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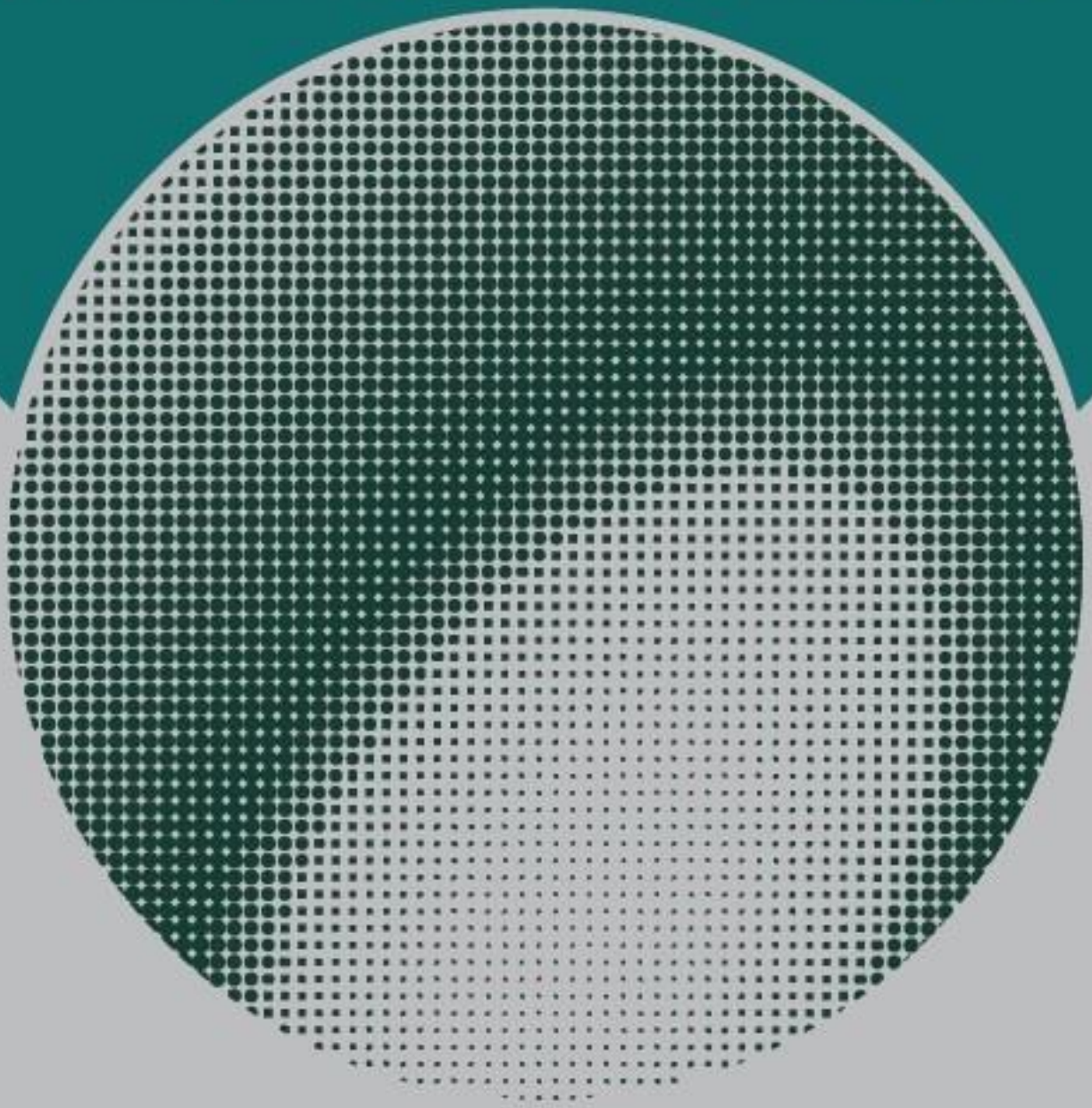

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Complaint
Complaints should be sent directly by e-mail to editor@ijcer.net

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International Journal of Contemporary Educational Research
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Managing Achievement Test Practices among Senior High School Teachers in Ghana: Recommendations for Policy and Practice

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Abstract
This study examined the adherence of Senior High School teachers to the principles of test construction, administration, and scoring. Achievement tests play a critical role in assessing student learning and guiding instructional decisions, yet challenges in their effective implementation persist. Using a descriptive research design, data were collected from 241 teachers through a structured questionnaire and analyzed using descriptive and inferential statistics. The findings revealed that teachers demonstrated some level of proficiency in test construction, particularly in aligning test items with learning objectives and ensuring clarity and appropriateness. In test administration, teachers showed competence in ethical practices, providing timely feedback, and ensuring fairness during testing. Regarding test scoring, teachers displayed strong skills in using reliable rubrics, maintaining consistency, and safeguarding confidentiality. Despite these strengths, gaps were identified in accommodating students with disabilities and in understanding basic test administration principles. Also, their ability to apply Bloom's taxonomy effectively was limited, highlighting a need for professional development. However, there is potential to enhance their capacity to use assessment data for instructional improvement. These findings underscore the need for targeted policy construction and interventions, including teacher training, inclusive assessment practices, and data-driven decision-making. These policy recommendations aimed at enhancing the quality of achievement test in Ghanaian schools and ensuring equitable and reliable educational assessments.

Keywords: Achievement Tests, Test Construction, Test Administration, Test Scoring, Educational Assessment

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Introduction

Testing in Education plays a pivotal role in assessing academic progress of students (Acheampong et al., 2023). As nations increasingly focus on international benchmarking, the importance of effective testing practices has gained growing attention. Classroom teacher-made tests have become a common tool for assessing students at various educational levels in Ghana (see Quansah et al., 2019; Eshun et al., 2024). These tests are essential not only for tracking academic performance but also for making informed decisions regarding students, curricula, and educational policies.

The significance placed on test scores underscores the necessity for accurate and reliable testing practices. However, research reveals that many Ghanaian teachers lack essential skills in test construction, administration, and scoring. Previous studies, such as those conducted by Amedahe (1989) and Adom et al. (2020), have identified deficiencies in teachers' assessment practices, particularly at the secondary school level (see also Quansah et al., 2019; Ankomah, Amedahe, & Cobbinah, 2020). These deficiencies raise concerns about the validity and reliability of assessments, ultimately impacting the quality of education.

Despite the critical role of achievement tests, there is limited accessible empirical research examining how teachers in northern Ghana adhere to the principles of test construction, administration, and scoring. Most existing studies have focused on the southern regions of the country, overlooking the unique educational challenges faced in the northern regions. This gap in the literature limits our understanding of regional variations in assessment practices and their implications for educational quality.

To address these gaps, this study investigates the achievement test practices among senior high school teachers in the Sagnarigu Municipality, a district in northern Ghana. It specifically examines adherence to the principles of test construction, administration, and scoring, with a focus on identifying challenges and opportunities for improvement. By shedding light on the current practices of teachers in this region, the study aims to provide actionable insights for policymakers, educators, and other stakeholders to enhance assessment practices and, consequently, the overall quality of education.

