International Online Journal of Education and Teaching (IOJET), Vol. 11 , No. 2, 2024 (pp. 189-202)

RESEARCH ARTICLE www.IoJet.org

Academic well-being, academic Incompetence and Imposter Syndrome Scale for University Students

Pınar Ayyıldız[1], Aruzhan Badelzhanova[2], Adem YILMAZ[3]

[1, 2]Ankara Medipol University, Turkey
[3]Kastamonu University, Turkey

Keywords:

Academic Well-Being, Academic Incompetence, Imposter Syndrome Scale

Author's Email id:
pinar.ayyildiz@ankaramedipol.edu.tr, aruzhan.badelzhanova@std.ankaramedipol.edu.tr, yilmazadem@kastamonu.edu.tr

Author's Orcid :
0000-0002-2644-7981. 0009-0001-1269-1940, 0000-0002-1424-8934

Received : 02.01.2024
Revised : 28.03.2024
Accepted : 31.03.2024

Abstract

In this research, the goal was to create a scale measuring academic well-being, feelings of academic incompetence, and imposter syndrome among university students. The study employed the survey methodology, a quantitative research approach. It gathered perspectives from students across various Turkish universities, with 742 participants in total. The researchers designed a 5-point Likert scale featuring three dimensions and 37 items as the instrument for data collection. The analysis of the gathered data was conducted using the SPSS 24.0 and SPSS AMOS 24.0 software. Exploratory factor analysis revealed that the factor loadings varied from 0.469 to 0.882, the Kaiser-Meyer-Olkin measure was 0.912, the explained total variance stood at 67.321%, and the Cronbach's Alpha coefficient was 0.913. Confirmatory factor analysis showed the Chi-square/degrees of freedom ratio at 1.36, RMSEA at 0.04, NNFI at 0.96, SRMR at 0.03, and AGFI at 0.92. The research concluded that the developed scale was both valid and reliable, promising to be a useful tool for assessing the academic well-being, academic incompetence, and imposter syndrome feelings among college students.

How to cite this article: Ayyıldız, P, Badelzhanova A, Yılmaz A (2024). Academic well-being, academic Incompetence and Imposter Syndrome Scale for University Students. International Online Journal of Education and Teaching, Vol. 11, No. 2, 2024, 189-202

Introduction

Academic well-being refers to the overall state of a student's mental and emotional health in relation to their academic experiences. It encompasses various aspects such as their sense of belonging, motivation, self-efficacy, and satisfaction with their academic progress and achievements (Howell, 2015). It also includes their ability to manage stress and cope with academic challenges, as well as their engagement and involvement in academic activities (Yu et al., 2018). Measuring academic well-being can indeed be a complex task, as it involves assessing numerous dimensions and factors. Some common measures used to assess academic well-being point to surveys, questionnaires, and scales that are designed to capture learners' perceptions of their academic experiences and their impact on their well-being. These measures may contain items related to their level of stress and anxiety, their sense of belonging

and connectedness, their motivation and engagement in learning activities, their satisfaction with their academic performance, and lastly their perceived level of support from peers and instructors (Jones et al., 2020; Yu et al., 2018). Additionally, measures may also examine factors such as students' self-efficacy beliefs, their ability to effectively manage their time and workload, and their overall academic competence. These measures provide invaluable insights into students' well-being and can inform interventions and support strategies that promote positive academic experiences along with relevant outcomes (Ayyıldız & Yılmaz, 2022).

In order to be able to effectively measure academic well-being, it is deemed important to consider the multidimensional nature of the very construct and utilize a combination of subjective self-report measures alongside objective indicators like academic performance and attendance records (Arslan et al., 2021). In fact, an assessment of well-being considers key facets of an individual's existence i.e., their joy, achievement in their objectives, and their general effective operation within their surroundings. Currently, there is a burgeoning field of study concentrating on the psychological, social, behavioral, economic, and environmental factors that influence human well-being. The concept of "well-being" is characterized and applied diversely across distinct contexts and disciplines. The term well-being is inherently complex and multidimensional, underpinning a fair number of aspects of an individual's life (Rivera-Vargas & Oyanedel, 2023). The said aspects pinpoint physical health, mental and emotional well-being, social connections and support, financial stability, and a sense of purpose and fulfillment (Click et al., 2017). Measuring academic well-being then entails a thorough evaluation of the dimensions and factors viz. the levels of stress and anxiety, sense of belonging and connectedness, motivation and engagement in learning activities, satisfaction with academic performance, perceived support from peers and instructors, self-efficacy beliefs, time management skills, and finally one's overall academic competence (Greco et al., 2022). The academic environment is innately a complex and multifaceted arena where students' psychological and emotional landscapes play a critical role in their learning and success. Recent advancements in the trajectories of Educational Psychology have increasingly acknowledged the eminence of understanding and addressing the psychological factors that contribute to outcomes of academic nature (Zimmerman, 2000). Amongst these, academic well-being, academic incompetence, and imposter syndrome have emerged as significant constructs that warrant a meticulous investigation due to their profound impact on learners' academic experiences and achievements (Cowman & Ferrari, 2002; Stoeber & Childs, 2010).

Academic well-being is a construct that reflects students' positive psychological engagement with their academic endeavors. It pertains to feelings of competence, autonomy, and relatedness within learning spheres and the academic context, contributing to general life satisfaction and well-being (Ryan & Deci, 2000). Academic well-being is oftentimes associated with higher motivation, better learning outcomes, and greater academic persistence (Seligman et al., 2009). Howbeit, the factors that nurture or impede academic well-being are multifaceted and interwoven with students' broader psychological experiences (Shernoff, 2013).

