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AN INVESTIGATION OF THE EFFECTS OF INTELLIGENCE TYPE AND PHYSICAL ACTIVITY PARTICIPATION LEVEL ON FOREIGN LANGUAGE LEARNING ACHIEVEMENT IN UNIVERSITY PREPARATORY CLASS STUDENTS*

(Research article)

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Abstract

The aim of the study is to compare the foreign language learning achievement levels of students who participate in physical activity and have physical/kinesthetic intelligence with others. The study was designed in the causal-comparison research model from the quantitative research methods. The sample consisted of 1012 participants, studying at Karabük University, School of Foreign Languages. "Personal Information Form", "Multiple Intelligence Observation Form", "International Physical Activity Questionnaire" and "Cambridge Preliminary English Test" were used as data collection tools. As a result, a significant positive moderate relationship between the physical activity participation levels of the participants and their physical/kinesthetic intelligence domains; a significant positive moderate relationship between physical activity participation levels and foreign language achievement scores; a significant positive weak relationship between foreign language achievement scores and physical/kinesthetic intelligence and a positive, medium-strong significant relationship between the time spent as an athlete and physical/kinesthetic intelligence has been found. When the effects of multiple intelligence domains and physical activity participation levels on foreign language achievement scores have been examined, it is seen that the level of physical activity participation has a positive and significant effect on foreign language achievement scores. It is seen that physical/kinesthetic intelligence, the time spent as an athlete and physical activity level are all important factors in foreign language learning.

Keywords: multiple intelligence, physical/kinesthetic intelligence, physical activity, foreign language learning

1. Introduction

The current century has become a period in which changes are experienced with the effect of technology in social life as well as in fields such as science and art. Developments in the field of technology bring more passive lives, especially in terms of movement. Technology negatively affects individuals from all age ranges, whose lifestyle differs in the context of physical inactivity (Çolakoğlu, 2014). However, it is accepted that promoting a healthy lifestyle shaped by regular physical activity in children and young people is a priority all over the world in order to overcome the problems associated with a sedentary lifestyle (World Health Organization [WHO], 2002). According to Parasız et al. (2015), the guarantee of a healthy developing and growing society can be provided with children and youth. Therefore, children and young people who develop healthily in every stage are in the position that will contribute the most to the development of their countries. When individuals start the compulsory education process, they begin to take physical education lessons, which have a great role in getting out of their passive or sedentary lives. With these compulsory courses,

students can do various physical activities, and they can even continue with extracurricular activities if they wish. Both in-class and extra-curricular activities do not only contribute to the physical development of individuals but also develop the skills, knowledge, values, and behaviors necessary to enjoy an active and healthy lifestyle and build the ability to solve the problems that they face (Coulter & Ní Chróinín, 2011; Yıldırım & Uzun, 2021).

This active life situation is left to their own preferences when individuals come to the higher education level, and it is seen that the courses related to physical education (except sports-related departments) are in the status of elective courses. While the students who take these classes continue to benefit from physical education lessons, the others have to be in physical activity according to their own choices and will. The World Health Organization (WHO, 2019) defines physical activity as “any bodily movement produced by skeletal muscles that requires energy expenditure”. Physical activity includes all sports and dance activities, indoor and outdoor games, work-related activities, adventurous activities, active travel such as walking, cycling, skating, and routines such as using stairs and doing housework (Guiney & Machado, 2013). Hannaford (1995, p.107) mentions that thinking is a response to the physical world, and movement is an integral part of every action, including all mental processes, and accordingly movement has an important place in mental processes. It can be said that the voluntary participation of individuals in physical activities can be associated with bodily intelligence in the Multiple Intelligence Theory presented by Howard Gardner in 1983. According to the theory of multiple intelligences, it is stated that it would be more beneficial to define the cognitive skills of individuals in the form of relatively independent different capacities that are related to each other, rather than "a single type of general intelligence" (Moran, Kornhaber & Gardner, 2009). Since when the word intelligence is mentioned, the meaning is "plural" and intelligence can be developed, displayed in various situations, and it is difficult to measure and define intelligence as numerical data (Selçuk, Kayılı & Okut, 2003). When the National Qualifications Framework for Higher Education in Turkey (2012), prepared for the Lisbon Strategy and Bologna Process, objectives are examined, it is seen to be necessary to know a foreign language in order to follow the current information in their fields. In the Turkish Qualifications Framework, prepared in 2015, eight different key competencies that should be acquired for each individual within the scope of lifelong learning have been defined and it is seen that one of them is communication in foreign languages. The language taught as a foreign language in Turkey is English.