This research is particularly timely as educational stakeholders in Ghana continue to prioritize quality education and equitable learning opportunities. By highlighting areas for improvement and offering evidence-based recommendations, this study contributes to the broader discourse on enhancing assessment practices within Ghana’s educational framework, ultimately benefiting teachers, students, and the nation as a whole.

Literature Review

Overview of Achievement Tests

Achievement tests play a pivotal role in evaluating students' knowledge, skills, and competencies within specific subject areas (see Zhu & Kaiser, 2022; Lockwood, et al., 2021). These tests are essential tools for educators to assess the effectiveness of instructional strategies and to identify areas requiring intervention (Gronlund, 2008). Globally, achievement tests are used to evaluate the outcomes of teaching and learning processes. In Ghana, they form the backbone of student assessment, as teacher-made tests are predominantly employed in the absence of standardized examinations (see Sasu, 2017; Quansah et al., 2019). These assessments ensure that students meet curriculum objectives, providing feedback to educators and stakeholders on student performance and instructional effectiveness.

Principles of Test Construction

The construction of achievement tests requires adherence to specific principles to ensure validity, reliability, and fairness. Teachers must select test items that align with learning objectives and reflect the content taught in the classroom (see Amedahe, 1989; Rosman, Mayer & Krampen, 2015; Aristizábal, 2018; Quansah et al., 2019; Ankomah, Amedahe, & Cobbinah, 2020; Mpuangnan, 2024). The process involves defining clear objectives, creating a test blueprint, and crafting test items that vary in cognitive demand, ranging from knowledge recall to application and analysis (Etsey, 2004). Effective test construction also necessitates pilot testing, reviewing, and revising items to eliminate ambiguity and bias. However, studies in Ghana have revealed gaps in teachers' adherence to these principles, often attributed to inadequate training in test design and construction (see Frank et al., 2019; Ankomah, Amedahe, & Cobbinah, 2020; Mpuangnan, 2024).

Test Administration Practices

Test administration is another critical component of achievement testing, as it directly impacts the accuracy and credibility of results (Lockwood, et al., 2021; Zhu & Kaiser, 2022). Proper administration involves creating a conducive environment for testing, ensuring consistent instructions, and maintaining standardized procedures to prevent malpractices (see Osadebe, 2001; Rosman, Mayer & Krampen, 2015; Aristizábal, 2018). Challenges such

as large class sizes and resource constraints often compromise the administration process in Ghanaian schools (see Ampadu, 2017). These challenges highlight the need for robust training and support systems for teachers to uphold the integrity of test administration practices.

Scoring and Feedback

Scoring achievement tests requires precision and objectivity to provide accurate assessments of students' abilities (see Zhu & Kaiser, 2022). Teachers in Ghana primarily rely on manual scoring methods, which are prone to errors and inconsistencies (see Ampadu, 2017; Quansah et al., 2019). Best practices in scoring involve using rubrics, clear marking schemes, and double-checking results to minimize errors (Gronlund, 2008; Aristizábal, 2018; Lockwood, et al., 2021; Zhu & Kaiser, 2022). Providing timely and constructive feedback is equally significant, as it helps students to understand their strengths and weaknesses (Aristizábal, 2018; Quansah et al., 2019; Lockwood, et al., 2021; Zhu & Kaiser, 2022).

Challenges in Achievement Testing in Ghana

Despite the recognized significance of achievement tests, several challenges hinder their effective implementation in Ghana. These include insufficient training for teachers in test construction, resource constraints, and limited access to standardized testing tools (see Sasu, 2017; Quansah et al., 2019). Additionally, teachers' reliance on traditional assessment methods often fails to capture higher-order thinking skills, underscoring the need for capacity-building initiatives to enhance assessment practices (Aristizábal, 2018; Lockwood, et al., 2021; Ankomah, Amedahe, & Cobbinah, 2020).

By exploring these dimensions, this literature review provides a comprehensive foundation for understanding achievement test practices and their implications for the Ghanaian teacher.

Method

Research Design

The study used a descriptive survey design to examine the achievement test practices among senior high school teachers. This design was deemed appropriate as it allowed the researchers to gather information on teachers' adherence to principles of test construction, administration, and scoring in their natural settings without manipulating variables.

Population

The population for the study consisted of all senior high school teachers in the Sagnarigu Municipality. These teachers were drawn from public senior high schools and included those teaching core subjects such as Social Studies, Integrated Science, Mathematics, and English. This is focused on core subject teachers and ensured the study examined educators responsible for subjects that form the foundation of students' academic performance.

Sampling Technique and Sample Size

The study employed a multistage sampling technique to select participants. First, schools were stratified into two stratra. That is Sagnarigu East and Sagnarigu West based on their location within the municipality. Teachers within these schools were then selected from each stratum using proportional allocation. That is, 124 from Sagnarigu East and 117 from Sagnarigu West. Simple random sampling was then used to ensure equal representation. A total of 241 teachers participated in the study drawn from a total population of 609 teachers. This sample size was determined using the Krejcie and Morgan's formula to provide a statistically reliable representation of the teacher population in the municipality.

Data Collection Instrument

Data was collected using a self-constructed questionnaire distributed via encrypted Google Forms. The questionnaire was designed to assess teachers' practices regarding test construction, administration, and scoring. It consisted of both closed and open-ended questions, allowing for a comprehensive evaluation of the research objectives. The instrument was divided into sections, each addressing a specific aspect of achievement test practices.

Validity and Reliability of the Instrument

The validity of the questionnaire was ensured through expert review by professionals in educational assessment and research methods. Feedback from these experts informed the refinement of the questionnaire to align it with the study's objectives. The reliability of the instrument was tested through a pilot study conducted with a subset of teachers outside the target population. Cronbach's Alpha reliability coefficient of 0.81 obtained indicated that the questionnaire was consistent and dependable for data collection.

Data Collection Procedures
The researcher disseminated the questionnaire electronically to participants, ensuring accessibility and convenience. Prior to distribution, participants were briefed on the purpose of the study and assured of the confidentiality of their responses. The electronic format facilitated the timely collection and processing of data while reducing logistical constraints.

Data Analysis
The collected data was analyzed using both descriptive and inferential statistical techniques. Descriptive statistics, including frequency distributions, percentages, means, and standard deviations, were used to summarize the quantitative data. Inferential statistics, such as one-way analysis of variance (ANOVA) and Chi-square tests, were employed to test the formulated hypotheses and identify statistically significant differences in teachers' practices based on factors such as years of teaching experience and gender.

Ethical Considerations
Ethical standards were upheld throughout the research process. First, ethical permission was obtained from the University for Development Studies for this research. Informed consent was obtained from all participants before their involvement in the study. Participants were assured that their responses would remain confidential and used solely for academic purposes. The research adhered to guidelines for conducting ethical research, ensuring that no harm came to participants during the study.

