciences, 13*(3), 4188-4198. doi:10.14687/jhs.v13i3.4104

Karasar, N. (2006). *Bilimsel Araştırma Yöntemi.* Ankara: Nobel yayın Dağıtım.

Lacey, T. A., & Wright, B. (2009). Occupational employment projections to 2018. *Monthly Labor Review*, 82-109.

Lamb, R., Akmal, T., & Petrie, K. (2015). Development of a cognition-priming model describing learning in a STEM classroom. *Journal of Research in Science Teaching, 52* (3), 410-437. doi: 10.1002/tea.21200.

Lichtenberger, E., & George-Jackson, C. E. (2013).Predicting high school students' interest in majoring in a STEM field: Insight into high school students' postsecondary plans. *Journal of Career and Technical Education, 28*(1), 19–38.

Mahoney, M. P. (2009). *Student attitude toward STEM: Development of an instrument for high school STEM-based programs*. (Unpublished PhD thesis). The Ohio State University.

Marulcu, İ., & Sungur, K. (2012). Fen bilgisi öğretmen adaylarının mühendis ve mühendislik algılarının ve yöntem olarak mühendislik-dizayna bakış açılarının incelenmesi. *Afyon Kocatepe Üniversitesi Fen Bilimleri Dergisi, 12*(2012), 13-23.

Moore, T.J., Stohlmann, M.S., Wang, H.-H., Tank, K.M., & Roehrig, G.H. (2013). Implementation and integration of engineering in K-12 STEM education. In J. Strobel, S. Purzer, & M. Cardella (Edt.), *Engineering in precollege settings: Research into practice*. Rotterdam, the Netherlands: Sense Publishers.

Naizer G., Hawthorne M. J., & Henley T. B. (2014). Narrowing the gender gap: enduring changes in middle school students' attitude toward math, science and technology. *Journal of STEM Education: İnnovations and Research, 15*(3), 29-34.

Rehmat, A. P. (2015). Engineering the Path to Higher-Order Thinking in Elementary Education: A Problem-Based Learning Approach for STEM Integration. Retrieved from https://digitalscholarship.unlv.edu/thesesdissertations/2497/ on 24.10.2016.

Roberts, A. (2012). A justification for STEM education. *Technology and engineering teacher, 71*(8), 1-5. Retrieved from https://www.iteea.org/File.aspx?id=86478&v=5409fe8e on 24.10.2016.

Rogers, C., & Portsmore, M. (2004). Bringing engineering to elementary school. *Journal of STEM Education, 5*(3), 17-28.

Roth, W. (2001).Learning Science through technological design. *Journal of Research in Science Teaching, 38*(7), 768-790.

Saad, M. E. (2014). *Progressing science, technology, engineering, and math (STEM) education in North Dakota with near-space ballooning.* Master Thesis. Master of Science Grand Forks, North Dakota.

Sevindik, T. (2006). *Akıllı sınıfların yüksek öğretim öğrencilerinin akademik başarı ve tutumlarına etkisi.* Fırat Üniversitesi, Sosyal Bilimler Enstitüsü, Unpublished doctoral dissertation, Elazığ.

Smith, J., & Karr-Kidwell, P. (2000). The interdisciplinary curriculum: a literary review and a manual for administrators and teachers. Retrieved from ERIC database https://eric.ed.gov/?id=ED443172 on 24.10.2016.

Şahin, A., Ayar, M. C., & Adıgüzel, T. (2014). Fen, teknoloji, mühendislik ve matematik içerikli okul sonrası etkinlikler ve öğrenciler üzerindeki etkileri. *Kuram ve Uygulamada Eğitim Bilimleri, 14*(1), 297-322.

Tekerek, M., Karakaya, F., & Tekerek, B. (2016). Ethical reasoning in STEM disciplines. *Journal of Education and Practice, 7*(32), 182-188.

Tseng, K. H., Chang, C. C, Lou, Ş. J. & Chen W. P. (2013). Attitudes towards science, technology, engineering and mathematics (STEM) in a project-based learning (PjBL) environment. *International Journal Technology Design Education, 23*(1), 87–102.

Unfried, A., Faber, M., Stanhope, D. S., & Wiebe, E. (2015). The development and validation of a measure of student attitudes toward science, technology, engineering, and math (STEM). *Journal of Psychoeducational Assessment, 33*(7), 622- 639. doi: 0734282915571160.

Unfried, A., Faber, M., & Wiebe, E. (2014). *Gender and Student Attitudes toward Science, Technology, Engineering, and Mathematics*. Retrieved from http://miso.ncsu.edu/wp-content/uploads/2014/08/AERA-2014-paper-Student-Attitudes-Toward-STEM.pdf .

Wells, B., Sanchez, A., & Attridge, J., (2007). Modeling student interest in science, technology, engineering and mathematics. IEEE Summit. "Meeting the Growing Demand for Engineers and their Educators," Munich, Germany. http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4760362

Wendell, K., Connolly, K., Wright, C., Jarvin, L., Rogers, C., Barnett, M., & Marulcu, I. (2010, October). *Incorporating engineering design into elementary school science curricula.* Paper presented at the Annual Meeting of American Society for Engineering Education. Singapore.

Yamak, H., Bulut, N., & Dündar, S. (2014). 5. Sınıf öğrencilerinin bilimsel süreç becerileri ile fene karşı tutumlarına FeTeMM etkinliklerinin etkisi. *Gazi Eğitim Fakültesi Dergisi, 34*(2), 249- 265.

Yenilmez, K., & Balbağ, M. Z. (2016). Fen bilgisi ve ilköğretim matematik öğretmeni adaylarının STEM'e yönelik tutumları. *Journal of Research in Education and Teaching, 5*(4), 301-307.

Yıldırım, B., & Selvi,M. (2016). Examination of the effects of STEM education integrated as a part of science, technology, society and environment courses. *Journal of Human Science, 13*(2), 3684-3695.

Yıldırım, B., & Altun, Y. (2015). STEM eğitim ve mühendislik uygulamalarının fen bilgisi laboratuar dersindeki etkilerinin incelenmesi. *El-Cezeri Journal of Science and Engineering, 2*(2), 28-40.

Yıldırım, B,. & Selvi, M. (2015b).Adaptation of STEM attitude scale to Turkish. *Turkish Studies - International Periodical for the Languages, Literature and History of Turkish or Turkic, 10*(3), 1107-1120.

Yılmaz, M. (2005). *İlköğretim 7.sınıflarda simetri konusunun öğretimde eğitim teknolojilerinin başarı ve tutuma etkisi*, Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, (Unpublished master thesis), İstanbul.

Evren-Yapıcıoğlu, A. (2018). Advantages and disadvantages of socioscientific issue-based instruction in science classrooms. *International Online Journal of Education and Teaching (IOJET), 5*(2), 361-374. http://iojet.org/index.php/IOJET/article/view/327/240

Received: 11.05.2017
Received in revised form: 02.02.2018
Accepted: 24.02.2018

ADVANTAGES AND DISADVANTAGES OF SOCIOSCIENTIFIC ISSUE-BASED INSTRUCTION IN SCIENCE CLASSROOMS

Ayşegül Evren-Yapıcıoğlu

Muğla Sıtkı Koçman University, Turkey

aevren@mu.edu.tr

Dr. Evren-Yapıcıoğlu has been working as a research assistant for 13 years. She holds a Ph.D. from Hacettepe University, Department of Science Education. Her research interests include science teacher education, socioscientific issues and V-diagrams in science education and qualitative and mixed research methodology.

The preliminary findings of this study were orally presented at INES 2017 Conference on 18-21 October 2017.

ADVANTAGES AND DISADVANTAGES OF SOCIOSCIENTIFIC ISSUE BASED INSTRUCTION IN SCIENCE CLASSROOMS

Ayşegül Evren-Yapıcıoğlu

aevren@mu.edu.tr

Abstract

The social roles and responsibilities expected from citizens are increasing due to changing global living conditions. Science education is expected to prepare conscious and sensitive students because today's students are the adults of the future. To do so, the main pre-requisite is quality teacher education. In the past decade, one of the most important research fields of science education has become socioscientific issues. The purpose of this research is to explore advantages and disadvantages of socioscientific issue based instruction in science classrooms according to prospective science teachers' views. A qualitative single case study design has been utilized. Prospective science teachers' diaries and focus group interviews were used as data collection tools. Dolphinariums, Kyoto Protocol, genetically modified organisms, recyclable black bags' benefits and damages, genetic tests, alternative energy sources and organ donation are examples of socioscientific issues, which are taught through activities in special teaching course. Findings of the study show that the advantages of socioscientific issue based instruction in science classroom are comprised of six sub themes that are upskilling, social awareness, development of thinking, meaningful learning, character and professional development, contribution to scientific literacy whereas disadvantages of this instruction process are challenges to teachers and students, limitations of teaching and learning process in prospective science teachers' perspectives.

Keywords: Science Education, Socioscientific Issues, Prospective Science Teachers

1. Introduction

The rapid development of science and technology has caused the emergence of varied socioscientific issues affecting almost every field of human life (Lee, Abd-El-Khalick & Choi, 2010). Socioscientific issues are science-based dilemmas. Occasional news on Turkish media like construction of nuclear power plant, importation of genetically modified seeds, legal practice on antibiotic use, and prohibition on abortion can be assumed among the socioscientific issues. People frequently witness debates on socioscientific issues on media (newspaper, radio, TV, internet, etc.). However, such media tools give prominence to sensational, contradictive, and questionable parts of the socioscientific issues (Reis & Galvão, 2004). Thus, many tend to have a decision and take a position on such issues. For example, recently, in the province of Artvin in the Black Sea region of Turkey, the establishment Cerrattepe Mining operating plant projects has been planned. However, this project has caused the reaction of many activists and local people. The media has shared the sensational aspects of these actions. All citizens should have the right to participate in all socioscientific decisions such as the establishment of Cerrattepe mining operating plant that has potential to affect entire society (Cansız & Cansız, 2016).

One of the ways to prevent people from having wrong decisions and arguments on socioscientific issues is to handle them within the formal science education. Attitudes and understandings towards rights and freedoms within the scope of personal, social, political,

cultural and economic dimensions are acquired in science lessons addressing socioscientific issues (Doğanay & Öztürk, 2017). Indeed, many researchers emphasize that arguments on socioscientific issues should be considered as one of the primary goals of science education (Kolsto, 2001; Zeidler, Walker, Ackett & Simmons, 2002; Zohar & Nemet, 2002). Along with this, socioscientific issues have been a substantial part of science education reforms and curriculums in all over the world (Hofstein, Eilks & Bybee, 2011).

It is well underlined that focusing on the socioscientific dimension of science helps students not only to improve argumentation and reasoning skills but also to develop perception of the nature of science and social awareness (Cross & Price, 1996; Dawson & Venville, 2009; Sadler, Chambers & Zeidler, 2004; Venville & Dawson, 2010; Wu &Tsai, 2007). What is more to the point, teaching of socioscientific issues contributes to the development of science literacy identity (Holdbrook & Rannikmae, 2007; Kolsto, 2001). Therefore, socioscientific issue based instruction is among the essential approaches of science education. Socioscientific issues can be seen as the tools foregrounding humanist part of science and it is seen as indispensable for responsible citizens (Kolsto, 2001).

Science teachers avoid ethic, moral and political discussions in their classes. As prospective teachers are not sufficiently exposed to socioscientific subjects during their undergraduate training, they graduate with insufficient knowledge about such subjects (Anagün & Özden, 2010). On the other hand, Türkmen, Pekmez and Sağlam (2017) concluded that prospective science teachers do not have adequate knowledge about socioscientific issues; yet, they have mastered the techniques and methods needed to teach these subjects. Evren-Yapıcıoğlu (2016b) stated that prospective science teachers have difficulties in recognizing objectives related to socioscientific issues as they are implicitly expressed in science curriculums in Turkey. Besides, it is argued that teaching such contradictive subjects may result in weak classroom management and displeasure of parents (Stradling, 1984). Today many teachers are not aware of the fact that science courses should be integrated with ethics and values (Bossér, Lundin, Lindahl & Linder, 2015) and they use most of their time in classes to teach basic science principles (as cited in Cristenson, Chang-Rundgren & Zeidler, 2014). Though, in England and South Africa, difficulties concerning the teaching of controversial issues are anticipated in schools and teacher training programs (e.g. curriculums with highly-loaded content, lack of time, lack of instructors, school authority, negative reactions from both parents and students), teaching of such issues is still maintained (Chikoko, Gilmour, Harber & Serf, 2011). As a consequence, though the potential of socioscientific issues in teaching science is emphasized in the related literature, it is hard to declare that socioscientific issues are a part of science classes (Reis & Galvão, 2004). Given the delineations above, it can be argued that while socioscientific issue based instruction is seen to be an up-to-date movement that contributes to the development of students' science literacy identity, raises their awareness of the relationship of science with ethics, politics, morality and values, some difficulties are anticipated in its implementation.

In the current study, the advantages and disadvantages of the implementation of the socioscientific issue based instruction in science classes were explored on the basis of the opinions of prospective science teachers. Actually, in general, it is quite difficult to persuade in-service teachers to adopt a new educational reform and even if it is adopted, it takes a long time. Therefore, it seems to be of great importance to make teacher trainers recognize the usefulness of a new reform movement and to train their students in this direction so that they can see its advantages and disadvantages. Thus, the study group of the current study was decided to be constituted by prospective science teachers. Though the socioscientific issues and socioscientific issue based approach are not a part of teacher training programs in Turkey, their inclusion in these programs can be made possible with the personal efforts of

instructors at universities. On the other hand, the Ministry of National Education (MONE, 2013, 2018) allocates some place to socioscientific issues in 3rd, 4th, 5th, 6th, 7th and 8th grades and asks science teachers to address these issues in their science classes. Therefore, teachers having completed their prospective training and working as teachers experience difficulties in the class. In this regard, the current study aims to elicit the opinions of prospective science teachers about the limitations of the socioscientific issue based instruction and its advantages and disadvantages, thus valuable information can be provided for science instructors, researchers and teachers and important contribution can be made to the literature.

2. Method

A single case study design, which is one of the qualitative research methods, has been utilized to identify the advantages and disadvantages of socioscientific issue based instruction on the basis of the prospective science teachers' views. In the single case study, researchers investigate to explore factors (setting, individuals, situation, process etc.) related to one case and focus on their effects on this case and describe the case in detail (Merriam, 2009; Yıldırım & Şimşek, 2008). According to Yin (2003), if the researcher only wants to do research on one single thing (for example a person from a specific group) or a single group (for example a group of people), a single case study is the best choice for him/her. Current study's research questions are below.

2.1 Participants

This study was conducted with 40 prospective science teachers that were 3rd year students at the department of science education in one of the education faculties in Turkey. Participants were enrolled in the special teaching method course in the spring term of 2015-2016 academic year.

The ages of participants in the studies ranged from 19 to 21 years old. Socioscientific issue based instruction was applied in the special teaching methods course. Although 40 prospective science teachers participated in the activities of socioscientific issue based instruction, 26 participants kept diaries on a voluntary basis. The prospective science teachers kept diaries from the beginning to the end of the research (for a total of seven weeks). Writing in their diaries was entirely under their own control. At the end of the implementation period, focus group interview was made with eight volunteer participants five of whom are female and three are male. Some questions were asked to elicit the general demographics of the participants before the focus group discussion began. Through these questions, it was found that the academic achievement of the eight participants was 2.40 and above. Prior to implementation of socioscientific issue based teaching activities, science teacher training program was examined. No compulsory or elective course was found addressing socioscientific issues and contents by the researcher. Also, before the implementation process, the question of *"have you ever heard of the "socioscientific issue" in your daily life or courses?"* was asked by researcher, the whole class answered *"No!"* in a word. For this reason, it can be said that prospective science teachers do not have any knowledge and experience about socioscientific issues and its instructional activities.

2.2 Data Collection Tools

Data were collected through student diaries and focus group interview. In current research, the primary data resources were diaries because diaries were kept by the prospective science teachers from the beginning to the end of the implementation process. Diaries have become popular qualitative data collection tools in educational research recently and they are within the individual document category. Personal data sources are believed to yield reliable qualitative data on attitudes believes and views of individuals (Merriam, 2009). In addition,

through diaries, the prospective science teachers were able to express their feelings, thoughts and experiences freely on socioscientific issue-based instruction process. The prospective science teachers themselves decided on the time allocated to diary keeping. The secondary data source was a semi-structured focus group interview form. The semi-structured focus group interview form allows the researcher to lead the interview (Meriam, 2009). Questions may be modified during the interview. If participants answer definite questions while speaking about some other topics, researcher may skip these questions or may ask participants for the details (Türnüklü, 2000). For this reason, semi-structured forms are flexible data collection tools. For this reason, the researcher originally planned the semi structured focus group interview form as ten open ended questions. However, some questions in the form were not asked to the prospective teachers because they had already answered them while responding to other questions. Thus, the final semi-structured focus group interview form was comprised of six open-ended questions. One of the questions in the focus group interview form is *"During our lesson we have implemented some teaching activities of socioscientific issue based instruction, what kind of contributions do you think it can make to your students in the future?".* The focus group interview was conducted in the meeting room with the table design in the form of U and lasted 55 minutes. The researcher and all participants were able to see each other's face and hear their talks. The focus group interviews were recorded on a tape recorder with the permission of the prospective teachers.

2.3 Data Analyses

Data were analyzed through inductive content analysis. Content analysis is used to determine the presence of words, concepts, themes, characters or cues in one or many forms (Kızıltepe, 2015). The inductive content analysis process was followed in the study. The following process steps have been applied for the analysis of raw data from two data sources (focus group interview and prospective science teachers' diaries).

- ✓ Firstly, 26 prospective teachers' diaries were read one by one and emotions, experiences and thoughts expressed by participants related to socioscientific issue based instruction activities were marked in diaries.
- ✓ The marked statements were transferred to the computer as a MS Word file.
- ✓ Focus group interview tape recorders have been transcribed.
- ✓ All transcripts from diaries and focus group interview were combined into a single word file.
- ✓ Data reduction for transcriptions of both diaries and focus group interview was carried out.
- ✓ Data was coded based on the definite concepts as stated by Strauss and Corbin (1990).
- ✓ Themes and sub-themes were created through similar codes.
- ✓ A coding scheme was created based on the codes, sub-themes and themes.
- ✓ An expert in qualitative research checked 20% of the coding scheme and written form.
- ✓ Intercoder reliability (Miles & Huberman, 1994) of this research is 90%.

2.4 Process

Socioscientific issue-based instruction was carried out with the participants for 4 course hours (50 mins) a week and 7 weeks in total in the spring term of 2015-2016 academic year. The instruction was applied to the 3rd year students within the special teaching methods course. Special teaching method is compulsory course in the third year of science teacher training program. In this course, it is aimed that third-year students gain experience and practice about special teaching methods, techniques and strategies for science education. In

the implementation process, Evren-Yapıcıoğlu (2016a)'s model was used. The details in this model is described as below.

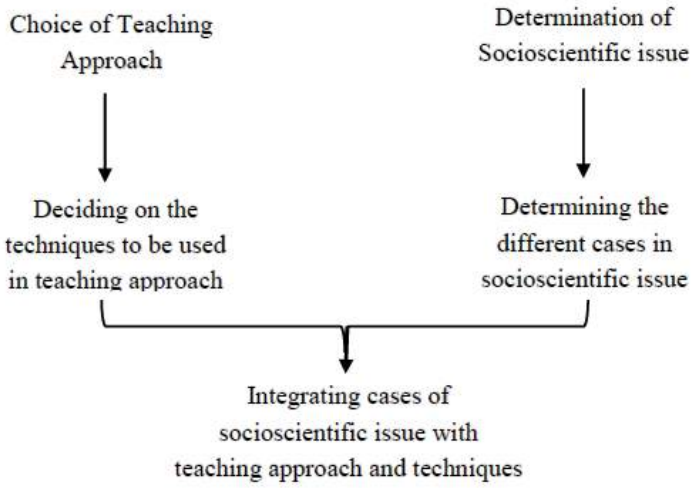


Figure 1. *The teaching process based on socioscientific issue-based instruction approach* (Evren-Yapıcıoğlu, 2016a)

Seven activities were designed by researcher and applied through the socioscientific issue-based instruction. Each topic within the activities carries a socioscientific characteristic. The topics are dolphinariums, Kyoto Protocol, genetically modified organisms, genetic tests, alternative energy sources, use of recycled black plastic bags, organ donation. Each of the activities that are concept cartoons, dilemmas cards, word association test, problem scenarios and news bulletin of science teaching was integrated with special teaching methods/techniques. Argumentation process was implicitly carried out in all activities.

The content of a sample activity prepared by researcher about socioscientific issue-based instruction is summarized below. In this activity, dilemma cards, which are a teaching tool of collaborative learning approach, were planned and used according to cases of socioscientific issue: organ donation.

2.4.1 Activity 3: I can donate my organs! I cannot!

Preparation: Each student was given a small post-it-paper and envelope in the beginning of the course. Students were later asked if they would like to donate their organs as a warm up question. Each student wrote down his/her answer and the reason on papers and placed the papers to the ballot.

Application and Decision: Students were given dilemma cards about organ donation (Appendix 1). A dilemma card is both a means of questioning and evaluation of a decision with the peer groups and a teaching tool encouraging students to express their opinions believes and acts frankly (Oliveira, Akerson & Ortfield, 2012). While there is a real-like scenario on the front side of the dilemma paper, there are moral, ethical, emotional, economic and political options related to organ donation with a socioscientific aspect on the backside. Each student was asked to opt or write his or her own decision.

Argumentation: Peer learning groups were organized at this stage. Thus, prospective science teachers had a chance to have arguments using argumentation elements. After the small group argumentation, students had a big group argumentation. At this stage, reasons for each decision were questioned and defended using argumentation elements. If there was more than one final decision within the group, then these decisions were supported with a different argument.

Co-decision: Groups with different decisions were asked to have a common decision at this stage. Students tried to persuade peers using argumentation items. Then students had a big group discussion.

Critical note: The prospective science teachers had prior knowledge and experience on argumentation stage

3. Findings and Results

Findings of the research show that there are some advantages of socioscientific issue-based instruction. Eight sub-themes are identified from diary and focus group interview data. These are upskilling (f:13), thinking development (f:10), opinion development (f:4), social awareness (f:8), meaningful learning (f:14), character development (f:5), vocational development (f:6), and science literacy (f:1). The prominent ones considering frequencies are upskilling and meaningful learning. Table 1 presents 31 different codes and 61 repeating codes (frequencies) related to socioscientific issue-based instruction.

Table. *Codes and sub-themes of the socioscientific issue-based instruction's advantages*

Codes (C) and sub-themes (ST)			**f**
ST1	Upskilling		13
	C1	Research Skill	
	C2	Critical Thinking	
	C3	Communication Skill	
	C4	Problem Solving Skill	
	C5	Questioning Skill	
	C6	Reflective Thinking	
ST2	Meaningful Learning		14
	C7	Active Participation	
	C8	Effective Learning	
	C9	Problem Centered Learning	
	C10	Activating Passive Students	
	C11	Student Centered	
	C12	Instructive	
ST3	Opinion Development		10
	C13	Multiple Thinking	
	C14	Different Viewpoints	
	C15	Encouraging Thinking	
	C16	Learning Thinking	
	C17	Sharing Thought	
ST4	Social Awareness		8
	C18	Raising Awareness	
	C19	Raising conscious and sensitive individuals	
	C20	Raising awareness of family and public	
ST5	Vocational Development		6
	C21	Transferring to vocational life	
	C22	Ensuring vocational development	
	C23	Raising vocational awareness	
ST6	Character Development		5
	C24	Respect to different opinions	
	C25	Empathy	
	C26	Self-efficacy	
ST7	Opinion Development		4
	C27	Gaining different viewpoints	
	C28	Developing viewpoints	
	C29	Considering in socioscientific perspective	
ST8	C30	Science literacy	1
	C31	Contributing to science literacy	
TOTAL			61

The prospective science teachers' views show that socioscentific issue-based instruction is an effective approach that contributes to the development of skills, different perspectives and thinking to meaningful learning, social awareness, vocational development and science literacy. Below are notes on advantages of socioscentific issue-based instruction from prospective science teachers' diaries and focus group interview.

> S45: *This week we talked about socioscentific issue-based instruction. I really liked this approach. I am interested in the subjects we discuss during the course. As I like discussions, this approach is the one I can use with pleasure. This approach deals with dilemmas that society face so I believe that it can help students develop arguments, foster thinking, defend their arguments and change their opinions when they are wrong. I think that through this approach, teaching could be much more effective and permanent.* (Quotation from a prospective science teacher's diary)

The prospective science teacher (coded as S45) emphasizes that socioscentific issue-based instruction develops meaningful learning through effective and permanent learning and he argues that this approach helps develop thinking skill. Another prospective science teacher (coded as yellow) states that socioscientific issues are striking ones so such topics achieve great attendance. He continues, while basic scientific knowledge has a certain reality, socioscentific issues do not have one certain truth and this helps passive students attend actively, this in turn, encourages the students.

> *Yellow: …While I was feeling distracted in the class I heard they talking about socioscientific issues and this got my attention. I was encouraged to get interested in the course back. That is why I think this approach should be definitely used in the classes. Socioscientific issues are effective as they both allow teacher to get to know the students better and encourage students to have a word. If teacher asks a question, it has a certain answer whether someone knows or not. Students who know answer raise their hands and others stay silent. This goes on like this and certain students do not have a chance to attend discussion and get discouraged. But when it comes to socioscientific issues, they are the ones that touch to all society. So, if we carry out such an activity talk on these issues, then I think that these students, who are afraid to talk, can actively attend courses. They may get encouraged in basic knowledge through this way. We can also ensure teaching socioscientific issues.* (Quotation from focus group interview).

Prospective science teachers also stated that socioscientific issues help students feel respect and empathy for others and improve their self-reliance and self-efficacy, all of which are important for character development. Below is an example of how socioscientific issues help students feel special.

> *Blue: I am blue. In my opinion, socioscientific issues based instruction gives an opportunity to comment on almost any subject whether we know in detail or not, we as Turkish people have such characteristic…Children follow daily happenings continuously. They argue on them, have different approaches to them, so having their word on such topics actually would make them feel special.* (Quotation from focus group interview)

Another advantage of socioscientific issues based instruction is that it raises awareness of the environment and society by contributing to bringing up sensitive and conscious individuals. Children who are knowledgeable on socioscientific issues in the school may play

a role to raise awareness in their families and communities. For example, a prospective science teacher (coded as S42) explains this as follows.

> *S42: I think socioscientific issues and teaching them in the classrooms are extremely crucial. As socioscientific issues are the topics that affect our society and environment, students get more sensitive. Once socioscientific issues are taught in a proper way, the students inform their families as well. They get more sensitive to the environment, socioscientific issues and solution seeking.* (Quotation from prospective science teacher diary)

As well as advantages, findings of the study show that there are some disadvantages of the socioscientific issues based instruction. Four sub-themes were discovered related to disadvantages of the socioscientific issues based instruction. These are disadvantages for teacher, student, teaching and learning process and inadequacy of learning environment (Table 2).

Table 2.*Codes and sub-themes of disadvantages of the socioscientific issue-based instruction*

Codes (C) and sub-themes (ST)			**f**
ST1	*Disadvantages for teacher*		10
	C1	Inadequate background knowledge	
	C2	Inadequacy in classroom management	
	C3	Requirement of preliminary preparation	
	C4	Teacher's responsibility	
ST2	*Disadvantages for students*		9
	C5	Causing misconception	
	C6	Causing misunderstanding	
	C7	Mind puzzling	
	C8	Serious student discussion	
	C9	Effect of teacher position on an issue	
	C10	Inconvenient age group	
ST3	*Disadvantages for teaching and learning process*		8
	C11	Shortage of time	
	C12	Not every topic is a socioscientific issue	
ST4	*Inadequacy of learning environment*		2
	C13	Inadequacy of classroom	
	C14	Application problem in crowded classes	
TOTAL			29

Table 2 shows that there are disadvantages for teacher (ST1), student (ST2), teaching and learning process (ST3) and inadequacy of learning environment (ST4) in the socioscientific issues based instruction. Findings also show that the highest number of disadvantages are encountered by teachers (f:10). Table 2 presents 14 different codes and 29 repeating codes (frequencies) related to disadvantages of the socioscientific issue-based instruction.

Some sample statements uttered by the prospective teachers about the disadvantages of the socioscientific issue-based instruction from diaries and focus group interview are given below.

> *S23: … I think many teachers do not even know about these issues. Actually, these are real face of the science. They are afraid, because they have no idea or content knowledge about these issues*. (Quotations from prospective teacher's diary)

> *S13: Teacher! The students in our study group are younger. Most of the time they believe in everything that their family or teachers say (eee) how I should know (eee)… If the teacher is involved, the students immediately accept what he/she says. This is not correct. Then the teacher trains individuals as*

he/she wishes. Because of these, teachers must be objective. Teachers should not explain their own decisions, so that students can make their own decisions. (Quotations from prospective teachers focus group interview).

S38: We were very excited when we were doing activity about socioscientific issues. Some of our friends, I do not give a name now…They did their utmost to drag out discussions. I will say here is that teacher's attitude or position is important. (Quotations from prospective teacher's diary).

3. Conclusion and Discussion

Socioscientific issues based instruction has been one of the teaching objectives in order to educate conscious, sensitive and science-literate individuals. Although these issues are substantial in science teaching, science teachers are nervous to teach them. This research identified advantages and disadvantages of the socioscientific issues based instruction in science courses from the viewpoint of prospective science teachers. Findings of the study show that there are more advantages (f:61) of the socioscientific issues based instruction than disadvantages (f:29). The prospective science teachers indicate that this approach is advantageous in serving to upskilling, ensuring meaningful learning, developing thinking, raising social awareness, supporting vocational and character development and contributing to science literacy. The socioscientific issues-based instruction ensures meaningful learning according to the prospective science teachers because this approach promotes active participation, effective and problem centered learning, student centered learning and gives a chance for active participation of passive students in the class. One prospective science teacher explains the situation *"… Socioscientific issues concern everyone in a society so anyone may have a word on them. Thus, I think we can encourage passive students through this approach.*" Socioscientific issues are both on media and in the daily speech and discussion of society. Such interesting topics would encourage passive students to actively attend class discussions. Another advantage of the socioscientific issues based instruction is upskilling, which encourages and develops students on research, critical thinking, problem solving, questioning and reflective thinking. There are similar results reported in the related literature (Ergin, 2013; Klosterman & Sadler, 2010; Zeidler, Sadler, Applebaum & Callahan, 2008; Zeidler & Nichols, 2009). There are some other remarkable findings in the literature emphasizing that this approach also promotes decision-making, informal reasoning and argumentation (Lee, 2007; Sadler & Zeidler, 2005; Zohar & Nemet, 2002). Students with socioscientific issues background may have a mission to raise awareness of their families and community. Kolsto (2001) emphasized that socioscientific issues should be in formal education system in order to contribute to raising conscious and sensitive individuals.

Socioscientific issues play an important role in character development as they contribute to feeling respect for different opinions, empathy, and self- competence. Student participation in carefully prepared activities about socioscientific issues strengthens their character development through development of confidence, self-sacrifice, mercy, and moral sensitiveness (Zeidler & Nichols, 2009). The prospective science teachers stated that the activities in the socioscientific issues based instruction contributed to their professional awareness and development.

The other theme of the research is the disadvantages of the socioscientific issues based instruction application according to the prospective science teachers. The prospective science teachers share the opinion that the socioscientific issues based instruction has some disadvantages for teachers, students, teaching and learning process, and learning environment. Inadequate background knowledge of teacher is seen as an obstacle to use of

the socioscientific issues based instruction in science classes. Contrary to this result, Soysal (2012) and Kutluca (2012) found that background knowledge is not a significant factor in prospective science teachers' socioscientific argumentation levels. On the other hand, same qualitative research results show that prospective science teachers agree that background knowledge is necessary in teaching socioscientific issues. Another disadvantage of the socioscientific issues based instruction for teachers is classroom management. Similarly, Straling (1984) argues that teachers avoid teaching contradictive subjects in their classes because of the difficulties involved in classroom management. The prospective science teachers also stated that socioscientific issues require preliminary preparation and teacher responsibility, which are also disadvantages for teachers. The socioscientific issues based instruction has disadvantages for students like causing misconception, misunderstanding and mind puzzling. Pedretti (1999) argues that teachers avoid and are afraid of discussing contradictive issues, as they do not know which position they should take or how to end the discussion. Oulton, Dillon, and Grace (2004) emphasize that while teachers should protect their objective and balanced position in contradictive discussion, they should not use their position in an authoritarian manner.

3.1 Suggestions

As a conclusion, the use of this approach having many advantages by prospective teachers in their future classes is believed to be very useful in general. Thus, it can be suggested that besides instructional approaches focusing on the teaching of basic science disciplines, the socioscientific issue-based instructional approach should be effectively employed. In this way it can be possible to train students as more experienced, critical, creative and reflective citizens about these issues they encounter in their daily lives.

In light of the prospective teachers' opinions about the disadvantages of the socioscientific issue-based instructional approach, it can be suggested that educators that will use this approach in science classes need to plan the preparation stages well so as to minimize the disadvantages related to time and classroom management, need to have mastered the content of the socioscientific issue to be addressed, to adopt an impartial position during classroom discussions and to organize cooperative student groups if they are to work in crowded classes. Moreover, the prospective teachers stated that the socioscientific issue-based instructional approach contributed to their professional development. Thus, this approach can help prospective teachers to gain experience about how to teach contradictory socioscientific issues in the class.

References

Anagün, Ş. S., & Özden, M. (2010). Teacher candidates' perceptions regarding socio-scientific issues and their competencies in using socio-scientific issues in science and technology instruction. *Procedia-Social and Behavioral Sciences, 9*(2010), 981-985. Retrieved from https://doi.org/10.1016/j.sbspro.2010.12.271.

Bossér, U., Lundin, M., Lindahl, M., & Linder, C. (2015). Challenges faced by teachers implementing socio-scientific issues as core elements in their classroom practices. *European Journal of Science and Mathematics Education, 3*(2), 159-175.

Cansız, M., & Cansız, N. (2016). Artvin citizens' reasoning about a local environmental issue: Cerattepe. *International Journal on New Trends in Education and Their Implications, 7*(3), 88-93.

Chikoko, V., Gilmour, V. C., Harber, C., & Serf, J. (2011). Teaching controversial issues and teacher education in England and South Africa. *Journal of Education for Teaching, 37*(1), 5-19.

Christenson, N., Chang Rundgren, S-N., & Zeidler, D.L. (2014). The relationship of discipline background to upper secondary students' argumentation on socioscientific issues. *Research in Science Education, 44*(4), 581-601. doi: 10.1007/s11165-013-9394-6

Cross, R. T., & Price, R. F. (1996). Science teachers' social conscience and the role of controversial issues in the teaching of science. *Journal of Research in Science Teaching, 33*(3), 319-333.

Dawson, V., & Venville, G.J. (2009). High-school students' informal reasoning and argumentation about biotechnology: an indicator of scientific literacy? *International Journal of Science Education, 31*(11), 1421-1445. Retrieved from http://dx.doi.org/10.1080/09500690801992870.

Doğanay, A., & Öztürk, A. (2017). Developing attitudes towards human rights through socioscientific issues in science courses: An action research. *Multidisciplinary Journal of Educational Research, 7*(3), 253-286. doi: 10.17583/remie.2017.2873

Ergin, B. (2013). *Tartışma yöntemine dayalı etkinliklerin sınıf öğretmen adaylarının genetiği değiştirilmiş (gd) besinlere ilişkin risk algılarına ve eleştirel düşünme eğilimlerine etkisinin incelenmesi* (Unpublished master's thesis). Adıyaman University, Institute of Sciences, Adıyaman.

Evren-Yapıcıoğlu, A. (2016a). Fen bilimleri öğretmen adaylarının sosyobilimsel durum temelli yaklaşım uygulama modellerine yönelik görüşleri. *Journal of Research in Education and Teaching, 5*(3), 24-34.

Evren-Yapıcıoğlu, A. (2016b). Fen bilimleri öğretmen adaylarının sosyobilimsel durum temelli öğretim yaklaşımı uygulamalarına yönelik görüşleri ve çalışmalarına yansıtmaları. *Hacettepe Üniversitesi EBE Eğitim Araştırmaları Dergisi, 2*(2), 132-151.

Hofstein, A., Eilks, I., & Bybee, R. (2011). Societal issues and their importance for contemporary science education- a pedagogical justification and the state- of -the -art in Israel, Germany and the USA. *International Journal of Science and Mathematics Education, 9*(6), 1459-1483.

Holdbrook, J., & Rannikmae, M. (2007). The nature of science education for enhancing scientific literacy. *International Journal of Science Education, 29*(11), 1347-1362.

Kızıltepe, Z. (2015). İçerik analizi. F. N. Seggie and Y. Bayyurt (Ed.). In *Nitel araştırma: Yöntem, teknik, analiz ve yaklaşımları* (p. 253-266*).* Ankara: Anı Yayıncılık.

Klosterman, M. L., & Sadler, T. D. (2010). Multi-level assessment of scientific content knowledge gains associated with socioscientific issues-based instruction. *International Journal of Science Education, 32*(8), 1017-1043.

Kolsto, S. D. (2001). Scientific literacy for citizenship: Tools for dealing with the science dimension of controversial socioscientific issues. *Science Education, 85*(3), 291-310

Kutluca, A. Y. (2012). *Fen ve teknoloji öğretmen adaylarının klonlanmaya ilişkin bilimsel ve sosyobilimsel argümantasyon kalitelerinin alan bilgisi yönünden incelenmesi.* (Unpublished master's thesis). Abant İzzet Baysal University, Institute of Educational Sciences, Bolu.

Lee, H., Abd-El-Khalick, F., & Choi, K. (2010). Korean science teachers' perceptions of the introduction of socio-scientific issues into the science curriculum. *Canadian Journal of Science, Mathematics and Technology Education, 6*(2), 97-117. doi: 10.1080/14926150609556691

Lee, Y. C. (2007). Developing decision-making skills for socio-scientific issues. *Journal of Biological Education*, *41*(4), 170-177.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco: Jossey-Bass

Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis: an expanded sourcebook (2nd ed.).* Thousand Oaks, CA: Sage Publications.

Ministry of National Education of Turkey (MONE). (2013). *Science curriculum (3rd-8th grades) of elementary institutions (primary and secondary schools)*. Ankara: Board of Education.

Ministry of National Education of Turkey (MONE). (2018). *Science curriculum (3rd-8th grades) of elementary institutions (primary and secondary schools)*. Ankara: Board of Education.

Oliveira, A.W., Akerson, V.L., & Oldfield. M. (2012). Environmental argumentation as sociocultural activity. *Journal of Research in Science Teaching, 49*(7), 869-897.

Oulton, C., Dillon, J., & Grace, M. M. (2004). Reconceptualizing the teaching of controversial issues. *International Journal of Science Education*, *26*(4), 411-423.

Pedretti, E. (1999). Decision-making and STS education: Exploring scientific knowledge and social responsibility in schools and science centers through an issue based approach. *School Science and Mathematics, 99*(4), 174-181

Reis, P., & Galvão, C. (2004). Socio-scientific controversies and students' conceptions about scientists. *International Journal of Science Education, 26*(13), 1621-1633.

Sadler, T. D., & Zeidler, D. L. (2005). Patterns of informal reasoning in the context of socioscientific decision making. *Journal of Research in Science Teaching, 42* (1), 112-138.

Sadler, T. D., Chambers, F. W., & Zeidler, D. L. (2004). Student conceptualizations of the nature of science in response to a socioscientific issue. *International Journal of Science Education, 26*(4), 387-409.

Soysal, Y. (2012). *Sosyobilimsel argümantasyon kalitesine alan bilgisi düzeyinin etkisi: Genetiği değiştirilmiş organizmalar* (Unpublished master's thesis). Abant İzzet Baysal University, Graduate of Educational Sciences, Bolu.

Stradling, R. (1984). The teaching of controversial issues: an evaluation. *Educational Review, 3*6(2), 121-129.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications.

Türkmen, H., Pekmez, E., & Sağlam, M. (2017). Fen bilgisi öğretmen adaylarının sosyo-bilimsel konular hakkındaki düşünceleri. *Ege Journal of Education, 18*(2), 448-475.

Türnüklü, A. (2000). Eğitimbilim araştırmalarında etkin olarak kullanılabilecek nitel bir araştırma tekniği: Görüşme. *Educational Administration:Theory and Practice, 6*(24), 543-559.

Venville, G.J., & Dawson, V. (2010). The impact of a classroom intervention on grade 10 students' argumentation skills, informal reasoning, and conceptual understanding of science. *Journal of Research in Science Teaching, 47*(8), 952-977.

Wu, Y. T., & Tsai, C. C. (2007). High school students' informal reasoning on a socio-scientific issue: qualitative and quantitative analyses. *International Journal of Science Education, 29*(9), 1163-1187.