When the studies conducted in this context are examined, it is seen that physical activity may positively affect students' academic achievement levels (Al-Drees et al., 2016; Ericsson, 2008; Haapala, 2012; McNaughten & Gabbard 1993; Zhao et al. 2017) and foreign language literacy, which is one of the competencies that the teaching programs aim to gain, in a sense foreign language learning skills (Bezold et al., 2014; Blom, Alvarez, Zhang & Kolbo, 2011; Carson, Rahman & Wiebe, 2017; Tomlinson & Masuhara 2009). In this study, it is aimed to compare the foreign language achievement levels of the university preparatory class students who do physical activity and whose dominant intelligence area is bodily intelligence and other preparatory class students’.

2. Method

2.1. Model of the Research

This research was designed in the causal-comparison research model, which is one of the quantitative research methods. It aims “to identify the causes and consequences of differences

between groups of people without any interference on circumstances and participants." (Büyüköztürk, Akgün, Demirel, Karadeniz & Çakmak, 2014, p.16).

2.2. Population and Sample

The population of the research consisted of students who studied at Karabük University, School of Foreign Languages for a year in order to learn foreign language from different faculties in the 2019-2020 academic year. Karabük University, School of Foreign Languages was evaluated and accredited by EAQUALS in 2019 in many areas such as management and organization, course curriculum and support systems, measurement-evaluation and certification, student services, quality assurance, personnel profile and development, and internal communication and it has the title of being the first state university whose foreign language teaching quality is accredited (Karabük University [KBÜ], 2019) in Turkey. In order to eliminate the differences that may have arisen from the students' foreign language background, it was planned to include students who started their education with the A1 level and reached the B1 level without repeating any levels, and the sample of the research was determined on the basis of criterion sampling, which is one of the purposive sampling methods, and consisted of a total of 1012 students, all of whom were volunteers. Since Cambridge Preliminary English Test, one of the data collection tools, is based on the Common European Framework of Reference for Languages B1 level, only participants who reached this level were included in the study.

2.3. Data Collection Tools

"Personal Information Form" created by the researchers, "Multiple Intelligence Observation Form" from the book "Multiple Intelligence Practices" by Selçuk, Kayılı and Okut (2003); "International Physical Activity Questionnaire – short form" which was developed by Craig et al.(2003) and adapted to Turkish by Öztürk (2005), and "Cambridge Preliminary English Test" to determine the English achievement levels of the students were used as data collection tools.

2.4. Analysis of the Data

Before deciding which statistical processes the data would be applied to, it was examined whether they showed a normal distribution or not. Although there are sources (Tabachnick & Fidell, 2013; Gravetter, Wallnau, Forzano & Witnauer, 2020) stating that the kurtosis and skewness values of the data distributions should be between -2 and +2 for normal distribution, it is also known that there are different prerequisites (Kim, 2013) that require the Z scores between -1,96 and + 1,96 obtained by dividing the skewness and kurtosis values by their standard errors, and Kolmogorov Smirnov analysis results. In this context, the following processes were applied to the data;

Table 1. *Kolmogorov-Smirnov Analysis Results*

	Kolmogorov-Smirnov		
	Statistics	df	sig.
Preliminary English Test	.156	1012	.000
Physical Activity Questionnaire	.085	1012	.000
Linguistic Intelligence	.092	1012	.000
Mathematical Intelligence	.071	1012	.000
Visual Intelligence	.055	1012	.000
Musical Intelligence	.053	1012	.000
Bodily Intelligence	.105	1012	.000
Naturalist Intelligence	.075	1012	.000
Interpersonal Intelligence	.064	1012	.000
Intrapersonal Intelligence	.052	1012	.000

When table 1 is examined, it is seen that none of the variables shows a normal distribution according to the results of Kolmogorov-Smirnov analysis.