Results and Discussion

Adherence to Test Construction Principles
The study investigated the degree to which teachers adhere to the principles of test item construction. Teachers' response was carefully analysed using statistical analysis including means and standard deviations to gain valuable insights into the issue. By examining their perspectives, the study aims to find out their compliance with core test principles. Statistical analysis was essential for ensuring precise data interpretation and meaningful conclusions. The data in this regard is presented in Table 1 below:

Table 1:Teachers knowledge on Classroom Test Construction

	N	M	SD
I have a solid understanding of test construction principles.	241	3.96	1.322
I can create test items inline with specific learning objectives.	241	4.50	.578
I am skilled at designing test items that freee from any ambiguity.	241	4.49	.620
I can craft test items that are suitable for the intended target population.	241	4.48	.626
I have the ability to develop test items that assess various cognitive skill level.	241	4.43	.616
I can design test items that are free from cultural bias and stereotypes.	241	4.49	.620
I cam develop test items that are both reliable and valid.	241	4.48	.620
I can develop test items that is tailored to different levels of bloom's taxonomy.	241	4.29	.643
I have the ability to develop test items that are suitable for different group of learners.	241	4.44	.668
I can make sure that items are inline with estbablsihed curriculum standards.	241	4.46	.658
I can develop test items that accurately measures their intended objectives.	241	4.46	.639
I can develop test items that vary in difficulty to suit different levels of assessment.	241	4.38	.704
I have experience in designing test items for different types of asssessments including formative and summative evaluations.	241	4.42	.673
I can develop test items that can be scored objectively and consistently.	241	4.41	.654
I can develop test items that are useful for different types of assessment formats (Multiple choice and essay.	241	4.54	.605
I am profocient at developing test items that fits different assessment purpose (diagnostive and evaluative).	241	4.39	.656
I can develop test items devoid of errors and ambiguity.	241	4.31	.699
I can design test items appropriate for different contents (factual and conceptual).	241	4.40	.658
I can develop test items that is appropriate for different kinds of learning domains (eg. Affective or psychomotor).	241	4.38	.691
Following test construction principles strictly is critical for determining validity and reliability of achievement tests.	241	4.46	.683

Data Source: Field Survey, 2023
Please, note: M= Mean, SD= Standard Deviation, N= Sample Size

The results summarize responses from 241 teachers regarding their knowledge and skills in classroom test construction. Responses were measured on a five-point Likert scale. The analysis reveals a generally high level of familiarity and competence among the teachers, as all mean scores exceeded the established criterion value of 2.5. This finding indicates that the teachers perceive themselves as proficient in various aspects of test construction.
The highest mean score was attributed to the statement, " I can create test items in line with specific learning objectives," which yielded a mean of 4.50 (SD = 0.578). This result reflects strong confidence in their ability to create assessments that correspond with educational goals. Teachers also reported high levels of clarity and appropriateness in their test items, with mean scores of 4.49 (SD = 0.620) for developing clear and unambiguous items and 4.48 (SD = 0.626) for items considered appropriate for the target population.
Furthermore, the teachers expressed confidence in their ability to assess a range of cognitive skills, as indicated by a mean score of 4.43 (SD = 0.616), and in developing reliable and valid test items (M = 4.48, SD = 0.620). The ability to create bias-free assessments was also emphasized, with a mean score of 4.49 (SD = 0.620). Although teachers demonstrated proficiency in developing items suitable for various assessment formats (M = 4.54, SD = 0.605) and purposes (M = 4.39, SD = 0.656), their confidence in effectively applying Bloom's taxonomy was slightly lower, as reflected by a mean score of 4.29 (SD = 0.643).
The findings suggest that the participating teachers are generally well-equipped to develop effective assessments that align with educational standards and objectives. Nevertheless, there is a clear need for further professional development in specific areas, particularly in the application of Bloom's taxonomy in test item development.

Adherence to Test Administration Principles
Effective achievement test administration is essential for ensuring accurate student assessment in the classroom. This study explores the extent to which teachers' strictly follow test administration principles. Statistical analysis and interpretation of these response are critical for assessing teachers' compliance with these principles. The findings provide deeper insights into teachers' practices and perceptions related to test administration, providing foundation for finding areas for improvement and promoting a culture of excellence in test administration. The results are provided in Table 2 below:

Table 2: Teachers knowledge on Classroom Test Administration

	N	M	SD
I have strong understanding of test administration principles.	241	1.66	.707
I am proficient at setting aappropriate testing enviromenet.	241	4.39	.644
I am proficient at communicating test instructions clearly and effectively.	241	3.62	1.424
I make sure that students fully understand the test instructions.	241	4.49	.665
I actively supervise students during test to prevent misconduct.	241	4.46	.658
I accomodate students with disabilities or special needs as required.	241	2.19	1.234
I am prepared to manage unexpected situations during test administration.	241	4.30	.642
I ensure the proper collection and safegurding of test materials post-test administration.	241	3.85	1.329
I promptly report any issues that occur during the test.	241	3.61	1.392
I strictly follow ethical standard throughout the test administration process.	241	4.47	.683
I ensure that all students are given an equal chance of showcasing their knowldge and skills.	241	4.52	.671
I offer timely and meaninful feedback to students and parents regarding test results.	241	4.51	.640

Data Source: Field Survey, 2023
Please, note: M= Mean, SD= Standard Deviation, N= Sample Size

The data summarized in the Table 2 above present teachers' self-reported knowledge regarding classroom test administration, using a sample size of 241 participants. The results indicate that all mean scores exceeded the established criterion value of 2.5, suggesting that teachers generally perceive themselves as competent in various aspects of test administration.
Notably, the lowest mean score was reported for the item, " I have strong understanding of test administration principles," which received a mean of 1.66 (SD = 0.707). This indicates a significant area of concern, as it suggests that teachers may lack confidence in their understanding of fundamental test administration principles.
In contrast, several items received substantially higher scores. The statement " I make sure that students fully understand the test instructions" garnered a mean of 4.49 (SD = 0.665), indicating that teachers feel effectively skilled at communicating test instructions. Similarly, teachers expressed a high level of confidence in monitoring

students to prevent cheating (M = 4.46, SD = 0.658) and in adhering to ethical guidelines during test administration (M = 4.47, SD = 0.683). The ability to provide equal opportunities for all students to demonstrate their knowledge was also highly rated, with a mean score of 4.52 (SD = 0.671).
Other prominent findings include the statement, "I offer timely and meaninful feedback to students and parents regarding test results," which received a mean score of 4.51 (SD = 0.640), and the ability to handle unexpected situations during test administration (M = 4.30, SD = 0.642). However, there was a notable concern regarding the provision of accommodations for students with disabilities or special needs, which received the lowest mean score of 2.19 (SD = 1.234), highlighting a critical area for professional development.

Adherence to Test Scoring Principles

With regards to test scoring and analysis, it is essential to consider the perspectives and skills of those involved. Researchers and educators rely on test scores to guide instruction and decision-making, using them to assess the reliability and effectiveness of scoring systems. Table 3 below presents data gathered from participants to gauge their level of agreement to various statement about test scoring and analysis. Analysing the mean scores from the responses provides valuable ideas regarding participants' attitudes and expertise in the domain.