Yıldırım, A., & Şimşek, H. (2008). *Sosyal bilimlerde nitel araştırma yöntemleri (7th Ed.)*. Ankara: Seçkin Yayıncılık.

Yin, R. K. (2003). Case study research: Design and methods (3rd ed.). Thousand Oaks, CA: Sage.

Zeidler, D. L., & Nichols, B. H. (2009). Socioscientific issues: Theory and practice. *Journal of Elementary Science Education, 21*(2), 49-58.

Zeidler, D. L., Sadler, T. D., Applebaum, S., & Callahan, B. E. (2008). Advancing reflective judgment through socioscientific issues. *Journal of Research in Science Teaching, 46*(1), 74-101. doi: 10.1002/tea.20281.

Zeidler, D.L., Walker, K. A., Ackett, W. A., & Simmons, M. L. (2002). Tangled up in views: Beliefs in the nature of science and responses to socioscientific dilemmas. *Science Education, 86*(3), 343-367.

Zohar, A., & Nemet, F. (2002). Fostering students' knowledge and argumentation skills through dilemmas in human genetics. *Journal of Research in Science Teaching, 39*(1), 35–62.

Appendix 1. Example of Dilemma Card

Front Side	**Back Side**
 You visit a hospital and patients who are waiting for organ donation. You get very affected. **What would you think about donating your organs?**	1. I would donate my organs without thinking twice 2. I could only donate my organs form y close relatives 3. I cannot donate any of my organs, as I would fear of living with a lack of any organ. 4. I would think about it if I need to. 5. I cannot donate in anyway as they belong to me. 6. Other….

Note: Photo retrieved from https://organ.saglik.gov.tr/

Şahin Kızıl, A., & Savran, Z. (2018). The integration of corpus into EFL speaking instruction: A study of learner perceptions. *International Online Journal of Education and Teaching (IOJET)*, *5*(2), 376-389. http://iojet.org/index.php/IOJET/article/view/368/241

Received: 02.01.2018
Received in revised form: 01.02.2018
Accepted: 19.02.2018

THE INTEGRATION OF CORPUS INTO EFL SPEAKING INSTRUCTION: A STUDY OF LEARNER PERCEPTIONS

Aysel Şahin Kızıl

Fırat University, Elazığ, Turkey

ayselsahin1@gmail.com

Zehra Savran

Fırat University, Elazığ, Turkey

zehrasavran@gmail.com

Aysel Şahin Kızıl is currently an Assistant Professor in the Department of English Language Teaching at Fırat University, Turkey. She holds an MA degree on Applied Linguistics and her PhD is on English Language Teaching. Her research interests cover Computer Assisted Language Learning, Second Language Acquisition and Corpus Linguistics in English Language Teaching. She has published and presented scholarly papers dealing with the integration of technology into the language curriculum, corpus applications in language education and student attitudes towards the use of CALL.

Zehra Savran is an English language instructor at the School of Foreign Languages, Fırat University, Turkey. She completed her BA in English language teaching and MA in Applied Linguistics. Her research interests include Computer Assisted Language Learning and Corpus Linguistics.

THE INTEGRATION OF CORPUS INTO EFL SPEAKING INSTRUCTION: A STUDY OF LEARNER PERCEPTIONS

Aysel Şahin Kızıl

ayselsahin1@gmail.com

Zehra Savran

zehrasavran@gmail.com

Abstract

Recent years have shown a growing interest in using corpora in language instruction, enhancing data-driven learning (DDL) pedagogy by promoting the use of tools and techniques of corpus linguistics in language classrooms. Many studies have tested the impact of corpus tools in EFL writing or vocabulary instruction; however, little attention has been paid to the integration of corpus tools into EFL speaking instruction. This paper describes a small-scale study of corpus use in enhancing English speaking performance of EFL learners with a focus on their perceptions towards web-based concordancing. Drawn in accordance with convenience sampling procedures, the participants of the study were 31 university level EFL learners who experienced DDL activities in the speaking classroom. Data collected through a post-instruction perception questionnaire were analysed using descriptive statistics. Results indicatethat students benefited from concordance-based learning activities, and also hold positive attitudes towards using it in learning speaking. The findings also point out some challenges to overcome while using web-based concordancing in EFL instruction.

Keywords: EFL learners, data-driven learning (DDL), web-based concordancing, learner perceptions, speaking

1. Introduction

Since technology has made it possible to compile, store and analyse larger bodies of systematic and computerized collections of written/spoken language data, corpora have been acknowledged to have an impact not only on branches of linguistics but also on the context of foreign/second language teaching. Römer (2011) puts forward that the use of corpora in language teaching contains the use of corpus tools and corpus methods, which leads to a distinction between indirect (e.g. teaching syllabus & teaching materials and direct (teacher-corpus & learner corpus interaction) pedagogical applications. Being a direct application of corpora use, data-driven learning (DDL) approach was developed by Tim Johns in 1991. In this approach, learners are regarded as 'language detectives' (Johns, 1997, p. 101) to explore language on their own.

Although there has been a considerable progress on integrating corpora into language classroom, Römer (2011) highlights the urge to seek if the learners are willing and able to work with corpus. Therefore, consulting student's opinions to reveal their attitudes towards corpora could be of vital importance. However, Geluso and Yamaguchi (2014) assert that student beliefs and attitudes towards the use of DDL based methods in language classroom have been mainly researched on written language (Akkoyunlu & Kilimci, 2017; Can, 2009; Kilimci, 2017) but there are relatively fewer of them on spoken language. This study focuses on 'epistemic stance markers', a highly common and crucial component of spoken language

which indicates the "degree of commitment to what one is saying" (Kärkkäinen, 2006, p. 705). It is reported in the literature that spoken language is dominated by epistemic devices (Brezina, 2009) which are crucial for learners to achieve a better fluency and foreign-soundingness.

Drawing on the relevant literature, the present study aims to introduce the DDL approach into speaking instruction in an EFL context. More specifically, this study aims to find out the perceptions of EFL learners who consulted web-based concordancing through BNCweb (http://corpus.byu.edu/bnc/) in their speaking courses. However, it must be noted that this study is a part of a more comprehensive study and the fact that students show a positive attitude towards use of DDL doesn't necessarily entail improvement of L2 speaking skills. The following research questions have guided the study:

- What are the Turkish EFL learners' perceptions of the use of concordancing in learning epistemic markers used in spoken English?
- What are some difficulties that the Turkish learners have in using concordancing to practice speaking skill?
- Are there any differences regarding the perceived difficulties in using corpus between proficiency levels?
- What are the Turkish learners' perceptions of the general use of BNCweb?

2. Literature Review

Borrowing the notion of "affordances" from the field of perception psychology, Leńko-Szymańska and Boulton (2015) state that corpora have multiple affordances for language teaching that offer areas of applications not envisaged even by the pioneering corpus compilers. Together with the readily accessible corpora made available through the advances in internet technologies, more and more research has gone into various affordances of corpora in language pedagogy (Chambers, 2005; Leńko-Szymańska & Boulton, 2015). Embodied within DDL approach which involves the direct and indirect application of corpus technology in the classroom to help students explore the target language (Johns & King, 1991), these studies have listed the advantages of using corpora in language teaching as follows (for a comprehensive report, see Cobb and Boulton, (2015)). First, corpora applied within DDL approach are powerful tools for language learners as they enable learners to discover facts about the language through the authentic examples of the target language in the corpus data. As Johns (1991) puts forward on the use of DDL in classroom, learners "often notice things that are unknown not only to the teacher, but also to the standard works of reference on the language" (p. 3). Second, DDL facilitates active involvement of the learner with the learning process as learners are required to explore the language on their own through the corpus-based observations of language, which, in turn, boosts autonomous learning. Bernardini (2002) supports DDL approach by defining corpora as "rich sources of autonomous learning activities of a serendipitous kind" (p. 165). EFL learners, particularly, do not have the opportunities of rich target language input to practice and thereby improve their language learning skills out of class. In addition, in-class experiences of language are very likely to be structured according to teacher's preference of language. Therefore, learners can study different types of texts of both written and spoken language through corpora that are readily available online (Gabrielatos, 2005). Third, corpora use in the classroom may enhance the learners' motivation and increase their awareness as they could be able to find the general patterns in language on their own. Ultimately, it has been suggested that data-driven learning overlaps the view of language learning that highlights "guided observation on

the part of the learner rather than exposition on the part of the teacher" (Hunston, 2006, p. 246).

However, in spite of the advantages indicated above, the applications of corpus-based research in the instructional settings have remained limited. As Römer (2006) states "despite the progress that has been made in the field of corpus linguistics and language teaching, the practice of ELT has so far been largely unaffected by the advances of corpus research" (p.121). De Cock (2010) argues that this is especially true when it comes to spoken learner corpus research and adds that a lot more research has to be conducted on spoken learner corpora so that spoken learner corpus informed teaching materials can be developed. In the same vein, Cobb and Boulton (2015) underline the necessity of conducting research which integrates corpus techniques into speaking instruction in EFL context and regard this area of study as a gap to be filled by future research. Considering the arguments of this type in the literature, the present study sets out to address this gap by employing DDL in speaking activities for EFL learners.

This study explored the use of epistemic markers, which indicate the "degree of certainty or evidence towards the content" as one of the crucial parts of spoken language, (Biber & Finegan, 1988, p. 30). Some highly common epistemic markers in spoken language are *I don't know, I think, maybe*, *of course*, *etc*. Given that corpora present genuine examples of language, McCarthy (1998) argues that the L2 learners should be exposed to authentic spoken data to be fluent speakers of the target language. In the same vein, Efstathiadi (2010)notes that various types of oral or written practice based on concordance can serve learner needs so as to enable students to better understand the semantic differences of epistemic devices and actual use of language.

It is a fact that efficacy of innovative practices in education like DDL approach has much to do with the perceptions of involved parties (Römer, 2011). Although the advantages of corpora have been evaluated from the perspectives of teachers and material developers, the learner perspective has received little attention (Yoon & Hirvela, 2004). Mizumoto, Chujo and Yokota (2016) rightly note that learners' point of view toward DDL is of great significance especially when they have not had prior experiences with corpus techniques in language learning. Research to date has presented mixed results regarding learners' perceptions. While some research has reported positive learner attitudes to engaging with corpus based-language learning tasks (Chambers, 2005; Yoon & Hirvela, 2004; Geluso & Yamaguchi, 2014), some other research reported that the learners are likely to lose their interest a while after the corpus-based interventions (Cargill &Adams, 2006; Hafner & Candlin, 2007). However, most of the studies focused on writing (Kennedy & Miceli, 2010; Chambers, 2005; Yoon & Hirvela, 2004), vocabulary or grammar instruction (Boulton, 2009; Yoon, 2008). Although DDL based investigations of writing, grammar or vocabulary present valuable findings, research can also make use of the information on what kind of effects DDL activities have on the learner performance in speaking (Geluso & Yamaguchi, 2014). With this respect, there is a need to conduct studies to further analyse student perceptions towards using corpora to promote the teachers' and the students' successful implementation process of corpus-based activities in the classroom (Yoon & Hirvela, 2004).

3. Methodology

3.1. Research Setting and Participants

The present study was conducted at the Department of English Language and Literature at a university in Turkey in the fall term of 2016-2017 academic year. The department admits students based on the results of a nation-wide university entrance exam a part of which is

measuring English proficiency of the students. The study was carried out within a speaking course.

In accordance with the convenience sampling procedures which "involvechoosing the nearest individuals to serve as respondents" (Cohen, Manion, & Morrison, 2000, p.102), participants of the present study are 31 Turkish EFL learners at their first year. 24 of the students are female and 7 of them are male and their ages range from 18 to 22. Except for one student who is Arabic, 30 out of 31 participants are Turkish and all the participants are native speakers of Turkish. A proficiency test, Oxford Quick Placement Test (2004), was administered at the beginning of the study as there was a time span between the proficiency exam they took before they started studying in their department and the time when the study was conducted.The results showed that 6 students were at elementary level (A2), 25 students were at pre-intermediate level (B1). Furthermore, all participants included in the study reported that they had never been to an English-speaking country before.

3.2. Data Collection Instrument

Data was collected through a post-instruction perception questionnaire which was adapted from Yoon and Hirvela (2004), who assessed the instrument for internal reliability and found Cronbach's alpha value to be r=0.96. Divided into two parts, the first part of the survey aimed at obtaining the personal information of the participants, and the second part asked about the participants' perception towards three domains on (1) the use of corpus in learning speaking, (2) difficulties of using the corpus and (3) general use of the corpus. For each domain, the participants were asked to indicate their degree of agreement on a 7 point Likert scale where 1 stands for *strongly disagree*, 7 for *strongly agree*. To prevent any misconception, the questionnaire was translated into Turkish by the first author and verified by another instructor in the research setting.

3.3. Research Procedures

This study aimed to integrate a corpus component to the speaking classroom by teaching the learners how to use concordance to improve their speaking abilities. The focus of the teaching activities were epistemic stance markers which are used to expresses 'the degree of certainty or evidence towards the content' of the message (Biber & Finegan, 1988, 30). Epistemic markers are considered to be linguistic items which could boost learners' fluency in order to get closer to a native-like competency in L2 production (Nesselhauf, 2005).

In integrating the corpus into speaking classroom, certain steps were followed. Initially, the significance of the use of epistemic markers in speaking was explained to draw the learners' attention to the focus of the concordancing activities. Then, the BNC corpus (spoken component only) was introduced to the learners and a step by step use of the corpus techniques (e.g. how to conduct searches and interpret the output) was described in detail through teacher-led demonstrations. During this training session, the learners were asked to explore the BNCweb by themselves. That is, the learners conducted searches in the database on their own and tried to discover how they could make use of concordance lines to practice speaking on their own. Each student was provided with special assistance when they experienced any kinds of difficulty in using the program. Following the training session which took 90 minutes, the learners were given a list of 18 epistemic markers of spoken language which were identified by the researchers on the basis of a contrastive analysis of a native spoken corpus, LOCNEC (De Cock, 2004) and a learner corpus, LINDSEI-TR (Kilimci, 2014) along with identification and comparison of overused and underused epistemic markers in spoken English. However, the results of this contrastive study are beyond the scope of this paper. For a full explanation on the selection of epistemic markers

for corpus-integrated speaking instruction, see Savran (2017). The identified markers were taught to the participants in a total of 12 sessions, each of which lasted 45 minutes, integrating DDL activities through following tasks: (a) searching for the target item in the corpus (b) studying the data and writing down self-selected sample sentences, (c) pair or group discussions on the structural and functional properties of the target items under the guidance of the instructor, (d) finding a general pattern in which the target item occurs, (e) producing a dialogue using the target items to practice. Each session ended with the instructor's summarizing the use of the target item in spoken interaction. At the end of the treatment, questionnaire explained above was administered to the students.

3.4. Data Analysis

Responses to the questionnaire items were analysed using descriptive statistics. For ease of interpretation, responses were coded into three main categories as "agree", "disagree" and "no opinion" by assigning all positive answers (strongly agree, agree and partly agree) into "agree", all negative responses (strongly disagree, disagree and partly disagree) into "disagree" and the response 'no opinion' into 'no opinion' categories. Total percentages were calculated by adding up the percentages of the responses assigned under the related category.

4. Findings and discussion

The first 8 questions in the questionnaire were related to using concordance lines for learning epistemic markers in speaking. The results are presented in Table 1.

Table 1. *Perceptions towards the use of corpus for learning epistemic markers in speaking*

	Agree %	Disagree %	n.o. %	p
1. Using the corpus is helpful for learning the meaning of epistemic markers in speaking	83,9	16,2	0,00	.000
2. Using the corpus is helpful for learning the usage of epistemic markers in speaking	87,1	12,9	0,00	.000
3. Using the corpus is helpful for learning the function of epistemic markers in speaking	86,7	13,3	0,00	.000
4. Using the corpus has improved my understanding of certainty in spoken language	87,1	22,6	3,2	.000
5. Using the corpus has improved my understanding of uncertainty in spoken language	90,3	6,5	3,2	.000
6. I believe that I can express my stance appropriately when speaking after this instruction	87,1	9,7	3,2	.000
7. The use of concordance lists challenged me to actively make generalizations about the function of a marker	87,1	12,9	0,00	.000
8. Concordance was useful for learning the epistemic markers in spoken language.	93,6	6,4	0,00	.000

Walsh (2010) proposes that the language learners encounter a lot of problems in speaking and listening and corpus can be very useful for learners to cope with these problems.

According to the responses of the participants of the study, the implementation of DDL activities in the classroom have potential to help the students learn to express their stance in speech. In addition, majority of the learners stated that the corpus helped them to understand how the certainty and uncertainty is expressed in spoken communication. These findings are in line with the results of the study by Geluso and Yamaguchi (2014) who found out that students reported quite positive attitudes towards the use of concordances for speaking skill.

The next domain in the questionnaire was the difficulties the learners had when using concordance lines. This domain included 9 items in total. Table 2 provides the student responses to the items.

Table 2. *Perceptions on the difficulties on using corpus*

	Agree %	Disagree %	n.o. %	p
9. I have some difficulty in using the corpus due to time and effort spent on analysing the data	26,6	66,7	6,7	.000
10. I have some difficulty in using the corpus due to unfamiliar vocabulary on concordance/collocate output	51,7	45,1	3,2	.000
11. I have some difficulty in using the corpus due to cut-off sentences in concordance output	43,3	50	6,7	.000
12. I have some difficulty in using the corpus due to too many sentences in concordance output	45,1	51,6	3,2	.000
13. I have some difficulty in using the corpus due to the limited number of sentences in concordance output	19,3	74,3	6,5	.000
14. I have some difficulty in analysing concordance output	41,9	54,9	3,2	.000
15. I have some difficulty in analysing output for epistemic markers in speaking	38,8	58	3,2	.000
16. I have some difficulty in performing the search technique	40,1	56,6	3,3	.000
17. The real texts in the corpus are too difficult to understand	33,3	50	16,7	.000

In this part, the learner responses seem to fall in two sides. It is obvious that for most of the items here, while nearly half of the students reported that they had difficulty in using/ analysing concordance output, the other half reported that they did not find it very difficult to search for an item in the corpus. When the responses to the question “I have some difficulty in using the corpus due to time and effort spent on analysing the data” are examined, it is seen that more than half of the students (66,7%) disagreed that the use of corpus was difficult because of time and effort spent on analysing the data. In addition, the learner responses to the question number 13 showed that 74,3% of the students did not agree that the sentences in the concordance output was limited.

The findings from this domain are consistent with previous studies commenting on the student perceptions towards the difficulties of using corpus in learning grammar structures in English. For instance, Girgin (2011) investigated the effectiveness of using corpus-based tools on grammar learning with lower level Turkish EFL learners and suggested that most of the learners had differing, and uncertain opinions about the difficulty of using concordance lines in learning grammar. Additionally, it was found out in the interviews that the learners needed guidance from the teacher to grasp how to analyse concordance output.

In order to reveal if there are any differences between experienced difficulties by different proficiency levels for speaking skill, Table 3 presents a clearer picture of the similarities and differences between elementary and pre-intermediate level students.

Table 3. *Perceptions on the difficulties in using corpus by proficiency levels*

	Category Lower Level (A2)					Upper level (B1)				
	Agree %	Disagree %	n.o %	mean	s.d.	Agree %	Disagree %	n.o. %	mean	s.d.
9. Time and effort spent	50	50	0	3,66	1,16	20,9	70,8	8,3	3,00	1,74
10. unfamiliar vocabulary	66,6	33,3	0	3,66	1,36	48	48	4	3,60	1,55
11.cut-off sentences	66,6	33,4	0	3,66	1,50	37,5	54,2	8,3	3,37	1,71
12.too many sentences	50	50	0	3,83	1,47	44	52	4	3,60	1,73
13.limited number of sentences	33,3	50	16,7	3,83	1,72	16	80	4	2,60	1,35
14. analysing concordance output	33,3	66,7	0	3,33	1,03	44	52	4	3,36	1,52
15. analysing output for epistemic markers	66,7	33,3	0	4,00	1,67	32	64	4	3,24	1,45
16.search technique	80	20	0	4,20	1,48	32	64	4	3,12	1,61
17.too difficult texts	50	50	0	3,83	1,32	29,1	50	20,9	4,00	2,04

*Note: * Lower level group (n=6), Upper level group (n=25)*

When the mean scores of student perceptions according to two different proficiency levels are examined, it can be seen that the mean scores centeraround 3,00 – 4,00. Depending on the mean scores of student reactions, it can be claimed that neither lower nor upper level students found corpus very difficult or very easy. Even if the focus of this study is the speaking instruction, relatively similar results are reported by Yoon and Hirvela (2004) who investigated intermediate and advanced level learner reactions to corpus use in writing instruction. However, when the learner reactions to item 15 and 16 are analysed, we observe that lower level learners had more difficulties in analysing the output for epistemic markers in spoken English and in performing the search technique while pre-intermediate level students had fewer problems. Regarding this issue, it could be possible that learning how to use a corpus and trying to focus on learning spoken features of language at the same time stood as a highly demanding task for lower level learners.

Concerning the percentages of reactions to the items 10 and 11, it is observed that the differences in experienced difficulties due to unfamiliar vocabulary and cut-off sentences in a spoken corpus resulted from the proficiency levels of learners. Although the mean scores do not display a huge difference between two groups, the percentages show that lower level learners were confronted with more problems in using a spoken corpus in classroom. Considering that the texts in a spoken corpus include pauses, incomplete sentences and a lot of hesitations, it is not surprising that the texts challenged both groups to understand the epistemic markers in general through concordance output as they were not familiar with corpora beforehand. When all these findings are taken into consideration, it is important to note that corpus training stands as an important factor in successful implementation of DDL activities in the classroom. However, the corpus can be helpful to motivate students in terms of speaking English as Walsh (2010) asserts "when we look at a corpus, we find that native speakers also hesitate a lot, are not always coherent, frequently use shorter turns, and may use a fairly narrow range of vocabulary" (p. 336).

The last item of this domain showed that half of the elementary and pre-intermediate level students disagreed that the texts in the corpus are too difficult to understand. According to the responses of the learners to this item, it was maintained that the lower level learners could effectively use and benefit from corpus-based activities in the classroom, which provides a contrast to the idea that the corpus-based instructional sources are most useful for learners of English at advanced level (Boulton, 2009).

The last domain of the questionnaire was on attitudes towards the general nature of using corpora. Table 4 displays the learner responses to the items in this domain. This part included 13 items in total.

Table 4. *Perceptions towards the general Use of BNCweb*

	Agree %	Disagree %	n.o. %	p
18. The corpus is more helpful than a dictionary for my English speaking ability	70,9	25,9	3,2	.000
19. The searching technique was easy to learn to use as a reference when I practice speaking	74,2	22,6	3,2	.000
20. I understand the purpose of using the corpus in this treatment	90,3	3,2	6,5	.000
21. When I need to get prepared for a spoken performance, I search for help in the corpus	80	16,7	3,3	.000
22. When I search for information in the corpus, I usually get the information that I	80,6	9,7	9,7	.000

need				
23. I use the corpus when practicing for other courses	41,9	45,2	12,9	.000
24. As I have learned more about the corpus, I have come to like it more	80,7	9,6	9,7	.000
25. I will use the corpus for my English speaking skill in the future	70,8	16,1	12,9	.000
26. Learning about the corpus has increased my confidence about speaking in English	77,4	12,9	9,7	.000
27. If I had used the corpus earlier, I would have had a better performance on speaking	87,1	9,7	3,2	.000
28. Overall, the corpus is a very useful resource for my English speaking	80,7	16,1	3,2	.000
29. The corpus should be introduced in all EFL departments	90,4	6,4	3,2	.000
30. I will recommend the corpus to other students at Fırat University or elsewhere.	80,6	9,7	9,7	.000

When the percentages of learner responses to the general use of corpus in language learning and especially for speaking skill are examined, it is observed that the participants reacted highly positively to the use of concordance lines in the classroom. Interestingly, for the item 23, it looks like students are not decisive about whether they would use corpus for their other courses. While nearly half of the students (41,9%) reported that they would consult corpus for their other courses, the other half stated they wouldn't use the corpus for practice in other courses and nearly 13% of them stated no opinion. Although they found corpus-based activities useful, they may not have felt confident in how to consult corpus for other courses. However, broadly speaking, it can be argued that the participants adopted quite positive attitudes towards using corpora for language learning purposes. Moreover, in item number 20, a vast majority of them (90%) stated that they understood why the corpus was exploited in this research. It is vital for the language learners to understand the purpose and meaning of the tasks they need to complete. O'Keeffe, McCarthy, and Carter, (2007) highlight the usefulness of corpus-informed materials as in the following words:

Successful learning is all about motivation. Corpus-informed materials motivate because teachers and learners can be sure that the language they are practicing is modern, used in everyday situations, targeted to situations they are likely to find themselves in, and corresponds to what they will hear and see in real conversations, movies, radio and TV shows, newspapers, books, Internet texts, and magazines. It is not artificial or invented language, but consists of the most widely used words, phrases, and grammar. (p. 17)

Therefore, it can be maintained that especially for speaking skill, which is an area in language that the learners have all types of difficulty, providing students with corpus-informed materials can help them become more efficient in oral communication.

All in all, by examining the findings from the intervention and the questionnaire, it is observed that students have benefited from corpus-based learning activities, and also hold pretty positive attitudes towards using corpus in the classroom. However, it should be noted that the language learners need assistance in learning how to exploit corpus not only when learning epistemic stance markers in speaking, but also other forms of language.

5. Concluding Remarks and Pedagogical Implications

The questionnaire results for the first domain showed that the learners had quite positive attitudes towards the use of concordance lines in learning the meaning, usage and function of the epistemic stance markers and they reported that the corpus was useful to improve their understanding of the (un)certainty in spoken English. The second domain concerned the difficulties the learners had in using concordance lines. The learner responses reflected somehow conflicting opinions. While approximately one half of the students reported that they had difficulties when using the corpus and analysing the concordance output, the other half stated they didn't have any trouble. Therefore, it was suggested that the learners were indecisive in whether the corpus was user-friendly or not. It was discussed that learners' unfamiliarity with the corpora may have challenged them to conduct searches in the corpus and analyse the output. However, lower-level learners are likely to benefit from the DDL activities in the classroom if they are provided with enough training and assistance. The last domain of the questionnaire was related to general use of BNC. The learners reacted positively to the items in this domain. They stated that they would consult corpus to practice speaking in the future, recommend it to their peers, and they would have had a better performance on speaking if they had known about corpora before. Surprisingly, the learners stated conflicting responses to the item questioning if they would consult corpus in order to practice for their other courses. The learners of this study used corpus only for a speaking course and they may have felt they would not be able to figure out how to use it for other courses. This can account for the learners' conflicting responses. All in all, it was found that the learners' perception towards using concordance lines to learn epistemic markers in speech was quite positive. Therefore, it can be claimed that the use of corpus-informed materials in the classroom may be a motivating resource for the learners as what they come across in corpus is not an invented language, but rather modern and widely used in real life (McCarhty, 2004). Gabrielatos (2005) suggests that the learners 'have to be guided away from the "single correct answer" concept and the notion of fixed rules and exceptions, towards the recognition of patterns and alternatives, and the importance of context' (p.18). Particularly for a spoken corpus, the fact that learners see the hesitations, pauses and a narrow range of vocabulary in native spoken language is very likely to raise their motivation by helping them restructure their language learning perceptions.

The findings of the study summarized above have a number of pedagogical implications for foreign or second language teaching. First of all, the study shows DDL activities may have a positive effect on learning language, therefore, consulting corpus-based activities in the classroom can be a motivating and useful resource to learners. Corpus use in the educational settings could stand as a possibility for both the teachers and the students to move away from classroom routine. Second, the study has provided evidence that a corpus-informed approach had a significant impact on learning spoken features of language by lower-level students, which provides a contrast to the idea that the corpus-based instructional sources are most useful for learners of English at advanced level who received a lot of training (Boulton, 2009). Taking into consideration the fact that both the upper and lower-level students hold a very positive attitude towards the use of corpus-based activities in the classroom, it can be argued that this type of activities can motivate the students to confidently participate in speaking activities in the classroom. Regarding the second domain of the scale, it can be suggested that since the EFL learners are not familiar with using corpus-based tools in the classroom, it is very likely that the learners experience difficulties in understanding, using, analysing the concordance lines, which is particularly true for a spoken corpus. Therefore, corpus-based activities should be implemented with the guidance of the teacher

and the learners should be provided with assistance whenever they need it. In this vein, choosing a user-friendly corpus comes as a crucial point to take into account.

As the study was conducted only with 31 learners at elementary and pre-intermediate levels of English, further research needs to be conducted with a larger number of learners and with learners from a wider range of proficiency levels from beginner level to advanced level to be able to increase the generalizability of the findings. In addition, future research could examine whether the learners show positive attitudes towards learning another aspect of spoken English.

References

Akkoyunlu, A. N., & Kilimci, A. (2017). Application of corpus to translation teaching: Practice and perceptions. *International Online Journal of Education and Teaching*, *4*(4), 369–396.

Bernardini, S. (2002) Exploring new directions for discovery learning. In B. Kettemann & G. Marko (Eds.), *Teaching and learning by doing corpus analysis* (pp. 165-182). Amsterdam: Rodopi.

Biber, D., & Finegan, E. (1988). Adverbial stance types in English. *Discourse Processes*, *11*(1), 1–34.

Boulton, A. (2009). Testing the limits of data-driven learning: Language proficiency and training. *ReCALL, 21*(1), 37-51.

Brezina, V. (2009). "We only say we are certain when we are not": A corpus-based study of epistemic stance. In J. Levická & R. Garabík (Eds.), *NLP, corpus linguistics, corpus based grammar research* (pp. 41–53). Brno: Tribun.

Can, C. (2009). İkinci dil edinimi çalışmalarında bilgisayar destekli bir Türk öğrenici İngilizcesi derlemi: ICLE'nin bir altderlemi olarak TICLE. *Dil Dergisi*, *144*(Nisan-Mayıs-Haziran), 16–34.

Cargill, M. & Adams, R. (2005). Learning discipline-specific research English for a world stage: A self-access concordancing tool? In Higher education in a changing world. Proceedings HERDSA Sydney 2005. http://conference.herdsa.org.au/2005/pdf/refereed/paper_202.pdf

Chambers, A. (2005). Integrating corpus consultation in language studies. *Language Learning & Technology*, *9*(2), 111-125.

Cobb, T., & Boulton, A. (2015). Classroom applications of corpus analysis. In D. Biber & R. Reppen (Eds.), *The Cambridge handbook of English corpus linguistics* (pp. 478-497). Cambridge, UK: Cambridge University Press.

Cohen, L., Manion, L., & Morrison K. (2000). *Research methods in education* (5th Edition). London: Routledge Falmer.

De Cock, S. (2010). Spoken learner corpora and EFL teaching. In M. C. Campoy, B. Bellés-Fortuño and M. L. Gea-Valor (Eds.), *Corpus-based Approaches to English Language Teaching* (pp. 123-137). London: Continuum.

De Cock, S. 2004. Preferred sequences of words in NS and NNS speech. *Belgian Journal of English Language and Literatures (BELL), New Series 2*, 225–246.

Efstathiadi, L. (2010). The use of epistemic markers as a means of hedging and boosting in the discourse of L1 and L2 speakers of Modern Greek: A corpus-based study in informal letter-writing. *Themes in Science and Technology Education: Special Issue on ICT in Language Learning. Computer-Aided Language Analysis, Teaching and Learning*: *Approaches, Perspectives and Applications*, 3(1–2), 181–206.

Gabrielatos, C. (2005). Corpora and language teaching: Just a fling or wedding bells? *TESL-EJ*, *8*(4), 1-37.

Geluso, J., & Yamaguchi, A. (2014). Discovering formulaic language through data-driven learning: Student attitudes and efficacy. *ReCALL*, *26*(2), 225–242. http://doi.org/10.1017/S0958344014000044

Girgin, U. (2011). *Corpus-based activities at lower levels of EFL proficiency: the effectiveness of using concordance lines on grammar learning*. Unpublished masters' thesis, Bilkent University, Ankara, Turkey.

Hafner, C. A. & Candlin, C. N (2007). Corpus tools as an affordance to learning in professional legal education. *Journal of English for Academic Purposes*, *6*(4), 303-318.

Hunston, S. (2006). Corpus linguistics. *Encyclopedia of Language and Linguistics*, 234–248.

Johns, T., & King, P., (Eds.). (1991). *Classroom concordancing*. Birmingham: University of Birmingham.

Johns, T. (1991). Should you be persuaded: Two samples of data-driven learning materials. *ELR Journal*, *4*, 1–16.

Kärkkäinen, E. (2006). Stance taking in conversation: From subjectivity to intersubjectivity. *Text and Talk*, *26*(6), 699–731. http://doi.org/10.1515/TEXT.2006.029

Kennedy, C. and Miceli, T. (2010) Corpus-assisted creative writing: Introducing intermediate Italian learners to a corpus as a reference resource. *Language Learning & Technology*, *14*(1), 28–44.

Kilimci, A. (2017). Learner Perspectives Towards Corpus Use in Vocabulary Learning. *International Journal of Language Academy*, *5*(19), 343–359. http://doi.org/10.18033/ijla.3765

Kilimci, A. (2014). LINDSEI-TR: A new spoken corpus of advanced learners of English. *International Journal of Social Sciences and Education*, *4*(2), 401–410. Retrieved from http://www.ijsse.com/sites/default/files/issues/2013/v4i2/Paper-10.pdf

Leńko-Szymańska, A., & Boulton, A. (2015). Data-driven learning in language pedagogy. In A. Leńko-Szymańska & A. Boulton (Eds.), *Multiple Affordances of Language Corpora for Datadriven Learning* (pp. 1–15). Amsterdam: John Benjamins Publishing Company.

Leńko-Szymańska, A., & Boulton, A. (2015). *Multiple affordances of language corpora for data-driven learning*. Amsterdam, Netherlands: John Benjamins.

McCarthy, M. (2004). From corpus to course book. Touchstone from corpus to course book. Cambridge: Cambridge University Press.

McCarthy, M. J. (1998). *Spoken language and applied linguistics*. Cambridge: Cambridge University Press.

Mizumoto, A., Chujo, K., & Yokota, K. (2016). Development of a scale to measure learners' perceived preferences and benefits of data-driven learning. *ReCALL*, *28*(2), 227–246. http://doi.org/10.1017/S0958344015000208

Nesselhauf, N. (2005). *Corpus linguistics: A practical introduction*. Retrieved from http://www.as.uni-heidelberg.de/personen/Nesselhauf.

O'Keeffe, A., McCarthy M. J., & Carter R. A. (2007). *From corpus to classroom*. Cambridge: Cambridge University Press.

Römer, U. (2011). Corpus research applications in second language teaching. *Annual Review of Applied Linguistics*, *31*, 205–225. http://doi.org/10.1017/S0267190511000055

Römer, U. (2006). Pedagogical applications of corpora: Some reflections on the current scope and a wish list for future developments. *Zeitschrift für Anglistik und Amerikanistik*, *54*(2), 121-134.

Savran, Z. (2017). *A corpus-informed study based on a contrastive analysis of stance markers in learner English: from corpus to classroom*. Unpublished master's thesis, Fırat University, Elazığ, Turkey.

Walsh, S. (2010). What features of spoken and written corpora can be exploited in creating language teaching materials and syllabuses? In A. O'Keeffe and M. McCarthy (Eds.), *The Routledge handbook of corpus linguistics* (pp. 333-344). Abingdon: Routledge.

Yoon, H. (2008). More than a linguistic reference: The influence of corpus technology on L2 academic writing. *Language Learning & Technology*, *12*(2), 31–48.

Yoon, H., & Hirvela, A. (2004). ESL student attitudes toward corpus use in L2 writing. *Journal of Second Language Writing*, *13*(4), 257–283. http://doi.org/10.1016/j.jslw.2004.06.002

Boran, G. (2018). Semantic fields and EFL/ESL teaching. *International Online Journal of Education and Teaching (IOJET)*, *5*(2), 391-399. http://iojet.org/index.php/IOJET/article/view/359/242

Received: 09.12.2017
Received in revised form: 19.01.2018
Accepted: 29.01.2018

SEMANTIC FIELDS AND EFL/ESL TEACHING

Gültekin Boran

Gazi University, Gazi Faculty of Education

gboran@gazi.edu.tr

Gültekin Boran is currently an assistant professor in the ELT program of Gazi Education Faculty of Gazi University. His research interests are micro teaching in EFL teacher training, teaching pronunciation, pragmatics, language learners' motivation and error analysis in language teaching.

SEMANTIC FIELDS AND EFL/ESL TEACHING

Gültekin Boran

gboran@gazi.edu.tr

Abstract

The vocabulary of a language is a system of interrelated lexical networks but not a collection of independent items. Vocabulary of a language is organised into fields within which words interrelate and define each other in various ways. Sense relations are not enough to explain the relation between some lexical items. For example, we cannot explain the relation between patient and hospital through synonymy, antonym, hyponymy, polysemy or homonymy, but we can say that they belong to the same semantic field which we can label as 'health'. In this paper, semantic field also known as word field, lexical field, field of meaning, and semantic system is explained by giving supporting examples. Besides, some implications for Teaching English as a Foreign Language/Teaching English as a Second Language (TEFL/TESL) are suggested.

Keywords: Semantic fields, structural semantics, lexical network, lexical field, semantic system

1. Introduction

In the 1930s, the structuralist notion of paradigmatic sense relations was applied to an approach which is called lexical field theory. Based on research in historical semantics, Jost Trier (1931) introduced the term lexical field (or semantic field) that he defined as a set of semantically related words whose meanings delimit each other. Thus, the meaning of a word can only be fully determined in terms of contrasts in which it stands with other words in the field. From a diachronic perspective, this means that any change in the meaning of one word affects the meaning of other words to which it is related. According to Trier, the members of a field cover a whole conceptual or objective domain without any gaps or overlaps, i.e. the boundaries of a lexical field can be clearly delimited. Criticism of this conception of lexical fields brought about differentiations and modifications of lexical field theory and led in the development of componential analysis (Retrieved from English Language and Linguistics Online, 2017)

A semantic field is a set of words (or lexemes) which are related in meaning. Semantic field is also known as a word field, lexical field, field of meaning, and semantic system (Nordquist, 2017). Semantic field more specifically is as a set of lexemes which covers a certain conceptual domain and which bear certain specifiable relations to one another (Lehrer (1985, cited in Nordquist, 2017). In order to clarify the meaning of semantic field and exemplify it, Nordquist (2017) states that "the words in a semantic field share a common semantic property. Most often, fields are defined by subject matter, such as body parts, landforms, diseases, colours, foods, or kinship relations" (p.1).

Hurford, Heasley and Smith (2007) explain semantic field by giving the difference between binary antonyms and semantic field and point out that binary antonyms can considered as incompatible terms which are members of two-term sets (the 'miniature semantic systems'. This notion can be broadened to other groups of words which are not quite opposites as they are incompatible members of a larger (multiple-term) semantic system (or semantic field), such as the days of the week, the seasons of the year, etc. We

should remember that the members of such larger sets are co-hyponyms and the term referring to the field is a superordinate term.