Table 2. *Skewness and Kurtosis Coefficients*

	Mean	Standard Deviation	Skewness	Kurtosis	Standard Error$_{Skewness}$	Standard Error$_{Kurtosis}$
Preliminary English Test	137.09	10.182	.282	-.435	,077	.154
Physical Activity Questionnaire	2582.79	1807.93	.674	-.400	.077	.154
Linguistic Intelligence	24.93	4.98	.383	-.362	.077	.154
Mathematical Intelligence	31.01	4.50	-.365	-.209	.077	.154
Visual Intelligence	27.39	6.02	-.314	-.022	.077	.154
Musical Intelligence	23.06	8.20	-.207	-.345	.077	.154
Bodily Intelligence	29.61	5.97	-.395	-.608	.077	.154
Naturalist Intelligence	27.08	7.18	-.096	-.649	.077	.154
Interpersonal Intelligence	26.10	6.57	-.232	-.495	.077	.154
Intrapersonal Intelligence	26.83	6.302	-.155	-.195	.077	.154

In table 2, the mean, standard deviation, skewness and kurtosis values of the Preliminary English Test, the International Physical Activity Questionnaire and the Multiple Intelligence Observation Form and the relevant standard error values are given. As a result of the evaluation made in the light of the information mentioned above, it was clear that the data did not show a normal distribution. As a result, it was decided to use Spearman Correlation test and Multiple Regression test.

3. Findings

The findings under the study are given in tables.

Table 3. *Descriptive Statistics*

		f	%
Gender	Male	645	63.7
	Female	367	36.3
	Total	1012	100.0
Status of dealing with a sports branch under license	Yes	70	6.9
	No	942	93.1
	Total	1012	100.0
Sports branch	Football	30	42.86
	Basketball	19	27.15
	Cycling	3	4.28
	Chess	13	18.57
	Others	5	7.14
	Total	70	100.0
Time spent as an athlete	1 - 3 Years	27	38.57
	4 - 6 Years	23	32.86
	More than 6 Years	20	28.57
	Total	70	100.0

According to table 3, when the independent variables of the study are examined, it is seen that 645 (63.7%) male and 367 (36.3%) female participants took part. While 70 (6.9%) of 1012 participants were licensed athletes, 942 (93.1%) didn't do sports under any license. The number of licensed sports branches were 30 for football (42.86%), 19 for basketball (27.15%), 3 for cycling (4.28%), 13 for chess (18.57%) and 5 for others (7,14%). 27 participants (38.57%) spent 1-3 years as an athlete, 23 participants (32.86%) spent 4-6 years as an athlete and 20 participants (28.57%) spent over 6 years as an athlete.

According to table 4, in the sports branch's variable, there are mostly (30) licensed athletes in the football branch. In addition, when licensed sports branches are examined according to intelligence types, although the highest number of participants are seen in the field of mathematical intelligence (28), it is observed that participants with bodily intelligence are in the first place (9.62%) when they are compared to the distribution according to the total number of participants. At the same time, it is seen that the bodily intelligence, which includes the highest number of licensed athletes, has a mean of 5.5 years as an athlete and has a high mean when compared to others. According to the dominant intelligence type, the distribution of foreign language achievement score and physical activity participation level means of the participants are recorded as 139.28 foreign languages and 3694.56 met/min physical activity for those with bodily intelligence.

Table 4. *Distribution of Sports Branch, Time spent as an athlete, Physical Activity Participation Level and Foreign Language Achievement Scores by Intelligence Types*

Intelligence* / Variable	1	2	3	4	5	6	7	8	Total
Football	1	15	0	11	0	0	1	2	30
Basketball	3	6	0	6	1	1	0	2	19
Cycling	0	0	0	3	0	0	0	0	3
Chess	0	7	2	4	1	0	0	0	13
Others	0	0	0	3	1	0	0	1	5
Total	4	28	2	26	3	1	1	5	70
Total participants	47	315	87	237	144	62	49	71	1012
Branch/participant**	8.51%	8.88%	2.29%	9.62%	2.08%	1.61%	2.04%	7.04%	6.91 %
Time spent as an athlete (Year/Mean)	2	4,17	2	5,5	4,64	4	7	3,4	-
Foreign language achievement score means	142.55	136.87	135.97	139.28	135.48	133.79	135.51	135.70	-
Physical activity participation levels means	1997.23 met/min	2292.06 met/min	2213.13 met/min	3694.56 met/min	2370.94 met/min	1962.02 met/min	2089.70 met/min	2314.09 met/min	-

*1:Linguistic 2:Mathematical 3:Visual 4:Bodily 5:Naturalist 6:Musical 7:Interpersonal 8:Intrapersonal
**The ratio of the total number of licensed sports branches to the total number of participants

Table 5. *Spearman Correlation Analysis of the Relationship Between Time Spent as an Athlete and Intelligence Type*

		Linguistic	Mathematical	Visual	Musical	Bodily	Naturalist	Interpersonal	Intrapersonal
Time Spent as an Athlete	Spearman Correlation Coefficient	-.041	.050	.145	.023	**.365**	.,024	.070	.042
	p	.738	.678	.231	.851	**.002**	.843	.567	.730
	n	1012	1012	1012	1012	1012	1012	1012	1012

When table 5 is examined, there is a positive and moderately significant relationship between the time spent as an athlete and bodily intelligence ($p<.05$).