Table 3: Teachers knowledge on Classroom Test Scoring

	N	M	SD
I have a solid understanding of the principles of test scoring.	241	4.51	.592
I can effectively utilise a reliable and valid scoring rubric.	241	4.45	.598
I ensure accurate and consistent scoring of test itsms.	241	4.42	.667
I am skilful at reading meaning to test score items effectively.	241	4.41	.660
I can provide clear, specific, and actionable feedback on test scores.	241	4.40	.658
I use test score to guide instruction and enhance students' learning.	241	4.43	.661
I rely on test score to assess programmes' effectiveness and make informed decision making.	241	4.39	.662
I uphold the confidentiality and security of test scores with deligence.	241	4.49	.578

Data Source: Field Survey, 2023
Please, note: M= Mean, SD= Standard Deviation, N= Sample Size

Table 3 presents the results of teachers' self-reported knowledge concerning classroom test scoring, with a sample size of 241 participants. All mean scores exceed the established criterion value (CV) of 2.5, indicating strong consensus among teachers regarding their competencies in various aspects of test scoring.
The statement " I have a solid understanding of the principles of test scoring " received the highest mean score of 4.51 (SD = 0.592), demonstrating that participants possess a solid understanding of the foundational principles guiding test scoring. This suggests a high level of confidence in their knowledge of test construction and evaluation practices.
Participants also expressed significant confidence in their ability to utilize reliable and valid scoring rubrics, as reflected by a mean score of 4.45 (SD = 0.598) for the statement " I can effectively utilise a reliable and valid scoring rubric." This finding indicates that teachers feel equipped to employ effective assessment tools that enhance the reliability of scoring practices. The ability to score test items accurately and consistently was evident, with a mean score of 4.42 (SD = 0.667) for the statement " I ensure accurate and consistent scoring of test itsms." This result suggests that teachers are capable of identifying correct answers and maintaining consistency across their scoring processes.
Furthermore, participants demonstrated proficiency in interpreting and analyzing test scores effectively, as indicated by a mean score of 4.41 (SD = 0.660) for the statement " I am skilful at reading meaning to test score items effectively. " This reflects their capability in understanding and utilizing data derived from assessments to inform educational practices. The capacity to provide clear, specific, and actionable feedback on test scores also received a high mean score of 4.40 (SD = 0.658), illustrating that teachers recognize the importance of constructive feedback in fostering student learning and improvement.
Additionally, the statement " I use test score to guide instruction and enhance students' learning " garnered a mean score of 4.43 (SD = 0.661), signifying that participants value the role of assessment data in guiding instructional decisions geared toward enhancing student outcomes.
Participants further indicated competence in evaluating program effectiveness and making data-driven decisions, as demonstrated by a mean score of 4.39 (SD = 0.662) for the statement " I rely on test score to assess programmes' effectiveness and make informed decision making."
Lastly, the statement " I uphold the confidentiality and security of test scores with deligence " achieved a high mean score of 4.49 (SD = 0.578), reflecting participants' commitment to safeguarding the confidentiality and security of assessment data.

Table 4: Analysis of Variance of Responses to Teachers' years of teaching experience and ability to construct achievement test items
Years of Teaching Experience.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.674	3	.558	1.143	.332
Within Groups	115.703	237	.488		
Total	117.378	240			

In Table 4, we summarize the results of analysis of variance for teachers' achievement tests based on their years of experience. This analysis determined the differences across four groups of teachers with different years' teaching experience. The sum of squares between groups was 1.674 with 3 degrees of freedom, resulting in a mean square of 0.558. The sum of squares within groups was 115.703 with 237 degrees of freedom and a mean square of 0.488. From the table, the total squares were 117.378 with a degree of freedom of 240. The F-ratio, which is calculated by dividing the mean square between groups by the mean square within groups, is 1.143, which indicates whether there is a significant difference in teachers achievement test item construction based on their years of experience. However, without the critical F-value or p-value, it's unclear if the observed differences are statistically significant. Therefore, the F-value calculated was 1.143 with a p-value of 0.332, which is greater than the significance level of 0.05. This indicates that there is no statistically significant difference in test construction among teachers with varying years of teaching experience. Therefore, the null hypothesis is accepted, suggesting that years of teaching experience do not significantly impact test construction.

Table 5: Responses to the relationship between gender and test construction

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.306[a]	1	.021		
Continuity Correction[b]	4.664	1	.031		
Likelihood Ratio	5.465	1	.019		
Fisher's Exact Test				.022	.015
N of Valid Cases	241				

The table above reveals a statistically significant relationship between gender and teachers' achievement test construction. This is an indication that gender plays a pivotal role in how teachers excel at constructing achievement tests. . The Pearson chi-square test yielded a value of 5.306 (df = 1, p = .021), supported by the continuity-corrected chi-square (4.664, p = .031) and the likelihood ratio chi-square (5.465, p = .019). Fisher's exact test further confirmed this association (two-sided p = .022). The results clearly show that gender systematically influences the way achievement tests are designed, and the evidence rules out random variation as the cause of the observed differences. Thus, the null hypothesis no longer stands, substantiating the existence of substantive gender-linked variation in test construction practices. Given this confirmation, further inquiry is advisable to clarify the specifics and extent of the gender-linked patterns identified.

Conclusion

This study sought to investigate the adherence of Senior High School teachers to the fundamental principles of test construction, administration, and scoring. It was focused on understanding ability to create, administer, and evaluate achievement tests, as well as identifying strengths and challenges in these practices. In conclusion, this study underscores the strengths and challenges in the practices of Senior High School teachers concerning achievement testing. While teachers demonstrate considerable expertise in test-related practices, targeted interventions, particularly in the areas of Bloom's taxonomy application, inclusive test administration, and data-driven decision-making, are necessary to further enhance their capabilities. These findings offer a basis for policymakers and educational stakeholders to design professional development programs aimed at improving the overall quality of educational assessment in Ghana.

Policy and Practice Recommendations

The findings of the research showed the absence of provisions for students with disabilities or special needs during test administration, signalling the absence of inclusivity. To promote inclusivity, policy construction and implantation by state actors should ensure the provision of guidelines to accommodate diverse learners in the

testing process. These guidelines should address the use of assistive technologies, alternative formats for test materials, and modified testing environments. Policy engineers should work to encourage collaborations between general and special education teachers to foster a culture of inclusivity in assessment practices.

Educational authorities should develop clear and comprehensive ethical guidelines for test administration that include protocols for ensuring fairness, preventing malpractices, and maintaining the integrity of the testing process. These guidelines should be disseminated widely, and periodic refresher courses should be conducted to reinforce teachers' commitment to ethical practices.

Based on the findings of this study, several practice recommendations are suggested to address the challenges identified and enhance the practices of achievement testing among Senior High School teachers. In this regard, Ghana Education Service (GES), should organize Continuous Professional Development (CPD) sessions highlighting on the practical application of Bloom's taxonomy to ensure that teachers can construct tests that assess not only recall but also higher-order thinking skills such as analysis, synthesis, and evaluation. In addition, the CPD should incorporate hands-on activities and case studies into the training activities to enable teachers design assessments that align with curriculum standards and learning objectives.

Teachers should be equipped with the skills to interpret and analyze test scores effectively and use these insights to address learning gaps and improve teaching strategies. Educational stakeholders should also invest in user-friendly software and tools that simplify the process of data analysis for teachers. Moreover, schools should encourage regular data-sharing sessions where teachers can collaboratively review assessment results and develop actionable plans to enhance student learning outcomes. Additionally, incentives such as certifications, promotions, and recognition awards can motivate teachers to participate actively in these CPD initiatives.