Conversely, *academic incompetence* refers to students' perceptions of lacking the necessary skills, knowledge, or ability to meet academic demands. This perception can lead to a host of negative academic and psychological outcomes that highlight decreased motivation, poor academic performance, and lower levels of overall well-being (Bandura, 1997). Academic incompetence is particularly concerning as it carries the potential to create a self-reinforcing cycle through which negative perceptions result in disengagement and some other sorts of academic struggles (Martin, 2010).

Imposter syndrome is characterized by a series of persistent feelings that pertain to self-doubt and/or the fear of being exposed as a fraud, despite the evidence of one's competencies and achievements (Clance & Imes, 1978). Within academic settings, learners who experience imposter syndrome may undervalue their own successes, attribute their achievements always to some external factors, and harbor fears of not living up to expectations (Sakulku

& Alexander, 2011). The syndrome in question may significantly impair academic and/or psychological well-being, causing enhanced levels of stress, anxiety, yet hindered academic performance (Matthews & Clance, 1985).

Theoretical Framework

Exploring Academic Incompetence Among University Students

Academic incompetence points out to the perceived or actual lack of skills, knowledge, or abilities required to succeed academically. It may manifest in varying ways, namely, struggling to understand course materials, difficulty in completing given assignments, feeling overwhelmed and/or unprepared for tests, and experiencing a lack of confidence in one's owned academic abilities (Greco et al., 2022; Le et al., 2020; Zajacova et al., 2005).

Understanding the factors that contribute to academic incompetence is highly crucial in providing to-the-point support and interventions for students who are struggling. One key factor that has been declared as associated with academic incompetence is low(er) self-efficacy. Learners with low self-efficacy may doubt their abilities to succeed academically, leading to a lack of motivation, effort, and perseverance. The other factors that can add onto academic incompetence underline the lack of effective study skills and time management strategies, poor organizational skills, difficulties in focus, and a lack of support or usefulş resources (Ayyıldız & Yılmaz, 2023; Basith et al., 2020; Margolis & McCabe, 2004). Imposter Syndrome stresses diverse persistent feelings of incompetence and self-doubt in spite of the evidence of accomplishments and success. Learners experiencing imposter syndrome may believe that they are not truly competent or deserving of their achievements, attributing their success to luck or other factors rather than their own abilities or efforts. Imposter syndrome may have negative impacts on academic well-being as it is connected to augmented levels of stress, anxiety, but a decreased sense of self-esteem and self-confidence. It is prominent to measure and assess the prevalence of imposter syndrome among university students so as to understand its impact on academic performance and well-being and to develop strategies for supporting students further who experience these feelings (Lee et al., 2010; Raza et al., 2020). One way to evaluate academic incompetence and imposter syndrome among these students is with the help of the use of scales and questionnaires. These inventories can gather self-reported data on learners' perceptions of their own academic abilities, levels of self-efficacy, experiences with imposter syndrome, and other related parameters. By utilizing the Imposter Syndrome Scale for University Students, researchers, praticioners and educators can gain insights into the prevalence of imposter syndrome among university learners, as well as into its relationship to academic incompetence and overall well-being (Persky, 2018; Yang & Li, 2020).

The Impacts of Imposter Syndrome in Higher Education

Imposter syndrome, characterized by a set of persistent feelings of incompetence and self-doubt despite the existence of accomplishments, may have significant impacts on individuals in higher education (Imposter Syndrome, 2023). These impacts frequently emphasize decreased motivation, elevated stress and anxiety, and the lack of confidence in one's abilities. Learners with imposter syndrome can be more likely to engage in self-sabotaging behaviors, e.g., procrastination or perfectionism, which can hinder their academic success (Levant et al., 2020). Also, imposter syndrome can negatively affect mental health and overall well-being, resulting from isolation, imposter cycle, and the lack of support from outside bodies. The recent line of literature has shown that imposter syndrome can have a detrimental effect on the retention and graduation rates of students studying at university. As a matter of fact, academic incompetence is often a contributing factor to imposter syndrome. Thereupon, addressing and mitigating imposter syndrome is vital for promoting academic well-being and success in university learners (Hoang, 2013). One potential scale that can be used to measure imposter syndrome and academic incompetence is the Academic Well-Being, Academic Incompetence, and Imposter Syndrome Scale for University Students. The Imposter Syndrome Scale for University Students is a validated instrument that measures academic

well-being, academic incompetence, and imposter syndrome in university learners. Using this scale, stakeholders can gather data pertaining to learners' perceptions of their own academic abilities, levels of self-efficacy, experiences with imposter syndrome, and about the other factors that come into play. As has been mentioned earlier because imposter syndrome may have severe impacts on university students, to specify, decreased levels of motivation, escalated levels of stress and anxiety, and the lack of confidence in their abilities addressing and mitigating imposter syndrome is critical for promoting academic well-being and success in university learners (Tang & Sun, 2018). Moreover, it may cast light to the multifaceted nature of self-efficacy beliefs in managing academic tasks, allowing for comparisons among students from different degrees, programs, departments also paving the way for understanding the effectiveness of interventions in distinct forms of curriculum and instructional conditions and circumstances.

Strategies for Improving Academic Well-Being

With a view to improving academic well-being and targeting imposter syndrome, universities can implement strategies. These strategies are linked to providing mentorship and support programs for those students, facilitating a culture of inclusivity on campus, offering academic skill-building workshops and resources, and fostering a sense of belonging and community among the members (Barr-Walker et al., 2020). By implementing these strategies, universities can cater to their learners' academic experience, reduce feelings of incompetence and imposter syndrome, and ultimately assure their overall well-being. Via incorporating academic libraries into the support network for learners who suffer from imposter syndrome, higher education institutions may help make more efforts to refrain from the negative results (Craddock et al., 2011). Academic libraries own the great potential to serve for learners constituting safe and inclusive structures in which learners may seek support, attain resources, and guidance germane to imposter syndrome (Ramsey & Brown, 2017). These libraries may offer books, articles, and workshops on imposter syndrome to educate students about the phenomenon and shed light to strategies to manage the process. By building partnerships with other campus entities, such as psychological counseling centers and student support services, academic libraries can collaborate to develop comprehensive programs toward eliminating imposter syndrome and add to academic well-being of learners (Bladek, 2021). Overall, the Imposter Syndrome Scale for University Students is considered a useful tool that can be resorted to when scrutinizing imposter syndrome, academic incompetence, and self-efficacy beliefs of learners at universities. In the end, higher education organizations may implement targeted strategies to serve for the academic well-being of their students.