Brinton and Brinton (2010, p. 144) gives more examples of lexical field: (a) Parts of the Face, (b) Stages of Life, (c) Water, (d) Clothing and (e) Jewellery.

a) Parts of the Face

forehead	Brow	temples	
Nose	nostrils	bridge/tip of the nose	
septum	mouth	lips	
Eyes	eyebrows	eyelids	eyelashes
Chin	cheeks	jaw	jowls

b) Stages of Life

new-born	young adult
Infant	adult
nursling, suckling	grown up person
baby, babe	middle aged person
child, kid	senior citizen
toddler, tot	mature person
Preschooler	aged person
Youngster	senior citizen, senior
Adolescent	old {lady, man, person}
Youth	sexagenarian
lad/lass	septuagenarian
Preteen	octogenarian
teenager, teen	nonagenarian
juvenile, minor	centenarian

c) Water

forms: ice, water, steam, vapour, sleet, rain, snow, hail

bodies of water: ditch, slough, swamp, narrows, strait, inlet, bight, bayou, brine, deep, firth, loch, tarn, well, reservoir, firth, pool, sea, ocean, lake, pond, bay, inlet, estuary, fjord, sound, gulf, lagoon, cove, harbour

water in motion: creek, river, waves, billows, stream, rain, brook, rivulet, tributary, spring

frozen water: ice, snow, crystal, sleet, hail, icicle, iceberg, rime, hoarfrost, glacier

gas: vapour, steam

d. clothing

dress (cocktail-, strapless-, shirtwaist-)		gown (evening-, ball-)	
toga	shift	jumper	smock
jumpsuit	suit	pantsuit	sports coat
vest	pyjamas	nightgown	smoking jacket
bathrobe	tee-shirt	shirt	blouse

undershirt	turtleneck	pants/slacks	trousers
shorts	knickers	cut-offs	skorts
culottes	skirt	peddle-pushers	bloomers
underwear	panties	brassière	girdle
hat	cap	beret	tam
toque	scarf	headband	earmuffs
belt	tie	suspenders	gaiters, spats
socks	tights	pantyhose	stockings
gloves	mittens	muff	muffler
shawl	cape	coat (sports-, rain-, over-, top-, lab-)	
jacket	parka	wind-breaker	anorak
sweater	pullover	cardigan	apron

e. Jewellery

ring	earring	nose-ring	brooch
watch	wristwatch	pocket-watch	stud
pin	pendant	necklace	choker
crown	tiara	bracelet	anklet
cufflinks	stick-pin	tie-clasp	belt buckle

2. Semantic Fields

In order to understand the concept of semantic fields, we should review semantic field theory. Crystal (1992) defines semantic field theory as "... the view that the vocabulary of a language is a system of interrelated lexical networks, and not an inventory of independent items" (p. 346). He also states that semantic field theory is also called lexical field theory. He gives these examples of semantic fields: "...the fields of vehicles, colour, and parts of the body" (p. 347). Pan and Xu (2011) explain semantic field theory with another example: "The basic assumption underlying the theory of semantic field is that words do not exist in isolation: rather, they form different semantic fields, such as a vegetable field which contains all kinds of words that denote vegetables: spinach, cauliflower, cabbage, pepper, eggplant, onion, tomato, cucumber" (p. 1587). As Changhong (2010) states, the semantic field theory matured thanks to the affords of the German scholar, J. Trier in the 1930s, whose version is seen as a new phase in the history of semantics. Wu (cited in Changhong, 2010) summarizes Trier's semantic field theory as follows:

a. The vocabulary in a language system is semantically related and builds up a complete lexical system. This system is unsteady and changing constantly.

b. Since the vocabulary of a language is semantically related, we are not supposed to study the semantic change of individual words in isolation, but to study vocabulary as an integrated system.

c. Since lexemes are interrelated in sense, we can only determine the connotation of a word by analyzing and comparing its semantic relationship with other words. A word is meaningful only in its own semantic field. (Wu cited in Changhong, 2010, p.51).

As Changhong (2010) reports, “Trier’s semantic field is generally considered paradigmatic. It deals with paradigmatic relations between words such as hyponymy, synonymy and antonymy” (p.51).

Crystal (1992) points out the significance of context and points out that “...it is always necessary to consider context before assigning a lexical item to a field-for example, hospital relates to both the semantic field of health (as in ‘I was in hospital last week’) and that of buildings (as in ‘The hospital needs a new roof)” (p. 347).

2.1. Historical Background

Crystal (1987) states that “...the linguistic approach to semantic fields was first profounded by German scholars in the 1930s. In one of the earlier studies (J. Trier, 1934), the approach showed how the structure of a semantic field can change over time. Middle High German terms for knowledge changed greatly between 1200 and 1300. In 1200, German had no separate lexeme for the quality of cleverness. The language contained kunst (courtly skills) and list (non-courtly skills), and there was also Wisheit for any form of knowledge, whether courtly or not, mundane and divine” (p. 104). Crystal (1987) points out the difference which occurred in German a hundred years later and he states that “...a, hundred years later, everything was different. Wisheit had developed the restricted meaning of ‘religious experience’; kunts was beginning to take on the meaning of ‘art/skill’, and wizzen (modern wissen had more the meaning of ‘knowledge’. List had left the field entirely, as it had begun to develop pejorative connotations (of its sense of ‘cunning’ or ‘trick’ in Modern German). The whole of this change can be summarized in the form of two diagrams” (p.104). Crystal (1987) illustrates this change with the following diagrams.

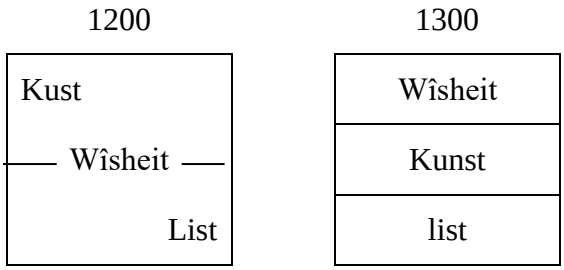


Figure 1. J. Trier’s observation of the change in the semantic field of the ‘intellectual aspect of the German Language in two different periods (in Crystal, 1987 p. 104).

Trier (cited in Palmer, 1981, p. 68) compared a single language at two different periods. Palmer states that it is also possible to compare two languages to see the way in which they divide up a particular field. Therefore, Palmer (1981) gives the comparison between the colour system of English and literary Welsh proposed by the Danish linguist Hjelmslev (1953). The following figure shows the comparison between the colour system of English and literary Welsh along a single dimension.

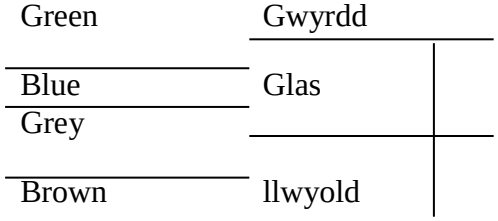


Figure 2. The comparison between the colour systems in English and literary Welsh.

Crystal (1987) states that "...there have been many philosophical and linguistic attempts to classify the concepts or words in a language notably, those associated with the 17th century quest for a universal language. In recent times, the most influential and popular work has been the 'Thesaurus of Peter Mark Roget (1779-1869), first published in 1852. Roget divided the vocabulary into six main areas: abstract relations, space, matter, intellect, violation, and affections. Each area was given detailed and exhaustive sub-classifications producing 1,000 semantic categories in all" (p.104).

Crystal (1987, p. 104) gives the following illustration for Roget's categorization of affections.

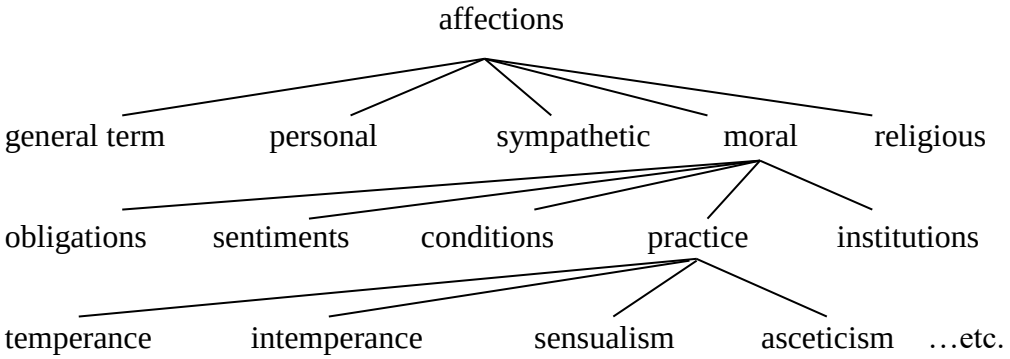


Figure 3. Roget's classification of 'affections

2.2. Semantic Fields in Child's Language

Semantic fields in a child's language develop as the child grows and perceives the distinctions among concepts and objects. Clark and Clark (1977) state that "Children usually stop over-extending their words at about the age of 2-6. It is at this point that they start to ask innumerable 'What ('s) that?' questions and to expand their vocabulary at a much faster rate. It is as though they have just realized that there may be words for all sorts of things for which they, as yet, have no names. As they require new words, they narrow down over-extensions and build up semantic fields of words for various conceptual domains" (p.497). The following figure (from Clark and Clark, 1977, p. 498) illustrates the stages in the development of a child's semantic fields.

MEANING IN THE CHILD'S LANGUAGE

ADDING WORDS TO THE CONCEPTUAL DOMAIN OF ANIMALS

ORDER OF ACQUISITION	WORD	DOMAIN OF APPLICATION
1	bow-wow	a particular dog
2	bow-wow	dogs, cows, horses, sheep
3	(a) bow-wow	dogs, cats, horses, sheep
	(b) moo	cows
4	(a) bow-wow	dogs, cats, sheep
	(b) moo	cows
	(c) gee-gee	horses
5	(a) bow-wow/doggie	dogs, cats
	(b) moo cow	cows
	(c) gee-gee/horsie	horses
	(d) bas	sheep
6	(a) doggie	dogs
	(b) cow	cows
	(c) horsie	horses
	(d) baa	sheep
	(e) kitty	cats

Figure 4. The schematic outline of the stages in the development of a child's semantic fields.

Clark and Clark (1977) explain how a child improves his/her semantic fields. They say "... a child begins with a single word, here 'bow-wow, which he may restrict briefly to one particular dog. Other children might start off with a word for cats, or sheep, or some other animal. A little later, bow-wow may be over-extended to other animals, but as more words are acquired, the child works out where each one fits in and narrows down the domain formerly covered by the over-extension of bow-wow" (p. 498).

2. 3. Semantic Fields and Dictionary Design

There have been some attempts to design dictionaries according to semantic fields. For example, Pliny the Elder's Historia Naturalist in AD 23-79 was organized according to semantic fields. The English Duden: A pictorial dictionary (I960) was organized in 15 semantic fields, the first of which, Atom, universe and Earth is divided into such subfields as Atom, Atmosphere, Astronomy, Meteorology, and each section consisting of a numbered list linked to a picture with numbered elements. The Longman Lexicon of Contemporary English (1981) was organized in 14 semantic fields. The first semantic field in this dictionary, 'Life and Living Things' is divided into Living Creatures, Animals/mammals, Birds, and Kinds and Parts of Plants.

2. 4. Semantic Fields and Translation

Every language cuts up the world in different ways. For example, Arabic has numerous words for different types of camels, v/here English has a variety of words for different types of dogs, and Eskimo language has numerous words for different types of snow. These differences cause difficulties in translation from one language into another. Aitchison (1987) states that "...it is impossible to translate the sentence 'The cat sat on the mat' accurately into French without further information about the state of affairs described. We would have to decide arbitrarily whether the cat was sitting on a doormat (paillasson), a small rug (tapis), or a bedside mat (descente de lit). None of these French words corresponds exactly to our word 'mat1 or 'rug' or 'carpet': tapis is often used to translate English 'carpet' as well as 'rug'. These examples show us that for linguists, it is important to deal with the lexical structure of a language rather than with isolated words" (p. 87).

Similar case occurs when translating the English sentence "My uncle is here" into Turkish since the semantic field of kinship in Turkish differs from the semantic field of kinship in English. One who is going to translate this sentence into Turkish needs further information about the case whether 'uncle' means father's brother or mother's brother. Certainly the context will help the translator, but what if the context is insufficient to give such information! Graddol, Cheshire and Swann (1987) point out the same kind of difficulty in translation and give the following example "The English word cousin, for example, has to be translated into French by either cousin or cousine, depending on whether the cousin is male or female" (p. 100). They also state that "...the distinction that is made by the vocabulary of a language very often reflects a society's beliefs and values" (p. 100).

Dyvik (2005) underline the differences of semantic fields between and among languages and translation difficulties due to these semantic field differences and states that A distinction between ontologies and semantic fields is that work on ontologies typically intends to capture constant, language-independent conceptual structures, while work on semantic fields typically intends to bring out the variability and language specificity of the sets of terms and their interrelations: different languages may carve up the same field in

different ways. Without going into the philosophical question of what the 'sameness' of semantic fields across different languages consists in, we may at least observe that the corresponding sets of terms in two languages are connected by a cognation of translation. The distinctions between the ways in which different languages carve up the 'same' field is then reflected in the fact that this translational cognation is not one-to-one. Dyvik (2005) gives the following classical example.

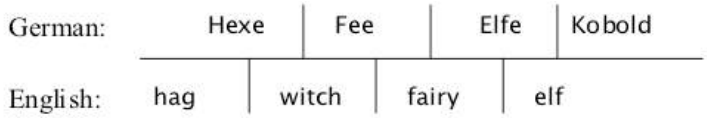


Figure 5. Different partitionings of the 'same' semantic field.

5. Semantic Fields and Vocabulary Teaching

Human brain does not store words in random without any relations or connections among them or store them in alphabetical order like a dictionary, either. Tanner and Green (1998) suggest that vocabulary should be taught in lexical sets and they state that "We don't store words in our brains in alphabetical order like a dictionary does. Research into memory has shown that we apparently store words in our brain in groups of related words (or lexical sets). Words that are related are joined together in our brains; if a new word can be hooked to words which are already stored, it might be easier to remember it. It would seem logical therefore that we should teach words in lexical sets to our learners, so that it is easier for them to retain and store the words in their memory" (p. 29)

Tanner and Green (1998, p.29) state that "Words can be related in several different ways" and they give the following examples:

By topic: *Furniture, clothes, family relationships, animals*

By similarity of meaning or synonymy: *gorilla, chimpanzee, orang-utan, ape*

In pairs – opposites: *hot/cold, old/new, hard/soft*

In Pairs – synonyms: *slip/slide, rough/harsh, booklet/brochure*

In a series or a scale: *Boiling, hot, warm, cool, cold, freezing*

By superordinates: *Fruit*

and hyponyms: *orange, apple, pineapple, banana, strawberry*

By activity or process: *steps in making a cake or building a bookcase*

Word families: *paint, painter, painting*

Or know, knowledge, knowing, and knowledgeable (From Tanner & Green, 1998, p.29).

The groups superordinates, ordinates and topic in the above list are closely related to semantic fields. Therefore we can see the contribution of semantic field theory to language teaching. EFL/ESL teachers should always remember that, as mentioned above, human brain stores words in relation with other. If words are taught in relation with each other as semantic fields or sense relations, EFL/ESL teachers facilitate students' learning of English vocabulary.

6. Conclusion

The vocabulary of a language does not consist of independent and unrelated items. Vocabulary items are interrelated and some vocabulary items are so closely related that they can form a field of sense. However, the same semantic fields in two different

languages may differ in terms of the items which are covered by the semantic fields, and this may result in difficulties in teaching translation and also in teaching vocabulary.

For example, kinship terms in Turkish differ from the kinship terms in English; in English there is only one kinship term for father's brother and mother's brother that is, uncle, but there are two different kinship terms in Turkish for the same kinship; 'amca' for father's brother and 'dayı' for mother's brother. There are also some other kinship terms in Turkish which do not exist in English such as 'enişte' (for uncle's husband and sister's husband), 'görümce' (for wife's sister-in-law), 'elti' (for a woman's husband's brother's wife), 'bacanak' (for wife's sister's husband). This usually occurs because of the cultural aspects of languages and this may occur in any semantic field. Hence, the language teacher must make his/her students aware of these cultural differences and must also teach how to use the context in order to find out these differences. Visual aids such as pictures, diagrams, and tables can be very useful for the students to understand semantic field differences between native culture and target language culture. In order to prevent students from misperception of the problematic vocabulary items, the language teacher must be careful when teaching them.

Moreover, the issue of semantic field should be dealt with in methodology classes at the English Language Teaching (ELT) departments and when teacher trainees teach how to teach vocabulary and translation. If language learners are not aware of the problems and difficulties due to semantic field differences among culture, they may make language errors when using words in their sentences due to the semantic field differences between their own culture and the target language culture.

Besides EFL/ESL course book writers should be aware of the semantic field theory and consider this issue when preparing methods of vocabulary teaching in their course books. Issue of semantic field is crucial for teaching vocabulary and translation.

References

Aichison, J. (1987). *Teach yourself linguistics*. Suffolk: Hodder and Stoughton Ltd.

Brinton, L. J. & Brinton, D. M. (2010). *The linguistic structure of modern English.* Philadelphia: John Benjamins Publishing Company.

Changhong, G. (2010). The Application of the Semantic Field Theory in College English Vocabulary Instruction. *Chinese Journal of Applied Linguistics, 33*(3), 51-51.

Clark, H. H., & Clark, E. V. (1977). *Psychology and language*. New York: Harcourt Brace Jovanovich Inc.

Crystal, D. (1987). *The Cambridge encyclopaedia of language*. Cambridge: Cambridge University Press.

Crystal, D. (1991). *A dictionary of linguistics and phonetics*. London: T.J. Press.

Crystal, D. (1992). *An encyclopaedic dictionary of language and languages*. Oxford: Blackwell Publishers

Dyvik, H. (2005. Translations as a semantic knowledge source. *In Proceedings of the Second Baltic Conference on Human Language Technologies, Tallinn, Estonia, 2005.* Retrieved from http://folk.uib.no/hfohd/TranslHLT.pdf

Graddol, D. Cheshire, J., & Swann, J. (1987). *Describing language*. Philadelphia: Open University Press.

Hurford, J. R., Heasley, B. & Smith, M. B. (2007). *Semantics: A course book* (2nd Ed.). Cambridge: Cambridge University Press.

Nordquist, R. (2017). "Semantic Field Definition." *ThoughtCo*, Apr. 25, 2017, Retrieved from https://www.thoughtco.com/semantic-field-1692079

Nordquist, R. (2017). "What is Semantic Field Analysis?" *ThoughtCo*, Sep. 11, 2017 Retrieved from https://www.thoughtco.com/semantic-field-analysis-1691935

Lexical Semantics (2017, November). *English Language and Linguistics Online*. Retrieved from http://www.ello.uos.de/field.php/Semantics/SemanticsLexicalfields

Palmer, F. R. (1981). *Semantics*. Cambridge: Cambridge University Press.

Pan, Q. & Xu, R. (2011). Vocabulary teaching in English language teaching. *Theory and Practice in Language Studies*, Vol. 1, No. 11, pp. 1586-1589.

Tanner, R. & Green, R. (1989). *Tasks for teacher education: A reflective approach*. Harlow: Pearson Education Ltd.

Yakışık, B. Y., & Gürocak, F. Ü. (2018). A Comparative Study of perceptions about the 'Common European Framework of Reference' among EFL teachers working at state and private schools. *International Online Journal of Education and Teaching. (IOJET), 5(2),* 401-417.
http://iojet.org/index.php/IOJET/article/view/303/243

Received: 07.11.2017
Received in revised form: 27.02.2018
Accepted: 30.03.2018

A COMPARATIVE STUDY OF PERCEPTIONS ABOUT THE 'COMMON EUROPEAN FRAMEWORK OF REFERENCE' AMONG EFL TEACHERS WORKING AT STATE AND PRIVATE SCHOOLS

Burçak Yılmaz Yakışık
Gazi University
burcak@gazi.edu.tr

Fatma Ünveren Gürocak
Gazi University
fatmaunveren@gazi.edu.tr

Burçak Yılmaz Yakışık is an instructor of English at Gazi University, Gazi Faculty of Education, Department of English Language Teaching. She got her PhD from the same university in 2012. Her research areas cover learner variables, teacher training, the CEFR, assessment, socio-cultural theory.

Fatma Ünveren Gürocak works as an instructor at Gazi University, Ankara, Turkey. She graduated from the ELT department at Hacettepe University. She is currently a PhD student at the same department. Her academic interests are teacher education, the CEFR and material development.

A COMPARATIVE STUDY OF PERCEPTIONS OF THE 'COMMON EUROPEAN FRAMEWORK OF REFERENCE' AMONG EFL TEACHERS WORKING AT STATE AND PRIVATE SCHOOLS

Burçak Yılmaz Yakışık

burcak@gazi.edu.tr

Fatma Ünveren Gürocak

fatmaunveren@gazi.edu.tr

Abstract

Teachers have a very significant role in the implementation of the CEFR effectively. Teachers working at MONE have been offered training related to the CEFR; however, not every teacher had access to the training around Turkey. That is why; what language teachers know about the CEFR and how they implement the principles of the document needs to be investigated. This study aims to find out language teachers' views on the use of the CEFR. The researchers conducted the study among English language teachers working at private and state secondary and high schools in different cities around Turkey. Quantitative data analysis has been used to reveal the differences between the perceptions of English teachers regarding the CEFR. The findings of the study revealed that teachers working at the private schools are more aware of the practices of the CEFR in their teaching.

Keywords: EFL in Turkey, the CEFR, Private and State Schools

1. Introduction

The Council of Europe (CoE) was founded in 1949 with the aim of promoting linguistic diversity, democratic citizenship and social cohesion. With its 46 member states, the CoE aims to preserve the rich linguistic heritage of Europe while supporting "language learning for European citizenship" at the same time (CEFR, 2001). Therefore, the council started a project on learning, teaching and assessing languages in 1989 and the final version of the project was released in 2001 as the Common European Framework of Reference for Languages: Learning, Teaching, Assessment. The Common European Framework is a framework prepared by the language Policy Division located in Strasbourg, France which is operated by the Council of Europe. The CEFR methodology is transparent, comprehensive, coherent and descriptive. The pedagogical implications of the framework are self-assessment, autonomy, cultural diversity. Skills and competencies are determined for effective communication. The CEFR is intended to be a practical and action-oriented document; that is why, scales and grids for self-assessment are provided for the users (Council of Europe, 2001). The CEFR illustrates 6 different levels: A1 and A2 (Basic Users), B1 and B2 (Independent Users), C1 and C2 (Proficient Users). The framework consists of 9 detailed chapters in which philosophy and implementation of the framework and its descriptors are explicitly conveyed. The document includes methodological descriptions of the framework in a political context, overview of common references levels, description of language use and language user, summary of language learning and teaching, curriculum design with specific curriculum scenarios; life-long language learning, assessment and assessment types.

These considerations imply that, this reference tool is designed for the use of coursebook designers, educational trainers, teachers, testers and other shareholders on the objectives of keeping a standard. The framework led to the introduction of many other educational documents such as European Language Portfolio, European Profile for language teacher educators, Europass and EPOSTL.

2. Literature Review

2.1. History of the CEFR

The CEFR, one of the products of the Council of Europe, has evolved as a result of Council of Europe's decades of work on language learning and teaching (Little, 2006). Language learning was encouraged as mutual understanding, cultural and educational exchange and the mobility of citizens were priorities.

The language education policy of the Council of Europe has developed its political, cultural and educational views since the early 1970s. These views are constructed on the tenets of language learning for communicative aims. This led to two main outcomes for language education. The first one is to analyze communicative needs of learners, and the second one is to describe the language they must learn to comply with these needs. To execute this plan, there has been great work in three areas: needs analysis of learners, development of functional and notional approach and the concept of learner autonomy in language learning. Each of these concepts have shaped the CEFR and the ELP (European Language Portfolio) (Little, 2006).

2.2. The Features and the Impact of the CEFR

The CEFR has a great impact on different areas in language teaching and learning. Before setting the scene for the impact of the CEFR, it is significant to reveal how it is used for educational purposes.

First, the CEFR describes the knowledge and skills language learners have to acquire in order to be successful communicators (CEFR, Council of Europe, 2001). Second, the CEFR is not language specific, which means the communicative functions that learners should be able to perform at different levels are described, but the foreign language is not specified (Little, 2007). Besides, the CEFR provided assistance in designing L2 curricula, language syllabuses and the assessment of L2 learning outcomes. Little (2007) discusses the impact of the CEFR on curriculum design and the assessment, and states "its impact on language testing far outweighs its impact on curriculum design and pedagogy" (p. 648).

The ALTE (Association of Language testers in Europe) is good evidence to the proposition above. The ALTE gathered European language testing agencies and associated its tests with six-level scale. Similarly, web-based DIALANG was prepared to provide diagnostic tests in 14 languages in line with six distinct CEFR levels (Alderson, 2007; Little, 2007). Moreover, it has an impact on FL classrooms through ELP (European Language Portfolio), whose components are described in the latter sections below in a detailed way.

Finally, the consequences and the products of the CEFR have inspired US based educational practitioners in a project commonly referred to as LinguaFolio USA (Byrnes, 2007).

2.3. Implications of the CEFR in Turkey

With its 76.1 million population, 17.588.000 students and 923.000 teachers (MONE, 2016), Turkey has made considerable progress in improving the quality of education since 1997. In 1997 educational reform movements in Turkey intended to meet the challenges of present-day classroom and society.

In order to make language lessons more effective and communicative, the Turkish Ministry of Education Board of Education changed the English language curricula and for compliance with the EU. The students began to receive 8 year-compulsory education and that is the time when students received 4 skills-based English language education for the first time-on paper. MONE prepared the model curriculum for foreign language teaching in line with the CEFR principles in 2002, 2006, 2011 and 2013. Besides, for the successful implementation of the new curriculum collaboration among the teachers was sought and teachers received intensive in-service teacher education nationwide to keep up with the new curriculum between 2002 and 2007. The council of higher education renewed the curriculum of foreign language teaching training programs, by the same token. Teaching English to young learners and School Experience courses were introduced and in 2003, Effective Communication Skills, Listening and Phonetics, Drama and Contextual Grammar courses were added to the existing pre-service language teacher education program. Generic Teacher competencies were developed in collaboration with scholars from universities and MoNE members. The project aimed to foster teacher development understanding and quality improvement of students, parents, school and thus the education system.

The ministry of Education initiated a training program which aimed to train language teachers in the light of the principles of the CEFR. To this end, seminars have been carried out to train language teachers working in different cities in 2009. Language teachers were trained in terms of curriculum design, integrated language teaching, portfolio assessment and materials adaptation within the framework of the CEFR (Çakır & Balçıkanlı, 2012).

Recently, the 5th grade in education system has been transformed into an intensive language learning program and in 2017-2018 academic year pilot study of the program is being conducted among 110.000 learners in more than 600 schools (MoNE, 2017).

In general, the CEFR has three main effects on Turkish national education: curriculum, teacher education and course materials. Teachers working for MONE are prohibited from adopting course books different from the books the state has suggested. However, Anatolian and private schools use commercially available course books which are based on principles, approaches and targets of the CEFR. It is evident that there is a big difference between the state and private high schools in terms of program, syllabuses and materials. Consequently, the factors which constitute the education vary at this point.

2.4 Role of CEFR in FL teaching and Teacher Education

CEFR is a key reference document and valuable tool as it is related to all who are directly involved in language teaching and testing (Little, 2005; Sülü & Kır, 2014). In other words, it can be used as a compass to direct our studies in FL teaching. It is used for curriculum and syllabus design and testing. The CEFR principles implemented according to the curriculum developed in 2013 include language use in authentic communicative environment, encouraging life-long learning, creating motivating learning environment, fostering learner autonomy through self-assessment tools.

Among those self-assessment tools, ELP (English Learning Portfolio) is an important one to be utilized for FL teaching in language classrooms. It was developed by the Language Policy Unit of the Council of Europe to foster plurilingual and multicultural European

citizenship identity. It includes some concrete documents such as Language Biography, Dossier and Language Passport. ELP increases learner autonomy as it allows learners to keep track of their own progress (Little, 2005). Additionally, it promotes language proficiency, plurilingualism, intercultural awareness and competence (Little, 2007; Mirici, 2015). The three documents mentioned above serve for different purposes. Language Biography helps learners plan and assess their learning process. The Dossier includes some documents related to students' language studies such as certificate, diplomas, articles, letters. Language Passport displays the summary of the proficiency level of language user in different languages specified at a certain time (Cephe & Asik, 2016; Mirici, 2015).

The European Portfolio for Student Teachers of Language (EPOSTL) is a tool for student teachers studying at teacher training programs in Europe to reflect upon their academic competencies. It encourages candidate teachers to monitor their progress, get prepared for their future professional experiences, to foster discussion and development among peers and among teacher educators. Furthermore, providing self-assessment opportunities, it fosters autonomy among student teachers to evaluate their progress (Newby et al., 2007). It contains 3 main sections. The first one is personal statement, which covers student teachers' previous experiences regarding language learning and teaching. The second part is self-assessment part with 196 descriptors and the third part is a dossier, in which a student teacher can keep any document about teaching such as lesson plans (Çakır & Balçıkanli, 2012).

2.5. CEFR Related Studies

Kınsız and Aydın (2008) examined the websites of all state universities in Turkey and they discovered that only six of the universities had language teaching programs in line with the CEFR at their preparatory schools. Another study was conducted by Maden, Ere, and Yiğit (2009) with a different perspective. They investigated whether language proficiency exams done at Turkish universities are consistent with the principles of the CEFR.

The following two studies are quite similar to this one. Sülü and Kır (2014) investigated the FL teachers' perceptions on the CEFR. They researched FL teachers working at different levels (tertiary level, primary school, high school) and at different institutions. Most of the teachers who participated in the study stated that they did not follow the studies conducted on the issue though they had read the document before. Another result deduced in the study was that teachers did not attach importance to culture issues or process-based learning which are strongly emphasized in the CEFR. Most teachers believed in the necessity of the adaptation of the CEFR into teacher training programs. Çağatay and Gürocak (2016) conducted a similar study, which aimed to explore the perceptions of FL teachers working at state and private universities. They found that majority of the instructors had insights about the CEFR; however, most of the instructors did not have sufficient knowledge about the CEFR. It was also concluded in the study that instructors teaching at private universities knew more about the implementation of the CEFR as they had the opportunity to take in-service training about the subject at their institutions.

Hişmanoğlu (2013) also researched whether English language teacher education curriculum promoted the CEFR awareness of prospective EFL teachers. The results of the study revealed that prospective EFL teachers had a high level of CEFR awareness and therefore the researcher suggested a CEFR related English language teacher education curriculum so that student teachers could be equipped with instructional skills in line with CEFR.

3. Methodology

Quantitative data was obtained to investigate the EFL teachers' perceptions about the CEFR and the implementation of CEFR in their teaching contexts. Research aims, participants, instruments, data collection and data analysis procedures are explained here to shed light onto the results and discussion parts.

3.1. Research Aims

Curriculum and syllabus design processes, writing novel coursebooks in line with the principles of the CEFR, preparing new testing materials, providing in-service training in several cities around Turkey and research conducted to reveal the pros and cons of the new guide show that there has been great effort to adapt CEFR based instruction into foreign language effectively. However, there is a lack of study regarding the perceptions of the FL teachers working within the Ministry of Education, and a comparison between the state and private schools' implementation of the CEFR. To this end, the primary aim of this study is to analyze perceptions of language teachers on the use of the CEFR based curriculum at primary, secondary and high school levels by comparing the implementation at private and state schools. In this context, answers to the following research questions were sought:

1. What are the general perceptions of EFL teachers working at primary, secondary and high schools in Turkey in relation to the CEFR?
   1a. Is there a significant difference between the EFL teachers regarding their perceptions of CEFR in terms of their socio-demographic characteristics?
   1b. Is there a significant difference between the EFL teachers working at private and state schools concerning their perceptions about the CEFR?
2. What are the general perceptions of EFL teachers working at primary, secondary and high schools in Turkey in relation to the usefulness of CEFR in some specific teaching activities such as curriculum/syllabus design, material adaptation or testing?
   2a. Is there a significant difference between the EFL teachers regarding their views on the usefulness of CEFR in terms of their socio-demographic characteristics?
   2b. Is there a significant difference between the EFL teachers working at private and state schools concerning their perceptions about the usefulness of CEFR?

3.2. Participants

A hundred and five (105) English Language Teachers working at state and private schools of Turkish Ministry of Education participated in this study. The schools were selected randomly regardless of their location. Hence, the participants taught English in different regions and cities in Turkey such as Ankara, İzmir, Aydın, Zonguldak. 36 teachers from Ankara, 32 teachers from Zonguldak, 17 teachers from İzmir, and 20 teachers from Aydın participated in the study.

When the survey participants were examined in terms of their gender, it was determined that 95 (90.5%) were female and 10 (9.5%) were male. In terms of teaching experience, 15 participants (14.3%) were between 1-5 years, 24 (22.8%) were between 6-10 years, 36 (34.3%) were between 11-15 years and 30 28.6%) have been working for over 16 years.

It was determined that 76 persons (72.4%) graduated from English Language Teaching, 14 (13.3%) were from literature and 10 (9.5%) graduated from linguistics, 2 (1.9 %) teachers graduated translation and 3 (2.9 %) teachers graduated from other departments. It was also determined that 75 participants (71.4%) had Bachelor's degree, 27 participants (25.7%) had MA degree, and 3 participants (2.9%) were studying at doctorate level when the survey was conducted.

In terms of institution, 48 participants (45.7%) worked at private schools and 57 participants (54.3%) worked at public schools; Of these, 28 (26.7%) teachers taught at primary school level, 34 (32.3%) teachers taught at middle school level and 43 (41.0%) teachers worked at high school level. When the level of proficiency was asked, it was concluded that 31 (29.5%) teachers were teaching at elementary level, 25 (23.8%) participants were teaching at pre-intermediate level, 41 (39.0%) participants were teaching at intermediate and 8 (7.6 %) participants were teaching at upper intermediate level.

3.3. Instruments

To investigate the perceptions of English Language teachers about the CEFR and the use of the CEFR, the researchers adapted the questionnaire developed by Kır (2011), to the context of this study.The questionnaire consists of three sections. In the first section, background information of teachers is obtained through questions such as years of experience, departments of graduate, academic studies, level they are teaching. In the second section, there are 10 items related to English teachers' levels of agreement concerning their current knowledge about the CEFR and in the last section there are items which reveal their opinion about the implementation ofthe CEFR. The statements are presented on a five-point Likert scale, rangingfrom 1=strongly agree to 5=strongly disagree.

3.4. Data Collection

The researchers used convenience sampling model in the current study. Dörnyei (2007) reports that convenience sampling is a kind of nonrandom sampling in which participants are selected for the purpose of the study if they meet certain practical criteria, such as availability at a certain time, easy accessibility, or the willingness to volunteer. Therefore, researchers administered the questionnaire at private and state schools among the available English language teachers.

3.5. Data Analysis

The researchers used descriptive statistics (mean, standard deviation and percentages) for demographic information. The statements in the questionnaire were evaluated separately and "Single Sample T Test" was applied to investigate the difference between the answers given to the statements.In addition, the One-Way ANOVA test was used to investigate the differences in terms of teaching experience, graduation, academic level, teaching levels and teaching levels of participants in the research. In order to test the differences among the different expressions, Post-Hoc Tukey and LSD have been used. Reliability analyzes were carried out with regard to the reliability of the variables included in the questionnaire, by looking at the values of Alfa Value (Cronbach Alpha) and item total correlations. As a result of the analysis, the α value of the whole scale was calculated as 0.932. The resulting alpha (α - Cronbach 's Alpha) coefficient represents a very high reliability ratio.

In the evaluation of the arithmetic mean of Likert type scale; by using the formula "Range Span = Array Span / Number of Groups", 4/5 = 0,800 points range is determined. (Tekin, 1996)

The determined score ranges are given in Table 1.

Table 1. *Scores for likert type scale*

(5) Strongly Agree	4,21 – 5,00
(4) Agree	3,41 – 4,20
(3) Undecided	2,61 – 3,40
(2) Disagree	1,81 – 2,60
(1) Strongly Disagree	1,00 – 1,80

4. Results and Discussions

4.1. Research Question 1

'What are the general perceptions of EFL teachers working at primary, secondary and high schools in Turkey in relation to CEFR?'

The response to the first research question will be discussed with Table 2 below. The mean and standard deviation values of the responses given by the EFL teachers related to the general knowledge about CEFR and the use of CEFR in the curriculum are displayed below.

Results about demographic differences are displayed in the formerly illustrated tables and the differences between the institution (private or state) are illustrated in the latter tables.

Table 2. *EFL teachers' levels of agreement with respect to the items concerning the general knowledge about CEFR and the implementation of CEFR*

	Items	Mean	SD	T	P
1.	I know about the CEFR (Common European Framework of Reference for Languages).	4,1143	,92315	45,669	,000
2.	I can understand the contents of European documents (e.g., the CEFR, the ELP) and I can adapt them to my teaching.	4,0190	,87685	46,967	,000
3.	I took a course / got education concerning the CEFR or the CEFR related subjects.	3,3905	1,47736	23,516	,000
4.	I have sufficient amount of knowledge with respect to the CEFR.	3,7619	1,09653	35,155	,000
5.	The CEFR has impact on the coursebooks used for teaching English in our school.	3,6190	1,25101	29,643	,000
6.	The CEFR has impact on the tests used in our school.	3,4476	1,29333	27,315	,000

7.	The CEFR has impact on language teaching techniques used in our school.	3,5810	1,26172	29,082	,000
8.	The teaching program practiced in our institution is CEFR specific.	3,3918	1,27040	27,731	,000
9.	It is necessary that the CEFR and the ELP (European Language Portfolio) be incorporated into English language teaching programme in our school.	3,7143	1,22250	31,133	,000
10.	I can plan and organize an interdisciplinary project work by myself or with other teachers.	4,0000	1,00957	40,599	,000

As Table 2 depicts, the average of EFL teachers agree with the statements regarding the use of the CEFR in the teaching programs. They agree that they know about the CEFR, they agree that they can understand the contents of European documents and they know how to use them in their teaching contexts. Most of the EFL teachers agree that they have sufficient amount of knowledge about the CEFR. They also think that the CEFR has an impact on the teaching materials and teaching techniques they use to teach English at their schools. Moreover, they agree on the necessity of incorporating the CEFR and Language portfolios into their teaching contexts. They think that they can plan and organize an interdisciplinary project work using the CEFR. However, some teachers express unsettled opinions about the compatibility of teaching programs implemented at their schools with the CEFR and similarly, the average teachers remain undecided when they are asked whether they have attended any training sessions or taken any courses in relation to the CEFR. These findings reveal that the majority of the teachers have an insight about the CEFR and its components; however, the average teachers did not take any in-service training about the subject. This finding supports the studies of Çağatay and Gürocak (2016), Hişmanoğlu (2013), and Sülü and Kır (2014) in that training about the CEFR and how it is implemented in FL classrooms should be provided for the language teachers.

4.2. Research Question 1a

‘Is there significant difference between the EFL teachers regarding their perceptions of the CEFR in terms of their socio-demographic characteristics? ‘

No statistically significant difference is found when the EFL teachers' level of agreement with respect to the items concerning the CEFR is examined in terms of the gender of the participants and departments of graduate.

When the level of agreement of EFL teachers is examined in terms of the year of teaching experience, the following table is portrayed. No statistically significant difference is found for the items in terms of teaching experience apart from item 6 in the questionnaire.

Table 3. *Differences between the responses of EFL teachers with respect to the impact of CEFR on tests in terms of Teaching Experiences*

	Item	Teaching Experience	Mean	Standard Deviation	F	P	Post hoc Significance
6.	The CEFR has impact on the tests used in our school.	1-5 Years (1)	3,93	1,38	3,546	,017*	3-1
		6-10 Years (2)	3,58	1,34			3-2
		11-15 Years (3)	2,91	1,25			
		Above 15 Years (4)	3,73	1,05			

*One-Way ANOVA, *p<0,05*

A significant difference in the teachers' years of experience was determined at the level of agreement with the item "CEFR has effect on exams applied in our school". It is found that teachers having 1-5 and 6-10 years of experience think the CEFR has impact on the tests used in their school whereas teachers having 11-15 years of experience remain undecided. Similar to the findings of Hişmanoğlu (2013), newly graduated teachers have more awareness about the CEFR.

When the level of agreement of EFL teachers is examined in terms of the participants' academic degrees, the following table is depicted. No statistically significant difference is found for the items in terms of academic degrees apart from item 3.

Table 4. *Differences between the responses of EFL teachers with respect to the course taken concerning the CEFR or the CEFR related subjects in terms of participants' academic degrees impact of the CEFR on tests in terms of Teaching Experiences*

	Item	Academic degree	Mean	Standard Deviation	F	P	Post hoc Significance
3.	I took a course concerning the CEFR or the CEFR related subjects.	BA	3,16	1,44	3,758	,027*	2-1
		MA	3,88	1,47			3-1
		Phd	4,66	0,57			

*One-Way ANOVA, *p<0,05*

The table above describes the results of the responses given for item 3 in terms of participants' academic degrees. It is found that EFL teachers having MA and Phd degrees have more knowledge about the CEFR than teachers with BA degrees as they got courses on the CEFR related subjects. This finding supports the study of Hişmanoğlu (2013) which was conducted with prospective language teachers. As he suggested courses on the CEFR can be added into the curriculum for pre-service teachers so that they become more equipped with the knowledge and skills the CEFR requires.

The responses of EFL teachers regarding the general knowledge about the CEFR and the implementation of the CEFR are also compared in terms of the level of school they are working at. Responses given for items 6,7, and 8 are found significant. Table 6 reveals the results below.

Table 5.*Differences among the responses of EFL teachers regarding the CEFR in terms of the levels of schools they are working at.*

	Items	Level of School	Mean	SD	F	P	Post hoc Significance
6.	The CEFR has impact on the tests used in our school.	Primary	3,85	1,26	6,681	**,002****	**2-1** **2-3**
		Secondary	2,82	1,38			
		High school	3,67	1,06			
7.	The CEFR has impact on language teaching techniques used in our school.	Primary	3,92	1,24	5,312	**,006****	**2-1** **2-3**
		Secondary	3,02	1,40			
		High school	3,79	1,01			
8.	The teaching program practiced in our institution is CEFR specific.	Primary	3,82	1,24	3,985	**,022***	**2-1** **2-3**
		Secondary	2,97	1,38			
		High school	3,55	1,09			

*One-Way ANOVA, *p<0,05*

As is clearly seen in Table 5, a statistically significant difference is found in the responses to items 6,7, and 8. Teachers working at primary level and at high schools agree that CEFR has impact on the tests used in their schools; however, teachers working at secondary level remain undecided. Similarly, teachers working at primary level and at high schools agree that CEFR has impact on language teaching techniques used in their schools and the same group teachers agree that the teaching program practiced in their institutions is CEFR specific. However, most teachers working at secondary level remain undecided. All in all, when primary, secondary and high school levels are compared in terms of these three items, the results are found statistically significant as the level of agreement of EFL teachers working at secondary level schools is lower than that of the EFL teachers working at primary and high school levels. It could be concluded that the curriculum, syllabus and assessment should be revised to make it more compatible with the CEFR for secondary level language instruction.