Finally, the government and educational stakeholders should consider setting up resource centers dedicated to supporting teachers in their assessment practices. These centers could provide access to materials such as sample test items, scoring rubrics, and instructional guides on test administration. They could also serve as hubs for teacher collaboration, enabling educators to share best practices and learn from one another.

By implementing these policy and practice recommendations, educational stakeholders can address the challenges identified in this study and enhance the overall quality of achievement testing practices. These measures will not only improve the reliability and validity of assessments but also foster a more inclusive, ethical, and data-informed educational environment that supports student success.

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Author (s) Contribution Rate

All authors contributed equally to ensure the completion of the work.

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References

Acheampong, R., Ameyaw, Y., & Koomson, C. (2023). Classroom Assessment and Academic Performance in Ghanaian Junior High Schools Integrated Science. *East African Journal of Education and Social Sciences (EAJESS)*, *4*(6), 39-47.

Adom, D., Mensah, J. A., & Dake, D. A. (2020). Test, measurement, and evaluation: Understanding and use of the concepts in education. *International Journal of Evaluation and Research in Education*, *9*(1), 109-119.

Amedahe, F. K. (1989b). Principles and practices in classroom assessment in Ghana: Some preliminary findings. In J. K. Anamuah-Mensah & J. Quagrain (Eds.), *Education, Training and National Development*, 117–126.

Ankomah, F., Amedahe, F. K., & Andrews Cobbinah. (2020). The Issue of Non-Adherence to Test Construction Principles: Do Teachers' Commitment to Teaching or Attitude by the Teacher Really Matter? *International Journal of Social Sciences & Educational Studies*, *7*(4), 109–121. https://doi.org/10.23918/ijsses.v7i4p109

Eshun, I., Bordoh, A., & Opoku-Afriyie, P. (2024). An evaluation of the implementation of the social studies curriculum in Ghana: A case study of the Asante Akim North District. *Asian Journal of Education and Social Studies*, *50*(5), 381-402.

Etsey, Y. K. (2004a). Teachers' assessment literacy: knowledge of assessment principles and techniques. *Research in Curriculum Planning*, 61-68.

Frank Giraldo Aristizábal. (2018). Teacher Beliefs And Practices For An English Language Achievement Test. *Íkala : Revista de Lenguaje y Cultura*, *23*(1), 25–44. https://doi.org/10.17533/udea.ikala.v23n01a04

Gronlund, N. E. (2008). *Assessment of student achievement*. Pearson.

Kettler, R. J., & Elliott, S. N. (2010). A Brief Broadband System for Screening Children at Risk for Academic Difficulties and Poor Achievement Test Performance: Validity Evidence and Applications to Practice. *Journal of Applied School Psychology*, *26*(4), 282–307. https://doi.org/10.1080/15377903.2010.518584

Lockwood, A. B., Farmer, R. L., Bohan, K. J., Winans, S., & Sealander, K. (2021). Academic Achievement Test Use and Assessment Practices: A National Survey of Special Education Administrators. *Journal of Psychoeducational Assessment*, *39*(4), 436–451. https://doi.org/10.1177/0734282920984290

Mpuangnan, K. N. (2024). Determining skills of basic schoolteachers in test item construction. *Review of Education (Oxford)*, *12*(2). https://doi.org/10.1002/rev3.3478

Osadebe, P. N. (2001). (2001). *Test construction and standardization.* . . In P. N. Osadebe (Ed.), Measurement and Evaluation in Education. https://www.google.com/search?q=Osadebe%2C+P.+N.+%282001%29.+Test+construction+and+standardization.+In+P.+N.+Osadebe+%28Ed.%29%2C+Measurement+and+Evaluation+in+Education+%28pp.+103-118%29.+Enugu%3A+Cecta+Publications.&rlz=1C1JJTC_enGH1049GH1049&biw=1366&b

Quansah, F., Amoako, I., & Ankomah, F. (2019). Teachers' Test Construction Skills in Senior High Schools in Ghana: Document Analysis. *International Journal of Assessment Tools in Education*, *6*(1), 1–8. https://doi.org/10.21449/ijate.481164

Rosman, T., Mayer, A.-K., & Krampen, G. (2015). Combining self-assessments and achievement tests in information literacy assessment: empirical results and recommendations for practice. *Assessment and Evaluation in Higher Education*, *40*(5), 740–754. https://doi.org/10.1080/02602938.2014.950554

Sasu, E. O. (2017). *Testing practices of junior high school teachers in the Cape Coast Metropolis.* Doctoral dissertation, University of Cape Coast, Ghana.

Zhu, Y., & Kaiser, G. (2022). Impacts of classroom teaching practices on students' mathematics learning interest, mathematics self-efficacy and mathematics test achievements: a secondary analysis of Shanghai data from the international video study Global Teaching InSights. *ZDM*, *54*(3), 581–593. https://doi.org/10.1007/s11858-022-01343-9

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Investigating Academic Procrastination within the Framework of Temporal Motivation Theory: The Impact of Hopelessness and Academic Resilience

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Abstract
Academic procrastination represents a significant challenge frequently encountered among high school students, negatively impacting their academic outcomes. It is posited that levels of hopelessness and academic resilience may serve as predictors of academic procrastination. Consequently, the objective of this study is to examine the extent to which hopelessness and academic resilience predict academic procrastination among high school students. The study involved 625 participants, comprising 337 females (53.9%) and 288 males (46.1%), who were selected through a convenience sampling method from various high schools in a small city in Türkiye's Aegean Region during the 2023-2024 academic year. Participants' ages ranged from 13 to 18 years, with a mean age of 15.52 years (SD = 1.13). In order to assess academic procrastination, the researchers utilized the Academic Procrastination Scale. The Beck Hopelessness Scale was employed to evaluate levels of hopelessness, while the Academic Resilience Scale was used to measure academic resilience. Additionally, a Demographic Information Form was administered to gather relevant demographic data. Data analysis was conducted using IBM SPSS 27.0 software, implementing Pearson correlation analysis and multiple linear regression analysis methods. The study specifically tested whether hopelessness and academic resilience significantly predicted academic procrastination among the participants. The findings revealed that the independent variables accounted for 17.3% of the total variance in academic procrastination. While academic resilience was not identified as a predictor of academic procrastination, hopelessness emerged as a significant predictor. These findings suggest developing psychological support programs to reduce hopelessness and academic procrastination in high school students. Furthermore, training programs designed to enhance academic resilience and strengthen social support networks may assist students in better managing procrastination behaviors. The results of this study were discussed within the framework of existing literature, and pertinent recommendations were provided for both researchers and practitioners in the field.

Keywords: Academic procrastination, Hopelessness, Academic resilience, High school students, Adolescents, Temporal Motivation Theory

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Introduction

High school marks a key period in adolescence, during which students shape their identities while pursuing academic goals for their future. This stage is characterized by significant physical and psychological transformations, during which adolescents engage in exploration of their identities, values, and life objectives. Such exploration is essential for individuals to define their roles within the social context and to cultivate a robust sense of identity (Erikson, 1968). Moreover, adolescence involves navigating critical developmental tasks, including the attainment of independence from familial influences, the strengthening of peer relationships, and the expansion of social networks. As adolescents navigate these tasks, they enhance their psychological independence and interact with academic and social environments to construct their self-concept (Steiner & Feldman, 2008, p. 20).