Interconnections and Research Gaps

It would be fair to state that whilst the accumulated research has separately explored these constructs, the interrelationships among academic well-being, incompetence, and imposter syndrome still remain underexplored. The preliminary studies suggest that these constructs are interrelated in complicated ways that influence learners' learning pathways to a great extent (Leary et al., 2000). To exemplify, academic incompetence can exacerbate feelings ascribed to imposter syndrome, further detracting from academic well-being (Cowman & Ferrari, 2002). Conversely, rising levels of academic well-being can mitigate feelings of incompetence and imposter syndrome, hinting at more positive academic experiences (Seligman et al., 2009). The development of a comprehensive scale that assesses these constructs in relation to each other could provide aid in investigating their dynamics and interplay. Such a scale would not only advance scientific research but also inform the mechanisms aim to regulate student well-being and academic success (Deci & Ryan, 2000).

Current Study

The present study intends to fill the gap in the bulk of the literature by developing and validating a comprehensive scale that assesses academic well-being, incompetence, and imposter syndrome in an integrated fashion. By inspecting the interrelations among these constructs, the study attempts to provide a nuanced understanding of their combined impact on learners' academic experiences. To achieve this, the research adopts a mixed-methods approach, beginning

with qualitative interviews to refine the conceptual understanding of each construct. This is followed by the development of scale items, which are assessed and later refined with the help of expert opinions and pilot testing. The main study afterwards administers the scale to a larger sample of university learners employing rigorous statistical analyses to measure the scale's validity and reliability. The anticipated outcome is a psychometrically sound scale which reliably measures the interrelated constructs of academic well-being, incompetence, and imposter syndrome. This tool can inspire prospective studies aimed at contemplating the roles of these constructs in academic contexts and guide the development of specific interventions to scaffold learner well-being and academic performance and achievement (Zimmerman, 2000).

Significance of the Study

The significance of this study lies in its potential to contribute to the theoretical and practical understandings of the key psychological constructs that interfere with academic success. By presenting a robust tool for assessing academic well-being, incompetence, and imposter syndrome, the study enables a deeper understanding of how these constructs interact and their collective impact on student outcomes. What is more, the scale developed with this study can have practical implications for the involved parties. It can be referred to when identifying learners who may be struggling with these issues, inform the healthy development of support mechanisms and interventions creating more nurturing and (a)effective educational environments. In conclusion, this study represents a timely and crucial step towards elucidating the complex interplay of psychological factors which underlie academic experiences. By accentuating how academic well-being, incompetence, and imposter syndrome intersect and influence each other, the research is hoped to contribute to a more holistic understanding of learner well-being and success, providing a solid foundation for future research and intervention efforts in the field of educational psychology.

Method

Research Model

In this research, the survey technique, which is a quantitative research technique, was employed. This technique is a research strategy that seeks to portray a current scenario in its natural setting without any outside interference, in other words, exactly as it occurs (Fraenkel & Wallen, 2003). In addition to these, the survey technique provides the opportunity to thoroughly investigate the conditions being studied (Delice, 2015).

Table 1. Information for participants

Variables	Sub-Variables	(f)	%
Gender	Male	321	43.07
	Female	421	56.73
Grade Level	1st Class	118	15.90
	2nd Class	196	26.41
	3rd Class	296	39.89
	4th Class	132	17.80
Faculty	Education	185	24.93
	Pharmacy	89	12.00
	Engineering	113	15.22
	Medicine	79	10.65
	Fine Arts	105	14.15
	Business	101	13.62
	Agriculture	70	9.43
	Total	742	100

Working Group

In the formation of the research's participant group, both criterion-based and convenience sampling approaches were deployed. The selection of the convenience sampling was on account of its benefits in ensuring the research subjects are readily available, minimizing time, effort, and cost, and enabling rapid data collection. The criterion sampling method was preferred because the focus was on selecting merely learners at university for data gathering (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2016; Metin, 2016).

In choosing the university students for the study, attention was paid to invite students from differing faculties and disciplines. Accordingly, a total of 742 university students from universities of Türkiye became the participants in the study. The details regarding the these participants are delineated in Table 1.

It appears that the female participants support the study more intensively. Aside from this, in terms of grade level, the learners in the 3rd grade displayed more interest in the study. At the faculty level, it is clear that the students of the faculty of education participated the most.

Data Collection Tool

This research wishes to explore university learners' perceptions with regard to academic well-being, academic incompetence, and imposter syndrome, involving students from a variety of regions across Türkiye. During the review of the literature concerning academic well-being, academic incompetence, and imposter syndrome, an extensive use of questionnaires, inventories, and scales was noted. Nonetheless, the literature implies a scarcity of such studies on these three variables concurrently. Thusly, following the literature review, specific themes were established and subjected to expert scrutiny. The experts consulted were especially recruited based on their previous research in these areas. Following the feedback from these experts, three themes emerged, named *"Academic Well-Being, Academic Incompetence, and Imposter Syndrome"*. The subsequent analysis led to the development of a three-factor, 37-item five-point Likert scale by the researchers, who also confirmed its validity and reliability. All the necessary permissions were obtained during the research process and informed consent forms were received from each participant.