4.3. Research Question 2a

'Is there a significant difference between the EFL teachers working at private and state schools concerning their perceptions about the CEFR?'

Table 6 exhibits the responses of EFL teachers about the general knowledge of CEFR and the use of CEFR at their teaching contexts are examined in terms of the institutions they work at (private/state).

Table 6. *Differences among the responses of EFL teachers regarding the CEFR in terms of the institutions they are working at.*

	Items	Institution	Mean	SD	T	P
1.	I know about the CEFR (Common European Framework of Reference for Languages).	Private	4,37	0,86	2,737	,007**
		State	3,89	0,91		
2.	I can understand the contents of European documents (e.g., the CEFR, the ELP) and I can adapt them to my teaching.	Private	4,18	0,93	2,127	,041*
		State	3,87	0,80		
3.	I took a course / got education concerning the CEFR or the CEFR related subjects.	Private	3,77	1,43	2,480	,015*
		State	3,07	1,44		
4.	I have sufficient amount of knowledge with respect to the CEFR.	Private	4,12	1,04	3,254	,002**
		State	3,45	1,05		
5.	The CEFR has impact on the coursebooks used for teaching English in our school.	Private	3,97	1,24	2,794	,006**
		State	3,31	1,18		
6.	The CEFR has impact on the tests used in our school.	Private	3,81	1,39	2,734	,007**
		State	3,14	1,12		
7.	The CEFR has impact on language teaching techniques used in our school.	Private	3,91	1,36	2,568	,012*
		State	3,29	1,10		
8.	The teaching program practiced in our institution is a CEFR specific.	Private	3,81	1,34	2,866	,005**
		State	3,12	1,11		
9.	It is necessary that the CEFR and the ELP (European Language Portfolio) be incorporated into English language teaching programme in our school.	Private	4,04	1,20	2,586	,011*
		State	3,43	1,18		
10.	I can plan and organize an interdisciplinary project work by myself or with other teachers.	Private	4,31	0,92	3,022	,003**
		State	3,73	1,00		

*Independent Samples T Test, *p<0,05, **p<0,01*

A statistically significant difference is found in all the items in the scale favoring teachers working in private institution when the type of the institution the EFL teachers work at is compared. Teachers working at private schools are more likely to agree with the items concerning the CEFR than the teachers working at state schools. Most of the teachers working at private schools strongly agree that they have prior knowledge about the CEFR (mean: 4,37) and they can take part in planning or organizing interdisciplinary project work

using the CEFR alone or with other teachers (mean: 4,31). Furthermore, most of EFL teachers at private schools took a course or training about the CEFR (mean: 3,77) whereas most of the EFL teachers at state schools remained undecided for this item (mean 3,07). When the responses given to item 4 were examined, it was found that the level of agreement of EFL teachers at private schools is higher than that of EFL teachers at state schools, which means teachers working at private schools thought they had comparatively sufficient knowledge about the CEFR while average EFL teachers at state schools remained undecided. Moreover, the responses given to items 5, 6, and 7 represent significant difference in terms of their views about the impact of the CEFR on course books, tests prepared at schools and language teaching techniques used at schools. EFL teachers working at private schools had higher levels of agreement with the mentioned items than EFL teachers at state schools. Moreover, teachers at state schools had unsettled opinions about whether their teaching programs are compatible with the CEFR or not; however, EFL teachers working private schools agreed that their program was the CEFR specific. Both groups of teachers agree that the CEFR should be incorporated into the syllabus covered in their schools.

All in all, teachers who work at private schools have a higher rate of perception of using the Common European Framework of Reference (CEFR) in the curriculum than teachers at public schools. Similar to the findings Çağatay and Gürocak (2016) yielded, teachers working at private institutions have more awareness about the CEFR as in most private institutions in-service teacher programs are provided for language teachers.

4.4. Research Question 2

'What are the general perceptions of EFL teachers working at primary, secondary and high schools in Turkey in relation to the usefulness of the CEFR in some specific teaching activities such as curriculum/syllabus design, material adaptation or testing?'

The purpose of the third part of the questionnaire is to examine to what extent participant teachers think the implementation of the CEFR will be useful in education and for what purposes it will be beneficial. The same formula as the Likert type scale is applied for the interpretation of the results.

Table 7. *Scores for Usefulness Questionnaire*

(5) Very useful	4,21 – 5,00
(4) Rather useful	3,41 – 4,20
(3) Not very useful	2,61 – 3,40
(2) Not at all useful	1,81 – 2,60
(1) Cannot be estimated	1,00 – 1,80

Table 8 displays the views of the teachers regarding theusefulness of the implementation of CEFR in their teaching contexts.

Table 8. *EFL teachers' levels of agreement with respect to the items concerning the benefits of the implementation of CEFR in their teaching contexts.*

Items	Mean	SD	T	P
1. How useful would the CEFR be in curriculum/syllabus development?	4,0952	1,08773	38,579	,000
2. How useful would the CEFR be in in-service teacher training?	4,0627	,97590	43,000	,000

3.	How useful would the CEFR be in testing/assessment?	4,1048	1,00884	41,693	,000
4.	How useful would the CEFR be in textbook writing/ production of educational materials?	4,1143	1,07698	39,145	,000
5.	How useful would the CEFR be outside class/in other contexts?	3,9429	1,15882	34,865	,000

The mean values for five items in Table 4 exhibit that all of the teachers who participated in the research agreed that the use of the CEFR would be useful in designing curriculum and syllabus (Mean: 4,09), in in-service training (Mean: 4,0627), in testing and assessment, (4,1048); participants also thought that the CEFR would be very helpful when preparing textbooks and other educational materials (Mean: 4,1143) and out-of-class practices (Mean: 3,9429).

4.5. Research Question 2a

'Is there are significant difference between the EFL teachers regarding their views on the usefulness of the CEFR in terms of their socio-demographic characteristics? '

Participants' responses to the items regarding the usefulness and practicality of the Common European Framework of Reference in the curriculum are examined in terms of gender, teaching experience, departments they graduated from, and levels of schools participants work at. A statistically significant difference is not observed for the mentioned characteristics. However, the responses analyzed in terms of participants' academic degrees reveal significant difference only for item 5 in the third section of the questionnaire. The table below pictures the difference.

Table 9. *Differences between the responses of EFL teachers with respect to the usefulness of CEFR outside class in terms of Teachers' Academic Degrees*

	Item	Academic degree	Mean	SD	F	P	Difference
5.	How useful would the CEFR be outside class/in other contexts?	BA	3,76	1,27	3,426	,036*	1-2
		MA	4,33	0,57			1-3
		Phd	4,40	0,74			

One-Way ANOVA, *p<0,05

Table 9 depicts that the difference is significant between the EFL teachers having only a graduate degree and the EFL teachers having a post graduate degree when the responses to the question 'How useful would the CEFR be useful outside class or in other contexts?' are examined. In other words, teachers having a PhD degree and MA degree think more positively about the implementation of CEFR outside the class than the teachers who have a BA degree.

No statistically significant difference is found when the levels of agreement with the items related to the usefulness of CEFR are analyzed in terms of levels of schools that participants work at.

4.6. Research Question 2b

'Is there a significant difference between the EFL teachers working at private and state schools concerning their perceptions about the usefulness of the CEFR?'

Participant teachers' levels of agreement with the items related to the usefulness of the CEFR in curriculum, syllabus and materials development are examined and EFL teachers' perceptions about the benefits and practicality of the CEFR are compared in terms of the institutions they work at.

Table 10. *Differences among the responses of EFL teachers regarding the usefulness of the CEFR in terms of the institutions they are working at.*

	Items	Institution	Mean	SD	T	P
1.	How useful would the CEFR be in curriculum/syllabus development?	Private	4,37	0,86	2,478	,015*
		State	3,85	1,20		
2.	How useful would the CEFR be in in-service teacher training?	Private	4,33	0,85	2,343	,021*
		State	3,89	1,02		
3.	How useful would the CEFR be in testing/assessment?	Private	4,47	0,82	3,696	,000*
		State	3,78	1,04		
4.	How useful would the CEFR be in textbook writing/ production of educational materials?	Private	4,47	0,85	3,337	,001*
		State	3,80	1,15		
5.	How useful would the CEFR be outside class/in other contexts?	Private	4,29	0,89	2,932	,004*
		State	3,64	1,27		

Significant differences are found in all of the expressions favoring the teachers who work at private institutions. According to the teachers working at private schools, the CEFR is found to be more useful in teaching contexts such as production of teaching materials, testing, curriculum and syllabus development. Likewise, EFL teachers working at private institutions think the CEFR would be useful in in-service teacher training. Our findings are in line with the findings of Sülü&Kır (2014) in that practical knowledge about the CEFR should be supported by in-service teacher training programs. The findings above suggest that teachers at private institutions are more likely to have innovative method designs of language teaching.

5. Conclusion

The present study investigated EFL teachers' perceptions about the 'Common European Framework of Reference for Languages'. The researchers particularly aimed to reveal if there is any significant difference between EFL teachers working at state and private schools. Researchers were also interested in the differing perceptions related to participant teachers' socio-demographic characteristics such as gender, year of experience, academic degree, department they graduated from, level of the school they work at.

The results of the study revealed that the majority of EFL teachers had general knowledge aboutthe CEFR. More specifically, most of the EFL teachers working at private schools took course or got training concerning the CEFR; had sufficient amount of knowledge about the CEFR; consider CEFR as having an impact on course books used to teach English, on tests implemented at their schools, on language teaching techniques used at their schools. However, most of EFL teachers working at state schools remained undecided with the items

mentioned above. Participants were asked to what extent they found the implementation of the CEFR useful in curriculum and syllabus development, testing, production of language teaching materials. Compared to the EFL teachers at state schools, the ones working at private schools have more knowledge about the CEFR. A possible explanation for this may be that the private sector is more demanding and teachers might get training on specific issues such as the CEFR. However, in state institutions job security is at higher levels, which might be counterproductive as the teachers might make less effort to grow professionally.

The results were also examined in terms of participants' socio-demographic characteristics. The results showed that novice teachers are more aware of the impact of the CEFR on the tests implemented at their schools. Moreover, EFL teachers having their MA or Phd degrees have more knowledge about the CEFR than teachers working at primary level of schools, which refers to first 4 years in the new educational program in Turkey, were found to be more aware of the impact of CEFR on tests, on language teaching materials and they thought that the teaching program was the CEFR specific. The researchers also found that there was no significant difference regarding EFL teachers' gender, department they graduated from or the level of students they are teaching.

In conclusion, the results of the survey show that the CEFR should have a place in both pre-service teacher training and in-service teacher training. EFL teachers working at the state schools should be provided more opportunities to get in-service teachers training about the CEFR. How to use the CEFR as a tool in preparing tests, developing materials and designing syllabus is another dimension that should be taken into account. EFL teachers can be trained in these specific areas in order to utilize the CEFR in their teaching environment.

The study offers some implications for Language Teacher Education (LTE) as CEFR related courses are not conducted sufficiently in undergraduate programs. Hence, language teachers who do not have the opportunity to continue their education with a post-graduate program cannot fully master how to implement the CEFR in their teaching context. What is more, as this study reveals, working at a state school might inhibit the professional growth of these language teachers as there is paucity of in-service teacher training. To this end, teacher training programs could be restarted by the Ministry of Education and could be made generalized around Turkey.

References

Alderson, J. C. (2007). The CEFR and the need for more research. *The Modern Language Journal, 91,659-663.*

Byrnes, H. (2007). Perspectives. *The Modern Language Journal, 91, 641-645.*

Cephe, P.T., & Asik, A. (2016). *CEFR and foreign language teaching in Turkey.* Current trends in ELT. Ankara: Nüans Publishing.

Council of Europe. (2001). *Common European Framework of Reference for Languages: Learning, teaching, assessment.* Cambridge: CUP.

Council of Europe. (2006). *Plurilingual Education in Europe: 50 years of International Cooperation.* Council of Europe, Language Policy Division. Strasbourg: available at https://www.coe.int/t/dg4/linguiatic/Source/Plurilingualeducation_EN.pdf

Çağatay, S., & Gürocak, F. Ü. (2016). Is CEFR really over there? *Procedia-Social and Educational Sciences, 232, 705-712.*

Çakır, A., &Balçıkanlı, C. (2012). The use of the EPOSTL to foster teacher autonomy: ELT student teachers' and teacher trainer's views. *Australian Journal of Teacher Education, 37, 1-16.*

Dörnyei, Z. (2007). *Research methods in applied linguistics.* New York: Oxford University Press.

Hismanoglu, M. (2013). Does English language teacher education curriculum promote CEFR awareness of prospective EFL teachers? *Procedia-Social and Educational Sciences, 93, 938-945.*

Kınsız, M., & Aydın, H. (2008). Yükseköğretimde yabancı dil öğrenim ve öğretim sorunun değerlendirilmesi ve yabancı dil politikası üzerine düşünceler. *Yabancı Dil Bölümleri ve Yüksekokulların Yabancı Dil Öğretimindeki Sorunları Kurultayı*. Muğla Üniversitesi, 7-9 Mayıs, (71-82).

Kır, E. (2011). *Language teacher education within the context of CEFR and applications in Turkey*. Unpublished doctoral dissertation, Ankara University, Ankara.

Little, D. (2007). The Common European Framework of Reference for Language Perspectives on the making of supranational language education policy. *The Modern Language Journal, 91, 645-655.*

Little, D. (2006). The Common European Framework of Reference for Languages: Content, purpose, origin, reception and impact. *Language Teaching, 39, 167-190.*

Little, D. (2005). The Common European Framework and The European Language Portfolio: involving learners and their judgements in the assessment process. *Language Testing, 22(3), 321-336.*

Maden, S., Ere, N., & Yiğit, C. (2009). Yükseköğretim hazırlık sınıfı yabancı dil seviye tespit (yeterlik) sınavlarının karşılaştırılması ve Avrupa ortak başvuru metni (CEF) ölçütlerine uygunluklarının araştırılması, *I. Uluslararası Türkiye Eğitim Araştırmaları Kongresi,* 1–3 Mayıs, (74-89).

Mirici, İ. H. (2015). Contemporary ELT practices across Europe and in Turkey. *International Journal of Academy, 3(4), 1-8.*

MONE. (2013). İlköğretim Kurumları (İlkokullar ve Ortaokullar) İngilizce Dersi Öğretim Programı (2,3,4,5,6,7,8. Sınıflar). Available at http://ttkb.meb.gov.tr/www/guncellenen-Fogretim-programlari/icerik/151.

Newby, D., Allan, R., Fenner, A-B, Jones, B., Komorowska, H., & Soghikyan, K. (2007). *European Portfolio for Student Teachers of Languages. Strasbourg:* Council of Europe Publishing.

North, B. (2007). The CEFR illustrative descriptor scales. *The Modern Language Journal, 91, 656-659.*

Sülü, A., &Kır, E. (2014). Language teachers' views on CEFR. *International Online Journal of education and Teaching (IOJET), 1*(5), 358-364. Available at http://iojet.org/index.php/IOJET/article /view/69/97

Tekin, H. (1996). Eğitimde ölçme ve değerlendirme. Ankara: Yargı Yayınları.

Bayram, İ., & Canaran, Ö. (2018). Reflections on a teacher-led CPD model for EFL teachers. *International Online Journal of Education and Teaching (IOJET)*, *5*(2), 419-431. http://iojet.org/index.php/IOJET/article/view/406/244

Received:	19.01.2018
Received in revised form:	20.02.2018
Accepted:	01.03.2018

REFLECTIONS ON A TEACHER-LED CPD MODEL FOR EFL TEACHERS

İlknur Bayram

University of Turkish Aeronautical Association (UTAA)

ilknrbyrm@gmail.com

Özlem Canaran

University of Turkish Aeronautical Association (UTAA)

ocanaran@thk.edu.tr

İlknur Bayram currently works as the vice chairperson of academic affairs at the department of foreign languages at UTAA and has a PhD in Curriculum Development. Her research interests are teacher professional development, lesson study, curriculum development and evaluation.

Özlem Canaran currently works as the head of the department of foreign languages at UTAA. She has a PhD in ELT. Her research interests are team teaching, continuous professional development and curriculum development.

REFLECTIONS ON A TEACHER-LED CPD MODEL FOR EFL TEACHERS

İlknur Bayram
ilknrbyrm@gmail.com

Özlem Canaran
ocanaran@thk.edu.tr

Abstract

This qualitative case study aims to explore English as a Foreign Language (EFL) teachers' reflections of a teacher-led professional development (CPD) model conducted at the department of foreign languages of a foundation university in Turkey. It also aims to find out what implications this model might have for the professional development of teachers. The entire population of 35 EFL teachers took part in the study. Data were collected through observations, focus group interviews, document analysis and an evaluation survey. All the qualitative data were interpreted and coded through content analysis. Results of the study revealed that teachers reflected mostly on the process of the model, its implications for their professional development and their suggestions for future CPD practices.

Keywords: EFL teachers, teacher-led professional development, qualitative case study

1. Introduction

Professional development of English language teachers has always been an important issue due to the fact that the field of language teaching is subject to rapid changes (Richards & Farrell, 2005) which inevitably affects the way teachers teach. For teachers to keep up with these changes and vary their teaching methods, they need to update their knowledge and skills in language teaching. Therefore, they need CPD opportunities. However, it is a well-known fact that traditional professional development activities often provide insufficient opportunities for teacher learning (Atay, 2007; Fiszer, 2004). What is rightly termed by Fiszer (2004, p.5) as "prepackaged professional development" with a "quick-fix" mentality seems to be of limited value for teachers who experience issues with their classroom practices and are in need of special solutions relating to their own teaching context (Küçüksüleymanoğlu, 2006). CPD models which regard teachers as "consumers of knowledge" (Borg, 2015, p.5) have several drawbacks. When teachers are offered a professional development opportunity that is conveyed by means of top-down teacher training strategies, the result is lack of ownership of the program (Korkmazgil & Seferoğlu, 2013; Uysal 2012) because as pointed out by Diaz-Maggioli (2004, p.2) "teachers rightly question their investment in programs that were built behind their backs yet are aimed at changing the way they do things."

To change this tendency to design CPD in an externally-driven way, it seems obvious that we need to create a school culture that supports teacher-led professional development. Schools need to provide their teachers with a rich and varied ongoing program of activities which will support them to reflect upon and develop their own practice. (Allison, 2014). Borko, Jacobs and Koellner (2010) highlight that if we want schools to offer more powerful learning opportunities for students, we must offer more powerful learning opportunities for teachers. In their article, Stein, Smith and Silver (1999) contrast old paradigms for

professional development with new paradigms and they emphasize that there needs to be a shift from one-shot, externally driven practices to contemporary ones that aim to help teachers to better understand subject matter, pedagogy, and student thinking. Current literature on CPD puts great emphasis on models that enable teachers to work collaboratively and construct knowledge to be used in their own context (Borko et al., 2010). Therefore, it seems obvious that instead of more CPD practices in which teachers are conceived as "consumers of knowledge", we are in need of CPD opportunities which regard teachers as "knowledge generators" and help them develop themselves as such professionals (Borg, 2015, p. 5). Reviews of literature *(*Ashburn, 1995; Harris & Anthony, 2001; Richards & Farrell, 2005) have suggested that for CPD practices to achieve this, they should have the following characteristics;

- Relevant to the needs of the teachers and students,
- Focused on student learning,
- Job-embedded,
- Research-oriented,
- Collaborative,
- Reflective

Features listed above are likely to manifest themselves in certain forms of CPD such as Lesson Study, Team Teaching, Action Research, and Reflective Teaching and Learning. As suggested by Tsui and Law (2007) Lesson Study provides teachers with a safe environment where they can work in collaboration, thereby supporting teacher self-efficacy and self-confidence. Similar to Lesson Study, Team Teaching also offers teachers a supportive environment which helps teachers working in teams overcome teacher isolation and foster teacher intellectual development (Goetz, 2000). Action Research, on the other hand, is known to help teachers improve their teaching through reflective, evaluative thinking and practice (Brown & Macatangay, 2002). Richards and Lockhart (1996) highlight the importance of reflective teaching and suggest that if teachers are engaged in activities enabling them to reflect on their classroom practices, they will be in a position to identify the gap between what they teach and what their students learn.

Although much is known about how teachers perceive traditional CPD models, only a few studies mention how teacher-led CPD models are perceived by teachers. Therefore, this qualitative case study aims to explore teachers' reflections of a teacher-led professional development model conducted at the department of foreign languages (DFL) of a privately funded university. It also aims to find out what implications this model might have for the professional development of teachers.

2. Method

When little is known about an issue, a qualitative approach might help a researcher better understand the phenomena in question (Hancock & Algozzine, 2006). Therefore, this study was designed as case study research. Case study which helps researchers investigate a little-understood event, situation or circumstance is a detailed analysis of an individual or a group of people (Fraenkel, Wallen & Hyun, 2012). This qualitative case study was carried out during four academic terms (2015-2017) at the DFL of a foundation university in Turkey. The study aimed to answer the research question "*How do EFL teachers reflect on a teacher-led CPD program*?"

2.1. Research Context and Participants

This study was conducted in a foundation university in Turkey with the participation of 35 EFL teachers who teach general and academic English to undergraduate students at the DFL. The profile of the teachers working at the university is presented in Table 1.

Table 1. *Teacher profile at DFL*

		F	%
Gender	Female	26	74.3
	Male	9	25.7
Age	24 -	8	22.9
	25-29	18	51.4
	30-39	7	20.0
	40 +	2	5.7
Major	English Language Teaching	25	71.4
	English Language & Literature	5	14.3
	Linguistics	1	2.9
	Translation & Interpretation	1	2.9
	American Culture & Literature	1	2.9
	Psychology	1	2.9
	Government & Public Policies	1	2.9
M.A. Degree	In progress	20	57.1
	Completed	8	22.9
	None	7	20.0
Teaching Experience	0-1	7	20.0
	2-4	16	45.7
	5-9	8	22.9
	10 +	4	11.4

Up to 2015, CPD activities at the DFL were externally-driven and delivered in the form of courses, seminars and workshops. The in-house evaluations of those CPD practices revealed that teachers were mostly dissatisfied with the way their professional needs were addressed. Therefore, starting as of the second term of 2015-2016 academic year, a new approach to CPD was adopted in which teachers were encouraged to take responsibility of their own professional learning and development by improving themselves as reflective practitioners. In this approach, teachers were first introduced to four CPD practices; Lesson Study, Team Teaching, Action Research and Reflective Teaching and Learning through introductory courses and provided with additional reading materials so that they could refer to whenever they wanted to learn more about a certain practice. Teachers were, later on, encouraged to choose one practice that they wished to try out during an academic term. Upon choosing a practice, they started working together with a facilitator who provided teachers with necessary assistance and guidance so that they could follow the procedures of the chosen practice. Facilitators were chosen among voluntary experienced teachers who were qualified to offer quality guidance to their colleagues. Teachers working in groups with a facilitator first identified their own professional needs and designed a professional development plan which stated in detail what they wanted to focus on and how they aimed to achieve their professional development goal. Following this, they carried out the procedures of the practice by holding regular meetings and writing reflective reports. At the end of the term, they

presented what they did over the course of the term within the scope of the CPD model they had chosen and reflected on how it helped them improve themselves as professionals. Teacher presentations were shared with the rest of the teaching staff at an in-house event called ELT Fusion named and organized by teachers themselves. Figure 1 outlines the process a teacher goes through each term.

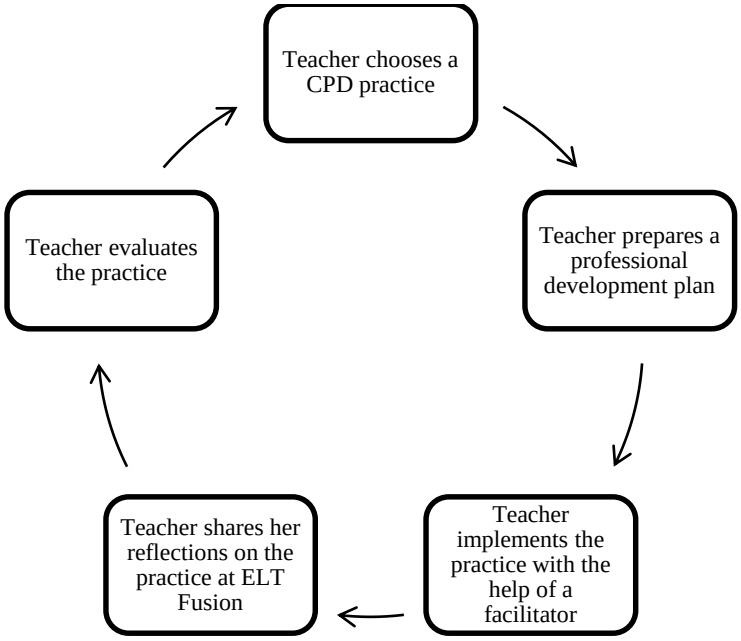


Figure 1. The process of the teacher-led CPD model

2.2. Data Collection and Analysis

Data for the study were collected through observations, focus group interviews, document analysis and an evaluation survey. Researchers in this study either facilitated some of the four CPD practices or observed a facilitator helping their colleagues carry out the practice. During the implementation of the practice, teachers wrote reflective reports which were archived by the researchers. At the end of each term, focus groups interviews were held with voluntary teachers. These meetings were audio recorded and transcribed later on. In addition to focus group interviews, an evaluation survey designed by researchers were conducted as soon as the ELT Fusion was over. Data from these surveys were also analyzed. Figure 2 shows the data collection process.

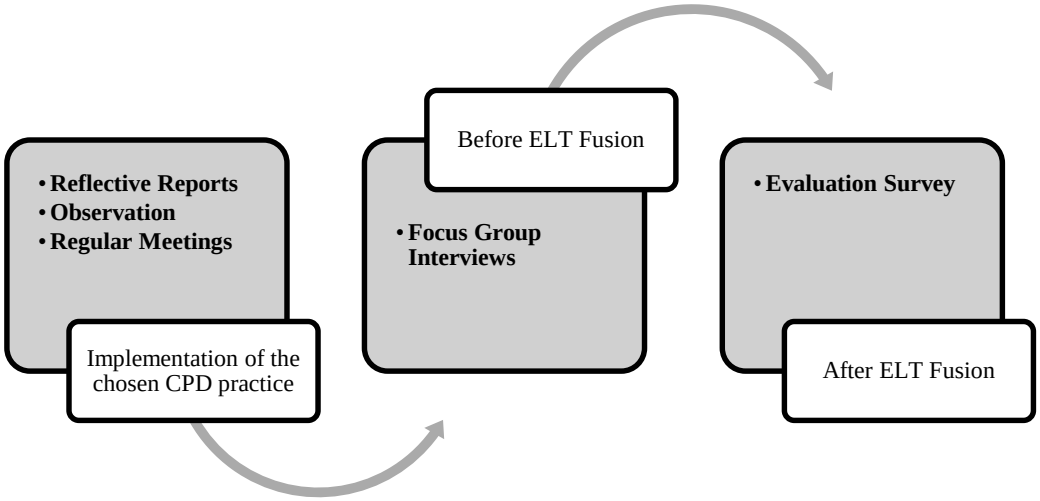


Figure 2. Data collection process

All data gathered throughout the study were combined and made ready for analysis. Two copies of the data set were made and each set was separately analyzed by the researchers with MAXQDA10 through repeated readings. Upon deciding on the emerging codes and categories, researchers determined the common themes linked to the research question. The codes, categories, themes and quotations were shared with the participants and they were asked if they agreed with the findings of the study.

3. Findings and Discussion

The analysis of the qualitative data revealed that teachers' responses could be grouped under three headings: *reflections on the process of the model*, *reflections on professional development* and *suggestions for future CPD practices.*

3.1. Reflections on the Process

The findings of the study indicated that almost every teacher expressed his/her views regarding the proper implementation of the whole CPD model. Analysis of the data revealed that most of the teachers reflected on the guidance they took from the facilitator and the weekly meetings regularly held with either the facilitator or other group members, acknowledging that these meetings considerably benefitted them in terms of their professional development.

The Facilitator's Guidance. Data analysis showed that the teachers found the facilitator's guidance on the process very helpful as for introducing the CPD practice and related theory, organizing the meetings, helping them with time management and lesson planning. In response to the question *"Do you think the process was handled properly in terms of the guidance you received?"* many teachers stated that the facilitator played an important role throughout the process. For instance, one teacher who participated in Reflective Teaching and Learning remarked that the facilitator with both her attitude and knowledge provided the teacher with sufficient guidance to implement the process properly. She said:

> *My facilitator had such an attitude that she made me go further and motivated all the time with her leading and guiding feedback. Also, she did not interfere in my lessons while recording the lesson.*

> *Being just as an observer, she did not affect my teaching much in the class. Moreover, by giving me really useful and to the point articles she led me to improve myself both theoretically and practically. (Teacher 1, Reflective Teaching and Learning)*
>
> *I believe that the process was handled properly during the term in relation to guidance I received because in this process, my facilitator was a great supporter, problem-solver, collaborator, coach, and a trustworthy listener for me. Thanks to her guidance, I didn't experience any problem. (Teacher 17, Lesson Study)*

Moreover, the findings suggested that the feedback and guidance received during the process facilitated lesson planning and in-class teaching for some teachers. The following are typical of the teachers' reflections on the facilitator's guidance:

> *I think that the process was handled properly thanks to the facilitator of our team. During the term, we held meetings and gave feedback to each other every week. With the help of the guidance of my facilitator during the meetings, we could plan our next lesson well. (Teacher 3, Team Teaching)*
>
> *She [the facilitator] supported me in my practice and shared her experiences with me. She also helped me to internalize what I've learned and to apply it in my own classroom. (Teacher 17, Lesson Study)*

It should be noted that the terms "facilitator" and "mentor" have been used interchangeably by the teachers in our study. Thus, these findings confirm the claims of those (Guskey, 2002; Kennedy, 2005; Malderez & Bodoczky, 1999) who suggest that mentors in CPD programs can become role models, supporters and educators with great potential to inspire, show and encourage teachers to accomplish their professional targets. A non-threatening environment and a mentor with good communication skills can help establish a productive professional relationship between the teacher and mentor.

Collegiality through Weekly Meetings. The data indicated that the meetings that were held regularly during the term were found useful by the teachers in helping them to keep the process going in a more organized way, give feedback to each other, share ideas as well as planning the next lesson with the help of the reflective discussions. A teacher in the Action Research team reflected on the weekly meetings stating that "*We had meetings during which we planned every step, prepared lesson plans and reflected on our experience in detail*". It emerged from the findings that the teachers benefitted from the meetings particularly in terms of their contribution to initiating reflection, raising their awareness of their strengths and weaknesses, developing their teaching skills in addition to planning the next lesson. Another teacher who did Team Teaching remarked that "*In the meetings, we gave a lot of valuable feedback to each other and this helped me become aware of my abilities and the areas that need improvement*". Similarly, one of the teachers who took part in Lesson Study mentioned that the meetings were helpful for her to improve her teaching skills due to the guidance received in the meetings from the peers and facilitator. She said that "*All the time, the process was facilitated by the guidance I received. Both peer meetings and facilitator meetings helped me a lot to enhance my teaching skills. Our meetings helped me in terms of sharing ideas and finding new ones*".

It appears that collegial support and reflective discussions with peers in the weekly meetings affected the teachers in several ways. This finding is consistent with many of the characteristics that Borg (2015) suggests regarding the principles of effective CPD programs. Borg (2015) highlights that effective CPD should enable teachers to work together, get involved in decision-making and do classroom-based research. Thus, programs which incorporate reflection groups can offer teachers opportunities for collaboration, exploration and reflection with special consideration for practices and beliefs. Accordingly, the weekly meetings in the program seemed to provide conditions where the teachers were able to develop collaborative, reflective and practical thinking and practices that helped with their classroom instruction.

3.2. Reflections on Professional Development

Data analysis revealed three areas with which the teachers acknowledged the progress they made as a result of the CPD practice. The findings revealed that the teachers associated their professional development with *self-reflection*, *teacher collaboration* and *improvement in teaching practice.*

Self-reflection. The findings of the study suggested that the CPD practice in which the teachers participated provided them with the opportunity to question their strengths and weaknesses through reflection. The teachers drew attention to the development in their teaching practice as a consequence of becoming aware of the areas they were really good at as well as the areas which needed more attention and improvement. One of the teachers who had her lessons video-recorded confirmed this by saying that "*I had a chance to observe myself [my lesson] several times. Getting ideas and comments on my lesson from my facilitator and peers made me aware of my weaknesses and reflect on my teaching as a teacher*". The following comments are also consistent with the previous comment:

> *I am now more aware of who I am and how I teach in the classroom. I can say that this program has broadened my horizons by providing me with details about my idea of teaching. (Teacher 8, Reflective Teaching and Learning)*
>
> *My awareness about my teaching skills, strengths and weaknesses has increased. Now, after each lesson I reflect on my teaching; for example, I ask myself if I could give clear and effective instructions in my lesson. (Teacher 15, Reflective Teaching and Learning Program)*
>
> *This experience helped me a lot in terms of being a more aware teacher. To know myself more as a teacher made me worried in the very beginning. However, it gradually started to make me feel good to focus on something that I need to improve. I watched myself as an outsider and I realized my teaching habits, which makes me more aware, again. (Teacher 21, Action Research)*

The results also showed that the procedures followed in the whole CPD model triggered self-reflection by leading the teachers to think about their teaching practice and what actions to take for the next class. Reflection seemed to be activated particularly by self-observation and peer observation. To demonstrate, two of the teachers spoke about this as follows:

> *I believe self-observation has raised my consciousness about what is going on in the classroom. This experience gave me the chance to reflect on my lessons and monitor them. Therefore, I was able to evaluate my teaching after watching the video recording. (Teacher 4, Reflective Teaching and Learning)*
>
> *By observing my teammates, I was encouraged to think about my instruction and teaching practices before going forward to the next step (Teacher 6, Team Teaching)*

Data revealed that the teachers' ascribed development of self-reflection mostly to the self and peer observation, which seemed to expand their awareness of their strengths and weaknesses regarding their instructional process. In line with this, the literature (Gün, 2010; Richards, 1990; Richards& Farrell, 2005;) confirms that self-observation can help with critical reflection about the teacher's work and assists teachers in better understanding of their instructional practices by closing the gap between what they actually do and what they think they do. Moreover, peer observation is likely to activate reflection about one's own teaching where the observer and/or mentor might give an impersonal view of the lesson and collect information the teacher might not be able to collect on her own.

Teacher Collaboration. Some teachers remarked that the CPD practice encouraged collaboration among their colleagues. Particularly, those who performed CPD practices such as Action Research, Lesson Study and Team Teaching mentioned that teacher collaboration with respect to observing each other's lessons, co-planning, teaching and evaluating was fostered. The teachers reflected that collaboration also influenced how well the procedures

were implemented in the group. Effective implementation of the practice was attributed to the good collaboration among colleagues. One of the teachers asserted that "*as we had very good collaboration in our group, we carried out all the procedures well*". In the same vein, another teacher spoke about the development of collaborative skills by means of the CPD practice she implemented as follows:

> *This process was very helpful for me to develop collaborative skills since our study was completely a product of our teamwork. This CPD activity also served as a peer-observation. My colleagues visited my class, observed my teaching, my students' performance as well as the flow of the lesson. After the lesson, the debriefing session that we had altogether made me reflect on how I taught as well as how the lesson went. (Teacher 23, Lesson Study)*

In addition, another teacher who did Team Teaching reflected on how the CPD practice ended up with enhanced collaboration although she had hard time getting used to collaborative work at the beginning of the semester. She said:

> *Although it was a bit difficult to get used to working as a team at the beginning especially in planning, it turned into an effective collaboration in the second and last lessons, not only in planning but also in class. We were supporting and complementing each other naturally while preparing the lesson plans or managing the lesson itself. (Teacher 30, Team Teaching)*

This is in line with the literature on effective professional development activities (Borg, 2015; Broad & Evans, 2006; Daloğlu, 2004; Harris & Anthony, 2001; Rose & Reynolds, 2009;) all of which include teacher collaboration as one of the key elements that can unite teachers for a common purpose, help them learn from each other, share decision making and solve problems together. Within a collaborative school culture, teachers are believed to attempt learning more as well as gathering and sharing data on teaching and learning. It is emphasized that collaboration, peer support and reflective practice are important for "school change, the quality of instruction, student achievement, and a more professional learning community" (Şahin, 2011, p.602) in addition to teachers' professional development.

Improving teaching practice. The data from the study indicated that many teachers reflected on improvement in their teaching practice regarding giving instructions, designing creative materials, teacher talking time and checking understanding. The teachers mentioned that lesson observations, receiving feedback from their peers and the facilitator's guidance assisted in raising their awareness of how to manage the lesson more effectively. One of the teachers who took part in Reflective Teaching and Learning spoke about the improvement in his teaching practice as follows:

> *Reflective Teaching helped me to see some of the weaknesses in my teaching from another point of view and we worked on these problems with my facilitator. I could realize the problems in my instructions and I guess I could make some improvement in giving clear and specific instructions. I can also say that this experience helped me prepare more student-centered activities. In the future, I will make some adaptations to the activities in the course book and bring more enjoyable activities from time to time rather than teaching merely from the course book. (Teacher 22, Reflective Teaching and Learning)*

This finding was confirmed by another teacher who agreed that she received a lot of help from her facilitator with respect to giving instructions and put what she learned and read into practice in her lessons. She said:

> *First of all, I focused on the certain teaching areas that I need help and improvement. I did lots of readings and learned new techniques that can be used in the class in an effective way and I implemented them in the class. More specifically, I thought more and more and reflected on the area of giving instructions. With the help of my mentor, I learned some strategies and things to keep in mind while giving instructions. I tried to implement them in the class and saw the effectiveness of them and I became more and more aware of the importance of giving instructions. (Teacher 14, Lesson Study)*

Another teacher Team Teaching for three months expressed her improvement in reducing teacher talking time and how she accomplished this stating that:

> *I believe I became better at arranging my talking time. To illustrate this, when my partner had the mentioned issue, I preferred not to talk more to balance the talking time in class. (Teacher 3, Team Teaching)*

In addition, improvement in checking understanding was pointed out by some of the teachers who acknowledged showing progress in this particular area as follows:

> *Probably, most of us proceed with the next section [in a lesson] without checking students' understanding as we go through the stages regardless of the allocated time for that stage. I used to proceed without checking, though I could manage a good transition. Now, this study taught me how important checking understanding is, otherwise you cannot entirely ensure students' learning. (Teacher 29, Reflective Teaching and Learning)*

One of the teachers referred to checking understanding as "evidence of learning" and she wrote with regard to her development in this area as "*another point I realized was that checking the students' understanding was an indispensable part of this process as it was the evidence of learning, but I was not aware of that crucial fact before the practice*". All these comments indicate that the CPD practices provided the teachers with the chance to focus on their teaching (Richards & Farrell, 2005), which also led to an increase in their pedagogical knowledge (Cordingley, Bell, Rundell & Evans, 2003). Particularly, by doing self-observation and peer observation, the teachers seemed to gather data about teaching and classroom processes and have an opportunity to get feedback on their own teaching. According to Meirink, Meijer & Verloop (2007), teachers, by sharing knowledge and experience, can change, adjust or improve their teaching practice as well as extending and supplementing their own beliefs.

3.3. Suggestions for Future CPD Practices

In response to the question "*How do you think ELT Fusion would be improved for future events?",* it was found that most of the teachers were dissatisfied with the number of reflective reports they were supposed to write during the term. The findings suggested that a lot of paperwork was demotivating and time consuming for the teachers besides their daily teaching load. Reflecting on how this practice could be improved, one teacher said that "*If we can simplify the paperwork about the process and conduct it in a more informal way, it would be better; with this way, I believe I can benefit it more*." In line with this, two other teachers focused on the necessity for more flexibility regarding reflective reports and all other paperwork, complaining about the workload they already had in their teaching routine. They said:

> *Those studies should be more flexible and it would be much better and motivating if the workload of the CPD activities such as paperwork, reflection forms can be reduced since we have a lot of things to be considered during the periods in terms of lessons. (Teacher 2, Team Teaching)*

> *The procedures of the program should be flexible. There is lots of paperwork. We have done a detailed study and written a very detailed report in a short time in the end as if we prepared a thesis. Thus, this causes so much workload especially during the academic semester while we had 20 hours of teaching load a week. (Teacher 7, Lesson Study)*

For many teachers, daily workload is inherent in their profession; therefore, sharing good practice with colleagues and applying it in their lessons might not be of great value when their workload is considered (Galton & Pell, 2009; Richards & Farrell, 2005). To avoid this, the number of the additional paperwork in the CPD programs might be reduced and teachers' suggestions for future practice should be taken into consideration so that they will not feel discouraged by the amount of the work they are supposed to complete during the process.