Table 6. *Spearman Correlation Analysis of the Relationship Between Physical Activity Participation Level and Intelligence Type*

		Linguistic	Mathematical	Visual	Musical	Bodily	Naturalist	Interpersonal	Intrapersonal
Physical Activity Participation Level	Spearman Correlation Coefficient	.034	.005	.053	.035	**.311**	-.070	.014	.014
	p	.278	.879	.092	.265	**.000**	.066	.661	.655
	n	1012	1012	1012	1012	1012	1012	1012	1012

According to table 6, there is a positive, moderately significant relationship between physical activity participation level and bodily intelligence ($p<.001$).

Table 7. *Spearman Correlation Analysis of the Relationship Between Foreign Language Achievement Score and Intelligence Type*

		Linguistic	Mathematical	Visual	Musical	Bodily	Naturalist	Interpersonal	Intrapersonal
Foreign language	Spearman Correlation Coefficient	.042	.031	.030	.001	**.125**	-.059	.006	.042
	p	.179	.320	.347	.983	**.000**	.062	.839	.185

achievement score	n	1012	1012	1012	1012	1012	1012	1012	1012

According to table 7, there is a positive, weak-level significant relationship between foreign language achievement score and bodily intelligence (p<.001).

Table 8. *Spearman Correlation Analysis of the Relationship Between Physical Activity Participation Level and Foreign Language Achievement Score*

		Foreign language achievement score
Physical Activity Participation Level	Spearman Correlation Coefficient	.403
	p	**.000**
	n	1012

According to table 8, a positive and moderately significant relationship is seen between physical activity participation level and the foreign language achievement score (p<.001).

Table 9. *Multivariate Linear Regression Analysis of Intelligence Types' and Physical Activity Participation Levels' Effects on Foreign Language Achievement Scores*

	Unstandardized Coefficients		Standardized Coefficients			
	B	Standard Error	Beta	t	p	VIF
(Constant)	130.015	2.780		46.760	.000	
Linguistic Intelligence	.086	.062	.042	1.389	.165	1.105
Mathematical Intelligence	.044	.067	.019	.654	.513	1.066
Visual Intelligence	.032	.057	.019	.557	.577	1.362
Musical Intelligence	-.042	.041	-.033	-1.018	.309	1.305
Bodily Intelligence	-.054	.056	-.032	-.960	.337	1.303
Naturalist Intelligence	-.088	.048	-.062	-1.821	.069	1.406
Interpersonal Intelligence	-.023	.053	-.015	-.446	.656	1.393
Intrapersonal Intelligence	.087	.056	.054	1.567	.117	1.436
Physical Activity Participation Level	.002	.000	.406	13.284	**.000**	1.128

$R=.411$ $R^2=.17$ $F_{(9,1002)} = 22.617$ $p=.000$

Multivariate linear regression analysis was performed to predict foreign language learning achievement by using physical activity participation level and dominant multiple intelligence domain variables. When table 9 is examined; the model is found to be a significant regression

model (F(9, 1002) = 22.617, p<.01). In addition, when the VIF values of the model are examined, the fact that it is close to "1" for all variables proves the accuracy of the model (Hair, Anderson, Tatham & Black, 1995; Allison, 1999; Craney & Surles, 2002). It is seen that the independent variables explain 17% ($R^2_{adjusted}$ = .17) of the variance in foreign language learning achievement assigned as the dependent variable.

Again, according to table 9; the physical activity participation level of the participants positively and significantly affects their foreign language learning achievement (ß=.406, t(1002)=13.284, p<.001). However, when other variables are examined, it is seen that verbal intelligence (ß=.042, t(1002)=1.389, p>.001), mathematical intelligence (ß=.019, t(1002)=.654, p>.001), visual intelligence (ß=.019, t(1002)=.557, p>.001), musical intelligence (ß=-.033, t(1002)=.-1.018, p>.001), bodily intelligence (ß=- .062, t(1002)=-.96, p>.001), nature intelligence (ß=-.062, t(1002)=.069, p>.001), interpersonal intelligence (ß=-.015, t(1002)=.656, p>.001) and intrapersonal intelligence (ß=.054, t(1002)=.117, p>.001) do not seem to have a significant effect on foreign language learning achievement.