Data Analysis

In this study, the data gathered using quantitative data collection methods underwent both exploratory and confirmatory factor analyses, as these analyses are necessitated in scale development research. Initially, exploratory factor analysis was carried out using the SPSS 24.0 software. Subsequently, the identified scale structures were checked with confirmatory factor analysis using the SPSS Amos 24.0 software, which assisted in the validation of these structures.

Results

Since the scale development study was carried out within the scope of the research, first off the results of exploratory factor analysis and secondly the results of confirmatory factor analysis were unveiled.

Exploratory Factor Analysis Results

Initially, the scale developed by the researchers was validated in re content and face validity. For the content validity, as described by Gül and Sözbilir (2015), any scale development involves two distinct validation processes: logical (non-statistical) and statistical evaluations. Logical evaluations consist of the overall evaluations through interviews or feedback, both written and verbal (Yurdagül & Bayrak, 2012).

Statistical evaluations, meanwhile, focus on measures such as the "content validity rate" and "content validity index" (Yurdagül & Bayrak, 2012; Yurdagül, 2005). To affirm the validity and consistency of the gained expert feedback from preliminary studies that concern the clarity of the scale items and their relevance to the intended sample, the content validity ratios and indexes were reviewed, referencing the criteria established by Lawshe (1975) and refined by Wilson, Pan, and Donald (2012).

The findings outlined the scale's content validity ratio ranged from 0.86 to 1.00 and the content validity index varied from 0.89 to 0.94, confirming adequate content validity for the study. The initial phase of the exploratory factor analysis is detailed

in Table 2, where the KMO and Bartlett's sphericity tests were made use of to assess the factorability of the scale items and ascertain the appropriate sample size.

Table 2: Kaiser-Meyer-Olkin (KMO) and Bartlett sphericity test results

KMO Coefficient		0.912
Bartlett Test	Chi-Square Value	4896.456
	Df	666
	p (p<0,05)	0.000

Upon controlling the results from the factor analysis, the data appropriateness was initially assessed using the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity (Büyüköztürk, 2010). A KMO value above 0.50 and a significant Bartlett's test of sphericity ($p<0.05$) signify that the sample size is adequate for factor analysis and that the scale items exhibit a satisfactory level of inter-item correlation (Tabachnick & Fidel, 2007).

Apart from this, the significance of Bartlett's test underscores that the data meet the requirements for linearity and homogeneity. This also communicates that the dataset likely follows a normal distribution (Tabachnick & Fidell, 2007; Yılmaz & Aydın, 2019). On top of these, the examination of the correlation matrix and anti-image correlation matrices was performed to ensure the inter-item relationship levels, confirming that these relationships are within the desired range, that means, without overly high correlations, hence avoiding multicollinearity (Göçmençelebi & Özkan, 2010).

Provided item correlations exceed 0.90, this situation suggests that these items may be redundant, serving similar purposes, and should potentially be combined. An analysis of the scale items in that sense revealed that all the items fall within the acceptable value ranges. Table 3 makes the results of eigenvalues and variance ratios visible.

Table 3: Results of eigenvalues and variance ratios

Factor	Eigenvalue	Variance (%)	Cumulative (%)
1	5.321	36.741	36.741
2	3.214	17.458	54.199
3	1.852	13.122	67.321

Identifying the number of factors in the development of scales is most often a particularly demanding stage of the research process (Büyüköztürk, 2010). An essential consideration in this phase is to concentrate on choosing factors that have eigenvalues exceeding 1. When reviewing Table 3, it is apparent that three factors with eigenvalues over 1 are discernible.

That being said, the literature review suggests that factor grouping should be concluded when the eigenvalue ratios begin to show a decline to less than 2 or to figures that are multiples of 2 (Tabachnick & Fidell, 2007).

Continuing the analysis of the eigenvalues and the variance ratios unearths that the total explained variance stands at 67.321%. It is recommended that for the studies focusing on a single factor, the explained variance should be no less than 30%, and for the studies with multiple factors, it needs to exceed 40% (Şimşek, 2007). Given these standards, the total variance explained by the scale in the current study is found at an adequate level (Tavşancıl, 2006). Table 4 makes the item factor loadings, total variance explained and reliability analysis results accessible.

Table 4 helps discover that the factor loadings for the items fluctuate between 0.469 and 0.882. According to the prevailing academic standards, item factor loadings should ideally exceed 0.30. Nevertheless, for this particular study, the threshold was set at 0.40, with analyses performed accordingly. Following these analyses, an examination of our scale proves that both the item factor loadings and the shared variance figures fall within the acceptable range of values. When the reliability results of our scale were gone through, it was determined that the general ratio was 0.912.

Confirmatory Factor Analysis Results

In the second stage of the scale development study, confirmatory factor analysis results were laid out. Table 5 indicates the goodness of fit index values obtained as a result of confirmatory factor analysis.

Upon inquiring into Table 5, it is necessary to align the outcomes from the confirmatory factor analysis with the indices for goodness of fit. The initial step post-CFA involves scrutinizing the chi-square

Table 4: Item factor loadings, total variance explained and reliability analysis results

	Factor Loadings		Total Variance Explained	Cronbach Alpha
Academic Well-Being	S1	0.812	36.741	0.939
	S2	0.769		
	S3	0.745		
	S4	0.712		
	S5	0.695		
	S6	0.654		
	S7	0.631		
	S8	0.588		
	S9	0.574		
Academic Incompetence	S10		17.458	0.897
	S11			
	S12			
	S13			
	S14			
	S15			
	S16			
	S17			
	S18			
	S19			
	S20			
	S21			
Imposter Syndrome	S22		13.122	0.904
	S23			
	S24			
	S25			
	S26			
	S27			
	S28			
	S29			
	S30			
	S31			
	S32			
	S33			
	S34			
	S35			
	S36			
	S37			
	Total		67.321	0.912