4. Implications for Future Practice

The findings of our study can make contribution to the planning, implementation and evaluation of the future teacher-led CPD models for in-service teachers. The findings reveal that it is important for teachers to be supported throughout the process by a facilitator or a mentor who may assist with her professional expertise as well as listening and encouraging teachers to achieve their professional goals. Within the scope of a teacher-led CPD model, it is understood that the teachers in our study appreciated the mentor support during the process as well as their agreeable and understanding attitude towards them. Thus, teacher trainers or those who are in charge of running CPD programs in schools should consider integrating mentoring system into their current CPD activities, particularly to support novice teachers along the way with assistance from a more knowledgeable person.

It also seems that the collegiality through weekly meetings in the program paved the way for raising teachers' awareness, encouraging reflective discussions, co-planning of the lessons and keeping the process going in a more organized way. This highlights that meetings can provide the conditions for more collegial sharing, support and empathy between colleagues as long as they are conducive to teachers' schedule for their participation. Therefore, we recommend that in either individual or collaborative CPD activities, facilitators, teacher trainers or teachers themselves hold regular meetings with their colleagues to establish a platform where they can listen to each other, share ideas and practice in addition to solving problems together. This might also help enhance collaboration and solidarity among the staff.

The findings demonstrate that the teacher-led CPD model that we designed and implemented within the context of our study can trigger self-reflection, encourage teacher collaboration and improve teaching practice. Since all of these outcomes are regarded as the essential elements of effective CPD programs, we can suggest that teacher trainers, mentors or administrators in other schools design similar in-house CPD programs with respect to the immediate needs of their teachers, resources and contextual realities. Since teachers' voluntariness and active participation is a must for all professional development, we believe that teachers should be involved in the decision-making process while designing, implementing and evaluating such programs. Moreover, teacher feedback regarding the process, practice and outcomes of the program should regularly and objectively be taken in order to design future programs in light of their views. This would also demonstrate that teachers' opinions are valued, respected and appreciated for the creation of a future program.

We also know that professional development requires motivation, time and effort of all those who are involved in the process. In addition to teachers' daily teaching load, participation to a CPD program and its requirements may pose another challenge to teachers among many other responsibilities. Taking this fact into consideration, we suggest that CPD practices should be designed in a way that would keep the balance between teachers' daily teaching workload and the workload required to participate in professional development activities.

It should also be noted that regardless of the role taken during the process- a teacher, mentor, facilitator or an administrator-, teaching as a profession should be done at the highest quality to foster student learning. To achieve quality, CPD is the key that would lead to excellence in profession. However, before initiating any CPD model or program, we believe that schools should primarily aim at creating their own professional development philosophy with the participation of teachers in decision-making and evaluation processes. This collectively established philosophy would gradually form a sound basis for all the other teaching and learning activities carried out in a school environment.

5. Conclusion

This case study examines how 35 in-service EFL teachers reflect on the teacher-led CPD model conducted at a foundation university in Turkey for four academic terms. The results suggest that the teachers' reflections on the CPD program gathered around the implementation of the model with respect to the guidance received from the facilitator and the collegiality through weekly meetings. The results further suggest that the teachers reflected on the model's contribution to their professional development as for enhancing self-reflection, collaboration in addition to improving their teaching practice. Finally, this study highlights the teachers' suggestions regarding the implementation of the future CPD activities that recommend a reduced number of reflective reports which seemed to put additional burden on teachers' daily workload in school.

References

Allison, S. (2014). *Perfect teacher-led CPD.* UK: Independent Thinking Press.

Ashburn, E. (1995) Teacher-led inquiry: A compelling direction for the education of teachers. *Action in Teacher Education, 17*(3), 79-86.

Atay, D. (2007). Teacher research for professional development. *ELT Journal, 2*(62), 139-147.

Borg, S. (Ed.). (2015). *Professional development for English language teachers: Perspectives from higher education in Turkey*. Ankara: British Council.

Borko, H., Jacobs, J., & Koellner, K. (2010). Contemporary approaches to teacher professional development. *International Encyclopedia of Education,* 7, 548-556.

Broad, K., & Evans, M. (2006*). A review of literature on professional development content and delivery modes for experienced teachers*. Technical Report. Toronto, ON: Ontario Ministry of Education.

Brown, M., & Macatangay, A. (2002). The impact of action research for professional development: Case studies in two Manchester schools. *Westminster Studies in Education, 25*(1), 35-45.

Cordingley, P., Bell, M., Rundell, B., & Evans, D. (2003). *How does CPD affect teaching and learning? Issues in systematic reviewing from a practitioner perspective.* Paper presented at the annual conference of the British Educational Research Association, Edinburgh. Retrieved from http://www.leeds.ac.uk/educol/documents/00003231.htm.

Daloğlu, A. (2004). A professional development program for primary school English language teachers in Turkey: Designing a materials bank. *International Journal of Educational Development,* 24, 677–690.

Diaz-Maggioli, G. (2004). *Teacher centered professional development*. Virginia: Association for Supervision and Curriculum Development.

Fiszer, E. P. (2004). *How teachers learn best: An ongoing professional development model.* USA: Scarecrow Education.

Fraenkel, J. R., Wallen, N.E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (8th Ed.). New York: Mc Graw Hill.

Galton, M., & Pell, T. (2009). Study on small class teaching in primary schools in Hong Kong: Final report. Education Bureau, the Government of the Hong Kong Special Administrative Region of the People's Republic of China.

Goetz, K. (2000). Perspectives on Team Teaching. *E-Gallery: A Peer Reviewed Journal, 1*(4).

Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice, 8*(3), 381-391.

Gün, B. (2010). Quality self-reflection through reflection training. *ELT Journal, 65*(2), 126-135.

Hancock, D. R., & Algozzine, B. (2006). *Doing case study research: A practical guide for beginning researchers.* New York: Teachers College Press.

Harris, D. L., & Anthony, H. M. (2001). Collegiality and its role in teacher development: Perspectives from veteran and novice teachers. *Teacher Development, 5*(3), 371-390.

Kennedy, A. (2005) Models of continuing professional development: A framework for analysis. *Journal of In-Service Education, 31*(2), 235-250.

Korkmazgil, S., & Seferoğlu, G. (2013). Exploring non-native English teachers professional development practices. *Boğaziçi University Journal of Education, 30* (1).

Küçüksüleymanoğlu, R. (2006). In-service training of ELT teachers in Turkey between 1998-2005. *Uludağ Üniversitesi Eğitim Fakültesi Dergisi, 19*(2), 359-369.

Malderez, A., & Bodoczky, C. (1999). *Mentor courses: A resource book for trainer trainers.* Cambridge: Cambridge University Press.

Meirink, J., Meijer, P., & Verloop, N. (2007). A closer look at teachers' individual learning in collaborative settings. *Teachers and Teaching: Theory and Practice, 13*(2), 145-164.

Richards, J. C. (1990). The teacher as self-observer. In J. C. Richards (Ed.), *The language teaching matrix* (pp. 118-143). New York: Cambridge University Press.

Richards, J., & Farrell, T. (2005). *Professional development for language teachers: Strategies for teacher learning.* New York: Cambridge University Press.

Richards, J. C., & Lockhart, C. (1996). *Reflective teaching in second language classrooms.* Cambridge: Cambridge University Press.

Rose, J., & Reynolds, D. (2009). *Teachers continuing professional development: A new approach.* 20th Annual World ICSEI, U.K. Retrieved from www.fmkp.si/zalozba/ISBN/978-961-6573-65-8/219-240.pdf

Sahin, S. (2011). The relationship between instructional leadership style and school culture (Izmir Case). *Educational Sciences: Theory and Practice, 11*(4), 1920-1927.

Stein, M. K., Smith, M. S., & Silver, E. A. (1999). The development of professional developers: Learning to assist teachers in new settings in new ways. *Harvard Educational Review, 69*(3), 237–269.

Tsui, B.M., & Law, D.Y.K. (2007). Learning as boundary-crossing in school-university partnership. *Teaching and Teacher Education,* 23, 1289-1301.

Uysal, H. H. (2012). Evaluation of an in-service training program for primary-school language teachers in Turkey. *Australian Journal of Teacher Education, 37*(7).

Arslan, M. M. (2018). The “safe school” perception of class presidents in secondary school. *International Online Journal of Education and Teaching (IOJET), 5*(2),433-441.
http://iojet.org/index.php/IOJET/article/view/408/245

Received: 20.02.2018
Received in revised form: 10.03.2018
Accepted: 24.03.2018

THE “SAFE SCHOOL” PERCEPTION OF CLASS PRESIDENTS IN SECONDARY SCHOOL

Mehmet Metin Arslan
Kırıkkale University
mehmetmetinarslan1@gmail.com

THE "SAFE SCHOOL" PERCEPTION OF CLASS PRESIDENTS IN SECONDARY SCHOOL

Mehmet Metin Arslan

mehmetmetinarslan1@gmail.com

Abstract

The aim of this research is to reveal the "safe school" perceptions of secondary class presidents. The sample of the study, which is a qualitative research and figured as "phenomenology design", is constituted by eight class president students in vocational and technical secondary schools. The data were collected with a semi-structured interview form consisting of three open-ended questions to determine the opinions of the class presidents. The responses of the participants to the questions in writing were analyzed by descriptive analysis. In the study, the "school safety" perception was examined with the perspective of the class presidents in high schools. Some of the remarkable results of the research can be summarized as follows: The participants reply the question "To what extent is a safe school environment important for you?" such that they generally consider the school's physical, social and psychological environment as problematic. They indicate the importance of solving the problems of these environments in creating a safe school climate. Participants point out to the parent-school cooperation for the question regarding the duties of the school management, staff and students. Some of the participants emphasized the risks arising from the school environment.

Keywords: School safety, safe school, school climate, class presidents

1. Introduction

In recent years, the problem of school safety is not only on the agenda of Turkey, but also on that of all developed and developing countries. A systematic safety approach has been adopted in the national and international studies performed in the context of the strategic objectives of the dimensions of school safety and educational systems and different models have been introduced.

Developed countries carry out substantial researches and develop solution recommendations to the school safety problem, considering that a safe environment in schools is a prerequisite for effective teaching and learning. While the researches on school safety performed in the United States particularly focus on violence and crime prevention, the EU countries have carried out their studies about the topic with a broader perspective, including a safe learning environment and lifelong health and risk-related learning (Srichai, Yodmongkol, Sureephong, & Meksamoot, 2013). This problem is usually regarded as organizationally and executively in Turkey within the scope of physical safety and public order concept; the physical safety concept is reduced to formal characteristics with legal regulations and person protection-oriented safety concept is based on (Akyol, 2015; TEDMEM, 2016).

Evaluating schools as the concept, fact and system, they are open and social organizations such that their individual dimension is more sensitive than their institution dimension, their informal side is stronger than their formal side and their effective area is wider than their authorization area (Özmen & Küçük, 2013). When examining the structure of this organization in terms of its safety, the most remarkable dimensions in the literature are physical, social, environmental and psychological. A general definition of a safe school is a

supportive definition realized to perform school's educational mission by providing a positive environment, enabling students, teachers, and staff to interact without fear or threat and encouraging personal growth (Butcher & Manning, 2005).School safety is not only limited to the school environment but also includes all phases of the school between the time interval when the internal stakeholders of the school, especially students leave their home to reach the school and when they return back to their home (Memduhoğlu & Taşdan, 2008).

In theoretical sense, the concept of school safety can be evaluated in two categories in order to try to reduce the risk factors and contribute to the development of the school by making it an attraction center (Çetinkaya, 2009). OECD (Organization for Economic Co-operation and Development) countries came together in an international conference on "School Safety and Security" held in Paris to discuss how best to ensure that school is a safe learning place. In this conference, the "school safety" topic was discussed under the headings, including *the focus on safety and risk assessment in schools, crisis planning and management, infrastructure approaches to school safety, cooperative approaches to school safety, school safety education, teaching and support approaches*. In this meeting, where rich experience and diversity was shared, the following points were pointed out in the reports of working groups (OECD, 2003): (1) Reporting of safety and safety risk assessment in schools, (2) Obtaining a student opinion on planning emergency cases, (3) Identification of infrastructure approaches for school safety and the boundaries of all schools, (4) Taking preventive measures against school safety with collaboration, establishing priorities and implementing measures to combat problems.

When the development of school safety fact in Turkey is considered, it is seen that there have been studies performed in a national and international dimension. The Prime Ministry Disaster and Emergency Management Presidency (2014) prepared the "School Safety Global Initiative Project" within the scope of the School Safety Global Initiative to share disaster risk reduction activities with the world public opinion. Turkey, which has been declared as **Leader Country at School Safety** by the United Nations, is leading five countries (Macedonia, Bosnia and Herzegovina, Albania, Serbia and Bulgaria) within the scope of Global School Safety Initiative Project (AFAD, 2014).

When the studies on school safety are examined, it is seen that the number of researches done in recent years has increased.

In a study carried out by Karakütük, Özbal and Sağlam (2017) to determine the practices of the school management performed for providing school safety in Turkey, the opinions of teachers and headmasters were received. In accordance with these opinions, among the safety systems applied in schools, "video surveillance system" and "observing the school over the Internet" were found to be the most applied safety system. It was implied that the use of cameras in teaching environments for the supervision of teachers was a topic that should be discussed by researchers. It was also pointed out that school administrators should be the pioneer such that school management and teachers should take decisions cooperatively and act together on school safety. Gülbaz (2016), who performed a similar study, evaluated the concept of school safety in the context of sub-dimensions and found the following results:

In relation to physical security, the entrance and exit doors of the school is insufficient, there are no fire exit doors, corridor and stairs are narrow, garden walls are inadequate,

In terms of violence, verbal, physical and psychological violence is applied to the students by some teachers and the most important reason for the violence committed by students against each other is family,

Regarding transportation safety, school services do not comply with the regulations, and a large majority of students, who walk to school, go to schools alone,

In terms of nutrition and food safety, canteens sell insanitary foods; parents have low awareness of nutritional health,

In relation to out of school threats, no record is kept during the entry into and exit from schools, camera systems are in blind spots, the majority of the schools do not have security guards, the number of hall monitor is not sufficient,

In the case of natural disasters and fire safety, schools are not ready for catastrophes such as natural disasters and fires and the training and exercises about this topic are insufficient.

In the research performed by Alver, Adıgüzel and Öztürk (2016), the school climate was investigated. In this study, the school climate perception of these schools selected according to the protocol signed with the Istanbul Provincial Directorate of National Education within the scope of "Safe School Project" was analyzed according to teacher, student, region and class levels. School climate perceptions of teachers and students were determined to be positive, it was determined that there were various disagreements when the school climate perception was analyzed according to regions and class levels. As a result, it is observed that the negativities of students, teachers and school staff caused by their surroundings and experienced outside of school, do not affect their focus on education and teaching.

Akyol (2015) investigated school safety in terms of physical and psychological aspects in his research on examining the domestic and overseas studies performed on school safety. The remarkable results of the research are as follows:

- As a result of some studies carried out in Turkey, the food sold in and around the school is not fully reliable and the supervisions are insufficient,
- The security guards in the school are insufficient in providing the security and they do not fully know their duties and responsibilities,
- Schools are not ready for extraordinary situations,
- Although there are widespread physical security measures at schools, there is no significant measure taken for psychological security measures,
- Students have problems about sharing violence incidents with teachers.

The opinions of high school administrators were determined and evaluated in a study carried out by Çankaya, Yücel, Tan and Demirkol (2014) regarding the regulation of the same type of high schools located in provincial centers as educational campuses in terms of security. The views of administrators obtained by analyzing the data can be summarized as follows: Administrators cared about educational campuses in terms of space and student safety. They noted the importance of popularization of campus schools in terms of accessibility, the reduction of expenditures on public transport services and school safety. They pointed out that the quality of food and accommodation provided for teachers and students and health care services would increase with school campuses. In addition, they predicted that the quality of education, health, social and basic needs services to be provided to the internal stakeholders of high schools would increase as a result of increasing the space and student safety.

In a study conducted by Turhan and Turan (2012), the findings obtained by analyzing the data based on the opinions of teachers, students, administrators and parents are as follows:

• Food sold in school canteens and around schools is not reliable and canteen supervisions are inadequate,
• The security guards at the school are inadequate in providing security,
• Schools are not adequately prepared for any disaster case,
• Alcohol, cigarettes, etc. are sold intensively around the school regardless of age.

In addition to the studies briefly summarized above, this issue is considered as an area where it is on the agenda of Ministry of National Education, which continues its studies on this topic. In fact, evaluating the decisions on "School Safety" discussed on the agenda of 19th National Education Council (2014), in recent years, it stands out that the safe school concept in Turkey has been on the agenda of education system. *In the aforementioned council, the importance and value of continuing education of the children in the age of education in Turkey in a safe school climate has been discussed. It has been agreed that a comprehensive school safety action plan should be prepared for each school in order to solve and prevent the safety problems in schools. It was concluded that studies would be performed on providing physical and psychological security in schools.*

In this context, the main purpose of the study is to reveal safe school perceptions of the class presidents of secondary schools. In the study, for the motivation, success and contribution of the class to the school, answers were sought to the following questions by interviewing class presidents who function as a class voice and representative in the class-school management and class-teacher coordination.

1. How important is a safe school environment to you? Could you share your opinions on the subject?

2- What are the duties of the school administration and its staff to make your school safer?

3- What are the duties of the students (yours) to make your school a safer and non-violent environment?

2. Method

This study was designed as “phenomenology design” being a qualitative research design. Phenomenology design is an approach that focuses on events we are aware of but do not have an in-depth and detailed understanding. In this approach, it is generally aimed to reveal and interpret individual perceptions and perspectives related to a certain phenomenon (Yıldırım and Şimşek, 2008). The case studied with this research is “school safety”. School safety was tried to be examined by the perspective of the students who are class presidents in secondary schools.

2.1. Participants

Participants of the study are limited to eight class presidents of the Vocational and Technical Anatolian High School, which is a practice hotel in Kırıkkale in a boardinghouse-school status. The class presidents of the school declared their willingness to participate in the study. The research, in accordance with its purpose, was carried out with the students who could contribute to it on a volunteer basis. There are one girl and seven boys among the participants.

2.2. Collection of Data

The data of this study was obtained in November 2017 with the participation of 8 class presidents. Data used in the study were collected with a semi-structured interview form consisting of three open-ended questions to determine the opinions of class presidents. Two

expert opinions were received during the preparation phase of the interview form to assess the suitability and usability of the draft questions to the purpose. The final form of three questions to be asked to the participants was finalized in accordance with the opinions of experts.

2.3. Analysis of Data

The answers given to open-ended questions by the participants in written form were analyzed by the researcher with a descriptive analysis method. In the analysis of the data, generally such a way was followed: The class presidents participating in the study were numbered between one and nine, regardless of their names and genders. The class presidents (CP) in the working group were coded as CP1, CP2....

The disclosure of how the data in the research was obtained and recorded is considered as one of the important criteria that reveals the validity of a qualitative research. The detailed reporting of collected data and the direct transfer of the opinions of participants are also considered to be elements increasing the validity (Yıldırım & Şimşek, 2008). The data analysis process was explained to ensure the internal reliability and validity of the study and in the analysis of the data; the participants' comments were directly cited in the findings section without any change. In addition, no guiding example was given to the participants, a fiduciary communication was established and attention was paid to freely reflect only their own thoughts.

3. Findings

The findings obtained from the study were evaluated and presented based on the objectives. These are "the importance of a safe school environment", "school management, the duties of staff and students".

3.1. The Importance of Safe School Environment

Participants generally consider the physical, social and psychological environment of the school as problematic in replying the question that "*How important is a safe school environment to you*?" They point out the importance of solving the problems of these environments in creating a safe school climate.

> *Although the headmaster had been told for years, he did not cover around the school with wires. Some people came to our school to sell harmful substances or fight. We mostly eliminated by resorting to violence, but these are temporary solutions.* ***(CP 1)***
>
> *School safety is very important in terms of our health; we spend a peaceful school time in a safe school environment.* ***(CP 2)***
>
> *We are suffering a lot from harmful substances in school. Foreign students should not be allowed to enter in the school.* ***(CP 4)***
>
> *Our school has a security guard, but he is useless; he is walking with a cigarette in his mouth and playing with his phone. There was a fight last week but the security guard did not intervene in the fight. The security guard only checks the identities at the school entrance. The door of the school is not clear, students come from the outside and the headmaster does not say anything.* ***(CP 5)***
>
> *Drug users and alcohol drinkers come to the edge of the river 100 m away from the school. The distance between the school and police station is 1 km. We hear people drowning because the school is on the edge of the river.* ***(CP 8)***

3.2. The Duties of School Management, Staff and Students

The perceptions of participants were tried to be identified with two open-ended questions about the duties of the school administration, its staff and students for the school to be safe.

The security units should be reached out regarding the events, situations and people that may pose a threat to the school environment and the environment at the entrance and exit of the school should be controlled. ***(CP 1)***

The headmaster and teachers are not interested in us and the chiefs are insulting us in the institutions we go to practice. The headmaster does not allow social activities. ***(CP 2)***

The duties of teachers are such that they should not overstress the student, they should leave the student alone and trust their students. I think there is no duty of the families, everything depends on the students, and parents have to raise their children sanitarily. To avoid violence, all we have to do is not to fight and avoid bad habits. ***(CP 3)***

While coming to our school, the outside of the school is so terrible, our feet get wet and our pants become mud. The third floor WC (washbasin) is not open. There is only one washbasin used in the whole school and it is not nice at all. There are no social activities for us and they never have been. I've been in this school for three years. We should study lessons and be away from bad habits, we should do sports, we should not use slang words and there should be unity and solidarity. The duties of our families such that they should come to the school every two weeks, they should ask for how we are doing. They should attend the parent' meeting. ***(CP 4)***

It should be ensured that we spend our time efficiently by providing adequate educational opportunities to us, the students, in the fields of arts, culture, sports, etc. The prices of the food sold in the school canteen are expensive and their price should be decreased to a level we can afford. ***(CP 8)***

Some of the participants used the following expressions, drawing attention to the risks arising from the school environment.

Teachers criticize us, the students, by saying that "Do not you learn decency from your family?" They say that your behaviors are the reflection of your family. Their attitudes lead us to dislike and hate the lessons. School family cooperation is weak; invitations are not delivered to parents for parents' meetings. The duty of our family is not only important for school safety but also for us. Our parents should notify the school about their requests for school safety. We should be sensitive to our friends and show love, respect. Our headmaster and teachers should organize more social activities to improve our social relations with our friends. ***(CP 6)***

The environment in which our school is located poses a risk to school safety. The number of people using and selling harmful substances around the environment is very high. Thus, the entry to and exit from the school garden should be controlled ideally. Security guards and hall monitors should effectively perform their guard duty. School administrators should take precautions for the safety of the school road. The risky places that remained from the old factory buildings around the school should be organized. ***(CP 7)***

4. Discussions and Conclusions

In this section, the results and interpretations based on the findings of the research are given.

Examining the perception of class presidents about the "*the importance of the safe school*", it is generally evaluated such that school safety is not based on social realities and not a common point of view. On the basis of the fact that the majority of the participants regard the safe school as significant, it originates from aiming to ensure the individual safety of people. All participants are in negative perception about evaluating the school safety in terms of social reality. School safety, on the other hand, is not only an isolated dimension of school life in a physical sense. It is a concept expressing a safe learning environment based on the common perceptions of stakeholders such that the internal stakeholders (managers, staff and students) feel the sense of trust in terms of physical, psychological and social aspects. School safety comes first in the social realities of education that is a social phenomenon. School safety concerns every process and function at school. The structure of the school, its rules, attitudes and relationships, the educational process, the structural design of the school building are the basic elements of building a safe school environment (Estonian Ministry of Education and Research, 2016).

Evaluating the findings obtained in the scope of "*the duties of school management, staff and students*", all participants are in negative perception. The reason for the fact that participants pay attention to the attitudes and behaviors of the school administrators and consider this as a source of problems may be as the fact that the risky environment in which the students are and the management does not have a desire to create a positive "school climate". The reason for this can be as follows: having risks of the school environment that threaten the safety of students, the inadequacy of entrance and exit doors, the lack of garden walls, the insufficiency of security guards at the school in providing safety and not fully knowing their duties and responsibilities, intensively sold of harmful substances around the school, not identifying people coming from outside by the management. The findings of this study and its results are similar with the results of some researches performed in recent years (Akyol, 2015; Gülbaz, 2016; Turhan & Turan, 2012). The fact that the majority of participants indicate that there is not a family-school cooperation and the relationship of parents with the school is inadequate is effective in not ensuring school safety.

The majority of participants' desire to establish safe school climate is an indicator that their expectations from particularly the school management are high. It cannot be said clearly in ensuring school safety that stakeholder relations (teacher, student, administrator and parent) are aware of the fact that they are effective in providing a safe school environment. This will ensure that the safe school is perceived in a positive environment as an exercise of management processes to ensure that students, teachers, staff and visitors are able to interact without fear or threat and provide a safe learning environment (Butcher & Manning, 2005).

Based on the results of the research, the following strategies can be proposed for providing school safety and forming a safe school climate:

It is possible to take effective precautions against the factors that affect the development and success of students and constitute a risk for the school safety. Interaction with the school's physical and social environment is of great importance in ensuring school safety and forming a safe school climate.

The attempts to improve the quality of education and provide the integration of educational environments with the social and physical environment are important in terms of preventing negative groups and persons from organizing around the school environment. The safety of the school and its environment cannot be ensured only by measures taken in educational environments. Conducting planned studies that will enable the school to cooperate with the family will also help to transform information into behavior in terms of individuals.

While physical security measures are taken on schools, the psychological aspects of students and school staff should be taken into consideration. In order to ensure the emotional and spiritual safety of school stakeholders, it is necessary to conduct research on physical security measures. School safety action plans should be made at schools and all managers, staff and teachers should be included in this security team. They should have knowledge of school safety action plans and comprehend the importance of school safety precautions.

References

AFAD (2014). Retrieved from https://www.afad.gov.tr/tr/1777/BM-Okul-Guvenligi-nde-Turkiye-yi-Lider-Secti

Alver, E., Adıgüzel, T., & Öztürk O. (2016). İstanbul'da 11 ayrı okul çeşidinde okul güvenliği araştırması. *International Journal of Eurasia Social Sciences, 7*(23), 274-298.

Butcher, K. T. & Manning, M. L. (2005). Creating safe schools. Retrieved from http://www.joannmaher.com/my_documents/courses_hs_english_012/unisols.pdf

Çankaya, İ. H. (2009). Okul güvenliği üzerine teorik bir çözümleme. *Dicle Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 1*(2), 97-103.

Çankaya, İ., Yücel, C., Tan, Ç. & Demirkol, A. (2014). Lise müdürlerinin görüşlerine göre okul güvenliği açısından kampüs okulların önemi. *Fırat Üniversitesi Sosyal Bilimler Dergisi, 24*(1), 65-71.

Estonian Ministry of Education and Research (2016). Retrieved from https://www.hm.ee/en/activities/pre-school-basic-and-secondary-education/school-safety

Gülbaz, L. (2016). *İlkokul yönetici ve öğretmenlerinin okul güvenliğine ilişkin görüşleri.* Unpublished Master's Thesis, Ankara Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara

Karakütük, K., Özbal & Sağlam, A. (2017). Okul yönetiminde okul güvenliğini sağlamak için yapılan uygulamalar konusunda öğretmen ve okul müdürlerinin görüşleri. *Mersin Üniversitesi Eğitim Fakültesi Dergisi, 13*(3), 1214-1232.

Mayer, J. & Cornell, D. (2010). New perspectives on school safety and violence prevention. *Educational Researcher, 39*, 5-6.

MEB. (2014). 19.Milli eğitim şurası gündem konuları. Retrieved from http://ttkb.meb.gov.tr/meb_iys_dosyalar/2014_09/09052246_sura_kurul_kararlari.pdf

Memduhoğlu, H. B. & Taşdan, M. (2008). Okul ve öğrenci güvenliği: Kavramsal bir çözümleme. *Çukurova Üniversitesi Eğitim Fakültesi Dergisi, 3*(34), 69-83.

OECD (2003). *Lessons in danger - school safety and security* (12-14 November 2003). Paris, France. Retrieved from http://www.oecd.org/education/innovation-education/lessonsindanger-schoolsafetyandsecurity12-14november2003 parisfrance.htm

OECD (n.d). Retrieved from www.oecd.org/edu/schoolsafety

Özmen, F. & Küçük, N. (2013). İki ayrı zaman diliminde okulda şiddet. *Celal Bayar Üniversitesi Sosyal Bilimler Degisi*, *11*(2), 78-96.

TEDMEM (2016). *19. Millî eğitim şûrasina ilişkin değerlendirmeler*. Ankara: Öncü Basım Yayım Tanıtım Ltd. Şti.

Turhan, M. & Turan, M. (2012). Ortaöğretim kurumlarında güvenlik. *Kuram ve Uygulamada Eğitim Yönetimi*, *18*(1), 121-142.

Srichai P., Yodmongkol P., Chakpitak N., & Meksamoot K. (2013). Managing school safety in Thailand: Assessing the implications and potential of a lean thinking framework. *SAGE Open*, April-June, 1 –17.

Yıldırım, A., & Şimşek, H. (2008). *Sosyal bilimlerde nitel araştırma yöntemleri* (Vol. 6). Ankara: Seçkin Yayınları.

Yıldız Akyol, E., (2015). Okul güvenliği ile ilgili yurtiçinde ve yurtdışında yapılan çalışmaların incelenmesi. *Türk Eğitim Bilimleri Dergisi*, *13*(1), 1-12. Retrieved from http://dergipark.gov.tr/tebd/issue/26087/274921

Hazar, E. (2018). Digital competence in primary education: The case of Turkish language, mathematics and personal and social development courses. *International Online Journal of Education and Teaching (IOJET), 5*(2),443-458.
http://iojet.org/index.php/IOJET/article/view/322/246

Received: 20.03.2018
Received in revised form: 22.02.2018
Accepted: 01.03.2018

DIGITAL COMPETENCE IN PRIMARY EDUCATION: THE CASE OF TURKISH LANGUAGE, MATHEMATICS AND PERSONAL AND SOCIAL DEVELOPMENT COURSES

Esin Hazar

Gazi University, Ankara, Turkey

esinnhazar@gmail.com

Esin Hazar is a PhD candidate studying at Department of Curriculum and Instruction, Faculty of Education, Gazi University, Ankara, Turkey.

DIGITAL COMPETENCE IN PRIMARY EDUCATION: THE CASE OF TURKISH LANGUAGE, MATHEMATICS AND PERSONAL AND SOCIAL DEVELOPMENT COURSES

Esin Hazar

esinnhazar@gmail.com

Abstract

This paper examines the current status of digital competence indicators in the Turkish primary school curricula. The European Commission had long been studying on developing a common digital competence framework for citizens and in 2016 a revised framework was published to be used as a reference in various sectors as well as education. In most official papers the importance of digital competence is highly stressed and studies to provide students with digital skills are carried out by Turkish Ministry of National Education (MONE) and other governmental institutes. In this paper the indicators of digital competence standards in the Turkish primary education are explored. The curricula of three compulsory subjects are identified and the learning outcomes of these curricula are analysed to understand the place of digital competence standards in curricula and in which competence areas are emphasized mostly. The review was conducted using the curricula of three subject areas in primary education: the Turkish language, mathematics and personal and social development. The analysis of the learning outcomes in these curricula shows that 7.5% of learning outcomes emphasizes digital competence in the Turkish language curriculum while the highest rate is 4% in mathematics and personal and social development subject areas. That most digital competence areas are ignored can be observed in each subject; communication and collaboration is totally excluded in all three subjects while data and information literacy was included in merely Turkish language curriculum; safety competence area was stated only in personal and social development curriculum and Mathematics curriculum contained learning outcomes merely related to the problem solving.

Keywords: curriculum, digital competence, primary education

1. Introduction

The rapid development in information and communication technologies, the development of the internet and its rapid spreading have facilitated the access and communication of information by 21st century learners via technological and media tools. It is inevitable that education in the age when information is spreading so fast, internet, smart phones, computers, tablets and multimedia tools are constantly used will also be influenced by this change. It has become the task of schools to teach students how to use information effectively, interpret and use technology effectively, to benefit from technology in classrooms by supporting technology, and teaching the correct use of technology as a learning tool (Kaware & Sain, 2015).

In order to prepare students for a globalizing world order, global education and reshaping of schools in the axis of 21st century skills constitute educational agendas of many countries. In this respect, it is seen that the results of educational researchers' recommendation are that some countries have structured or are trying to construct their curricula taking into consideration the skills of 21st century. It is known that many of the skills defined as 21st century skills within the scope of Turkish MONE and TUBITAK (The Scientific and

Technological Research Council of Turkey) cooperation in Turkey have been tried to be transferred to Turkey with the renewed 2017 national curricula and FATIH Project (Increasing Opportunities and Technological Improvement Project). Preparing Turkish students for the changing world has made it important for digital skills to enter the curricula of all grades. The aim of this study is to explore the extent of digital skills included in the first step of Turkish compulsory education, primary school curricula.

1.1. Digital Competence

The concept of digital competence is a multi-faceted, moving concept that covers many areas and develops rapidly as new technologies emerge. Today it means to be competent digitally, to understand the media, to access the information, to take a critical attitude toward the information that is accessed, and to communicate with others by using various digital tools and applications (Ferrari, 2013). In the European Commission reports (European Commission, 2008, p. 3), digital literacy is defined as "the skills required achieving digital competence". With the basic skills in the field of Information and Communication Technologies (ICT), to access to information, to store and to produce were presented as skills to support digital literacy. Here digital literacy consists of basic ICT skills and is expressed as the step of digital competence. Digital competence concerns 21st Century skills that citizens should gain in order to ensure active participation in society. It is considered one of the eight key competences for lifelong learning by the European Union (Ala Mutka, 2011).

In summary, the concept of digital competence is a developing concept and concerns the development of technology as well as political aspirations and expectations for citizenship in the information society. It consists of a variety of skills and competences and covers a variety of areas such as media and communication, technology and literacy and information science. Digital competence is generally described as the technical skills required to use digital technologies, the ability of digital technologies to work meaningfully in a variety of activities for study, education and daily life in general, the ability to critically evaluate digital technologies (Ilomäki, Kantosalo, & Lakkala, 2011).

1.1.1. European Digital Competence Framework

In 2006, the European Parliament and the Council adopted digital competence as one of eight essential competences for active citizenship and social life, because of the importance of using digital technologies to live, work and learn in today's knowledge-based society. The DigEuLit Project funded by the European Commission eLearning Initiative, defined digital competence as the first level of digital literacy (Martin, & Grudziecki, 2006). The rapid digitization of various aspects of the society has brought new requirements and the framework was revised ın 2011. The European Commission launched a project to develop a Digital Competence Framework. The purpose of the project was to produce a framework for digital competence with digital competence descriptors for all levels of learners. The project, published in 2013, has become a reference for the development and strategic planning of digital competence initiatives (Vuorikari, Punie, Gomez, & Van Den Brande, 2016).

The report which was revised again in 2016 called DigComp: Europe's Digital Competence Framework divides the digital competences it has identified into five areas: Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Safety and Problem Solving. In the context of the DigComp framework, where literature review, case studies and interviews with experts on the concept of digital competence are defined, the term 'digital competence' refers to the use of ICT to achieve goals related to citizens' work, employability, learning, leisure time, citizenship participation , skills and attitudes (Siiman et al., 2016). From 2013 until today DigComp has been used extensively in

the context of employment, education and training and lifelong learning (Vuorikari et al., 2016). It is a framework that is expected to serve as a guide for accessing, evaluating and using information, communicating through various channels, generating and sharing digital content, and using digital technology in a reliable and critical way in every aspect of life (Kluzer & Rissola, 2015). The report suggests a descriptive mapping of the competences related to digital competence as seen in Table 1.

Table 1. *Dimensions of digital competence framework*

Competence Areas	Competences
Information and Data Literacy	Browsing, searching and filtering data, information and digital content
	Evaluating data, information and digital content
	Managing data, information and digital content
Communication and Collaboration	Interacting through digital technologies
	Sharing through digital technologies
	Engaging in citizenship through digital technologies
	Collaborating through digital technologies
	Netiquette
	Managing digital identity
Digital Content Creation	Developing digital content
	Integrating and re-elaborating digital content
	Copyright and licences
	Programming
Safety	Protecting devices
	Protecting personal data and privacy
	Protecting health and well-being
	Protecting the environment
Problem Solving	Solving technical problems
	Identifying needs and technological responses
	Creatively using digital technologies
	Identifying digital competence gaps

(Vuorikari et al., 2016, pp. 8-9)

When the effects are considered both in the individual and in the social sense, the educational systems are shaped by changes in the age and aims to educate citizens equipped

with the knowledge and skills demanded by the global world. The main aim of education is to equip the students with the skills that will enable them to become productive individuals in the continuously developing society by making positive changes in their lives. The skills required to achieve this aim, which is also expressed as spiritual purpose of education, have changed over time with the transition from industrial society to information society, and the skills that are valid in industrial society have changed in the 21st century information society (Fullan, 2001; Kivunja, 2014). The most decisive feature of the 21st century is that much information is presented by different digital technologies via multiple means of communication. With the Internet, people are able to reach the amount of information with the speed they cannot imagine compared to previous years. In the last 20 years, not only in computers, but the domain of digital media has expanded considerably thanks to portable media tools. It is a generation that is able to communicate with each other by means of generation technology born after 1980, reaching information and media instantly through the internet. The indispensable part of the agenda is that the use of media and technology as a bridge between real life and school life can be a factor that will meet the interests and expectations of today's students, who are called digital natives.

Students of the 21st century are able to access, communicate and monitor the media using countless technology-based tools. Given the prevalence of the use of the Internet, smartphones, computers, tablets, gaming systems, and multimedia devices, it has become very important for students to accurately assess and interpret technology and use it effectively. The mission of the educational community in the immediate realm of information should be to support technology, to use technology in its classrooms, and to teach students how to use technology correctly (Hung, Lee, & Lim, 2012; Kaware & Sain, 2015; Spengler, 2015).

1.1.1.1. Education and Digital Competence in the World

From a digital literacy perspective, the basic skills are learned through formal education at the primary and secondary levels (Perlmutter, Ungerleider, Scott, Jones, Jenkins, Wilson & Hoechsmann, 2012). To achieve this, studies to include digital competence in compulsory education curricula are being undertaken in various parts of the world. Curriculum here refers to a conceptual-pedagogical curriculum. In many OECD (Organization for Economic Co-operation and Development) countries, the promotion of digital literacies falls primarily in the hand of national education ministries, which determine the extent to which ICT skills are included in the curriculum (OECD, 2016). In most countries digital competence is not a separate topic but cross-circular concept and integrated across the curriculum. In some regions of Canada digital skills are thought to be work best with other subject areas and learning outcomes both contain digital skills and subject related skills. Hence in Canadian compulsory education cross curricular competences influence pedagogy in disciplinary subject areas (Hoechsmann, & DeWaard, 2015). The Swedish government adopted amendments to the K-12 curriculum to strengthen the digital competence of students., new/revised syllabuses and a new curriculum for Swedish primary and lower secondary schools are introduced (Bocconi, Chioccariello, Dettori, Ferrari & Engelhardt, 2016). Education of ICT is integrated in curricula as a learning outcome: "every pupil, on completing primary and lower secondary school, must be able to use modern technology as a tool for knowledge-seeking, communication, creation and learning" (OECD, 2016, p. 17). This measure includes highly specific changes in the curriculum and broader curriculum changes in various subjects, such as the new text in the description of the school curriculum:

Heintz, Mannila, Nygårds, Parnes and Regnell (2015) describe the changes as:

> The changes focus on digital competence, understanding the influence that the digital transformation has on us as both individuals and a society, and helping students become critical and responsible citizens in today's digitalized society (p. 6).

In Denmark, digital competence is not a separate topic in K-9, but digital competence skills such as problem-solving and logical thinking are integrated across subjects in primary and lower secondary education (Berge, 2017). A new curriculum for Wales is currently under development. The first element of the new curriculum is the Digital Competence Framework (DCF). The DCF has been developed to be inclusive of all learners aged 3 to 16-plus. It covers the development of skills from the earliest stages that very young children need to learn. Digital competence is one of three cross-curricular responsibilities, alongside literacy and numeracy; it focuses on developing digital skills which can be applied to a wide range of subjects and scenarios that are transferrable to the world of work. The DCF sets out the digital skills to be attained by learners aged between 3 and 16-plus years across four strands: Citizenship, Interacting and Collaborating, Producing, Data and Computational Thinking ("Welsh Government", 2015).