4. Discussion and Conclusion

As it is seen in the table 6, when the relationship between the physical activity levels of the participants and the types of intelligence are examined, a positive and moderate relationship has been found between physical activity level and bodily intelligence (p<,001). Tekin (2008), in his study with secondary school students who did and did not do sports, stated that there was a significant difference between the bodily intelligence according to the status of doing sports. Ermiş (2012), in his study examining the difference between multiple intelligence areas of university students who did and did not do sports, found a significant difference between the bodily intelligence and the variable of doing sports, and stated that the students who did sports had the highest score in the area of bodily intelligence, among the multiple intelligence areas. In 2014, Kul et al. found a significant difference in their studies with the candidate students who took the physical education and sports aptitude test, in favor of the winner candidates in the bodily intelligence type. Kiremitçi and Canpolat (2014) aimed to determine the relationship between students' multiple intelligence areas, metacognitive awareness, and problem-solving skills in their study with university students, and they concluded that the students had the highest scores in the type of bodily intelligence, and they showed their sports background as the reason for this. In his study with university students, Gülle (2019) found a significant difference between bodily intelligence in favor of those who did sports according to active sports status. When the results of the studies are compared, it is observed that the results support each other. This situation can be explained by the fact that the bodily intelligence domain, which deals with the capacities of individuals to use their bodies actively through various movements, is in a connection with physical activity and the movement directly supports this intelligence domain.

According to table 4, when the foreign language achievement scores of the participants according to the dominant intelligence area are examined, it is 142.55 for those with verbal intelligence; 136.87 for those with mathematical intelligence; 135.97 for those with visual intelligence; 139.28 for those with bodily intelligence; 135.48 for those with nature intelligence; 133.79 for those with musical intelligence; 135.51 for those with interpersonal intelligence and 135.70 for those with intrapersonal intelligence. As it is seen in table 7, when examining whether there is a relationship between the types of intelligence and foreign language achievement scores, a positive low-level significant relationship has been found only between bodily intelligence and foreign language achievement scores. Sarıcaoğlu and Arıkan (2009) found that there was a relationship between foreign language grammar knowledge and

bodily intelligence in their study with university students. In his study with university students, Wang (2020) stated that students with bodily intelligence achieved higher scores in foreign language learning in terms of median and mean scores and said that language teaching could be done through bodily intelligence, provided that appropriate techniques were used. Although foreign language learning is related to verbal intelligence, which is responsible for language production and includes some complex language skills such as reading, writing, symbolic thinking, and metaphor (Lazear, 1999, p.2), it is seen that it may have meaningful relations with bodily intelligence. This situation also emphasizes that language should be taught using methods and techniques that include animation, dance, various racing games (Pinkley, 2012), applied learning, and drama (Bilash, 2013).

According to table 8, when the relationship between physical activity participation levels and foreign language achievement scores is examined; a positive and moderately significant relationship has been found between these two. Ericsson (2008), in her study with children of primary education age, suggested that extended physical education course contributed to the academic success of students and they were more successful in mathematics and Swedish lessons. Reed et al. (2010) also stated in their study with children at the age of primary education that students who did some physical activities such as running, walking, jumping in integration with physical education got higher scores in English/language skills than those who did not. Gülünay and Savaş (2019) stated in their study with university students that there was a significant difference between physical activity and foreign language learning. Although the sample groups are different from each other, the results of the studies support each other.