Table 5: The goodness of fit index values

Fit Index	Value	Comment
X^2	1006.40	Appropriate value range
Df	740	Appropriate value range
X^2/Df	1.36	Perfect fit
p	0.00	Significant at 0.05 level
RMSEA	0,04	Perfect fit
NFI	0.94	Perfect fit
NNFI	0.96	Perfect fit
CFI	0.93	Perfect fit
RMR	0.04	Perfect fit
SRMR	0.03	Perfect fit
AGFI	0.92	Perfect fit
GFI	0.91	Perfect fit
CN	274.11	Perfect fit

to degrees of freedom (X^2/Df) ratio. A good number of sources suggest that a ratio of 5 or less is deemed acceptable, under 3 is considered a good fit, and below 2 is viewed as perfect (Calvini, Fini & Ranieri, 2008). This ratio is indicative of the adequate sample size and the coherent clustering of scale items into specific categories (Büyüköztürk, 2010). The subsequent step in CFA is to assess the significance level of p and the RMSEA index value, where a p-value greater than 0.05 is typically anticipated (Kline, 1994). That said, this value frequently appears significant at the 0.05 level due to the treatment of Likert-scale responses as continuous data. Consequently, it is imperative to bear in mind the fit indices, in particular RMSEA, in a sequential manner. The analysis of the fit indices from the CFA reveals that the X^2/Df ratio signifies an excellent fit, validating the sample size's adequacy for the construct validity testing through the Structural Equation Model (SEM) affirming that the scale items are logically grouped. As for the sample size recommendations, the literature conveys varied viewpoints (Ardies, Maeyer & Gijbels, 2013), recommending that a minimum of 300 respondents is optimal for Likert-scale studies (Akgül, 2017) and that the sample size needs to be five to ten times the scale's item count. With a sample size of 742 and a CN value of 274.11, our research aligns with these recommendations, evidenced by the X^2/Df value and other indices. Reviewing additional fit indices from

the CFA like RMSEA, NFI, NNFI, CFI, SRMR, CN, RMR, AGFI, and GFI evidences excellent compatibility. The holistic evaluations that belong to post-EFA, CFA, and SEM analysis makes sure the construct validity of the scale, with the identified values falling within the desired ranges.

Discussion and Recommendations

The development of this scale, which delineates the sub-factors of academic well-being, academic incompetence, and imposter syndrome, is meaningful and purposeful given its robust validation process. The content and face validity confirmations provide a tangible foundation toward its reliability and relevance in academic environments. The validation procedures, on the other hand, as announced by Gül and Sözbilir (2015), underscores the dual necessity of logical and statistical evaluations in scale development. In light of all these we can express that the scale not only adheres to theoretical expectations but also holds empirical directions.

The content validity ratio and index findings are extra noteworthy explaining that the scale items are very much representative of the constructs they are intended to measure. Such strong content validity, indicated by ratios and indexes well within the acceptable range, is considered salient for the scale's application in tertiary education and beyond. It secures that when implemented to enquire into one's academic well-being, incompetence, or feelings interlinked with imposter syndrome, the results are grounded in a validated tool that accurately reflects these complex constructs. Above all, the application of the KMO and Bartlett's sphericity tests during the exploratory factor analysis phase is commendable.

These tests provide an essential statistical basis for confirming the factor structure of the scale, certifying that the items correlate well enough to provide interpretable factors but are not so redundant as to inflate or bias the results. The development of this scale, with its specific focus on distinct still interrelated academic experiences, fills a condemning gap in educational research. It offers a nuanced instrument for examining how learners perceive and navigate their academic journeys, marking the areas for which interventions might become major to speak of academic well-being and eschew the feelings of incompetence or fraudulence. The development of a scale incorporating the major sub-factors of academic well-being, academic incompetence, and imposter syndrome stands as a chief contribution to educational. The factor analysis results, to be more specific the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity, italicizes that the scale's itemization and sample size are robust for the intended factor analysis, accenting a solid foundation for the scale's reliability and validity (Büyüköztürk, 2010; Tabachnick & Fidel, 2007). The adequacy of the KMO value above 0.50 and a central Bartlett's test outcome corroborates that the scale items are suitably correlated for factor analysis, without undue redundancy that may bring about multicollinearity (Göçmençelebi & Özkan, 2010). This finding is pivotal, as it verifies that each item on the scale contributes uniquely to the assessment of the constructs, nurtuting a clearer understanding of academic well-being, incompetence, and imposter syndrome.

The eigenvalue criteria exploited in this study to identify the number of meaningful factors further illustrate the diligent approach put to use in scale development. With the three factors identified, each of these surpassing the eigenvalue threshold of 1, the scale illustrates a well-defined structure that aligns with theoretical expectations and empirical evidence (Tabachnick & Fidell, 2007). The total explained variance of 67.321% significantly exceeds the recommended thresholds, reinforcing the broad being of the scale in capturing the constructs it plans to measure (Şimşek, 2007; Tavşancıl, 2006). In Table 4, the item factor loadings are detailed alongside the total variance explained and reliability analysis results, offering transparency and further evidence of robustness. The alignment of these findings with the best practicum in scale development spotlights the scale's potential utility in both research and real life. It is of utmost importance to acknowledge how this scale can illuminate the dimensions of the academic experiences that are usually nuanced and interrelated. By providing a validated measure to measure academic well-being, incompetence, and imposter syndrome, the scale may be practical for researchers and educators in identifying the areas

for which learners can need support or intervention. Besides these, it may expedite a better understanding of how these factors interplay and influence academic success and student well-being. The discussion of the results from the development of a scale that assesses academic well-being, academic incompetence, and imposter syndrome eases the gaining of a profound outlook into the psychometric properties and validity of the instrument. The results from Table 4 illustrating the item factor loadings ranging from 0.469 to 0.882, surpass the conventional academic standard of 0.30, setting a more rigorous criterion at 0.40 for this study. Such a standard not only reinforces the scale's robustness but also aligns with the desired practices in psychometric evaluation guarantying each item contributes significantly to the construct it intends to measure.