In some countries like Austria, Finland, Norway, the Netherlands there is little or no guidance for teaching competences at national level; because schools and teachers are independent to determine this by themselves. However, cross-curricular topics may include relevant guides, such as the Finnish guidebook for teachers or the Irish ICT framework for integrating ICT into the curriculum. For example, in Ireland, the primary curriculum ensures that these skills are taught in all aspects, emphasizing the importance of developing general skills and competences, especially helping the child transfer learning to other curriculum areas, future learning situations and life experiences. With the new national curriculum, digital technologies, digital literacy and communication are expected to affect all levels of education, all subjects, cross-curricular topics. In the Czech Republic, the Digital Education Strategy puts forward the changes to the methods and forms of the Czech education system, as well as its objectives (Ananiadou & Claro, 2009).

1.1.1.2. Education and Digital Competence in Turkey

In Turkey there are initiatives to promote digital competence in vocational, general and academic education and training programs, including primary, secondary and tertiary education, and other learning pathways. Turkish education system is divided into three sections which are four-year primary school, four- year middle and four-year high school. During middle school ICT is an elective course for 5^{th} and 6^{th} grade students; and in high schools students may take ICT as a separate subject. However in official papers and curricula for all grades digital competence is said to be integrated into curricula as a general objective. For example in The Turkish Qualifications Framework (TQP) there are eight key competences that each individual is expected to win within the context of lifelong learning, one of which is digital competence. According to the new curricula released in 2017 for primary and secondary education, digital competence is a part of the new national curriculum. Since the 1980s in Turkey, digital technologies have been tried to be integrated into education and projects have been implemented to increase the quality of education and to provide the students with necessary knowledge and skills in the information economy. The steps taken for this purpose can be listed as Computer Assisted Education (1989-1991), Computer Laboratory Schools Project (1993-1997), Basic Education Project (1997-2007), Secondary Education Project (2006-2010) and FATIH Project (2010).

As stated by Uluyol and Eryılmaz (2015), FATIH (Increasing Opportunities, Technological Improvement Movement) Project implemented by the Ministry of National Education in 2010 aims to bring 21st century skills to all students. These skills are; to gain

new and different perspectives, to develop and apply new ideas, to think critically and solve problems, to make complex choices and to make decisions, to find effective solutions to problems, to work based on cooperation, to gain sense of responsibility, to gain information literacy, to gain media literacy, to gain literacy in information and communication technologies, to use digital technologies and communication tools to investigate, organize and evaluate information.

In 2012, the project was conducted in 17 provinces and 52 schools with tablet computer pilot applications. In the project, the effective use of information technologies provided for classrooms for each learning outcome in the curriculum and the steps to update the main teaching activities in teacher guides to include effective use of information technologies. In addition to this, it is stated that for each learning outcome, digital e-content (animation, video, audio learning object, etc.) and e-contents belonging to each subject area will be prepared (MONE, 2011).

The Turkish Ministry of National Education has long been pursing attempts to provide students with qualifications of the age. Recently Directorate of Basic Education and Google Turkey signed a "Protocol on Business Technologies for Information Technology and Software Teaching in Primary Education". Noting that information is not a goal but a tool, it is stated that information technologies taught in the 5th and 6th grades and the enrichment of the software course are a result of the technological age of the information society: "Today's children are open to the world with technology. As such, it is imperative for our children to learn how to use technology effectively and effectively. "The results of the studies are believed to provide enrichment of topics such as "content creation", "computer systems", "communication research" and "collaboration" in the first semester of the software course and in the second semester students are given "anoritmic thinking", "decomposition", "solution evaluation", "automation" and so on (MONE, 2017).

New projects for this enrichment attempt are sought by some governmental institutes as well. As declared in Turkish Scientific and Technological Research Council (TUBITAK) Project: ‘information, skill, orientation and competences are the main emphases of the educational programs developed in recent years and of the educational reforms carried out. Accordingly, the curricula are; focus on 21st century skills such as life skills, problem solving, communication, analytical thinking, creativity, entrepreneurship, reflective thinking, critical thinking and new literacy, and contributing to the cognitive, social, affective and psycho-motor development of individuals. However, there is no sufficient evidence that these skills are acquired as an output of the curricula and that individual express themselves in different ways. There are good examples showing that these skills can be gained in the field of education in the world, so the development and change need to be well read and improved in our education system (TUBITAK, 2017).

As stated in the National Qualification Framework, one of the most important key competences of the age is digital competence and during primary school students should have a beginning getting the basic digital skills. Analysing the learning outcomes of compulsory subjects, the main point of our research is how well this competence is developed in the Turkish primary education curriculum. Based upon the TQF, 2017 curriculum reform identifies nine competences and skills for students to acquire through curricula one of which is digital competence. Digital competence focuses on developing digital skills which can be applied to a wide range of subjects and scenarios that are transferrable to the real life. How will the digital competence be integrated into Turkish education system? The most important aspect in the curriculum reform is the shift from focusing on learning objectives related to single subjects to an emphasis on broader competences crossing all learning in schools.

However, there is a gap between the vision of digital competence and actual digital competence in curricula. This research will try to describe how the digital competence is in the existing curriculum of Primary Education as a cross-curricular topic without a specific content considering the applications in some other countries. The expected outcome of this research is to sensitize the educational community about the need for change in the educational system that not only involves technological investment, but also by incorporating concrete digital skills in the curriculum to prepare future generations for digital competences. To achieve this, three research questions regarding three primary school subjects have been developed;

1. To what extent does digital competence integration take place in Turkish language curriculum?

2. To what extent does digital competence integration take place in primary mathematics curriculum?

3. To what extent does digital competence integration take place in personal and social development curriculum?

2. Method

In the study one of the qualitative research data collection methods, document analysis was used to examine the relevance of digital competence standards to the current primary curricula. The analysis of the document covers the analysis of written materials that contain information about the phenomena to be investigated. Document analysis is carried out in five stages: (1) reaching the documents (2) checking authenticity (3) understanding the documents (4) analysing the data and (5) using the data (Yıldırım & Simsek, 2005).

2.1. Materials

Primary education curricula in Turkey were analysed using DigComp as a framework for reference to compare learning outcomes of the curricula of three primary school subjects. European Commission Digital Competence Framework has been used by Education Departments of some European countries such as Netherlands, where a governmental body uses DigComp as a framework for reference to compare the stated outcomes with their framework on "Digital Literacy" for primary and secondary education. DigComp is also used as an input to curricula review and to development of adult education courses in Belgium (European Commission, 2015).

In this research, three primary school curricula (Turkish language, mathematics and personal and social development) published by Turkish MONE in 2017 were analysed as a document. The curricula were obtained from the website of Turkish MONE. The originality and reliability of the document were also checked.

2.2. Instruments

A document analysis was conducted in order to find out to what extent digital competence skills take place in primary education curricula. The analysis of the documents was carried out using the document analysis form developed in accordance with five competence areas (data and information literacy, communication and collaboration, digital content creation, safety and problem solving), competences and standards in the DigComp Framework (Table 1).

2.3. Procedure

All three curricula were subjected to a preliminary analysis by the researcher. This analysis identified learning outcomes as a common framework of analysis as the structure of each curriculum differs in some ways but the learning outcomes.

Research themes have been defined as information and data literacy, communication and collaboration, digital content creation, safety and problem solving, which are defined by DigComp framework, as digital competence dimensions. Three field specialists, a Turkish teacher, a mathematics teacher and a primary school teacher participated in the analysis of the documents.

2.4. Data Analysis

In the analysis process, the research was presented by means of "digitization", the curriculum documents were examined by giving "1" to units that are thought to be related to the themes, and "0" to those that are not related to them (Yıldırım & Şimşek, 2005). For the reliability of the content analysis in the research, it was preferred that both the separate encoders simultaneously encode the text and the same encoders encode the text at different times. The reports of the findings, which were independently encoded by the researchers, were then compared to each other, discussed with respect to incoherent findings, and given the final format for coding. Curricula were independently analysed by three field specialists and were encoded. Coincidence between the three coders and the percentage of coincidence between the coders and the coefficient were found using the Fleiss Kappa statistic to determine whether the reliability was acceptable. As stated by McHugh, (2012, p. 276), the kappa statistic is frequently used to test interrater reliability. Measurement of the extent to which data raters assign the same score to the same variable is called interrater reliability. While there have been a variety of methods to measure interrater reliability, traditionally it was measured as per cent agreement as in Cohen's kappa (for two raters) and the Fleiss kappa (adaptation of Cohen's kappa for 3 or more raters). Since data were collected from three raters in the study, the Fleiss kappa statistic was implemented.

Fleiss Kappa values were found to correspond to values between .67 and 1 as a result of the analysis carried out. This finding shows that experts make highly consistent evaluations on the determination and classification of learning outcomes in curricula as Landis and Koch (1977) interpret kappa values, with values from .0 to .2 indicating slight agreement, .21 to .40 indicating fair agreement, .41 to .60 indicating moderate agreement, .61 to .80 indicating substantial agreement, and .81 to 1.0 indicating almost perfect or perfect agreement.

3. Findings

The findings of the study were presented in the form of an analysis of the learning outcomes stated in three subject areas in primary education.

3.1. Findings Concerning the Extent of Digital Competence Integration in Turkish Language Curriculum

Learning outcomes of Turkish language curriculum are analysed according to the standards and dimensions stated in DigComp framework in Table 2.

Table 2. *Digital competence standards and competence areas in Turkish language subject*

Grade	Total Outcome	Related Learning Outcome	Competence Area	Competency
3rd grade	64	1. Students will be able to get the message in short, simple digital texts.	Information and data literacy	Evaluating data, information and digital content
4th grade	77	1. Students will be able to evaluate the content of what they listen / watch.	Information and data literacy	Evaluating data, information and digital content
		2. Students will be able to make presentations.	Digital content creation	Developing digital content
		3. Students will be able to get the message in short, simple digital texts.	Information and data literacy	Evaluating data, information and digital content
		4. Students will be able to evaluate media texts.	Information and data literacy	Evaluating data, information and digital content
		5. Students will be able to question the reliability of information sources.	Information and data literacy	Evaluating data, information and digital content
		6. Students will be able to use information sources effectively.	Information and data literacy	Browsing, searching and filtering data, information and digital content

According to Table 3, in the 2rd grade curriculum no competence standards were taken place, in the 3rd grade there is only 1 learning outcome (1.5 %) included in the curriculum which is in data and information literacy competence area. 6 outcomes (7.5%) which were in 4th grade were mostly in data and information literacy, excluding the one in the digital content creation. Communication and collaboration, safety and problem solving areas were not included in the Turkish language curriculum

3.2. Findings Concerning the Extent of Digital Competence Integration in Mathematics Curriculum

Learning outcomes of Mathematics curriculum are analysed according to the standards and dimensions stated in DigComp framework in Table 3.

Table 3. *Digital competence standards and competence areas in mathematics*

Grade	Total Outcome	Related Learning Outcomes	Competence Area	Competency
2nd grade	50	1. Students will be able to realize that their formal properties do not change when geometric objects and shapes change direction, position or size using 3D dynamic geometry software.	Problem solving	Creatively using digital technologies
		2. Students will be able to use mathematical language to indicate location, direction and movement.	Problem solving	Creatively using digital technologies
4th grade	71	1. Students will be able to present the resulting data in various ways.	Digital content creation	Integrating and re-elaborating digital content

Table 3 shows that in the 3rd grade no competence standards were taken place, in the 4th grade there is only 1 learning outcome (1.4%) included in the curriculum which is in digital content creation competence area. 2 outcomes (4%) which were in 2nd grade were in problem solving area. Just like in the Turkish language curriculum, there left some areas not mentioned such as data and information literacy, communication and collaboration and safety.

3.3. Findings Concerning the Extent of Digital Competence Integration in Personal and Social Development Curriculum

Learning outcomes of personal and social development curriculum are analysed according to the standards and dimensions stated in DigComp framework in Table 4.

Table 4. *Digital competence standards and competence areas in personal and social development*

Grade	Total Outcome	Related Learning Outcomes	Competence Area	Competency
1st grade	50	1. Students will be able to take care to preserve body health while using mass media.	Safety	Protecting health and well-being
		2. Students will be able to use technological tools and equipment safely.	Safety	Protecting devices
2nd grade	50	1. Students will be sensitive to the safe use of technological tools and equipment.	Safety	Protecting devices

In the 3rd and 4th grades no competence standards was taken place, in the 1st grade there are 2 learning outcomes (4%) included in the curriculum which are in safety competence area. Only 1 outcome (2%) addressed in 2nd grade was in safety area too. Outcomes related to data and information literacy, communication and collaboration and digital content creation and problem solving were not stated in the curriculum.

In sum, digital competence standards emphasized in primary education is not sufficient compared to suggestions stated in official documents. Meanwhile related competences in the

learning outcomes are only limited to certain areas in certain subject areas as shown in Table 5.

Table 5. *Ratio of the digital competence standards in primary education curricula.*

Subject Area	Total Outcome	Data and Information Literacy	Communication and Collaboration	Digital Content Creation	Safety	Problem Solving	%
Turkish Language	234	6	0	1	0	0	2.9
Mathematics	229	0	0	1		2	1.3
Personal And Social Development	143	0	0	0	3	0	2

Findings in Table 5 show that in the Turkish language subject area there are 234 learning outcomes during primary education, while only 2,9% of the outcomes are related to digital competence standards emphasizing merely data and information literacy and digital content creation. Similarly, in mathematics there are 229 outcomes whose only 1%, 3 is related to digital competence emphasizing merely problem solving and digital content creation. The same shortcomings can be observed in Personal and Social Development as well. The only stressed competence area here is safety with 2% of total 143 outcomes.

4. Discussion

In this study it was examined how the concepts of digital competence were introduced into the Turkish primary school curricula of the Turkish language, mathematics and personal and social development subject areas. The aim of this paper is to clarify the extent of digital competence integration in three compulsory subjects and to question which competence areas are stressed and ignored in the curricula. The research question in the study is: to what extent does digital competence integration take place in three primary school curricula in Turkey.

The current study shows that digital competence standards are almost not included in mother tongue and mathematics curricula, however digital competence is to be sitting alongside mother tongue and mathematics as a cross-curricular responsibility. In the study, an analysis of the learning outcomes of Turkish language curriculum for all grades was conducted according to the standards and dimensions stated in DigComp framework. It is widely presumed that considering the publicly announced new primary and secondary school curricula, in Turkish language curriculum the 21st century skills have been restructured to include creative thinking, critical thinking, reflective thinking, digital competence, and aesthetic sensitivity. It is also believed that the curriculum has also been updated with a focus on media literacy. Benefits such as using "contents" and "dictionary" sections, questioning the reliability of multimedia sources, sharing their writings using multiple media sources, comparing a written text with a presentation in the media, and understanding and evaluating messages in multiple media sources are all part of the new Turkish language curriculum (Anadolu Ajansı, 2017). However in the Turkish language curriculum especially for the 4 years in primary education, digital competence standards are rarely stressed, only seven learning outcomes can be observed. Considering the 5 competence areas in the framework, we can only see data and information literacy related and one digital content creation. It seems that skills mentioned above reserved for the next 4 years of education during middle

school period and learning outcomes related to digital competence are missing for the first phase of primary education. In the first and second grade, there found no digital competence standards embedded in the curricula. For the third grade, only one learning outcome of sixty four was identified as related to digital competence. It was related to evaluating skill which involves in information and data literacy competence area. In the fourth grade, more integration could be observed namely six which are all belong to information and data literacy except for the one in the digital content creation. Only one of the outcomes in data and information literacy was different from the others stressing the searching skills. These findings show that there are some shortcomings regarding competence areas other than data and information literacy when compared to the curriculum of language and literacy subject area in Northern Ireland primary schools, in the curriculum of which other aspects of digital competence can be observed such as creating and sharing ideas using traditional and digital means, managing and communicating information effectively in digital format (Curriculum Council for Examination and Assessment in Northern Ireland, 2007). Also in Wales, The Welsh National Competence Framework stresses the importance of all learners to acquire core competences particularly those that transverse all other areas of study namely: the Mother tongue and a second language; Mathematics; Science and Technology ("Welsh Government", 2015).

Similar deficiencies are observed in mathematics as well. Digital competence is not only neglected in curriculum levels but some competence areas are not represented at all e.g. data and information literacy, communication and collaboration, safety. Only three outcomes can be mentioned related to digital competence. And competence areas are limited to barely problem solving and digital content creation. However in Sweden, transversal competences such as collaboration, communication, learning strategies, creative thinking are to be applied in the following school subjects: Languages, mathematics and science, social sciences, arts, and sports (Gordon, Rey, Siewiorek, Vivitsou & Saari, 2012). Alongside with the lack of comprehensive digital skills, no integration of the digital competence in the curricula for the first and third grades could be determined. In the second grade two learning outcomes out of fifty; and in the fourth grade one learning outcome out of seventy one was found associated with digital competence. Both related outcomes in the second grade were in problem solving competence area while the one in the fourth grade was in digital content creation. The current study found out that mathematics curriculum in primary schools in Turkey provides limited introduction to the digital competence skills and there was a lack of consistency across the four curriculum levels as some levels were ignored in terms of digital competence. However in Sweden digital competence was introduced as interdisciplinary traits, also providing explicit formulations in subjects such as mathematics (programming, algorithms, and problem-solving) for all curriculum levels from 1 to 9 both in the general parts and in specific outcomes. (Heintz, Mannila, Nygårds, Parnes & Regnell, 201, p. 5).

The personal and social development subject takes part in the first three years of primary education. Only safety competence area was underlined in the first and second grade; two out of fifty in the former and one out of fifty in the latter. No integration of digital competence was identified in the curriculum of the third grade. Several frameworks recognize the set of competences that relate to students' identity both as individuals and as members of their community, society, and the world. Digital citizenship requires greater awareness of the importance of respecting and protecting privacy and information, given the volumes of information to which we have access through digital networks ("C21 Canada", 2012). In such circumstance, other competences of safety, e.g. netiquette, protecting personal data and privacy have to be developed together with the other competence areas like data and information literacy and so on. The examples of these applications can be seen in Wales and

Sweden; together with safety issues, other aspects of digital competence are emphasized across the curricula such as evaluating sources in digital contexts, appreciation of the need to show respect towards others, understanding of the benefits and risks of using current and emerging technologies, adopting safe and legal practices when using digital communications (Heintz, Mannila, Nygårds, Parnes & Regnell, 2015; "Welsh Assembly Government", 2008).

Throughout the curricula of three subject areas that the communication and collaboration competence area is not stressed is notable as young people need to be able to exchange information, criticize and provide information and ideas, including the use of ICT applications to participate in digital cultures and make positive contributions. ICT provides tools to support collaborative work among peers both inside and outside the school - for example, to provide constructive feedback through critical thinking on others (Ananiadou & Claro, 2009).

5. Conclusion and Suggestions

Although digital competence development throughout the stages of education is a policy ambition in Turkey and digital competence is stated to be taken place in the curricula at all stages of education, digital competence provision is insufficient in primary school curricula. As the key competences in Turkish National Framework form the basis of new national curricula, integration among these competences and curricula should be provided.as stated in official papers. Digital competence is supposed to be involved richly in curricula not only as a separate subject in middle and high schools but also in all grades from primary to secondary. There should be more learning outcomes for the students to effectively apply knowledge and skills in the key subject areas, analyse and communicate effectively, solve and interpret problems in various situations.

Digital competence is developed together with literacy and arithmetic through the interaction of children with different technologies. Emphasis is to be placed on gaining basic ICT skills, including safety and use. Digital competence encourages students to explore and use digital data sources, create digital multimedia presentations, and use collaborative authoring tools. Students should also use video conferencing, emailing and sending attachments and chatting to collaborate with others. They should learn and implement netiquette and online security measures. These skills are often learned in primary education and should be distributed among curricula in a balanced way. To reach the learning outcomes teachers also have to be familiar with curricular objectives and to use curriculum documents when planning their lessons. We cannot say the inclusion of these skills in curricula means the teaching of these skills will be accomplished without teacher readiness. These outcomes are often ambiguous for teachers who are expected to implement the curriculum. Therefore, additional material is needed that provides concrete examples of how curriculum requirements can be applied during teaching practices.

References

Ala-Mutka, K. (2011). *Mapping digital competence: Towards a conceptual understanding* (Technical Report). Retrieved from the website of Publications Office of the European Union: http://ftp.jrc.es/EURdoc/JRC67075_TN.pdf

Ananiadou, K., & Claro, M. (2009). 21st century skills and competences for new millennium learners in OECD countries (OECD Education Working Papers, No.41). Retrieved from OECD Publishing: http://dx.doi.org/10.1787/218525261154

Berge, O. (2017). Rethinking digital literacy in Nordic school curricula. *Nordic Journal of Digital Literacy*, *12*(2), 5-7. doi: 10.18261/issn.1891-943x-2017-01-02-01

Bocconi, S., Chioccariello, A., Dettori, G., Ferrari, A., & Engelhardt, K. (2016). *Developing computational thinking in compulsory education - Implications for policy and practice* (Technical Report). Retrieved from Joint Research Centre website: https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-researchreports/developing-computational-thinkingcompulsory-education-implicationspolicyand-practice

C21 Canada. (2012). *Shifting minds: A 21st century vision of public education for Canada*. Retrieved from http://www.c21canada.org/wpcontent/uploads/2015/05/C21-ShiftingMinds-3.pdf

Curriculum Council for Examination and Assessment. (2007). *The Northern Ireland Curriculum Primary*. Retrieved from http://ccea.org.uk/sites/default/files/docs/curriculum/area_of_learning/fs_northern_ireland_curriculum_primary.pdf

European Commission. (2015). *Digital competence framework for citizens, gallery of implementations.* Retrieved from: https://ec.europa.eu/jrc/en/digcomp/implementation

European Commission. (2008). *Digital literacy European Commission working paper and recommendations from digital literacy high-level expert group.* Retrieved from: https://www.ifap.ru/library/book386.pdf

Ferrari, A. (2013). Digcomp: *A framework for developing and understanding digital competence in Europe* (Technical Report). Retrieved from the website of Publications Office of the European Union: Publications Office of the European Union: http://publications.jrc.ec.europa.eu/repository/bitstream/JRC83167/lb-na-26035-enn.pdf

Ferrari, A. (2012). *Digital competence in practice: an analysis of frameworks* (Technical Report). Retrieved from Joint Research Centre website: http://digcomp.org.pl/wp-content/uploads/2016/07/DIGCOMP-1.0-2013.pdf

Fullan, M. (2001). *The new meaning of educational change*. New York: Teachers College Press.

Gordon, J., Rey, O., Siewiorek, A., Vivitsou, M., & von Reis Saari, J. (2012). *KeyCoNet 2012 Literature Review: Key competence development in school education in Europe*. (Technical Report). Retrieved from the website of European Schoolnet: http://perso.enslyon.fr/olivier.rey/wp-content/uploads/2012/10/KeyCoNet-LiteratureReview-on-Key-competence-development-in-school-education-inEurope_11.pdf

Heintz, F., Mannila, L., Nygårds, K., Parnes, P., & Regnell, B. (2015). Computing at school in Sweden - Experiences from introducing computer science within existing subjects. *Informatics in Schools. Curricula, Competences, and Competitions*, 9378, 118-130. doi: 10.1007/978-3-319-25396-1_11

Hoechsmann, M, DeWaard, H. (2015). *Mapping digital literacy policy and practice in the Canadian education landscape: Media smarts* (Technical Report). Retrieved from the website of *Media smarts*: http://mediasmarts.ca/teacher-resources/digital-literacyframework/mappingdigital-literacy-policy-practice-canadian-educationlandscape.

Hung, D., Lee, S. S., & Lim, K. Y. (2012). Authenticity in learning for the twenty-first century: Bridging the formal and the informal. *Educational Technology Research and Development*, 60(6), 1071-1091.

Ilomäki, L., Taalas, P., & Lakkala, M. (2012). Learning Environment and Digital Literacy: A Mismatch or a Possibility from Finnish Teachers' and Students' Perspective. In Trifonas P (Ed.), *Living the Virtual Life: Public Pedagogy in a Digital World* (pp. 63–78). Routledge.

Kaware, S. S. & Sain, S. K. (2015). ICT application in education: an overview. *International Journal of Multidisciplinary Approach & Studies*, *2*(1), 25-32.

Kivunja, C. (2014). Do you want your students to be job-ready with 21st century skills? Change pedagogies: A pedagogical paradigm shift from Vygotskyian Social Constructivism to critical thinking, problem solving and Siemens' digital connectivism. *International Journal of Higher Education*, *3*(3), 81-91. https://doi.org/10.5430/ijhe.v3n3p81

Kluzer, S., & Rissola, G. (2015). *Guidelines on the adoption of DigComp* (Technical Report). Retrieved from the website of *Telecentre Europe*: http://www.telecentre-europe.org/wp-content/uploads/2016/02/TE-Guidelineson-the-adoption-of-DIGCOMP_Dec2015.pdf

Landis, J. R., & Koch, G. G. (1978). The measurement of observer agreement for categorical data. *Biometrics*, *33*(1), 159–174.

Martin, A. & Grudziecki, J. (2006). DigEuLit: Concepts and tools for digital literacy development. *Innovation in Teaching and Learning in Information and Computer Sciences*, *5*(4), 1-19.

Mchugh, M. L. (2012). Interrater reliability: The kappa statistic. *Biochemia Medica*, *22*(3), 276-282.

Turkish Ministry of National Education. (2011). *Eğitimde Fatih projesi*. Retrieved from http://fatihprojesi.meb.gov.tr/proje-hakkinda/

MEB'den Türkçe Müfredatında Köklü Değişiklik. 2017. (2017, October 10). *Anadolu Ajansı*. Retrieved from: http://aa.com.tr/tr/egitim/mebden-turkce-mufredatinda-kokludegisiklik/728070.

Turkish Ministry of National Education**.** (2017). *Google´dan yazılım eğitimi desteği.* Retrieved from http://www.meb.gov.tr/googledan-yazilim-egitimi-destegi/haber/14587/tr.

Organization for Economic Co-operation and Development. (2016). *Skills for a digital world: 2016 ministerial meeting on the digital economy background report* (OECD Digital

Economy Papers, No. 250). Retrieved from: https://www.oecd.org/els/emp/Skills-for-a-Digital-World.pdf

Perlmutter, T., Ungerleider, C., Scott, S., Jones, B., Jenkins, T., Wilson, I., & Hoechsmann, M. (2010). *Digital literacy in Canada: From inclusion to transformation* (Technical Report). Retrieved from the website of *Media smarts*: http://mediasmarts.ca/sites/mediasmarts/files/pdfs/publication-report/full/digitalliteracypaper.pdf

Siiman, L. A., Mäeots, M., Pedaste, M., Simons, R. J., Leijen, Ä., Rannikmäe, M., & Timm, M. (2016). An instrument for measuring students' perceived digital competence according to the DIGCOMP framework. Zaphiris P., Ioannou A. (eds), *in Learning and Collaboration Technologies: Vol. 9753. Lecture Notes in Computer Science* (pp. 233-244). doi: https://doi.org/10.1007/978-3-319-39483-1_22

Spengler, S. S. (2015). *Educators' perceptions of a 21 st century digital literacy framework* (Unpublished doctoral dissertation). Walden University, Washington.

Tribukait, M., Baier, K., Grzempa, H., Loukovitou, A., Sijakovic, R., Tettschlag, N., & Vuka, D. (2017). *Digital learning in European education policies and history curricula*. Retrieved from https://euroclio.eu/download/11802

TUBITAK – ARDEB. (n.d) 2017. *Gerçek yaşam temelli materyaller çağrı metni.* Retrieved from https://www.tubitak.gov.tr/sites/default/files/2204/1003-sbb-egtm-2017-2.pdf

Uluyol, Ç. & Eryılmaz, S. (2015). 21. yüzyıl becerileri ışığında FATİH projesi değerlendirmesi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, 35(2), 209-229.

Vuorikari, R., Punie, Y., Carretero Gomez S., & Van den Brande, G. (2016). *DigComp 2.0: The digital competence framework for citizens. Update phase 1: The conceptual reference model.* (Technical Report). Retrieved from the website of Publications Office of the European Union: https://ideas.repec.org/p/ipt/iptwpa/jrc101254.html

Welsh Assembly Government. (2008). *Personal and social education framework for 7 to 19-year-olds in Wales.* Retrieved from http://learning.gov.wales/docs/learningwales/publications/130425-personal-and-social-education-framework-en.pdf

Welsh Government. (2015). *A curriculum for Wales – a curriculum for life. Digital competence framework*. Retrieved from http://learning.gov.wales/resources/browse-all/digital-competence-framework/?skip=1&lang=en.

Yıldırım, A. & Şimşek, H. (2005). *Sosyal bilimlerde nitel araştırma yöntemleri*. Ankara: Seçkin Yayıncılık.

Buyuktas Kara, M., Van Steendam, E., Rijlaarsdam, G., & Kuru, H. (2018). The effect of two modes of strategy instruction: Modeling vs. Presentational. *International Online Journal of Education and Teaching (IOJET), 5*(2),460-495.
http://iojet.org/index.php/IOJET/article/view/313/247

Received: 08.11.2017
Received in revised form: 15.02.2018
Accepted: 07.03.2018

THE EFFECT OF TWO MODES OF INSTRUCTION: MODELING VS. PRESENTATIONAL

Mujgan Buyuktas Kara
Research Institute of Child Development and Education. University of Amsterdam
mujganbuyuktaskara@gmail.com

Elke Van Steendam
KULeuven, Belgium
elke.vansteendam@arts.kuleuven.be

Gert Rijlaarsdam
University of Antwerp, Belgium
g.c.w.rijlaarsdam@uva.nl

Huseyin Kuru
Sapienza University of Rome, Italy
kuru.1515904@studenti.uniroma1.it

Department of Child Development and Education, PO Box 15776, 1001 NG Amsterdam

Mujgan Buyuktas Kara holds a BA and MA in English Language and Literature. She is currently working on her PhD at University of Amsterdam. Her research interests include writing instruction and writing processes in English as a foreign language (EFL).

Elke Van Steendam is an assistant professor at KU Leuven and University of Antwerp, Belgium. Her research interests include writing instruction and assessment, writing processes in a first (L1) and second/foreign language (L2/FL), collaborative writing and revision.

Gert Rijlaarsdam is a professor and an investigator of the Research Lab of Language, Literature & Arts Education at the University of Amsterdam, a member of the AnhubLab at University of Antwerp and a visiting professor at Umea University, Sweden.

Huseyin Kuru holds a BA in Statistics from Istanbul Commerce University and MBA in Advanced Economics from Sapienza University of Rome. He worked as a marketing manager in Rome and is currently working as a digital marketing specialist in Barcelona.

THE EFFECT OF TWO MODES OF INSTRUCTION: MODELING VS. PRESENTATIONAL

Mujgan Buyuktas Kara
University of Amsterdam, The Netherlands
mujganbuyuktaskara@gmail.com

Elke Van Steendam
KULeuven, Belgium
elke.vansteendam@arts.kuleuven.be

Gert Rijlaarsdam
University of Antwerp, Belgium
g.c.w.rijlaarsdam@uva.nl

Huseyin Kuru
Sapienza University of Rome, Italy
kuru.1515904@studenti.uniroma1.it

Abstract

We implemented an intervention of four lessons and tested the effects of two instructional modes as compared to the regular curriculum practices for completing a synthesis task at the preparatory program of a Turkish university. Participants were 48 upper-intermediate English as a Foreign Language learners (mean age = 18) assigned to three conditions. The presentational condition received direct strategy instruction supported by mnemonics; the modeling condition observed a video of a peer doing the task using the same strategies mnemonic. In the control condition, there was no explicit reference to strategies; rather, students inferred the necessary information about writing an effective synthesis text from the instruction and the lesson materials. We hypothesized that both of the experimental conditions would have a positive effect on students' synthesis text quality and writing processes and that modeling of explicit strategy use would have an effect over and above the other conditions. Results showed that students in the modeling condition improved their source use skills significantly more than students in the presentational condition, which was maintained in the delayed posttest four weeks later. No statistically significant condition effect was observed for content and authenticity of students' texts. The modeling condition also showed and reported a more process-oriented approach to writing.

Keywords: L2 writing, higher education, strategy instruction, modeling

1. Introduction

Integrating content in teaching foreign/second language (L2) writing skills is rare (Hinkel, 2015) and is definitely a challenging experience for instructors and curriculum developers in time-constrained language-teaching programs. English preparatory schools of Turkish universities are no exception. Students are almost always asked to write persuasive or argumentative essays using prior knowledge and personal experience rather than synthesis texts. However, the primary means of receiving information in an academic context is

reading (Grabe & Stoller, 2001). Students often write to demonstrate competence across the curriculum in response to content material (Hinkel, 2015). Hence, segregated writing tasks fail to represent academic expectations and are not as effective in improving linguistic skills or contributing to students' intellectual growth as much as integrated writing tasks (Leki & Carson, 1997).

Content-integrated writing should ideally promote the processes described in the "knowledge-transforming" model of writing. In this model, writers actively generate and evaluate content and organize information in a more sophisticated manner than in the "knowledge-telling" model of writing (Bereiter & Scardamalia, 1987). On the other hand, integrating content into writing definitely adds up to the already overwhelming cognitive load that is commonly associated with the writing activity (Mateos & Solé, 2009). Writing a synthesis text entails critical evaluation of information in accordance with genre-specific features and the audience. This multifaceted structure of synthesis tasks necessitates decomposing the several different aspects of the complex reading and writing task and addressing each one separately and explicitly to foster performance.

Flower and Hayes (1981) described writing as "a goal directed thinking process" (p. 366) and the role of the writer as that of a problem solver. Solving problems entails employing heuristic strategies (i.e., optional techniques to approach the task at hand). Having conscious access to a repertoire of heuristics (i.e., procedures for writing) can make the writing process considerably easier for the writer; and, fortunately, these heuristic strategies can be translated into teachable techniques (Flower & Hayes, 1977). This is especially important in an EFL (English as a Foreign Language) context, in which the majority of learning takes place in instructional settings.

1.1. Current Instructional Strategies in EFL Instruction in Turkey

In 1997 and in 2008, the Turkish Ministry of National Education adopted several policy changes in an effort to reform Teaching English as a Foreign Language (TEFL) practices in Turkey. The primary objective for teaching English at secondary schools was defined as development of learners' communicative capacity (Kirkgoz, 2005). In this vein, the "communicative" approach to TEFL was introduced at a national level for the first time (Kirkgoz, 2007). Curricular issues, such as selection of teaching materials, curriculum design, and the role of the teacher in the classroom were also defined in line with the main goals of Communicative Language Teaching (CLT) (Ozsevik, 2010).

CLT can be defined broadly as an approach to TEFL that emphasizes the participation of the learner in meaningful L2 interaction with a focus on functional and communicative aspects of the language. It has been associated with *implicit learning*, since it provides a naturalistic view of learning the language, that is "acquiring skills and knowledge without conscious awareness", similar to learning the mother tongue. Explicit learning, on the other hand, refers to "learner's conscious and deliberate attempt to master some material or solve a problem" (Dörnyei, 2009, p.3), which is associated with more traditional approaches that dominated the TEFL domain until the beginning of the 1970s (Dörnyei, 2009). Thus, with the introduction of CLT approach, there has been a shift towards implicit instruction of all four skills of the language (i.e., reading, listening, speaking and writing) in TEFL settings in Turkey. However, this created a discrepancy between TEFL practices in Turkey and evidence-based writing practices, particularly in L1.

1.2. Current Instructional Strategies in L1 Writing Instruction

Empirical research studies both with learning disabled students and normally performing adolescent students in L1 proved that interventions with explicit teaching of strategies for planning, revising and/or editing text are much more effective in improving writing skills than non-explicit instruction conditions (i.e., teaching text structures, the process writing approach, traditional instruction, practise writing and literature study) (Graham & Perin, 2007). Among strategy instruction regimens, Self-Regulated Strategy Development (SRSD) designed by Harris and Graham (1996) is distinct with its explicit teaching of writing strategies. It is an all-encompassing training program tailored to the needs of the students in terms of its recursive nature and the time allocation of different stages during which strategies are presented, discussed, modeled, memorized, scaffolded and practiced collaboratively and individually. SRSD has proved effective in a myriad of research studies (cf. Brunstein & Glaser, 2011; De La Paz, 2005), including two meta-analyses (Graham & Harris, 2003; Graham, 2006), as well as in teaching reading and writing hybrid tasks (Mason, Hickey Snyder, Sukhram, & Kedem, 2006; Martínez, Mateos, Martin & Rijlaarsdam, 2015). SRSD is especially potent because three very effective components in writing instruction are intertwined in its instruction: promoting self-regulation, direct instruction and modeling of the strategies.

1.2.1. Self-regulation

Deliberately employing strategies involves self-regulation functions, which include self-monitoring, self-instruction, goal-setting, and self-reinforcement (Sawyer, Graham, & Harris, 1992). Once learnt, self-regulation skills can be internalized and maintained for use in similar future circumstances (Schunk & Zimmerman, 1997). This autonomy helps learners control their learning processes (1998). Self-regulation is not necessarily a stand-alone component, since it can also be triggered through other components of strategy-focused instruction.

1.2.2. Direct instruction

Direct writing instruction is a deductive approach to learning. It includes the explanation of rules followed by controlled practice and delivery of explicit feedback (Manchón, 2009). Instruction is teacher-led and conveyed in a presentational mode, especially in the initial stages of the training program. It also draws upon the use of strategies through mnemonics to help create a representational system (Reber, 1976). This representational system enables the individual use of the strategies by gradually releasing the control from the instructor to the student, also known as scaffolding. Memorization helps fasten this process and is enabled primarily with the use of mnemonics, but also through graphic organizers, think-sheets and/or prompt cards (Baker, Gersten, & Graham, 2003). Mnemonics reduce the task requirements to a single chunk in the required order (Worthen, & Hunt, 2011) and facilitate retrieval by locating information in memory with associations (Malhotra, 1991). Hence, they may alleviate the cognitive load of learning to write complex writing tasks such as synthesis tasks. Mnemonics might be especially helpful if students are "cramming" for an exam (McPherson, 2000), which is a typical circumstance in time constrained EFL programs, as is also the case in this study.

1.2.3. Modeling

A key component of SRSD programs that has been exclusively studied is *modeling*, or its mirrored learning activity, that is, *observational learning* (hereby used interchangeably to refer to the same concept). Several factors have contributed to the growing body of research in this domain. First, observing modeled experiences revives imitative functions; and, arguably, triggers self-monitoring, self-judgment, and self-reaction, which are the three

pillars of self-regulation (Bandura, 1986). Vicarious experiences improve learners' self-efficacy beliefs (Bandura, 1986), which promotes positive learning behavior (Schunk, 1996; Zimmerman, 1995). When learners observe peers completing tasks successfully, they may form outcome expectations, which in turn motivate behavior towards achieving the desirable outcome (Zimmerman, 1977).

The simultaneous orchestration of several cognitive strategies is especially difficult for novice writers, as they have not yet acquired skills needed to manage the process of writing that strong writers have (Breetvelt, Van den Bergh & Rijlaarsdam, 1994; De la Paz & Graham, 2002). Observing modeled experiences helps students direct their limited cognitive resources to learning-to-write instead of producing a text and, thus, counteracts the challenge of the "dual agenda" of having to zero in on both (Rijlaarsdam & Couzijn, 2000). Students who observe their peers on task also adopt a more recursive approach to writing and delay the executive writing activities to the later stages of the writing process and engage in more metacognitive activities, such as goal-orientation, and analyzing in the initial stages of writing. Students in a non-observation condition, on the other hand, adopt a more linear approach to writing with transcribing during the initial stages and with formulating spread throughout the whole writing process. Thus, observation encourages a purposeful temporal organization of cognitive activities and this has a positive effect on the quality of final written products (cf. Braaksma, Rijlaarsdam, Van den Bergh, & Van Hout-Wolters, 2004; Groenendijk, Janssen, Rijlaarsdam, & Van den Bergh, 2008).

We have reason to assume that peer modeling of explicit strategy use may be beneficial in teaching L2 synthesis tasks (the type of task in the present study) to Turkish university students. Writing is an academic requirement that both low- and high-achieving Turkish students find difficult and view as something to "persevere through in order to pass certain exams" (Yavuz & Genç, 1998, as cited in Erkan & Saban, 2011). This notion stems from negative student attitudes and writing apprehension, as well as low self-efficacy in writing (Erkan & Saban, 2011). As observation improves self-efficacy, it can have an activating power towards positive learning behavior and result in writing success.

Synthesis writing is cognitively more demanding than most other writing tasks (cf. Mateos & Solé, 2009), as it brings together task requirements such as organizing, selecting and connecting (Spivey, 1997). This complexity becomes daunting when the task is in L2, as in this case language proficiency level also comes into play (Plakans, 2009). Arguably, as observation may activate the "learner" capacity in a learning-to-write activity, students can use more of their cognitive resources for metacognitive and procedural knowledge instead of focusing predominantly on the production process, (Rijlaarsdam, Braaksma, Couzijn, Janssen, Kieft, & Broekkamp, 2005). This may be an effective strategy for them to complete synthesis tasks, where the "procedures" (i.e., organizing, selecting and connecting) are more burdensome than in the other writing tasks.