The academic development achieved during this period is not solely focused on the acquisition of knowledge; it also encompasses the development of vital skills such as self-discipline, responsibility, and time management (Zimmerman, 2002). These competencies not only facilitate academic achievement but also serve as foundational assets for future personal and professional efficacy. However, this period is concurrently marked by heightened emotional variability and intensified external demands, both of which may impede adolescents' capacity to sustain academic engagement and fulfill expected responsibilities. When such psychosocial stressors undermine progress in key developmental domains (particularly identity formation, autonomy, and goal-directed behavior) students may become increasingly susceptible to maladaptive coping mechanisms. Among these, academic procrastination frequently arises as a behavioral manifestation of disrupted motivation and self-regulatory functioning in response to internal conflict or contextual adversity (Steel, 2007).

Conceptual Framework

Academic Procrastination

Academic procrastination is characterized by the tendency to delay educational tasks, including the completion of assignments, examination preparation, and engagement in academic projects, often until deadlines are imminent (Steel & Klingsieck, 2016). Students exhibiting procrastination behaviors frequently postpone their obligations despite experiencing discomfort, stress, and a desire to overcome this tendency (Beswick et al., 1988; Milgram & Naaman, 1996). This phenomenon is commonly associated with a disconnect between intention and action, wherein students fail to convert their intentions to study into meaningful efforts (Schouwenburg, 1995). Consequently, they may resort to hastily completing tasks in proximity to deadlines, which often compromises the quality of their work and puts their academic performance at risk (Steel et al., 2011). Procrastination is notably prevalent among high school students, with studies indicating that over 50% demonstrate such behaviors (Ferrari et al., 1995; Uzun-Özer et al., 2009). This inclination may lead to diminished academic performance, a detachment from educational objectives, and adverse health effects, such as sleep deprivation and heightened stress levels (Balkis & Duru, 2009). Furthermore, procrastination can result in incomplete or subpar submissions, adversely affecting grades and overall academic achievement (Patrzek et al., 2015). The repercussions extend beyond scholastic achievement, influencing students' relationships with parents and peers and fostering negative emotions, including feelings of worthlessness, anxiety, and shame (Ashraf et al., 2019; Fee & Tangney, 2000). Therefore, it is imperative to recognize academic procrastination as a behavioral issue that carries significant developmental risks. Numerous theoretical frameworks elucidate the causes of academic procrastination. Psychoanalytic perspectives suggest that procrastination serves as a defense mechanism to alleviate anxiety related to academic responsibilities or is associated with ineffective parenting attitudes experienced during childhood, while behavioral theory shows that procrastination is linked to students' preference for engaging in enjoyable activities rather than academic tasks (Ferrari et al., 1995). Conversely, cognitive-behavioral theory proposes that procrastination arises from cognitive distortions, such as rigid beliefs like "If I fail, I will not be valued by others," which may engender anxiety and inhibit motivation (Çelik & Odacı, 2015). Empirical research has identified several factors contributing to procrastination, including fear of failure (Solomon & Rothblum, 1984), perfectionism (Flett & Hewitt, 2002), low self-regulation skills (Wolters, 2003), and perceptions of academic tasks as unimportant (Steel & König, 2006). In addition, personality traits, difficulties with emotional regulation, lack of motivation, ineffective time management, and low self-esteem have been correlated with procrastination behaviors (Cavusoglu & Karatas, 2015; Kağan et al., 2010; Shih, 2017). Environmental influences, such as unsatisfactory teacher behaviors and technological distractions, further exacerbate procrastination tendencies (Ackerman & Gross, 2005; Türel & Dokumacı, 2022). Temporal Motivation Theory (TMT) provides a comprehensive framework for understanding procrastination by linking motivation to temporal considerations. It posits that procrastination occurs when the perceived value of a task diminishes due to delayed outcomes, thereby lessening the urgency to act (Siaputra,

2010). Overall, academic procrastination arises from a complex interplay of personal and environmental factors, necessitating multidimensional strategies to mitigate its impact on students' academic, social, and emotional development.

Theoretical Framework

Temporal Motivation Theory (TMT)

The Temporal Motivation Theory (TMT) integrates various theoretical frameworks to elucidate the phenomenon of procrastination by investigating how motivation to complete tasks is influenced by specific factors (Siaputra, 2010). According to TMT, motivation is contingent upon four key elements: expectancy (self-efficacy), value (task reward), delay, and sensitivity to delay (impulsivity) (Steel & König, 2006). These elements interact dynamically to determine the timing and manner in which individuals fulfill their obligations. Elevated self-efficacy and perceived task value serve to enhance motivation, whereas impulsivity and prolonged deadlines frequently lead to procrastination (Steel, 2007). The motivation can be mathematically represented by the equation: motivation = (expectancy × value) / (1 + impulsiveness × delay) (Steel & Klingsieck, 2016). Expectancy encompasses the confidence in achieving success in tasks; higher expectancy correlates with increased motivation. Value relates to the significance of the task reward; tasks that are enjoyable, meaningful, or confer a sense of accomplishment are regarded as more valuable. In contrast, delay, defined as the interval between effort and reward, can undermine motivation, particularly with respect to long-term objectives (Siaputra, 2010). Impulsivity, characterized by diminished self-control and distractibility, heightens sensitivity to delay, rendering immediate rewards more attractive and promoting procrastination behaviors (Steel, 2011). For instance, a high school student tasked with a term project may delay completion despite recognizing the long-term benefits associated with a high grade. Instead, the student may prioritize immediate gratifications, such as socializing or engaging with social media. As the deadline approaches, the perceived value of finalizing the project intensifies, prompting a last-minute effort to complete the task. This example illustrates how the interplay between perceived rewards, impulsivity, and temporal distance influences procrastination behaviors, consistent with the principles of TMT.

The Relationship Between Academic Procrastination, Hopelessness, and Academic Resilience from the Perspective of Temporal Motivation Theory (TMT)

Temporal Motivation Theory (TMT) posits that individuals exhibiting high self-efficacy are generally less inclined to procrastinate, particularly when they perceive that their efforts will lead to tangible rewards (Steel & König, 2006). Positive expectations regarding future achievements, commonly referred to as hope, serve to enhance motivation, whereas negative expectations, designated as hopelessness, tend to diminish it (Melges & Bowlby, 1969; Schrank et al., 2008). Individuals experiencing hopelessness frequently develop cognitive distortions, such as the belief that their goals are unattainable or the expectation of adverse outcomes (Abramson et al., 1989; Beck et al., 1974). These negative cognitive patterns undermine psychological resilience, significantly increasing the risk of depression and decreasing motivation (Henkel et al., 2002). In academic contexts, feelings of hopelessness can result in reduced commitment and motivation, thereby contributing to procrastination (Shiomi, 1995; Yılmaz, 2016). Research demonstrates that hopelessness is a significant predictor of academic procrastination among both high school and university students (Odacı & Kaya, 2019; Yıldız & Yıldız, 2016).