The total reliability coefficient of 0.912 punctuates the scale's consistency in measuring the constructs across divergent administrations suggesting that the scale is a reliable tool for assessing the psychological dimensions it is designated to capture. This high level of reliability helps infer that the scale will provide consistent and dependable results across separate territories and populations, which is foremost for both research and applications in educational constructs.

In the frame of confirmatory factor analysis (CFA), the detailed examination of goodness-of-fit indices as denoted in Table 5 offers a comprehensive validation of the structural integrity. The chi-square to degrees of freedom (X^2/Df) ratio, significantly within the acceptable range, signifies a well-fitting model that adequately represents the data structure. The weight on discrete fit indices, specially RMSEA, and their alignment with the recommended values, reinforces the construct validity of the scale manifesting that the scale's dimensions accurately reflect the theoretical constructs they are intended to measure.

The sample size of 742, well above the minimum recommended threshold, makes certain the generalizability and stability of the factor analysis results. The robust sample size, coupled with the scale's adherence to recommended fit indices thresholds, establishes a strong foundation for the scale's utility and applicability in manifold educational research and practice surroundings.

In sum, the discussion connotes the careful development and validation process of the scale featuring its potential to bestowing perspectives into academic well-being, incompetence, and imposter syndrome among university students. By offering a validated tool to assess and evaluate these constructs, the scale may clear the way for future research, the creation of interventions, and discussions directed to student well-being and academic experiences. The scale's reliability and validity, supported by rigorous statistical analyses, fortifies the fact that it acts as a focal source for academics, psychological counselors, and educational researchers striving to realize the academic and psychological well-being of learners in higher education.

Some suggestions for the areas of use of the scale developed within the scope of this research are as follows:

1. *Development of Educational Programs:* Universities can develop educational programs to raise students' academic well-being and alleviate academic incompetence and imposter syndrome. The developed scale can be run as a pre- and post-test to see the effectiveness of these programs. Thus, the impact of the interventions on student well-being can be observed with concrete data.
2. *Improving Academic Advising Services:* Academic advising services at higher education institutions may exercise the scale to spot learners' levels of academic incompetence and imposter syndrome. This may be used to provide more targeted and personalized support to students.
3. *Tracking Student Success:* The scale can be administered at regular intervals throughout one's academic life to track down any changes in academic well-being and achievement in time. This can be a useful tool for earlier identification of at-risk learners and for supportive interventions in this frame of reference.
4. *Assessing Academic Environments:* Using the scale, higher education institutions may evaluate the effect of dissimilar academic milieu (departments, faculties and alike) on student well-being. Thence the factors that can negatively impact learner satisfaction and success can be diagnosed and strategies can be come up with to intervene in these.

5. *Creating Academic Policies:* Administrators of higher education organizations and policy makers may use the scale to appreciate the factors that impact learners' academic well-being, deficiencies, and imposter syndrome. This can form the basis for designing more effective policies and programs to back up student well-being.

References

1. Akgül, M. (2017). PISA sınavları bağlamında öğretmen yetiştirme ve istihdam sistemleri: Karşılaştırılmalı bir analiz. Yüksek Lisans Tezi, *Gaziantep* Üniversitesi *Eğitim Bilimleri Enstitüsü*. Gaziantep.
2. Ardies, J.,Maeyer, S.D., & Gijbels, D. (2013). Reconstructing the pupils attitude towards technology survey. *Design and Technology Education: An International Journal*,*18*(1), 8-19.
3. Arslan, G., Yıldırım, M., & Albertová, S M. (2021). Development and initial validation of the Subjective Academic Wellbeing Measure: A new tool of youth wellbeing in school. *Journal of positive school psychology, 6*(1), 3-11. https://doi.org/10.47602/jpsp.v6i1.251
4. Ayyıldız, P., & Yılmaz, A. (2022). "Liderlik Kapasitesinin Hazır Oluş/İsteklilik/Yetkinlik Bakımlarından Ölçülmesi" Ölçeğinin Türkçe'ye Uyarlanması: Geçerlik ve Güvenirlik Çalışması. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi, 23*(3), 2262-2289. https://doi.org/10.29299/kefad.1119467
5. Ayyıldız, P., & Yılmaz, A. (2023). *Effective school management: Leadership capacity of the school principal*. D. Outhwaite & C.A. Simon (Edts.). In Leadership and Management for Education Studies: Introducing Key Concepts of Theory and Practice (pp.46-58). Routledge. https://doi.org/10.4324/9781003321439
6. Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
7. Barr-Walker, J., Werner, D.A., Kellermeyer, L., & Bass, M. (2020). Coping with impostor feelings: Evidence based recommendations from a mixed methods study. *Evidence Based Library and Information Practice, 15*(2), 24-41. https://doi.org/10.18438/eblip29706
8. Basith, A., Syahputra, A., & Ichwanto, M A. (2020). Academic self-efficacy as predictor of academic achievement. *Jurnal Pendidikan Indnesia, 9*(1), 163-170. https://doi.org/10.23887/jpi-undiksha.v9i1.24403
9. Bladek, M. (2021). Student well-being matters: Academic library support for the whole student. *The Journal of Academic Librarianship, 47*(3), 102349-102349. https://doi.org/10.1016/j.acalib.2021.102349
10. Büyüköztürk, Ş. (2010). *Sosyal bilimler için veri analizi el kitabı:* İstatistik, *araştırma deseni SPSS uygulamaları ve yorum* (11. Baskı). Ankara: Pegem Akademi.
11. Büyüköztürk, Ş., Kılıç **Çakmak**, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2016). *Bilimsel araştırma yöntemleri*. 20. Baskı, Ankara: Pegem Akademi.
12. Calvini, A., Fini, A., & Ranieri M. (2008). Models and instruments for assessing digital competence at school. *Journal of E-Learning and Knowledge Society, (4)*3, 183-193.
13. Clance, P.R., & Imes, S.A. (1978). The imposter phenomenon in high achieving women: Dynamics and therapeutic intervention. Psychotherapy: *Theory, Research & Practice, 15*(3), 241–247.
14. Click, K., Huang, L.V., & Kline, L.M. (2017). Harnessing inner strengths of at-risk university students: Relationships between well-being, academic achievement and academic attainment. *Perspectives: Policy and Practice in Higher Education, 21*, 88-100. https://doi.org/10.1080/13603108.2016.1273260
15. Craddock, S., Birnbaum, M., Rodriguez, K L., Cobb, C., & Zeeh, S. (2011). Doctoral students and the impostor phenomenon: Am I smart enough to be here?. *Journal of Student Affairs Research and Practice, 48*(4), 429-442. https://doi.org/10.2202/1949-6605.6321
16. Cowman, S. E., & Ferrari, J. R. (2002). "Am I for real?" Predicting imposter tendencies from self-handicapping and affective components. *Social Behavior and Personality: An International Journal, 30*(2), 119–125.
17. Deci, E. L., & Ryan, R. M. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78.
18. Delice, A. (2015). Karma yöntem desen seçimi. Y. Dede & S. B. Demir (Eds.), *Karma yöntem araştırmaları tasarımı ve yürütülmesi*. 2. Baskı, Ankara: Anı Yayıncılık.
19. Göçmençelebi, Ş.İ., & Özkan, M. (2010). İlköğretim 6.sınıf öğrenilerinin fen bilgisi dersinde öğrendikleri biyoloji bilgilerini günlük yaşamla ilişkilendirme düzeylerini ölçmeye yönelik bir ölçek geliştirme çalışması. *Uludağ* Üniversitesi *Eğitim Fakültesi Dergisi, 23*(1), 121-132.
20. Greco, A., Annovazzi, C., Palena, N., Camussi, E., Rossi, G., & Steca, P. (2022). Self-efficacy beliefs of university students: Examining factor validity and measurement invariance of the new academic self-efficacy Scale. *Frontiers in Psychology, 12*, 1-14. https://doi.org/10.3389/fpsyg.2021.498824