In Turkey students are discouraged to critically question text information (Turkkollu, 1994; Clachar, 2000). However, writing a synthesis requires engagement with the text at a critical level (Mateos & Solé, 2009). For learning to write a synthesis text, students need to familiarize themselves with this new discourse, as well as to produce a new text. In such a complex writing task as synthesizing, students may benefit from observation as it has the potential to alleviate the "dual-agenda" (cf. Rijlaarsdam & Couzijn, 2000) of learning-to-write and producing a text at the same time. In this way, it may also stimulate Turkish students' engagement with the task at a critical level.

Although the three components of strategy-focused instruction (i.e., self-regulation, direct instruction and modeling) have been tested separately and in combination with each other in

several studies, only one study has compared the effects of direct instruction and modeling (cf. Fidalgo, Torrance, Rijlaarsdam, Van den Bergh, & Álvarez, 2015). However, the differences in the participant profile, the tasks and especially the design issue certain caveats in the comparability of the two studies (see Conclusion section).

Another issue to consider is that although we expect effects of peer modeling on synthesis writing, individual differences between learners also affect the results of observation. In Zimmerman and Kitsantas's study (2002), college students benefited more from observation of a coping model than a mastery model. Braaksma, Rijlaarsdam and Van den Bergh (2002), in their study with students in secondary education, showed that when the task is novel, struggling writers benefit more from observing struggling models; and stronger writers from observing a stronger model. This shows that in studies looking into the effects of observation, individual differences should also be taken into consideration, which will be controlled for in this study.

2. The Present Study

We set out to improve the synthesis writing performance in the EFL program of a private Turkish university. Therefore, we tested the effects of a strategy-focused instructional design based on the principles of observational learning by comparing three treatment groups. In a modeling condition, students observed their peers modeling the use of strategies for completing a synthesis task. In a presentational condition, students received direct strategy instruction without modeling. Thus, the distinguishing feature of the two strategy instruction conditions is the mode in which the strategy instruction was conveyed (i.e., through modeling mode in the modeling condition compared to a direct, presentational format in the presentational condition). In the control condition, instruction was not strategy-focused, so there was no explicit presentation or modeling of a strategy. Teaching in the control condition took place more on the implicit rather than explicit end of the instructional scale, in line with the CLT approach to TEFL. In the control condition, students had to work out the task requirements (i.e., their own heuristic strategies) from the given materials in accordance with the guidance provided during the training session.

The hypotheses of the study are:

Hypothesis 1: writing performance. Modeling of strategies results in qualitatively better synthesis texts compared to presentation of strategies (1A), while presentation of strategies results in qualitatively better synthesis texts compared to a control condition (1B).

Hypothesis 2: writing processes. Modeling of strategies leads to improved synthesis writing processes compared to presentation of strategies (i.e., more meta-cognitive activities in the initial stages and more executional activities in the later stages of writing) (2A) and presentation of strategies leads to improved synthesis writing processes compared to a control condition (2B).

We also investigate, whether the students' motivational orientation is a confounding variable in the analysis of the results and, for generalization purposes, whether our hypotheses apply to students with different learner characteristics in terms of initial levels of motivation and writing performance.

3. Method

3.1. Participants

Participants were 48 (54% male; mean age: 18) pre-faculty course students in Module 1 of the 14-week combined program at a private Turkish university. They were a homogeneous

group of students in their reading, listening, writing and speaking skills, measured at the end of module tests, which were prepared in line with IELTS international exam specifications by the test office of the institution. Students' L1 was mainly Turkish except for six international participants (evenly distributed over the three conditions) admitted to study their entire degree at the university (two Syrian, one Afghan, one Iraqi, one Moldavian and one Macedonian). Students did not differ in their motivational orientation prior to the study (see Table 8), but did differ at pretest for text quality (see Table 9), which was corrected for using the pretest scores as covariate in the final analysis. The training and the tests were part of the curriculum apart from a summary task assigned as one of the pretests and a synthesis task assigned as one of the posttests (i.e., the delayed posttest). We informed the participants about the study before the delayed posttest, which would replace their previous grade should they get a higher score in the delayed posttest. Participants could ask for the removal of their data after that time until the end of the Module. All of the participants agreed to take part in the study.

Newly enrolled students were not eligible for studying in the pre-faculty course, so all of the students in this combined 14-week program were so-called "repeat students" who had failed at least once at any level in the previous academic year. The reasons for failure were mostly failing to meet academic standards, such as completing assignments, following ethical principles in writing and research and/or attending lessons regularly. Because of the distinct student profile, in Module 1, the management chose instructors with experience in the pre-faculty course with the particular (14-week) group of students.

3.2. Design

The number of lessons at the pre-faculty course is 20 lessons per week. There are four lessons of 50 minutes every day. Every week instructors have to allocate a total of four lessons to teaching writing skills with the materials prepared by a selected panel of instructors prior to the start of the academic year. Through weeks 1 – 5, the focus of the writing lessons is on critical thinking and argumentation skills, library skills, paraphrasing, summarizing, referencing and citing sources in APA style and writing an argumentative essay. Through weeks 6 – 7, the focus is on writing a synthesis text; and through weeks 7 – 14, students write an argumentative research paper through a process writing approach.

The study was conducted in nine sessions of 50 minutes each. Four sessions were reserved for training in Week 6 (Sessions 1-4) and five sessions for pre- and posttest administration, distributed over weeks 4 and 13: One session to collect baseline data about motivational orientation and text quality in the form of summary writing of a single source (Pre-session), three additional sessions for posttest 1 (Session 5), writing log training (Session 6) and delayed posttest administered with the process registration measure (Session 7). Motivation questionnaire and learner report data were collected in a Post-session. See Table 1 for the distribution of the sessions across weeks and pre- and posttests of the study.

Table 1. *Distribution of the sessions across weeks and pre and posttests of the study*

	Weeks		Activities		Text Genre
Pretests	Pre-session	4	MSLQ		ARG & SSS
	Sessions 1-4	6	Training		
	Session 5	7			SYN
Posttests	Session 6 Session 7	11 11	Log Training	Writing Logs	+SYN
	Post-session	13	MSLQ +	Learner Reports	

ARG: Argumentative essay; SSS: Summary of a single source; SYN: Synthesis task

We compared the effects of modeling and direct instruction of the use of strategies supported by mnemonics as opposed to a control condition on participants' synthesis writing performance and writing processes in an experimental pretest-posttest design. Participants were randomly assigned to three classes. These classes were assigned to three conditions, with the researcher's class appointed to the modeling condition because the majority of instruction in this condition is conveyed through the peer videos, so her instructional contact with the students would be minimal. The two other classes were randomly assigned to either the presentational or control conditions. All three instructors had around six years of experience in teaching EFL. Two of the instructors were female native speakers of the Turkish language, with English language and literature degrees and both PhD candidates. The other instructor was male, native speaker of English of Canadian origin, with an MA in ELT.

3.3. Materials

The focus of this study is the effect of different approaches to teaching a strategy. Two different strategy instruction conditions are compared to a control group. In both experimental conditions a multicomponent strategy to write a synthesis text was taught, but via a different instructional format. The materials were the same except for the ones immediately related to each instructional format, that is, peer videos, and the two materials for the instruction of the strategies: a slide on the introductory PowerPoint presentation (PPT) with the strategies mnemonic (i.e., TRAMPOLINE) and the accompanying handout.

3.3.1. TRAMPOLINE strategies

We adapted TRAP IDEAS reading and writing strategies for summarizing (Mason, Reid & Hagaman, 2012) into TRAMPOLINE strategies to write a synthesis text (see Table 2 for the TRAP IDEAS and Table 3 for the TRAMPOLINE strategies). The researcher and a colleague piloted the TRAP IDEAS strategies simultaneously in two pre-faculty level classes in the last module of the academic year preceding the actual experiment. The two trainers then liaised for the adaptations necessitated by the differences in the tasks (summary vs. synthesis), the contexts (L1 vs. L2) and the academic writing conventions for synthesis writing, such as using reporting verbs and APA principles.

Table 2. *TRAP IDEAS reading and writing strategies for summarizing*

Think before reading **R**ead the paragraph **A**sk: "What is the paragraph mostly about?" **P**araphrase the important information **I**dentify important details to support the main idea **D**elete trivial details **E**liminate redundant details **A**dd a term for a list of words or concepts **S**ummarize.

Table 3. *TRAMPOLINE strategies for writing a synthesis text*

Think – 3 steps a. Before reading the first extract: Think about the purpose why you are given different extracts on the same topic? After reading the second and the third extracts: What is the relationship of this extract to the previous one? b. What do you expect to learn from the extract? c. What do you already know about the general topic/the focus of the extracts? **R**ead the extracts **A**sk - What is the main idea? **M**ark the important details **P**araphrase the main idea and the important details (Repeat TRAMP for each extract and OLINE for the whole summary) **O**rganize the paraphrased ideas BY **L**inking the ideas with appropriate linkers **I**ncluding APA **N**esting reporting verbs **E**dit your summary

3.3.2. Videos

We shot three separate videos using the Camtasia Screencast Program (Techsmith, 2016) for the three substrategies: TRAM, P (Paraphrasing) and OLINE. The duration of the videos was 9, 17 and 12 minutes, respectively. All of the videos featured the same model: a female freshman student who had studied the preparatory program in the previous year. The videos were controlled think-aloud protocols written and performed in the English language. We prepared the framework of the script based on a more or less ideal student performance, that is, using the TRAMPOLINE strategies during task execution; but with occasional instances of the most common student mistakes in writing a synthesis text based on an error analysis we did with the instructors teaching in the pre-faculty course. The model refrained from adopting a prescriptive tone. She was asked to mimic an actual account of completing the writing task with the help of the strategies. To ensure authenticity, the model did not follow the script very strictly.

3.4. Conditions

Both conditions are based on the stages of the SRSD program, with memorization (through the use of mnemonics) present in both of the experimental conditions. The distinctive feature in the two strategy instruction conditions is the mode in which the instruction is conveyed: modeling versus a verbal presentational format manipulated in the experimental conditions. All other features appearing in the stages of SRSD are applied to the lesson plans at a micro level, rather than spread over a long period of time, as is the case in SRSD programs. Thus, the focus of the study is not SRSD as the time allocated for teaching synthesizing was predetermined by the administration to be four lessons, which is rather short for an SRSD program to be implemented. Table 4 provides an overview of the distinctive characteristics of the instructional conditions and Table 5 of the training session for the experimental conditions.

Table 4. *Characteristics of instructional conditions*

Component	Modeling	Presentational	Control
Presentational Mode	-	+	-
Peer Modeling	+	-	-
Strategies (mnemonic) for synthesizing	+	+	-
Direct Instruction	+	+	-
Collaborative practice	+	+	+
Individual practice	+	+	+

3.4.1. Experimental condition 1: Modeling condition

In Session 1, students discussed a controversial topic aimed at creating a meaningful context for introducing the task and the strategies. Using a Power Point Presentation (PPT.) and a complementary worksheet, the instructor showed participants two extracts from different articles about the topic and then a weak and a strong sample of student syntheses of these two extracts. The comparison of the two syntheses enabled generating common knowledge for completing the task, which to some extent corresponded with some of the strategies in the TRAMPOLINE mnemonic. Next, the instructor introduced the TRAMPOLINE strategies mnemonic and gave each student a TRAMPOLINE handout detailing the steps in the strategy for self-reference. The instructor showed examples of each strategy step by referring to the sample summaries and checked comprehension through a one-item exercise for each strategy. Finally, the instructor checked memorization of the mnemonic with a whole class drill. In session 2, students received a synthesis task with extracts from three different articles, observed the model in a video completing the TRAM strategies for extract 1 while thinking-aloud. Subsequently, participants emulated the strategies individually (finding the main idea and the important details) for extracts 2 and 3. Then, the participants watched the model paraphrasing (P of TRAMPOLINE) the main idea and the important details in extract 1. In this video, the sub-skills of effective paraphrasing were shown. In session 3, in groups of four, participants paraphrased the main ideas and the important details of extracts 2 and 3 (subsequent collaborative emulation). The instructor supervised the activity, provided scaffolding and showed possible responses on the board. Finally, students observed the video model showing the OLINE strategies for organizing the ideas by using linkers, including APA, nesting reporting verbs and editing text. In Session 4, participants completed a new synthesis task individually with minimal support for practicing purposes. The videos were not available to the students after the screening, but they were free to refer to the TRAMPOLINE mnemonic handout and could ask for minor assistance from the trainer.

3.4.2. Experimental condition 2: Presentational condition

The main difference between the two experimental conditions is that the observation tasks in the modeling condition are replaced with the teacher presentation of the TRAMPOLINE strategies. The instructor taught the strategies in, what can be defined as, presentational mode (Hillocks, 1984), with occasional teacher–led whole class question-and-answer episodes. The content of the first and the last sessions and the sequence of learning content in the 2nd and the 3rd sessions, was the same in both conditions: TRAM and Paraphrasing strategies in the 2nd session and Paraphrasing practice and the OLINE strategies in the 3rd session. In Session 2, the instructor gave the synthesizing task to participants, and instead of showing the video she presented the TRAM strategies through extract 1 via a teacher-led question-and-answer session and subsequent individual practice of the strategies by the participants on extracts 2 and 3. This was followed by presentation of P by the instructor. In Session 3, the participants practiced the strategies collaboratively and the instructor supervised, provided scaffolding and showed sample paraphrased sentences to the students. Finally, the instructor presented the OLINE strategies. Session 4 was the same as in the modeling condition.

3.4.3. Control condition

This is the regular curriculum practice of the institution. In this condition we adapted and used a lesson plan previously prepared by an instructor and observed and approved by the administration as part of yearly course and instructor evaluations. This lesson plan also set the premise for the lesson plans used in the experimental conditions, by making concise adaptations; we differentiated the training sessions for the three conditions. The main

difference between the experimental conditions and the control condition was that there was no explicit and systematic strategy instruction in the latter. The learning content was the same as in the experimental conditions except for the materials related to the explicit presentation of strategies (i.e., the TRAMPOLINE strategy practice slides on the introductory PPT, the TRAMPOLINE handout and the peer videos. The content of the first session was the same as in the experimental conditions except for the brief introduction to TRAMPOLINE strategies. Giving participants more time for self-discovery of the task requirements filled this absence. The only explicit task requirements on the PPT were: "underline the key points" and "paraphrase," mentioned prescriptively, as well as some sentence-level paraphrasing practice. As participants in all conditions had already studied APA in-text referencing, reporting verbs and linking words in the previous weeks, there was a brief reference to that on the PPT, but no explicit instruction was provided with alternative structures as in the experimental conditions. In sessions 2 and 3, students worked on the same synthesis task as the students in the other conditions. Taking the weak and strong synthesis samples as reference tasks, the instructor asked guided questions to elicit task requirements that are similar to the strategies in the other conditions, that is, "finding the main idea, supporting ideas and the formalities of effective paraphrasing in the second session and more surface-level concerns such as reporting verbs, linkers, APA conventions in the third session. Some guided questions were: "What would you include in your synthesis?" "Why did you choose that sentence?" and so on. Although the instructor followed a plan for the overall session, the questions needed to be partially improvised according to the answer of the previous question. Each cluster of task requirements was followed by individual practice, whole class-check and collaborative practice. Students read the extracts and underlined the key points individually. After checking the answers, the participants paraphrased the underlined points in groups of four (collaborative practice). The instructor supervised the activity and showed sample paraphrased sentences, which were reported using various reporting verbs, APA conventions, combined with linkers and required some editing, which students were expected to discover and mention. Session 4 was the same as in the experimental conditions (see Table 5 for the training session for two experimental conditions).

Table 5. *Training session for two experimental conditions. (MC: Modeling Condition, PC: Presentational Condition)*

Training session for experimental conditions					
Condition	**Aim(s)**	**Contents**	**Instructor / Student Activities**	**Teaching Techniques**	**Materials**
SESSION 1					
MC = PC	Creating a meaningful context for introducing the task and the strategies Developing background knowledge about the task & task requirements	Discussing a controversial topic to create context. Reading the extracts. Comparing weak and strong sample student synthesis texts. Finding task requirements in students' sample synthesis texts. Doing exercises about the task requirements	Instructor facilitates and moderates discussion to set the context and introduces the task with a PPT. Instructor and students discuss the strong and weak points of student samples. Instructor elicits the strategies and gives the TRAMPOLINE handout to the students. Students complete exercises for each strategy. Instructor checks for memorization of the strategies.	Direct Instruction Brainstorming Guided questions (to generate common knowledge and retrieve joint experiences) Elicitation Awareness Raising Joint reflection Whole class drill	- PPT and complementary worksheet with the two extracts, strong and weak student sample syntheses. - TRAMPOLINE strategies on PPT -TRAMPOLINE handout.
SESSION 2					
MC	Modeling of the use of TRAM strategies Scaffolding the use of strategies	TRAM Video and subsequent individual practice Paraphrasing (P) Video	Students read the extracts of a synthesis task and look up the vocabulary using online and paperback dictionaries. Students watch video 1 for TRAM strategies. Individual student emulation. Instructor projects the answer key on the board and gives whole class feedback. Students watch video 2 for Paraphrasing strategies	Peer modeling via video	- A synthesis task: *Reasons for the increase in divorce rate* - TRAMPOLINE strategies handout - TRAM and P videos
PC	Presenting TRAM strategies Scaffolding the use of strategies	TRAM Strategies and subsequent individual practice Paraphrasing (P) Strategies	Students read the extracts of a synthesis task and look up the vocabulary. Instructor explains how to use the TRAM strategies. Individual student emulation. Instructor projects the answer key on the board and gives whole-class feedback. Instructor explains how to use Paraphrasing strategies.	Teacher presentation	- A synthesis task: *Reasons for the increase in divorce rate*- TRAMPOLINE strategies handout

Training session for all conditions					
Condition	**Aim**	**Contents**	**Instructor / Student Activities**	**Teaching Techniques**	**Materials**
SESSION 3					
MC	Practicing paraphrasing strategies	Paraphrasing	In groups of four, students paraphrase the main ideas and the details in all the extracts that they worked on previously. Instructor supervises the activity, provides scaffolding and shows sample answers. Students watch video 3 for OLINE strategies.	Collaborative practice Monitoring Scaffolding Feedback	- A synthesis task: *Reasons for the increase in divorce rate* -TRAMPOLINE strategies handout - OLINE video
PC			In groups of four, students paraphrase the main ideas and the details in all the extracts that they worked on previously. Instructor supervises the activity, provides scaffolding and shows sample answers. Instructor presents the OLINE strategies.		- A synthesis task: *Reasons for the increase in divorce rate* -TRAMPOLINE strategies handout
SESSION 4					
MC = PC	Enabling independent practice	Completing a synthesis task	Instructor gives the practice worksheet and walks around the students, monitors each student and provides individual help when students ask for it.	Individual Practice Monitoring Scaffolding Feedback	- A synthesis task: *Factors that play a role in academic success*

3.5. Training Delivery and Intervention Fidelity

We trained the instructors of presentational and control conditions in a one-hour training session; and provided detailed lesson plans and the materials organized in a folder in the order to be followed. As an implementation check, instructors rated their integrity in implementing each of the critical steps of the intervention on a 100-point scale, and we observed each of the two instructors in one session of the experiment. Both the treatment fidelity scores (mean score: 90) and our observations yielded satisfactory results.

3.6. Measures

Table 1 shows the list of pre- and posttest measures of the study and their distribution across weeks. We measured text quality with students' exam papers, writing processes with the use of writing logs and motivational orientation with the use of a questionnaire adapted from Motivated Strategies for Learning Questionnaire (MSLQ).

3.6.1. Product measures: Motivation questionnaire data and writing performance

We used an adapted version of the MSLQ questionnaire developed by Pintrich, Smith, Garcia, and McKeachie (1991) by selecting relevant items from the instrument in its original language, that is, English. We selected a total of 17 questions from three scales of the instrument (i.e., six items for task value, eight items for self-efficacy and three items for intrinsic goal-orientation) measured on a 7-point Likert scale, pre- and posttest. The reliability of the whole scale was .93 for the pretest and .98 for the posttest.

We evaluated text quality through three different genres and four different tasks: an argumentative essay and a summary as pretests and two synthesis tasks as posttests. Participants took the tests simultaneously in pen and paper written exam conditions on the dates preset by the directorate. Students wrote on A4 papers with the exam prompts written at the top. Except for the summary, all the tasks were compulsory assessment components of the course counting towards students' General Point Average.

In the argumentative task, students were asked to write an essay of about 350 words in response to a 50-word prompt prepared by the testing unit (See Appendix A for the list of writing prompts). The other sections of the exam (i.e., listening, reading and writing) were clustered around one theme selected from previously covered topics. Students received the writing exam paper with the writing prompt in the last 60 minutes of the exam after all other test materials were taken from them. The task was to write a well-organized argumentative essay for or against the given prompt.

In the summary task, students were asked to summarize a textbook article in 150 words. In both synthesis tasks, students were asked to write a synthesis of 150-200 words integrating extracts from three different articles (each one paragraph), hereby referred to as sources, in response to a writing prompt which was around 25 words including the instruction. The tasks were identical to the tasks used for teaching and practicing in all three conditions of the intervention, but the students saw the content of the exam materials including the sources and the prompt for the first time in the exams. To prevent a possible distracting effect of completing the writing logs in the delayed posttest (cf. Table 5) from putting students at a disadvantage, we extended the duration of the delayed posttest an extra 10 minutes (i.e., 60 minutes as opposed to 50) and gave students easier extracts to synthesize (i.e., 9.8 on Flesch Kincaid readability tests in the delayed posttest, as opposed to 12.2 in posttest 1).

3.6.1.1. Rating Procedure

For rating purposes, the handwritten student papers were typed (on word documents) to eliminate any possible negative effect of student handwriting on the raters (Klein & Taub,

2005). We trained an outside panel of seven raters for rating the papers. The papers were divided over the seven raters, that is, the raters rated the texts in panels of two or three. All raters were second- or third-year bachelor students of English Language and Culture at the University of Groningen, the Netherlands; 20 to 23 years of age, with Dutch as their mother tongue.

We assessed the argumentative texts on four traits: (1) structural organization, (2) strength of the argumentation, (3) lexical richness, and (4) range and accuracy of grammatical structures Therefore, we used benchmark essays, since earlier research has demonstrated the positive effects of this rating procedure on rater reliability (cf. Schoonen, 2005; Tillema, Van den Bergh, Rijlaarsdam, & Sanders, 2012). For each trait, we used as benchmark essay a text from the 48 student texts written for pretest 1 that was of average quality with respect to that feature. The benchmark texts got an arbitrary score of 100. A total of three raters scored the other argumentative essays in comparison with the benchmark texts. If a text was considered twice as good as the benchmark text, it was scored as 200, if it was half as good, it was scored as 50, and so on. Each benchmark text was enriched with a list of the weak and strong points of the text with regard to the feature that had to be assessed with it, in order to help the raters focus on the right aspects when scoring a text on a particular trait.

Unlike the argumentative texts where students used personal experience and knowledge, in summaries and synthesis texts students worked with sources. For rating of text comprehensibility of the summary and the synthesis tasks, we did not inform the raters about the nature of the task to ensure that they were able to evaluate it for readers not acquainted with the sources. Additionally, the summary and synthesis texts were examined with regard to the incorporation of main ideas, supporting ideas and examples of the sources to summarize/synthesize. Two raters received lists with the main ideas, supporting ideas and examples of the source(s), and had to determine independently of one another the percentage of (1) the total number of main ideas, (2) supporting ideas and (3) examples in each student texts for both the summary and the synthesis tasks.

The synthesis texts were also analyzed on authenticity, source comprehension, and source use. For the last two analyses, the same kind of holistic scoring procedure was used as for the grading of the argumentative texts. Authenticity was identified with the function ‘Compare and Merge documents’ in Microsoft Word. After comparing and merging the original texts with the student texts, the parts of the student texts that overlapped with the source(s) were highlighted. Two raters subsequently calculated how many words of each student text were highlighted on a scale of 0 to 100%. The overlap percentage was subtracted from 100 and the corresponding value constituted the authenticity score of the student. If the overlap was 60%, the student received a score of 40. A higher score from authenticity meant less plagiarism.

Before the raters individually rated the argumentative texts, summaries and syntheses on the different dimensions, they had practiced the rating method together in a short training session, during which they received the benchmark texts, lists with the main ideas, supporting ideas and examples of the original texts, and/or the rating scale for the authenticity assessment. They read them carefully and used them to individually score six argumentative texts, summaries, or syntheses on a particular trait. When the raters differed in their scoring, they discussed possible reasons and solutions for their disagreement.

Table 6 shows the reliabilities of the rating of the texts written for pretest and posttests with benchmark essays. Consequently, we opted to use (the same method and) the same benchmark essays to score the texts of the delayed posttest as the ones in posttest 1. Tillema (2012) and Bouwer, Béguin, Sanders, & Van den Berg (2015) suggest that different tasks in the same genre can reliably be assessed with the same benchmark essays. Therefore, we

hypothesized that the quality difference of the synthesis texts written for posttest 1 and the delayed posttest could reliably be determined with rating scales that were developed for the scoring of posttest 1. The same raters assessed posttest 1 and the delayed posttest. Their scoring of the texts of the delayed posttest appeared to be reliable (cf. Table 6).

Finally, we calculated the mean of the scores the raters had given to the student texts on the particular traits. We determined the effect of our intervention with these mean scores.

Table 6. *Reliability in Cronbach's Alpha of the text scoring on the different traits (2 to 3 raters per text and 2 to 3 items for Cronbach's alpha)*

	Pretest 1: Argumentative essay	Pretest 2: Summary	Posttest 1: Synthesis text	Posttest 2: Synthesis text
Structural organization	.88			
Argumentation strength	.83			
Lexical richness	.84			
Grammar and punctuation	.90			
Incorporation of main ideas		.84	.70	.77
Incorporation of supporting ideas		.82	.86	.67
Incorporation of examples		.77	.87	.72
Comprehensibility		.94	.87	.82
Correct paraphrases			.79	.77
Source presentation			.93	.91
Authenticity			.97	.96

3.6.2. Process measures: Writing logs and learner reports

We tested the effects of the training on the writing processes of the students through the time sampled self-report method (i.e., writing logs) that Fidalgo, Torrance and Garcia (2008) implemented in their studies with six graders. In this method, students hear a bleep sound at regular intervals of 1-2 minutes during the writing and they are supposed to tick a box on the writing logs indicating the activity they are engaged in at that moment. We administered the writing log measure where participants responded to 45 bleep sounds concurrent with the delayed posttest. We showed the exact numbers of the bleeps projected on the board in case they lost track of the order of the bleep sounds. The eight activity categories in the writing logs were adapted from the original (Fidalgo et al., 2008) taking into consideration the possible activities that students would do when completing a synthesis task. We also included a simple graphic representation next to each activity category to help students locate the activity on paper easily. The activities in writing logs were categorized and defined as follows:

1. I am reading the sources: I am trying to understand the sources
2. I am paraphrasing: I am writing the sentences in my own words
3. I am working on the sources: I am trying to find the main idea important details, writer, year of publication, etc.
4. I am editing: I am making changes to the writing: correcting spelling mistakes, changing/-adding words
5. I am writing my text: I am writing my synthesis text
6. I am reading my text: I am reading through part or all of my text
7. Other: I am doing something unrelated: looking for a pen, looking out of the window
8. Finished writing

We adopted Torrance, Fidalgo and Garcia's (2007) strategy to train the students on how to complete a writing log prior to the actual practice (50 minutes in total). First, the participants went through the activity names, their explanations and the graphic representations. Then, they watched a video of a student model doing the synthesis task interrupted with occasional bleeps at different moments. Students were asked on a demo version of the writing log to tick the box, which showed the writing activity category that the model was engaged in at the moment they heard the bleep sound. We made sure that the students were able to distinguish between the different writing categories. We checked and discussed the answers with the students. Subsequently, we simulated the exam conditions and gave the participants a synthesis task similar to the one they would do in the exam and the writing logs. Finally, in the delayed posttest, after a quick reminder of the different categories of writing activities on the writing logs, students wrote their synthesis texts and filled out the writing logs simultaneously.

To increase validity of the results, we used multiple process measuring methods (Schellings & van Hout-Wolters, 2011), so combined online self-reported data of the writing logs with the offline learner report method (De Groot, 1980). The latter was used to provide insight into learners' experiences and identify the extent of conscious knowledge that students were able to retain after the training prompted by open-ended questions (See Appendix B for the questions). After an instruction and a standardization session, two coders (i.e., the researcher and another instructor) independently coded the responses. The two coders found and underlined the predetermined key words in student reports (i.e., main idea, details, paraphrasing, summarizing, organization, linkers, APA, think, edit, steps/stages, time-management). As a second step, they clustered the key words and relevant semantic units under four categories: main ideas and details under *content management*; paraphrasing and summarizing under *synthesizing skills*; organization, linkers, APA under *source use skills*; think, edit, steps/stages and time management under *process knowledge*. The inter rater reliability was 0.70 based on a sample of 10 cases.

4. Analyses

To test Hypothesis 1, that is, whether peer modeling results in qualitatively better synthesis texts compared to presentation of strategies (1A) and presentation results in qualitatively better synthesis texts compared to a control condition (1B), we used students' summaries and argumentative writings as two pre-tests and two synthesis texts as post-tests. There was a positive correlation between the four subscores of pretest 1 Summary of a single source, that is, main ideas, supporting ideas, examples and text comprehensibility, ranging from (r =.436, p =.003) between main ideas and text comprehensibility to (r =.550, p <.001) for examples and text comprehensibility, and Cronbach's alpha reliability coefficient yielding highly satisfactory results (.77). Thus, we merged these four subscores and created a composite score, hereby referred to as *pretest score 1 for Summary of a single source.* In the same way, a statistically significant positive correlation was observed between the four subscores of pretest 2 Argumentative writing, that is, organization, strength of argumentation, lexis and grammar ranging from (r=.387, p =.007) between lexis and organization to (r=.641, p <.001) for strength of argumentation and organization. Reliability analysis for the different measures of pretest 2 yielded a highly satisfactorily alpha coefficient (α = .823). In subsequent analyses we used a composite score for pretest 2 Argumentative Writing, hereby referred to as *pretest score 2*. These two composite pretest scores provide us with a strong and valid (i.e., as more generalizable) measure of students' initial level of writing skill in two different genres. Controlling for students' initial writing skills across genres by including the two pretest measures as covariates in the analyses will increase the validity of our results (i.e., effect after having balanced out pretest differences in writing skill).

In the two (synthesis) post-tests, that is, posttest 1 and the delayed posttest, we had seven subscores, that is, *main ideas*, *supporting ideas*, *examples*, *text comprehensibility*, *source comprehension*, *source use and plagiarism.* There was a strong correlation between the subscores of *main ideas*, *supporting ideas*, *text comprehensibility* and *source comprehension*, with Cronbach's alpha reliability coefficient .88 for posttest 1 and .75 for the delayed posttest. Hence, we merged these subscores and calculated a composite score, subsequently referred to as *content*. Although there was a low correlation between supporting ideas and text comprehensibility in the delayed posttest (r =.264, p = . 070), there was high correlation between the rest of the values ranging between .408 and .680, which indicated a good internal consistency for merging of the sub-scores, so we followed the same procedure for standardization purposes. The examples subscale was expected to belong to the content composite score, but there was no correlation with any of the subscores for posttest 1. For the delayed posttest, there was low correlation with supporting ideas (r =.322, p <.05), but not with other subscores, so we eliminated the score from the final analysis. Therefore, in the final analysis we had three aspects for the quality of the two posttests (i.e., synthesis texts), that is, *content*, *authenticity* and *source use* (cf. rating procedure).

The triadic subset of TRAMPOLINE strategies corresponds with the three aspects for rating the quality of student texts and the composite scores (See Table 7). Thus, we expected to observe mastery in the related set of strategies in the corresponding quality of paper, and hence, the corresponding (composite) scores.

To explore whether one of the learning conditions resulted in better scores for a particular group of participants than another condition, we analyzed interactions between the three conditions and two learner variables: motivation and writing skills, both based on pretest scores, on three aspects of posttest text quality: quality of content, source use and authenticity. We applied Hayes moderator regression analyses (Hayes, 2013), as add-in in SPSS, which allowed us to estimate the regions within the moderator variable in which differences between the learning condition were statistically significant, using the Johnson-Neyman procedure. We present the explorations per posttest variable.

Table 7. *A cross match of the TRAMPOLINE strategies, text quality aspects and the (composite) scores*

Strategies	Text Quality Aspects	(Composite) Scores
Think Read Ask – What is the main idea Mark the important details	Main ideas Supporting ideas Text comprehensibility Source comprehension	Content
Paraphrase the main idea and the details	Plagiarism	Plagiarism
Organize the ideas BY Linking the sentences Including APA Nesting reporting verbs	Source Use Skills	Source Use Skills
Edit your text	(Not rated in text quality Measured with writing logs)	

To test Hypothesis 2, that is, whether peer modeling leads to improved synthesis writing processes compared to presentation of the strategies (i.e., more meta-cognitive activities in the initial stages and more executional activities in the later stages of writing) (2A) and presentation of the strategies leads to improved synthesis writing processes compared to a control condition (2B), we used writing logs and students' learner reports. To analyze the writing logs, we divided the process time of each individual student (calculated by the total number of responses in the log) into three phases (i.e., Phase 1, Phase 2 and Phase 3) of equal length, based on the number of responses to the bleeps (max. 45, each bleep occurring on average every 90 seconds, at random intervals of between 60 and 120, a practice in line with previous studies for generalizability purposes). It is customary to divide the writing process into stages to interpret the temporal distribution of the cognitive effort over the writing process (Rijlaarsdam, Van den Bergh & Van Steendam, 2015). When the result of the division of the number of responses into three phases was not a whole number, we transferred the surplus value in the decimals to Phase 3 (e.g., for 13 responses for student x, four were allocated to phase 1, four to phase 2, and then five to phase 3). We calculated the frequency of writing activities for each Phase calculated by the number of activity items reported in the logs.

To analyze the learner reports, we counted the number of categorical statements of all conditions and calculated proportions for each condition (by dividing the total number of statements by the number of students in that condition). We applied analysis of variance to analyze the learner reports with the writing pretest as a covariate.

As an implementation check, we tested the improvements in students' motivational orientation over time through MSLQ, by applying analysis of variance, with the measurements as within factor and conditions as between factors.

5. Results

We hypothesized that strategy instruction would be more effective in improving students' text quality and writing processes compared to regular curriculum instruction (i.e., the Control Condition) and that modeling would have an effect over and above the two conditions.

5.1. Preliminary Analyses

We checked students' motivational orientation as an implementation check through MSLQ and did not find initial differences between conditions ($F(2,42) = 1.596$, $p = 0.214$, $\eta^2 = .066$). There was an effect of time ($F(1,42) = 11.724$, $p = 0.001$, $\eta^2 = .207$) indicating a progress over time, but no interaction between time and condition ($F(2,42) = 0.697$, $p = 0.503$, $\eta^2 = .030$). See Table 8 for the mean pre- and post-test scores for motivational orientation.

Table 8. *Pretest and posttest means and standard deviations for motivational orientation (7-Point scale 1=Strongly Disagree, 7=Strongly Agree)*

Variable	Condition	Pretest		Posttest	
		M	*S.D.*	*M*	*S.D.*
Overall Score	Modeling	4.80	0.76	5.40	0.92
	Presentational	5.09	0.69	5.35	0.74
	Control Condition	4.51	1.08	5.21	1.11

5.2. Text Quality

Table 9 shows mean text quality scores for the pretests for the three conditions. For pretest score 2, no statistically significant differences were observed between the three conditions ($F(2,44) = 0.460$, $p = 0.634$, $\eta^2 = 0.020$). For pretest score 1, however, an analysis of variance (ANOVA) showed a significant difference between the conditions ($F(2,44) = 3.964$, $p = 0.027$, $\eta^2 = 0.162$), so we used Tukey post hoc tests to identify sample means that are significantly different from each other. This analysis showed that there were initial differences between control and the presentational conditions for pretest 1 (*MD*: -21.14, $p = 0.047$) with the control condition scoring lowest. No differences were found between the presentational and modeling conditions (MD: 3,028, $p = 1,00$) or between modeling and the control conditions (MD: 18,109, $p = 0,062$). Consequently, we will include both pretest scores as covariates to adjust for initial level of writing skill.

Table 10 A shows text quality scores for writing performance in posttest 1 for all three conditions. A multivariate analysis of covariance including the two pretests as covariates with the three text quality measures for posttest 1 (content, authenticity and source use) showed a statistically significant condition effect: $\Lambda = 0.682$, $F(6, 74) = 2.566$, $p = 0.026$, $\eta^2 = 0.176$). Separate follow-up ANOVAs on the outcome variables showed no effect of condition for content and plagiarism was observed ($F(2,38) = 2.301$, $p = 0.114$, η^2=.108, and ($F(2,38) = 0.537$, $p = 0.589$, $\eta^2 = .027$ respectively). For source use, a condition effect was observed in favor of Modeling ($F(2,38) = 3.905$, $p = 0.029$, $\eta^2 = .170$).

Table 10 B shows text quality scores for writing performance in the delayed posttest for all three conditions. A multivariate analysis including the two pretest composite scores and also partialling out the effect of the content, authenticity and source use scores of posttest 1 (including 5 covariates), using Wilks's Lambda showed a statistically significant main effect for condition $\Lambda = 0.612$, $F(6, 66) = 3.057$, p =0.011, $\eta^2 = 0.217$. For content and plagiarism, no effect of condition was observed ($F(2,35) = 0.175$, $p = 0.840$, η^2=.010, and $F(2,35) = 0.844$, $p = 0.439$, $\eta^2 = .046$ respectively). For source use, a condition effect was observed in favor of Modeling ($F(2,35) = 9.426$, $p = .001$, $\eta^2 = .350$).

Table 9. *Mean text quality scores at pretests for three conditions*

	Modeling			Presentational			Control Condition		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
SSS	19	52.01	20.59	12	55.04	22.14	13	33.90	20.27
ARG	18	81.37	15.84	13	86.20	17.75	16	81.20	13.72

ARG: Argumentative essay, SSS: Summary of a single source

Table 10. *Mean text quality scores for synthesis texts for three conditions*

A. *Posttest 1*

	Modeling			Presentational			Control Condition		
	N	*Mean*	*SD*	*N*	*Mean*	*SD*	*N*	*Mean*	*SD*
Content	18	67.33	27.59	12	57.06	20.56	13	67.42	21.01
Authenticity	18	85.11	22.58	12	91.25	10.48	13	91.61	12.39
Source Use	18	123.44	51.46	12	76.25	32.20	13	93.77	54.70

B. *The delayed posttest*

	Modeling			Presentational			Control Condition		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Content	18	84.21	18.28	12	87.02	23.34	13	76.44	18.95
Authenticity	18	88.83	16.20	12	87.50	17.52	13	97.00	6.22
Source Use	18	155.17	30.91	12	73.50	41.48	13	120.15	40.71

5.3. Explorations: Interactions between Learner Characteristics and Learning Condition

5.3.1. Effect of initial levels of motivation

When testing for moderator effects for students' initial level of motivation (pretest based and with Hayes moderator regression analyses (Hayes, 2013), a statistically significant interaction effect was shown on source use and authenticity of posttest 1. For the content aspect of the text quality of posttest 1 no statistically significant interaction effect was observed. For source use, the regression between pretest motivation scores and the modeling condition was strongest. Next to main effects of pretest motivation scores (t = 2.36, p = .02) an interaction between motivation and learning condition was found (t = -2.18, p = .03). The effect was statistically significant for the 35% most motivated participants. In the modeling condition the most highly motivated students produced the best texts whereas the most motivated students in the control condition wrote the poorest texts. The condition did not affect the source use scores of the other 65% of the participants.

For authenticity, we observed a main effect of pretest motivation (t = 3.09, p = .001), and condition (t = 3.06, p = .001) as well as an interaction between motivation and authenticity scores (t = -2.75, p =.01) (See Figure 1). Here the interaction holds for the lower scoring group (37%) on pretest motivation: participants in this group scored significantly lower on authenticity in the modeling condition than in the control condition. The general pattern observed is that the modeling condition is more sensitive to motivation than the control condition (See Figure 1).