According to the data set obtained within the scope of the research, when the effects of the participants' intelligence types and physical activity participation levels on their foreign language achievement scores are examined, a significant regression model ($F(9, 1002) = 22.617$, $p<.001$) has been determined. It has been observed that physical activity participation has a positive and significant effect on foreign language achievement scores (ß=.406, $t(1002)=13.284$, $p<.001$), while none of the types of multiple intelligence has a significant effect on foreign language learning achievements. However, although it is seen that multiple intelligence areas do not have a direct and statistical effect on foreign language achievement, a positive, weak-level significant relationship has been found between bodily intelligence and foreign language scores (table 7) . While Sarıcaoğlu and Arıkan (2009) stated that there was a relationship between bodily intelligence and foreign language grammar knowledge, Wang (2020) reported that students with bodily intelligence domain achieved higher scores in foreign language learning in terms of median and mean scores. In addition, a positive and moderately significant relationship has been found between the variable of time spent as an athlete and bodily intelligence. Wei-ting et al. (2011) found a positive relationship between the time spent on sports and bodily intelligence. In this context, the fact that the time spent on sports is in a relationship with bodily intelligence and bodily intelligence is in a relationship with foreign language achievement scores shows that sports may have an indirect effect on foreign language achievement. This situation can also be interpreted as the reason why the foreign language achievement means of the students who participated in the research with bodily intelligence were high. When the literature on physical activity and foreign language learning is reviewed, Tomlinson and Masuhara (2009) found that games with physical activity had a positive effect on foreign language acquisition and that such games both help gain self-confidence and were great opportunity for students learning physically. Schmidt-Kassow et al. (2010) examined the effect of physical activity on foreign vocabulary learning in their study with volunteers aged 19 to 33, and as a result, they stated that the group that was taught with physical activity got higher scores than the others. Blom et al. (2011) examined the relationship between physical fitness and academic achievement by using language and mathematics tests and concluded that

physical fitness was in a significant relationship with language achievement scores and suggested that physical activities should be given more place in educational institutions. Käll et al. (2014), in their study examining the effect of physical activity on academic performance, concluded that the experimental group provided with an extra physical activity program had higher English achievement scores than the group not provided. Bezold et al. (2014) in their study with 83,111 secondary school students, in which they examined the relationship between physical fitness and academic achievement, stated that students who increased their physical fitness status positively got higher scores in English tests than those who remained stable. Toumpaniari, Loyens, Mavilidi, and Paas (2015), in their study with preschool children, examined the effect of physical activity on vocabulary learning and concluded that children learnt better through physical activity. Reynolds (2017) stated that doing physical activity at the same time with learning a new language had positive effects on language learning and thus learning was easier. Shadiev, Hwang, and Liu (2018) concluded that adolescents who engaged in more physical activity achieved better learning as a result of their study on foreign language learning with the help of smartwatches supported by physical exercise. Chung et al. (2018) concluded in their study that students who did physical activity were academically more successful than those who did not, and that there was a significant relationship between physical activity level and academic success. Bakinde, Dominic and Adebayo (2020) stated in their study with university students that fitness activities affected academic performance. When the studies are examined, it is observed that even though there are differences in the sample groups, they reach results that support each other. This situation reveals that being in physical activity has a positive effect on the success of students in general, as well as being in positive ties with language learning in particular. Physical activity can be said that it may make learning more effective by helping to pay attention efficiently, increasing the number of new brain cells and the number of connections between neurons, and helping to increase some neurotropic substances that accelerate learning such as brain-derived neurotrophic factor (Haverkamp et al., 2020; Hillman, Erickson & Kramer, 2008; Liu, Sulpizio, Kornpetpanee & Job, 2017; Reynolds, 2017). And also, Ishira et al. (2018) stated that physical fitness gained through regular physical activity improved brain functions and also had a positive correlation with academic performance.

As a result, a positive, moderately significant relationship has been found between the physical activity participation level of the participants and their bodily intelligence ($p<0.001$), and a positive moderately significant relationship has been found between the physical activity participation level and the foreign language achievement score ($p<0.001$). There is also a positive and moderately significant relationship between the time spent as an athlete and bodily intelligence ($p<.05$). A positive, weakly significant correlation has been found between the foreign language achievement score and bodily intelligence ($p<0.001$). When the effects of multiple intelligence and physical activity participation levels on foreign language achievement scores have been examined, it is seen that the level of physical activity participation has a positive and significant effect. In this context, it is seen that bodily intelligence, time spent as an athlete and participation in physical activity may be important factors in foreign language learning achievement.

For further studies; since it is observed that bodily intelligence can also have a say in foreign language teaching, organizing activities within the scope of multiple intelligences during teaching may have an important role in increasing the quality and effectiveness of teaching; since it is seen that sports and physical intelligence can be important in foreign language learning, more input can be provided to school curricula in these areas in terms of the benefits of interdisciplinary teaching; considering the positive effect of physical activity on foreign language learning and therefore on academic performance, physical activity opportunities

(various activities, programs, physical activity facilities, equipments etc.) can be provided to students at all levels free of charge.

5. Ethics Committee Approval

Ethics committee approval for this study is available with the decision of Gazi University Ethics Committee meeting 12, research code 2019-405, on 05.12.2019.

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