21. Gül, Ş., & Sözbilir, M. (2015). Fen ve matematik eğitimi alanında gerçekleştirilen ölçek geliştirme araştırmalarına yönelik tematik içerik analizi. *Eğitim ve Bilim, 40*, 85-102.
22. Hoang, Q. (2013). The Impostor Phenomenon: Overcoming internalized barriers and recognizing achievements. https://paperity.org/p/82069384/the-impostor-phenomenon-overcoming-internalized-barriers-and-recognizing-achievements
23. Howell, A.J. (2015). Flourishing: Achievement-related correlates of students' well-being. *The Journal of Positive Psychology, 4*(1), 1-13. https://doi.org//10.1080/17439760802043459
24. Imposter Syndrome. (2023). https://spsp.org/feeling-fake-imposter-syndrome
25. Jones, E., Priestley, M., Brewster, L., Wilbraham, S.J., Hughes, G., & Spanner, L. (2020). Student wellbeing and assessment in higher education: the balancing act. *Assessment & Evaluation in Higher Education, 46*(3), 438-450. https://doi.org/10.1080/02602938.2020.1782344
26. Kline, P. (1994). *An easy guide to factor analysis*. UKK Routledge:1990.
27. Lawshe, C.H. (1975). A quantitative approach to content validity. *Personnel Psychology, 28*, 563-575.
28. Le, H.T.T., Nguyen, H.T., La, T.P., Le, T.T., Nguyen, N., Nguyen, T., & Tran, T. (2020). Factors affecting academic performance of first-year university students: A case of a Vietnamese University. *International Journal of Education and Practice, 8*(2), 221-232. https://doi.org/10.18488/journal.61.2020.82.221.232
29. Leary, M.R., Patton, K.M., Orlando, A.E., & Wagoner Funk, W. (2000). The imposter phenomenon: Self-perceptions, reflected appraisals, and interpersonal strategies. *Journal of Personality, 68*(4), 725–756.
30. Lee, S., Chen, C., & Sok, K M. (2010, August 1). Examining Psychosocial Impacts on Academic Performance. *Social Behavior and Personality, 38*(7), 969-978. https://doi.org/10.2224/sbp.2010.38.7.969
31. Levant, B., Villwock, J A., & Manzardo, A M. (2020, February 6). Impostorism in third-year medical students: an item analysis using the Clance impostor phenomenon scale. *Perspectives on Medical Education, 9*(2), 83-91. https://doi.org/10.1007/s40037-020-00562-8
32. Margolis, H., & McCabe, P.P. (2004). Self-efficacy: A key to improving the motivation of struggling learners. The clearing house. *A Journal of Educational Strategies, Issues and Ideas, 77*(6), 241-249. https://doi.org/10.3200/tchs.77.6.241-249
33. Martin, A.J. (2010). *Building classroom success: Eliminating academic fear and failure*. London: Continuum.
34. Matthews, G., & Clance, P.R. (1985). Treatment of imposter phenomenon in psychotherapy clients. *Psychotherapy in Private Practice, 3*(1), 71–81.
35. Persky, A. M. (2018). Intellectual self-doubt and how to get out of it. *American Journal of Pharmaceutical Education, 82*(2), 6990-6990. https://doi.org/10.5688/ajpe6990
36. Ramsey, E., & Brown, D. (2017). Feeling like a fraud: Helping students renegotiate their academic identities. College & Undergraduate Libraries, 25(1), 86-90. https://doi.org/10.1080/10691316.2017.1364080
37. Raza, S.A., Qazi, W., & Yousufi, S.Q. (2020). The influence of psychological, motivational, and behavioral factors on university students' achievements: the mediating effect of academic adjustment. *Journal of Applied Research in Higher Education, 13*(3), 849-870. https://doi.org/10.1108/jarhe-03-2020-0065
38. Rivera-Vargas, P., & Oyanedel, J.C. (2023). Editorial: Subjective well-being in online and mixed educational settings. *Frontiers in Psychology, 14*, 1-5. https://www.frontiersin.org/articles/10.3389/fpsyg.2023.1152373/full
39. Ryan, R.M., & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78.
40. Sakulku, J., & Alexander, J. (2011). The imposter phenomenon. *International Journal of Behavioral Science, 6*(1), 73–92.
41. Seligman, M.E.P., Ernst, R.M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. *Oxford Review of Education, 35*(3), 293–311.
42. Shernoff, D.J. (2013). *Optimal learning environments to promote student engagement*. New York: Springer.
43. Stoeber, J., & Childs, J.H. (2010). The assessment of self-oriented and socially prescribed perfectionism: Subscales make a difference. *Journal of Personality Assessment, 92*(6), 577–585.
44. Şimşek, Ö.F. (2007). *Yapısal eşitlik modellemesine giriş: Temel ilkeler ve LISREL uygulamaları*. Ankara: Ekinoks.
45. Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics (5th Ed.)*. Boston: Allyn ve Bacon.
46. Tang, J., & Sun, Q. (2018). Research on general self-efficacy and test anxiety of normal university students. *World Journal of Educational Research, 5*(2), 191-191. https://doi.org/10.22158/wjer.v5n2p191
47. Tavşancıl, E. (2006). *Tutumların* ölçülmesi *ve SPSS ile veri analizi* (3.Baskı) Ankara: Nobel.
48. Wilson, F.R., Pan. W., & Donald, A.S. (2012). Recalcula-