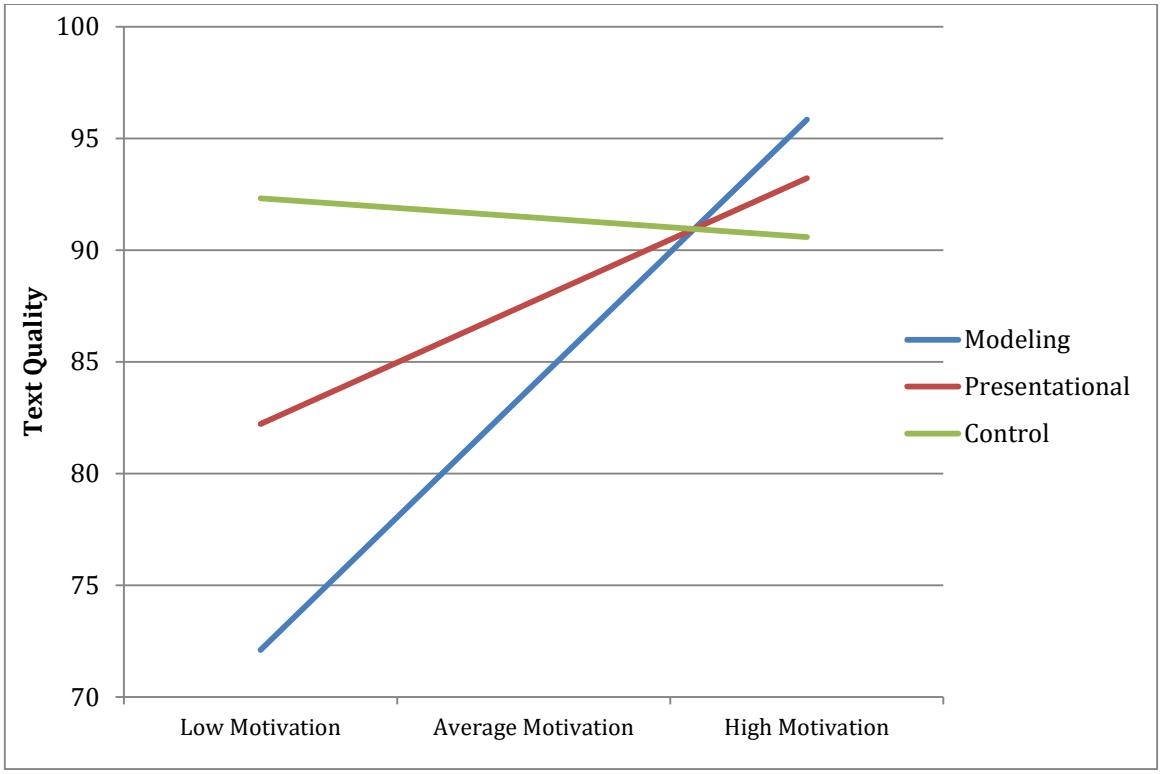


Figure 1. Interaction between learners' initial levels of motivation and learning condition on authenticity of synthesis texts

5.3.2. Effect of initial levels of writing performance

For the pretest Writing Performance we had two pretest scores that did not correlate to a statistically significant degree (r = .26, p = .086): pretest score 1 and pretest score 2.

For *source use* no interaction effects were observed. For c*ontent* we found an interaction between pretest score 1 and learning condition (t = -3.30, p = <.01) next to a main effect of the pretest scores (t = 2.44, p = .02). The interaction effect is significant for the 25% lowest scores on the pretest, as well as for the 25% highest scoring group of participants. The effect is strongest in the modeling condition, and non-significant in the control condition. Participants who have a relatively high score in Pretest score 1, score best in the modeling condition; while the participants scoring lowest in the pretest score 1, score lowest in this condition.

For the scores on *authenticity* at the posttest, we found an interaction between the pretest score 2 and learning condition (t = 2.29, p = .03). The effect is significant for the 26% highest scoring group of participants in the pretest. Again, the strongest effect of pretest scores is in the modeling condition: participants with relatively high pretest scores scored significantly lower on posttest *authenticity* in this condition than the participants that started with lower pretest scores. This effect is not observed in the control condition (See Figure 2).

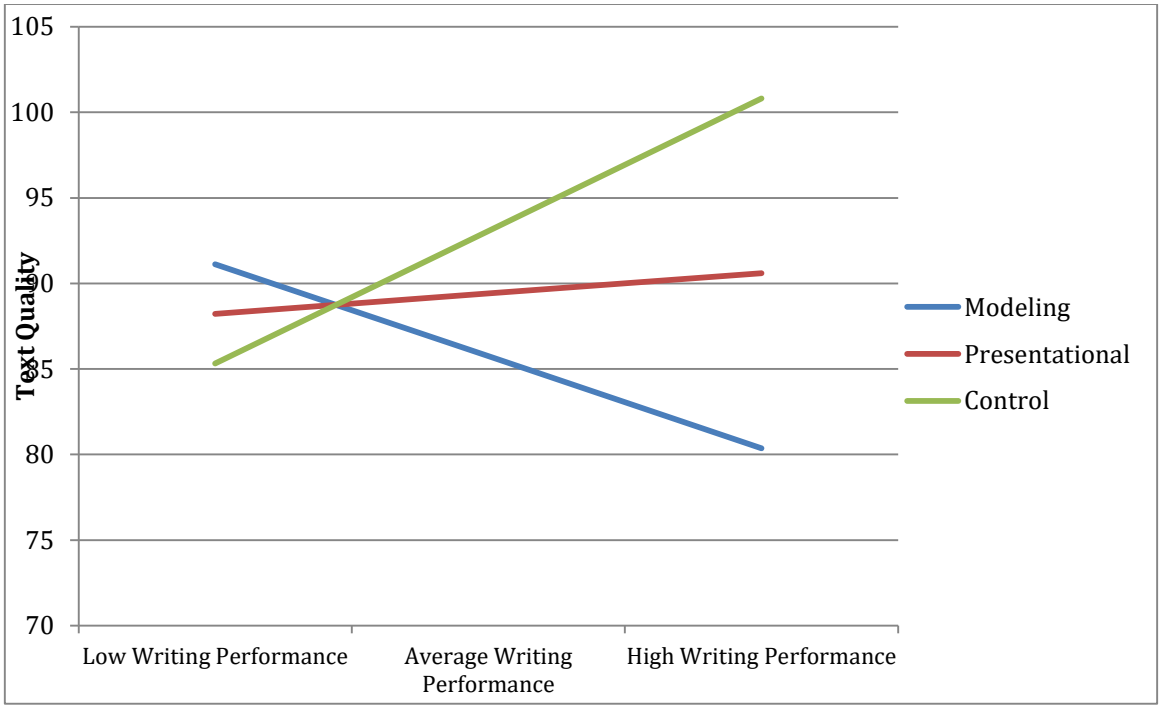


Figure 2. Interaction between learners' initial levels of writing performance and learning condition on authenticity of synthesis texts

5.4. Writing Processes

Table 11 shows the process data for the three conditions. The numbers in the table stand for the average number of the reported activities, that is, the frequency of each activity per phase for each condition. To have an overall picture of the most frequently reported activity in each condition, we also calculated percentages for each phase by adding up the averages for each one of the eight activity items and dividing it by the average for the relevant activity item.

Results showed that students reported spending most of their exam time, that is, 45 bleeps/60 minutes, *writing* their summaries (i.e., for 31% of the time). In Phase 1 of the writing process, the modeling and the presentational conditions wrote their syntheses 26% and 38% of the time, respectively, whereas the control condition reported reading the sources 32% of the time. There is a significant difference between conditions in the activity *reading the sources*: the control condition reported spending more time on the activity than the other two conditions ($F(2,42)$ 4.743, p = 0.014, η^2 =.184). In Phase 2, the modeling condition and the presentational condition reported writing their syntheses for 31% and 41% of the time respectively, whereas the control condition reported reading their own synthesis texts 35% of the time. A condition effect was observed for *working on the sources* with the modeling condition spending more time on this activity than the presentational condition ($F(2,42)$ 2.358, p = 0.048, η^2 = .101). In Phase 3, the proportion of total writing time spent in the activity *writing my synthesis* was 33%, 32% and 55%, respectively. The control condition reported spending more time on this activity in this phase than the experimental conditions ($F(2,42)$ 6.678, p = 0.003, η^2 = .241).

Table 11. *Process results: frequency of activities per condition and phase*

	Modeling		Presentational		Control	
	M	*S.D.*	*M*	*S.D.*	*M*	*S.D*
Phase 1						
Reading the sources	2.68	1.77	2.00	1.15	3.81	1.68
Paraphrasing	2.63	2.39	2.23	1.88	3.12	2.03
Working on the sources	3.05	2.20	1.85	1.52	1.87	1.41
Editing	.32	.58	.38	.51	.19	.54
Writing my text	3.16	2.59	4.15	3.18	3.00	2.83
Reading my text	.32	.67	.46	.88	.13	.50
Other	.11	.32	.08	.28	.56	1.26
Phase 2						
Reading the sources	1.68	1.42	1.85	1.91	1.00	1.41
Paraphrasing	2.95	2.70	2.08	2.25	2.19	2.17
Working on the sources	2.89	2.83	.85	1.07	2.19	2.32
Editing	.42	.61	.92	.86	1.31	2.75
Writing my text	3.58	2.69	4.38	2.63	4.75	2.35
Reading my text	.21	.42	.77	1.36	.81	2.17
Other	.53	1.02	.31	.63	.44	.63
Phase 3						
Reading the sources	.32	.75	.38	.77	.94	1.88
Paraphrasing	1.11	1.63	1.46	1.98	1.00	1.21
Working on the sources	1.47	1.81	.77	.93	.56	1.15
Editing	2.11	1.59	1.92	2.43	1.13	2.13
Writing my text	3.68	2.08	3.15	1.86	6.50	3.16
Reading my text	2.47	1.65	2.46	2.11	1.87	1.86
Other	.63	.90	.69	.95	.88	1.31

5.5. Learning Experiences

Table 12 shows the results from the learner reports for the three conditions (see Appendix B for a sample learner report). The numbers in the table show the percentage of the average number of categorical terms mentioned in each condition. The majority of the participants in the modeling condition reported learning experiences mostly about process knowledge, in the presentational condition about synthesizing skills and in the control condition about content management. No effect of condition was observed for content management ($F(2,42) = .171$, $p = .843$, $\eta^2 = .008$), synthesizing ($F(2,42) = .757$, $p = .476$, $\eta^2 = .035$) and source use skills ($F(2,42) = 2.348$, $p = 0.108$, $\eta^2 = .101$). The only category that seemed to be sensitive to conditions was process knowledge with an effect of ($F(2,42) = 3.418$, $p = .042$, $\eta^2 = .140$), in favor of modeling condition.

Table 12. *Results from learner reports: mean percentage and standard deviation of statements per condition and category*

	Modeling				Presentational				Control			
	Weak		Strong		Weak		Strong		Weak		Strong	
	Mean%	*SD*	*Mean%*	*SD*	*Mean%*	*SD*	*Mean%*	*SD*	*Mean%*	*SD*	*Mean%*	*SD*
Content management	3.4	.036	1.2	.026	1.9	.022	1.7	.020	1.7	.020	3.1	.032
Synthesizing skills	1.7	.015	2.4	.015	3.4	.010	2.0	.017	1.6	.017	2.4	.016
Source use skills	2.7	.029	3.1	.025	0.0	.000	1.9	.025	1.6	.024	2.1	.019
Process knowledge	3.6	.018	3.2	.039	2.7	.034	.08	.016	1.0	.017	1.4	.020

Mean percentages are calculated according to the occurrence of key phrases per student by multiplying the total number of responses by the number of participants in each condition divided by total number of participants in the study.

Students in the experimental conditions expressed improved process knowledge, especially about managing the stages and/or steps and using their time more efficiently in the timed writing synthesizing tasks of the Posttests with sentences such as:

Students no 8: *'I learnt if I want to synthesize I should paraphrase first.'*

Students no 10: *'Synthesizing is not as hard as I thought. I noticed the ways to write a synthesis in an orderly way.'*

Student no 12: *'When I Iooked at the exam paper (before the training) everything interfered. But now I know what I am doing. There are some processes for writing something.'*

Student no 18: *'Before the training I read all the extracts at once, now I learnt that I have to work on one extract at a time.'*

Student no 32: *'It works like processing (any) work. You can do everything step by step.'*

Hence, the learner reports pointed to positive learning experiences and outcomes for students in PO.

6. Discussion

We examined the effects of modeling and presentational modes for strategy instruction as compared to a control condition, which was the regular curriculum instruction of the institution on students' synthesis text quality, synthesis writing processes and learning experiences. This study is unique in that it tests the effectiveness of the separate components in strategy-focused instruction and in an L2 context. We partially confirmed hypothesis (1A). Modeling condition resulted in better synthesis texts in the posttest and the delayed posttest than the presentational condition for *source use* (i.e., knowledge of the available sources, using a variety of citation techniques, correct use of APA conventions, including a variety of reporting verbs and linkers), one of the three aspects of text quality, but not for *content* and *plagiarism*. However, we did not confirm hypothesis (1B). Presentational condition did not differ in effects from the control condition for synthesis text quality.

The success of the modeling condition in two consecutive posttests in the source use aspect of text quality and not in content and authenticity was an intriguing finding. It has been shown in previous studies (Braaksma et. al, 2002), that observation works best for novel tasks. Unlike discursive essays with similar organizational and thematic requirements that the students are mostly familiarized with throughout their preparatory year, writing from sources is a novel task both within the L1 and L2 writing curricula. Source use skills are predominantly related with the specifics of this novel task rather than the common skills across different writing tasks such as paragraphing, argumentation, etc., so this unfamiliarity with the novel features of the task might have contributed to students' success, all of which have been rated under the source use skills aspect of text quality. Another reason for the relatively lower gains of the modeling condition in content and authenticity might be the underlying linguistic skills needed to improve these aspects of text quality, which tap into students' reading comprehension, content selection, paraphrasing, elaboration, and writing formulation skills. These skills are cognitively demanding "higher order" skills (Mateos & Sole, 2009), and they are, to a great extent, dependent on L2 proficiency. Thus, a strategy-focused instruction session conveyed through modeling or presentation may not have sufficed to improve formulation skills in L2 that are required to independently apply the strategies for improving content and authenticity. Improvement in these skills may be possible in long-term strategy training programs, or in an L1 context where it has been

shown that speed of access to linguistic features, (i.e., fluency) poses less of a hindrance to writing performance than is the case in an L2 context (Schoonen, et al., 2003).

Preliminary analyses on the motivation pretest showed (cf. Results section) no differential effects of condition on motivation and contrary to our expectations, we did not find an effect of modeling on students' motivational orientation, including their self-efficacy beliefs (Bandura, 1986). Thus, the higher performance of the modeling condition in the source use aspect of text quality cannot be attributed to differences in motivation. However, it was interesting to observe in the analyses for initially more and less motivated students (with initial level of motivation as a moderator variable) that 35% of the most motivated students fared best in the modeling condition for the source use aspect of their text quality; whereas, the most motivated students in the control condition wrote the poorest texts for the same aspect. Hence, for success in mastering the novel aspects of the task (source use in this task), it seems that a higher level of initial motivation combined with modeling yields better results than the regular curriculum instruction in this institution. Another interesting finding was that 37% of the least motivated participants scored significantly lower in the modeling condition in the authenticity aspect of their text quality. This provides further evidence that modeling is the most sensitive condition to motivation and that in future studies assigning students on the basis of motivation to an instructional condition can be an interesting exploration.

For generalization purposes, we also looked into the effects of conditions on students with differing levels of initial writing performance (with initial level of writing performance as a moderator variable). Analyses showed that 25% of the highest scoring participants in pretest score 1 (summary of a single source) scored highest in posttest *content* in the modeling condition; and accordingly, 25% of the lowest scoring participants wrote the poorest texts in this condition. However, a reverse effect is observed for the 26% of the highest scoring participants in pretest score 2 (argumentative essay), who scored significantly lower on posttest *authenticity* in the modeling condition than the participants that started with lower pretest scores. The differing condition effects on the success of the students in the posttests could be the result of the different nature of the tasks, that is, summary of a single source in the former and argumentative essay in the latter. As being able to summarize a single source is a prerequisite in a synthesis task, it is presented as one of the strategy steps in the teaching of the synthesis task in the presentational and the modeling conditions. It may explain students' higher scores on the content aspect of the posttests in the modeling condition, which was not observed for the students who scored highest on the pretest score 2. The fact that the results were only observed in the modeling condition and not in the presentational condition is further evidence to the added benefit of observation in teaching of the strategies. These results are in line with the results of previous studies, which have demonstrated different condition effects on learners with different aptitude levels in composing written texts (Braaksma et al., 2002) and on learners with different creativity levels in creating design products (Groenendijk, Janssen, Rijlaarsdam & Van den Bergh, 2013).

We used a multiple methods approach (i.e., writing logs and learner reports) in measuring the writing process to answer the question whether strategy-focused conditions lead to more effective temporal organization of cognitive activities (Hypotheses 2A and 2B) than the regular curriculum instruction. We evaluated the writing log data according to the parameters we set on the basis of previous studies (cf. Modeling section). Accordingly, instead of executive writing activities spread over the whole writing process in a linear manner, we expected more metacognitive, or planning activities (i.e., reading the sources, working on the sources) in the initial stages and more executive activities (paraphrasing,

reading the synthesis text, writing the synthesis text) in the later stages of the writing task. We also expected two different ways of dealing with the sources: reading to understand the sources and strategic reading of the sources (i.e., finding, underlining and/or highlighting the main ideas, supporting ideas, etc.), as is labeled in the writing logs as *working on the sources*. Thus, we expected writers with effective temporal organization of cognitive activities to spare a minimum amount of time on *reading the sources* and more time on *working on the sources* especially in Phases 1 and 2 of the writing process. In Phase 3, more executive activities should ideally follow.

The analysis of writing log data could only partially be explained with the aforementioned parameters. In Phase 1, the control condition reported being engaged in the activity *reading the sources* (trying to understand the sources). Their reading time may have been extended due to a failure to strategically work on the sources. However, modeling and presentational conditions did not prove to have better strategies as they were predominantly engaged in writing their texts, an activity ideally expected as the dominant activity in Phase 3. In Phase 2, the modeling condition reported being engaged in working on the sources, a very important indication of effective temporal organization of cognitive activities, in a way following the TRAMPOLINE strategy steps that were shown to them in the peer videos, that is, planning before writing. In Phase 3, all three conditions reported writing their texts, as would ideally be expected.

In none of the conditions did students report editing their texts. One reason might be that editing was only minimally modeled in the videos with mostly sentence level corrections; thus, it may not have taken up writing process time at a statistically significant level. Previous studies also showed that even in higher education only a minority of students improved revision skills with instruction in L1 (Torrance, Thomas & Robinson, 1999); and in L2, less experienced writers only detected surface level corrections instead of making global revisions (see Van Steendam, Rijlaarsdam, Sercu, & Van den Bergh, 2010). It is also possible that the effects of the training did not emerge within the time span of the training program, because editing emerges later than planning in developing writers in L1 (Berninger & Swanson, 1994), which may also be the case in L2 learners. Additionally, an improved planning phase may have cut down on the time devoted to editing, so there might have been a trade-off in favor of planning (Torrance et al., 2007; Martinez, et al., 2015).

The results of the learner reports showed that the modeling condition reported to have more process knowledge required for writing a synthesis text. They reported learning how to deal with the steps of writing a synthesis text and/or, attributed their success to this process knowledge, a finding in line with previous research (cf. Groenendijk, Janssen, Rijlaarsdam & Van den Bergh, 2013). Why this is not entirely reflected in the process registration technique (i.e., writing logs) we used is an issue to consider. The discrepancy might have been a result of low concurrent validity of online versus offline process registration techniques (cf. Veenman, 2011). As we distributed the learner reports two weeks after the actual writing task, the writing process might have been reconstructed in the writer's memory with possible memory failure and distortions (Schellings & van Hout-Wolters, 2011). Also, at preparatory schools in Turkey, it is customary to write in pen and paper conditions in exams. Thus, for ecological validity reasons, we were not able to combine self-reported data with online process registration techniques such as keystroke logging to record the writing activity in real time and provide data from different perspectives, which give more leeway for interpretation. In future studies, it might be worthwhile to use multiple online registration techniques to get more insight into the writing processes of students.

In evaluating the results, some issues of validity should be discussed. Several studies showed that within a certain participant profile, initially stronger writers (in terms of aptitude) benefit more from observation than initially weaker writers (Groenendijk et al., 2013). Also, strong writers benefit more from observing mastery models and weak writers from coping models, also known as model-observer similarity (Braaksma et al., 2002). Although we looked into the effects of the training on initially weaker and stronger writers within this specific group, and reported the results, we may expect the effects to be different on a group of academically high achieving students. The model in this study was designed to demonstrate a standard student performance; however, considering the low-achieving student profile, we may not have been able to create the best environment for model-observer similarity. In a future study, special attention should be paid to student profile and heterogeneity of the participants in terms of competence and motivation that could affect the results of the study.

Previous research (Braaksma, Van den Bergh, Rijlaarsdam & Couzijn, 2001; Sonnenschein & Whitehurst, 1984) has shown that observation results in larger learning gains when it is set with evaluation and elaboration tasks. In our study, such a task was absent; instead, we opted for presenting the target behavior in digestible chunks of knowledge (Bandura, 1986), as in the presentation of the three subsets of strategies (i.e., TRAM, P, OLINE) which is, arguably, another way of channeling learner's attention to the modeled activity. Nevertheless, in future studies, it is worthwhile to include evaluation and elaboration tasks in the observation activity to ensure students' utmost engagement with the modeled behavior.

Another issue to consider is the assignment of the classes to conditions. Participants were randomly assigned to three classes by the administration prior to the training, but the assignment of intact classes to conditions had to be arranged in line with institutional priorities. The main instructor of each class had to give the training in their own classes because having a totally different instructor teach in each class would mean interfering with the natural course of the module, which would not be favored by the students or supported by the administration. We did not have the researcher give the training in each class because she was the main instructor in one of the classes that was assigned to a condition and in that case her class would have had the privilege to be instructed by their own instructor and the others would not. To control for a possible trainer effect on the results, the researcher's class was appointed to the modeling condition where the interaction between the instructor and the students was minimal compared to the other conditions, because the key element of the intervention, that is, the strategy instruction, was administered through peer videos. Thus, the assignment of the modeling condition was not random, but the presentational and the control conditions were randomly assigned to intact classes. We believe that in future studies, the same instructor should train the students in all conditions or a design with random assignment of students to conditions should be implemented.

Another limitation with regard to the trainers might be their different profiles. Although the trainers in the experimental conditions held a similar profile in terms of nationality, educational background and gender (i.e., Turkish, with an MA in literature, PhD candidates and female), the trainer in the control condition was Canadian, with an MA in ELT and male. This difference may seem to be in favor of the control condition since having a native speaker as the instructor might have improved students' motivation and possibly overall language proficiency. However, it is a strict requirement at Turkish preparatory schools that the lessons are conducted in English (British Council, 2015, p. 93), especially at this university for standardization purposes since half of the instructors were native speakers of

English at the time. Therefore, any possible effect of nationality might have been counteracted by the rules of the institution.

We should also point out the fact that students are placed at pre-faculty level classes according to certain criteria. In the previous academic year, they either failed the pre-faculty level exit exam; or passed the upper-intermediate level exit exam, but failed another level previously. Thus, the participants are a homogenous group of learners with an Upper-intermediate initial level of language proficiency, tested through a four-hour exam prepared by the testing specialists of the university in four skills (i.e., reading, listening, speaking and writing) according to carefully designed testing specifications of the level. Students' initial motivation and level of writing skill in L2 was tested as well, to control for pretest differences. Initial differences in writing were taken into account by running analyses of covariance.

It should also be mentioned that, although we staged our sessions similar to an SRSD program especially focusing on two of its main stages, that is, *modeling* and *memorization* (through mnemonics), this intervention is not a strategy training program, but an attempt to improve the regular curriculum instruction of a specific task through strategy-focused instruction. Although full strategy training programs are likely to yield better results, we found it worthwhile to decompose the training program and address each component separately to see the main acting agents in the training. This study is also an example of how training programs can be tailored to fit in a realistic time slot allocated for the actual teaching of a specific task. Although this is one reason why the results are not generalizable to studies that operationalize a form of SRSD, it is also a strong aspect of the study towards ecological validity as trainings in hectic EFL programs need to be carefully fit in the time slot allocated for specific tasks for reasons of practicality.

It has been suggested that to be able to reach generalizable conclusions in L2 research with secondary level students, there should be a total of 3 to 4 assignments per student each rated by two raters (Schoonen, 2005). In this study, we measured students' text quality in three different genres (i.e., summarizing, synthesizing and argumentative writing) with four different tasks, two pretests and two posttests. Thus, the results of text quality are generalizable within the strategy-focused writing intervention programs and provide grounds for future strategy-focused interventions in L2 writing.

7. Conclusion

Our results are complementary to previous studies, which proved the effectiveness of the modeling component of strategy-focused instruction on certain aspects of writing performance. There are two unique aspects of this study that, to the best of our knowledge, are not present in other studies. First, it separately investigates the effectiveness of two distinct instructional modes both of which are typically present in strategy-focused instruction studies, that is, *modelling* and *direct instruction.* The results of one study that singles out the separate components of a strategy-focused programme by Fidalgo et al., (2015), differs from our study in that in the latter (1) participants are 6 grade Spanish students instead of L2 students in higher education and (2) L1 tasks are in a different genre (i.e., compare-contrast and opinion essays instead of synthesis writing). Additionally, (3) the differences in the designs of the two study seriously affect the comparability of the two studies. In Fidalgo et al. (2015) direct instruction follows modeling, and the type of modeling is implicit; whereas, in our study direct instruction precedes modeling, and the type of modeling is explicitly supported by mnemonics.

Secondly, we conducted this study in ecologically valid circumstances and the effectiveness of the intervention was tested compared to regular curriculum practice, which tends to be standard across universities in Turkey. Thus, it has the potential to be insightful for similar teaching environments to revisit their practices and encourage further research. Although this specific university is one of the few institutions, which includes synthesis writing in their preparatory school curriculum, in the departments of other universities where the medium of instruction is English, synthesis writing is a common task in compulsory academic writing courses starting in the freshman year. Synthesis writing is also a task that is commonly encountered in faculty departments, both in L1 and in L2 contexts. This expands the scope of the results of this study to educational practices in other universities in Turkey and other comparable institutions around the world.

References

Baker, S., Gersten, R., & Graham, S. (2003). Teaching expressive writing to students with learning disabilities: Research-based applications and examples. *Journal of Learning Disabilities, 36,* 109 - 123. http://dx.doi.org/10.1177/002221940303600204

Bandura, A. (1986). *Social privates of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall.

Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition.* Hillsdale, NJ: Lawrence Erlbaum.

Berninger, V. W., & Swanson, H. L. (1994). Modification of the Hayes and Flower model to explain beginning and developing writing. In E. Butterfield (Ed.), *Advances in cognition and educational practice. Children's writing: Toward a process theory of development of skilled writing* (Vol. 2, pp. 57–82). Greenwich, CT: JAI Press.

Bouwer, R., Béguin, A., Sanders, T., & Van den Bergh, H. (2015). Effect of genre on the generalizability of writing scores. Language Testing, 32(1), 83-100. doi: 10.1177/0265532214542994

Braaksma, M. A. H., Rijlaarsdam, G., & Van den Bergh, H. (2002). Observational learning and the effects of model-observer similarity. *Journal of Educational Psychology, 94,* 405-415. http://dx.doi.org/10.1037//0022-0663.94

Braaksma, M. A. H., Rijlaarsdam, G., Van den Bergh, H., & Van Hout-Wolters, B. H. A. M. (2004). Observational learning and its effects on the orchestration of writing processes. *Cognition & Instruction, 22,* 1–36. http://dx.doi.org/10.1207/s1532690Xci2201_1

Braaksma, M. A. H., Van den Bergh, H., Rijlaarsdam, G., & Couzijn, M. (2001). Effective learning activities in observation tasks when learning to write and read argumentative texts. *European Journal of Psychology of Education, 1,* 33-48. http://dx.doi.org/10.1007/BF03172993.

Breetvelt, I., Van den Bergh, H., & Rijlaarsdam, G. (1994). Relations between writing processes and text quality: When and how? *Cognition and Instruction, 12*(2), 103-123.

British Council (2015). *The State of English in Higher Education in Turkey. A Baseline Study*. Retrieved August, 2016, from

http://www.britishcouncil.org.tr/sites/default/files/he_baseline_study_book_web_-_son.pdf

Brunstein, J. C., & Glaser, C. (2011). Testing a path-analytic mediation model of how self-regulated writing strategies improve fourth graders' composition skills: A randomized controlled trial. *Journal of Educational Psychology, 103*(4), 922–938. http://dx.doi.org/10.1037/a0024622

Clachar, A. (2000). Opposition and Accommodation: "An Examination of Turkish Teachers' Attitudes toward Western Approaches to the Teaching of Writing" *Research in the Teaching of English, 35*(1), 66-100. Retrieved from http://www.jstor.org/stable/40171507

De La Paz, S. & Graham (2002). Explicitly teaching strategies, skills, and knowledge: Writing instruction in middle school classrooms. *Journal of Educational Psychology, 94* (4), 687 – 698. http://dx.doi.org/10.1037//0022-0663.94.4.687

De La Paz, S. (2005). Teaching historical reasoning and argumentative writing in culturally and academically diverse middle school classrooms. *Journal of Educational Psychology*, *97*, 139–158. http://dx.doi.org/10.1037/0022-0663.97.2.139

De Groot, A. D. (1980). Over leerervaringen en leerdoelen [About learning experiences and teaching goals] Handboek voor de onderwijspraktijk, 10 (november), B.1-B. 18. Deventer, The Netherlands: Van Loghum Slaterus.

Dörnyei, Z. (2009). The 2010s. *Communicative Language Teaching in the 21st Century: The "Principled Communicative Approach". Perspectives*, *36*(2), 33-43.

Erkan, Y. D., & Saban, A. I. (2011). Writing performance relative to writing apprehension, self-efficacy in writing, and attitudes towards writing: A correlational study in Turkish tertiary-level EFL. *The Asian EFL Journal Quarterly*, *13*(1), 163-191.

Fidalgo, R., Torrance, M., & Garcia, J. N. (2008). The long-term effects of strategy focused writing instruction for grade six students. *Contemporary Educational Psychology*, *33*(4), 672–693. http://dx.doi.org/10.1016/j.cedpsych.2007.09.001

Fidalgo, R., Torrance, M., Rijlaarsdam, G., van den Bergh, H., & Álvarez, M. L. (2015). Strategy-focused writing instruction: Just observing and reflecting on a model benefits 6th grade students. *Contemporary Educational Psychology*, *41*, 37-50. http://dx.doi.org/10.1016/j.cedpsych.2014.11.004

Flower, L. S., & Hayes, J. R. (1977). Problem-solving strategies and the writing process. *College English*, *39*(4), 449-461.

Flower, L.,& Hayes, J. (1981). A cognitive process theory of writing. *College Composition and Communication*, *32*, 365 - 387. http://dx.doi.org/10.2307/356600

Grabe, W., & Stoller, F. L. (2001). *Teaching and researching reading.* London: Pearson Education. http://dx.doi.org/10.1017/S0267190504000030

Graham, S. (2006). Strategy instruction and the teaching of writing: A meta-analysis. In C. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 187 207). New York: Guilford.

Graham, S., & Harris, K. R. (2003). Students with learning disabilities and the process of writing: A meta-analysis of SRSD studies. In L. Swanson, K. R. Harris, & S. Graham (Eds.), *Handbook of research on learning disabilities* (pp. 383–402). New York: Guilford.

Graham, S., & Perin, D. (2007). A meta-analysis of writing instruction for adolescent students. *Journal of Educational Psychology*, *99*(3), 445-476. http://dx.doi.org/10.1037/0022-0663.99.3.445

Groenendijk, T., Janssen, T., Rijlaarsdam, G., & Van den Bergh, H. (2008). How do secondary school students write poetry? How creative writing processes relate to final products. *L1 Educational Studies in Language and Literature*, *8*(3), 57-80.

Groenendijk, T., Janssen, T., Rijlaarsdam, G., & Van den Bergh, H. (2013). Learning to be creative. The effects of observational learning on students' design products and processes. *Learning and Instruction*, *28*, 35-47.

http://dx.doi.org/10.1016/j.learninstruc.2013.05.001

Harris, K. R., & Graham, S. (1996). *Making the writing process work: Strategies for composition and self-regulation*. Cambridge, MA: Brookline.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.

Hinkel, E. (2015). *Effective curriculum for teaching second language writing: Principles and techniques*. Routledge: New York.

Kirkgoz, Y. (2005). 'English language teaching in Turkey: Challenges for the 21st century', in G. Braine (Ed.), *Teaching English to the world: History, curriculum, and practice* (pp. 159-175). Mahwah: Lawrence Erlbaum Associates.

Kirkgoz, Y. (2007). English language teaching in Turkey: Policy changes and their implementations, *Regional Language Centre Journal, 38*(2), 216-228. http://dx.doi.org/10.1177/0033688207079696

Klein, J., & Taub, D. (2005). The effect of variations in handwriting and print on evaluation of student essays. *Assessing Writing, 10*(2), 134-148. http://dx.doi.org/10.1016/j.asw.2005.05.002

Leki, I., & Carson, J. (1997). Completely different worlds: EAP and the writing experiences of ESL students in university courses. *TESOL quarterly*, *31*(1), 39-69. http://dx.doi.org/10.2307/3587974

Malhotra, N. K. (1991). Mnemonics in marketing: A pedagogical tool. *Journal of the Academy of Marketing Science*, *19*(2), 141-149. http://dx.doi.org/10.1007/BF02726006

Manchón, R. (Ed.). (2009). *Writing in foreign language contexts: Learning, teaching, and research* (Vol. 43). Multilingual Matters.

Martínez, I., Mateos, M., Martín, E., & Rijlaarsdam, G. (2015). Learning history by composing synthesis texts: Effects of an instructional programme on learning, reading and writing processes, and text quality. *Journal of Writing Research*, *7*(2). http://dx.doi.org/10.17239/jowr-2015.07.02.03

Mason, L.H., Hickey Snyder, K., Sukhram, D.P., & Kedem, Y. (2006). Self-regulated strategy development for expository reading comprehension and informative writing: Effects for nine 4th grade students who struggle with learning. *Exceptional Children, 73,* 69–89. http://dx.doi.org/10.1177/001440290607300104

Mason, L.H., Reid, R., & Hagaman, J. (2012*). Building comprehension in adolescents: Powerful strategies for improving reading and writing in content areas*. Baltimore: Brooks Publishing Co. Inc.

Mateos, M., & Solé, I. (2009). Synthesising information from various texts: A study of procedures and products at different educational levels. *European Journal of Psychology of Education*, *24*(4), 435-451. http://dx.doi.org/10.1007/BF03178760

McPherson, F. (2000). *The memory key*. New York, NY: Barnes & Noble Books.

Ozsevik, Z. (2010). The Use of Communicative Language Teaching (CLT): *Turkish EFL Teachers' Perceived Difficulties in Implementing CLT in Turkey.* (Doctoral dissertation). Retrieved from: http://hdl.handle.net/2142/16211

Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. J. (1991). *A manual for the use of the motivated strategies for learning questionnaire (MSLQ).* Ann Arbor: University of Michigan, National Center for Research to Improve Postsecondary Teaching and Learning.

Plakans, L. (2009). The role of reading strategies in integrated L2 writing tasks. *Journal of English for Academic Purposes, 8*, 252–266.

Reber, A. S. (1976). Implicit learning of synthetic languages: The role of instructional set. *Journal of Experimental Psychology: Human Learning and Memory, 2*, 88-94.

Rijlaarsdam, G., Braaksma, M., Couzijn, M., Janssen, T., Kieft, M., & Broekkamp, H. (2005). Psychology and the teaching of writing in 60 minutes. In P. Tomlinson, J. Dockrell, & P. Winne (Eds.*), Pedagogy and the Teaching for learning. BJEP monograph, Series II, No. 3* (pp. 127e153). Leicester, UK: The British Psychological Society. http://dx.doi.org/10.1348/000709905X62156

Rijlaarsdam, G., & Couzijn, M. (2000) Writing and learning to write: a double challenge. In R. J. Simons, J. van der Linden, & T. Duffy. (Eds.), *New Learning*. (pp. 157-189). Dordrecht: Kluwer Academic Publishers.

Rijlaarsdam, G., Van den Bergh, H., & Van Steendam, E. (2015). Writing process theory: A functional Dynamic Approach. In: MacArthur C., Graham S., Fitzgerald J. (Eds.), *Handbook of Writing Research*, Chapter 4. New York: The Guilford Press, 57-71.

Sawyer, R. J., Graham, S., & Harris, K. R. (1992). Direct teaching, strategy instruction, and strategy instruction with explicit self-regulation—Effects on the composition skills and self-efficacy of students with learning-disabilities. *Journal of Educational Psychology, 84*(3), 340–352. http://dx.doi.org/10.1037//0022-0663.84.3.340

Schellings, G., & Van Hout-Wolters, B. (2011). Measuring strategy use with self-report instruments: theoretical and empirical considerations. *Metacognition and Learning*, *6*(2), 83-90. http://dx.doi.org/10.1007/s11409-011-9081-9

Schoonen, R. (2005). Generalizability of writing scores: An application of structural equation modeling. *Language Testing, 22(1)*, 1–30.

Schoonen, R., van Gelderen, A., de Glopper, K., Hulstijn, J., Simis, A., Snellings, P., & Stevenson, M. (2003). First language and second language writing: The role of linguistic knowledge, speed of processing, and metacognitive knowledge. *Language learning*, *53*(1), 165-202. http://dx.doi.org/10.1191/0265532205lt295oa

Schunk, D. H. (1996). Goal and self-evaluative influences during children's cognitive skill learning. *American Educational Research Journal, 33*, 359-382. http://dx.doi.org/10.3102/00028312033002359

Schunk, D. H., & Zimmerman, B. J. (1997). Social origins of self-regulatory competence. *Educational psychologist, 32*(4), 195-208.

http://dx.doi.org/10.1207/s15326985ep3204_1

Schunk, D. H, & Zimmerman, B. J. (Eds.). (1998). Self-regulated learning: *From teaching to self-reflective practice.* New York: The Guilford Press.

Spivey, N.N. (1997). *The constructivist metaphor.* New York: Academic Press.

Sonnenschein, S., & Whitehurst, G. J. (1984). Developing referential communication: a hierarchy of skills. *Child Development, 55*, 1936e1945. http://dx.doi.org/10.2307/1129940

TechSmith. (2016). [Camtasia ComputerSoftware]. http://www.techsmith.com/camtasia.html

Tillema, M. (2012). *Writing in first and second language: Empirical studies on text quality and writing processes*. Utrecht: LOT Dissertation Series.

Tillema, M., Van den Bergh, H., Rijlaarsdam, G., & Sanders, T. (2012). Quantifying the quality difference between L1 and L2 essays: A rating procedure with bilingual raters and L1 and L2 benchmark essays. *Language Testing, 30*(1), 71-97. http://dx.doi.org/10.1177/0265532212442647

Torrance, M., Fidalgo, R., & García, J. N. (2007). The teachability and effectiveness of cognitive self-regulation in sixth-grade writers. *Learning and instruction*, *17*(3), 265-285.http://dx.doi.org/10.1016/j.learninstruc.2007.02.003

Torrance, M., Thomas, G. V., & Robinson, E. J. (1999). Individual differences in the writing behaviour of undergraduate students. *British Journal of Educational Psychology*, *69*(2), 189-199. http://dx.doi.org/10.1348/000709999157662

Turkkollu, N. (1994). *The error hierarchy of Turkish EFL teachers in their assessment of compositions* (Master's Thesis, Bilkent University). Retrieved from: http://hdl.handle.net/11693/17571

Van Steendam, E., Rijlaarsdam, G., Sercu, L., & Van den Bergh, H. (2010). The effect of instruction type and dyadic or individual emulation on the quality of higher-order peer feedback in EFL. *Learning and Instruction*, *20*(4), 316-327. http://dx.doi.org/10.1016/j.learninstruc.2009.08.009

Veenman, M. V. J. (2011). Learning to self-monitor and self-regulate. In R. Mayer & P. Alexander (Eds.), *Handbook of research on learning and instruction* (pp. 197–218). New York: Routledge.

Worthen, J. B., & Hunt, R. R. (2011). *Mnemonology: Mnemonics for the 21st century*. Psychology Press.

Yavuz, D. & Genc, A.B. (1998). *Flexibility of setting up a writing unit at YADIM.* Unpublished Action Research Study. Çukurova University, Adana, Turkey.

Zimmerman, B. J. (1977). Modeling. In H. Hom and P. Robinson (Eds.), *Psychological processes in early education* (pp. 37-70). New York: Academic.

Zimmerman, B. J. (1995). Self-efficacy and educational development. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 202-231). New York: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511527692.009

Zimmerman, B. J., & Kitsantas, A. (2002). Acquiring writing revision and self-regulatory skill through observation and emulation. *Journal of Educational Psychology, 94*(4), 660–668. http://dx.doi.org/doi:10.1037//0022-0663.94.4.660