Conversely, academic resilience—defined as the capacity to effectively adapt to academic challenges—is strongly associated with a decrease in procrastination behaviors (Martin & Marsh, 2009; Wang et al., 1993). Resilient students display attributes such as confidence, goal-oriented behaviors, and proficient stress management strategies (Hwang & Shin, 2018; Waxman et al., 2012). The 5-C Model identifies five crucial components of resilience: confidence, coordination, control, calmness, and commitment (Martin & Marsh, 2006). Students who demonstrate resilience are prone to view failures as opportunities for learning, thereby maintaining positive expectations regarding success and motivation (Denissen et al., 2007). They are less likely to permit past setbacks to negatively influence their future efforts, instead interpreting challenges as essential steps toward the attainment of their goals. According to TMT, the value individuals attribute to tasks plays a significant role in shaping their motivation. Tasks perceived as unimportant or disconnected from future rewards often lead to feelings of boredom and a reduction in motivation, which in turn increases the propensity to procrastinate (Steel, 2007). However, students exhibiting high academic resilience frequently view academic tasks as integral to achieving long-term rewards, such as career advancement, thereby elevating the task's perceived value and associated motivation (Locke & Latham, 2002). For instance, resilient students may interpret challenging assignments as opportunities to cultivate

skills essential for both academic and professional success. Empirical evidence supports the correlation between academic resilience and reduced procrastination. Studies involving high school students have established a negative relationship between resilience and procrastination behaviors (Astutik & Firdana, 2023; Ragusa et al., 2023). For example, research conducted with 991 students in Almeira indicated that higher levels of academic resilience corresponded to lower instances of procrastination (Ragusa et al., 2023). Additionally, motivational management training administered to students in Tehran has demonstrated efficacy in enhancing resilience and subsequently reducing procrastination rates (Hossinlou & Jadidi, 2020). These findings underscore the necessity of fostering resilience and cultivating positive expectations to mitigate procrastination while enhancing academic engagement.

In summary, TMT emphasizes the critical impact of expectancy and value dimensions on procrastination behaviors. Hopelessness diminishes motivation by undermining positive expectations, whereas academic resilience enhances motivation by elevating both expectations and perceived task value. For example, a high school student who feels hopeless about their academic future may believe that no amount of effort will lead to success. As a result, their expectancy is low, and they are more likely to delay or avoid studying for an important exam. In contrast, a student with high academic resilience is more likely to perceive challenges as opportunities for growth. They believe in their ability to succeed (high expectancy) and view the exam as valuable for their long-term goals (high value). As a result, they are less likely to procrastinate and more likely to engage in consistent academic effort, even when faced with stress or setbacks. Promoting resilience and fostering hope can serve as effective strategies to assist students in overcoming procrastination and achieving success in their academic pursuits.

Importance of the Research

This study seeks to extend the existing literature by examining the relationship between academic procrastination, hopelessness, and academic resilience within the framework of Temporal Motivation Theory (TMT). The academic development of high school students is pivotal, as it significantly impacts personal growth and future success in higher education (Eskin et al., 2008; Undheim & Sund, 2005). Postponing academic tasks such as exam preparation, homework, and similar responsibilities until the last minute—or failing to complete them at all—may result in insufficient learning and low academic performance (Çetin, 2016; Kim & Seo, 2015; Oran, 2018). During this period, students with low academic achievement may lose confidence in their academic future (Bayhan & Dalgıç, 2012), experience emotional difficulties due to stress and anxiety (Anlayışlı & Bulut-Serin, 2019; Karaman, 2020), and face conflicts with their parents (Kapıkıran, 2016). Academic failure may also lead to a pessimistic view of the future (Aydın et al., 2013). Therefore, academic procrastination can be considered an indirect cause of various problems related to academic underachievement. Maintaining sufficient academic performance in high school is important for ensuring healthy development and preparing students for future success. Moreover, procrastination in this period may become a learned behavior, negatively affecting future educational experiences (Ferrari et al., 1995; Owens & Newbegin, 1997). In this context, academic procrastination can be considered a behavioral problem that affects high school students' development in a multidimensional manner, necessitating both preventive and intervention-based efforts. Effectively addressing such behaviors requires identifying and eliminating the underlying factors that trigger procrastination. Therefore, studies that examine the causes and predictors of academic procrastination are essential for developing preventive services and promoting self-regulation skills among high school students.

Temporal Motivation Theory underscores the significance of psychological factors, such as expectations, perceived value, delays, and overall motivation, thereby providing a robust framework to elucidate how hopelessness and academic resilience affect procrastination behaviors. Hopelessness may diminish motivation by reducing expectations of reward, whereas academic resilience can mitigate this decline by promoting dedication to long-term objectives. While previous studies have investigated hopelessness (Yılmaz, 2016) and academic resilience (Astutik & Firdana, 2023) as predictors of procrastination, no comprehensive research has concurrently analyzed the influence of both factors on academic procrastination. This study aims to bridge this gap, offering valuable insights for school counselors in developing effective preventive and remedial strategies for high school students who experience challenges with procrastination.

The objective of this study is to analyze the impact of hopelessness and academic resilience on academic procrastination among high school students. To further this main goal, the following sub-objectives have been articulated:

1. To determine whether hopelessness serves as a significant predictor of academic procrastination levels in high school students.

2. To ascertain whether academic resilience significantly predicts the levels of academic procrastination in high school students.

Method

Research Design

This study employed a relational survey design to investigate the relationships among high school students' academic procrastination, hopelessness, and academic resilience levels. A relational survey design is utilized to examine the interactions between multiple variables (Heppner et al., 2013, p. 272). In this analysis, hopelessness and academic resilience were designated as independent variables, whereas academic procrastination functioned as the dependent variable. The relationships among these variables were assessed through multiple regression analysis.

Participants

The research study group consisted of students from various high schools in a small city located in the Aegean Region of Türkiye during the 2023-2024 academic year. Participants were selected through a convenient sampling method, which entails the researcher choosing individuals who are readily accessible or who possess specific characteristics pertinent to the study (Neuman, 2013). A total of 625 students participated in the study, with an average age of 15.52 years (SD = 1.13). The sample consisted of 337 female students (53.9%) and 288 male students (46.1%). Students were distributed across all high school grade levels (9th to 12th grades) with relatively balanced representation. Regarding academic performance, the majority of students reported grade point averages between 50–85 for the previous academic year. Most participants resided in urban areas. In terms of parental education, approximately half of the fathers and one-third of the mothers had completed high school or higher education. Family income data indicated that a considerable portion of the sample came from households with income levels at or below twice the minimum wage. Based on the reported data on parental education and income levels, the study sample can be characterized as socioeconomically disadvantaged overall.