tion of the critical values for Lawshe's content validity ratio. *Measurement and Evaluation in Counseling and Development, 45*(3), 197-2010.

49. Yang, N., & Li, T. (2020, October 16). How stakeholders' data literacy contributes to student success in higher education: a goal-oriented analysis. *International Journal of Educational Technology in Higher Education, 17*(41), 1-18. https://doi.org/10.1186/s41239-020-00220-3
50. Yılmaz, A., & Aydın, S. (2019). Fen bilgisi öğretmen yetiştirme programlarının içeriğine ve öğrenci kabulüne yönelik kalite standartlarının belirlenmesi: Ölçek geliştirme ve uygulama çalışması. *Online Science Education Journal, 4*(1), 44-65.
51. Yu, L., Shek, D.T.L., & Zhu, X. (2018). The influence of personal well-being on learning achievement in university students over time: Mediating or moderating effects of internal and external university engagement. *Frontiers in Psychology, 8,* 1-16.https://doi.org/10.3389/fpsyg.2017.02287
52. Yurdagül, H. (2005). Ölçek geliştirme çalışmalarında kapsam geçerliği için kapsam geçerlik indekslerinin kullanılması. *XIV. Ulusal Eğitim Bilimleri Kongresi*, 28-30 Eylül 2005. Denizli.
53. Yurdagül, H., & Bayrak, F. (2012). **Ölçek** geliştirme **çalışmalarında** kapsam geçerlik **ölçüleri**: Kapsam geçerlik indeksi ve Kappa istatistiğinin karşılaştırılması. *Hacettepe* **Üniversitesi** *Eğitim Fakültesi Dergisi, 2*, 264-271.
54. Zajacova, A., Lynch, S M., & Espenshade, T J. (2005). Self-efficacy, stress, and academic success in college. Research in Higher Education, 46(6), 677-706. https://doi.org/10.1007/s11162-004-4139-z
55. Zimmerman, B.J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology,*

Appendix 1 (English Form)

ACADEMIC WELL-BEING, ACADEMIC INCOMPETENCE AND IMPOSTER SYNDROME SCALE FOR UNIVERSITY STUDENTS

Academic Well-being Dimension:

1. Belief in academic success.
2. Confidence that academic success is sustainable.
3. Aspiration for academic success.
4. Achievement of academic success.
5. Motivation for academic success.
6. Perception that academic success is a result of talent.
7. Conviction that academic success stems from knowledge and skills.
8. Strengthening self-efficacy through academic success.
9. Maintaining an optimistic outlook on academic success.

Incompetence Dimension:

10. Anger in response to academic failure.
11. Feelings of guilt associated with academic failure.
12. Sense of helplessness when confronted with academic failure.
13. Decreased self-confidence due to academic failure.
14. Feelings of worthlessness triggered by academic failure.
15. Discomfort in the face of academic failure.
16. Diminished self-esteem following academic failure.
17. Despondency resulting from academic failure.
18. Self-directed anger due to academic failure.
19. Experiencing humiliation before others when facing academic failure.
20. Developing a sense of inferiority from academic failure.
21. Encountering anxiety and stress as a result of academic failure.

Imposter Syndrome Dimension:

22. Displaying self-doubt regarding academic success.
23. Persistent feelings of inadequacy despite academic achievements.
24. Anxiety associated with academic success.
25. Belief in being unfairly favored in the context of academic success.
26. Attribution of success to chance rather than effort or ability.
27. View of academic success as a fleeting event.
28. Attribution of success solely to luck.
29. Denial of personal effort in academic achievements.
30. Minimization of one’s academic success.
31. Persistent feelings of unworthiness despite academic achievements.
32. Continual perception of oneself as a failure, even in the face of success.
33. Fear of being ‘unmasked’ as a fraud in academic contexts.
34. Anxiety when receiving accolades for academic achievements.
35. Dissatisfaction with one’s academic accomplishments.
36. Doubt about the repeatability of academic success.
37. Pessimistic belief that future successes are unattainable.