Data Collection Tools

The Academic Procrastination Scale (APS)

The Academic Procrastination Scale (APS) was developed by Çakıcı (2003) to evaluate the degree of academic procrastination among high school and university students. This scale comprises 19 items, including 12 negative items and 7 positive items. Responses are measured using a 5-point Likert scale, where “Does not reflect me at all” corresponds to a score of 1, “Reflects me very little” corresponds to a score of 2, “Reflects me somewhat” corresponds to a score of 3, “Reflects me mostly” corresponds to a score of 4, and “Reflects me completely” corresponds to a score of 5. Notably, Items 1, 4, 7, 9, 11, 13, and 17 require reverse scoring. The scale's minimum score is 19, while the maximum score is 95; higher scores indicate a greater tendency toward procrastination in academic tasks (Çakıcı, 2003). Exploratory factor analysis (EFA) of the APS identified two subscales: "Procrastination," which accounts for 41.88% of the total variance, and "Regular Study Habits," which accounts for 7.18% of the variance. It is important to note that the scale can also be utilized as a unidimensional construct (Çakıcı, 2003). The Cronbach’s alpha coefficients for the scale were calculated to be 0.89 for the "Procrastination" subscale, 0.84 for the "Regular Study Habits" subscale, and 0.92 for the overall reliability coefficient. The Spearman-Brown split-half reliability coefficient was determined to be 0.85. The analysis of test-retest reliability revealed a correlation coefficient of 0.89. Specifically, the test-retest reliability coefficients for the "Procrastination" and "Regular Study Habits" factors were calculated to be 0.80 and 0.82, respectively. In this study, the APS was administered to a sample of 65 high school students over a 17-day interval, yielding a test-retest correlation coefficient of 0.89. The overall Cronbach’s alpha coefficient for the APS in this context was recorded as 0.85.

The Beck Hopelessness Scale (BHS)

The Beck Hopelessness Scale (BHS), developed by Aaron T. Beck and colleagues in 1974, is an instrument designed to evaluate the levels of hopelessness experienced by individuals. This scale was first validated in Turkish by Seber et al. in 1993, followed by validation efforts led by Durak and Palabıyıkoğlu in 1994. The BHS comprises 20 items, where respondents receive a score of 1 for each "Yes" answer and a score of 0 for each "No" answer. It is important to note that items 1, 3, 5, 6, 8, 10, 13, 15, and 19 are reverse scored. Consequently, the total score can

range from 0 to 20, with higher scores indicating increased levels of hopelessness. Factor analysis has revealed that the scale possesses a three-factor structure. The first factor, "Feelings and Expectations about the Future," which includes items 1, 3, 7, 11, and 18, accounts for 27.9% of the total variance. The second factor, "Loss of Motivation," comprising items 2, 4, 9, 12, 14, 16, 17, and 20, explains 8.1% of the variance. The third factor, "Hope," which consists of items 5, 6, 8, 10, 13, 15, and 19, accounts for 6.6% of the total variance, as reported by Durak and Palabıyıkoğlu in 1994. Further validation of the scale's reliability was demonstrated by Seber et al. (1993), who reported a Cronbach's Alpha internal consistency coefficient of 0.86. In the current study, the Cronbach's Alpha coefficient for the Hopelessness Scale was determined to be 0.88, indicating strong internal consistency.

The Academic Resilience Scale (ARS)

The Academic Resilience Scale (ARS) was developed by Martin and Marsh in 2006 to evaluate the capacity of high school students to manage academic stress, distress, and pressure. The Turkish adaptation of this scale was conducted by Kapıkıran in 2012. The scale employs a 7-point Likert-type format, which allows respondents to indicate their level of agreement ranging from "Not at all applicable to me" to "Completely applicable to me." Importantly, there are no reverse-scored items present in this scale; thus, higher scores correlate with greater academic resilience. The internal consistency coefficient of the scale is reported to be 0.89 (Kapıkıran, 2012). The translation process from English to Turkish was executed by the researcher alongside a faculty member specializing in psychological counseling and guidance, both of whom possess proficiency in the respective languages.

To establish the structural validity of the Turkish version of the scale, both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed. The results from the EFA indicated that the scale is unidimensional, comprising six items, with factor loadings ranging between 0.70 and 0.83. The CFA results corroborated an acceptable model fit, with all fit indices adhering to recognized standards (Kapıkıran, 2012). The reliability of the scale was measured using a Cronbach's alpha coefficient of 0.89, with test-retest reliability assessed over a three-week interval yielding a correlation coefficient of $r = 0.82$. The item-total correlations within the scale varied from 0.59 to 0.78 (Kapıkıran, 2012). In the current study, the calculated Cronbach's alpha value for the scale was determined to be 0.70.

The demographic information form

It was created by the researchers to determine participants' information on "gender, age, grade level, academic GPA, place where most of their life has been spent, whether their parents are alive, parents' marital status, parents' educational background, and monthly average income level.

Procedure

The measurement tools and the demographic information form used in the study were administered to high school students who voluntarily participated in the research. It took approximately 20 minutes for the participants to respond to the questions.

Data Analyses

The data obtained from the research were transferred to a computer environment where the IBM SPSS Statistics 27 software package was employed for data analysis. Prior to initiating the analysis, necessary adjustments were made, including reverse coding and the calculation of total scale scores, to adequately prepare the data. A thorough examination for missing data was conducted, revealing that no missing data were present. Multiple linear regression analysis was selected as the analytical method. This statistical technique evaluates both the individual and collective effects of one or more predictor variables on a dependent variable (Wampold & Freund, 1987). For multiple regression analysis to be applicable, the dependent variable must be continuous, while the independent variables should consist of equal interval and continuous scales (Büyüköztürk, 2019, p. 98). In this study, the scores for both the dependent and independent variables were collected using equal ratio and continuous scales, ensuring their suitability for multiple regression analysis. It is essential for the dependent variable to have a normal distribution, to exhibit a linear relationship with the predictor variables, and to avoid multicollinearity among the

predictor variables. Additionally, the presence of outliers in the variables should be examined (Büyüköztürk, 2019, pp. 99-100). Furthermore, it is recommended that the errors of prediction be normally distributed, that homoscedasticity be maintained, and that the errors be independent of one another (Field, 2009, pp. 220-221). An evaluation of these conditions was conducted through preliminary analyses, confirming the appropriateness of the data for further analysis.

Ethics approval notification

Ethical approval for this research was obtained from the Adiyaman University Social and Humanities Ethics Committee (08.12.2023-484). In addition, the necessary permissions were obtained from the Provincial Directorate of National Education of the schools involved in the research. Data were collected from students who voluntarily participated in the study. Parental consent was obtained for students under the age of 18.

Results

Pre-Analysis

To determine whether the variables meet one of the conditions for applying multiple linear regression analysis, skewness and kurtosis values were calculated to assess whether the variables follow a normal distribution.

Table 1. Skewness and kurtosis values for the variables

Scale	f	Skewness	Kurtosis
Academic procrastination	625	-.017	-.236
Hopelessness	625	.545	-.664
Academic resilience	625	-.079	-.255

The skewness and kurtosis values of a variable being zero indicate that it follows a perfectly normal distribution (Tabachnick & Fidell, 2013). Generally, skewness and kurtosis coefficients between -1 and +1 indicate that a variable follows a normal distribution (Büyüköztürk, 2019, p. 40). In this study, the skewness values of the variables range from -.079 to +.545, and the kurtosis values range from -.236 to -.664. Based on this, it can be said that the research variables follow a normal distribution. To determine the relationships between the variables in the study and to check for multicollinearity, another prerequisite for performing multiple regression analysis, Pearson correlation analysis was conducted. The results regarding the relationships between academic procrastination, hopelessness, and academic resilience variables are presented in Table 2.

Table 2. Pearson correlation coefficient values for the research variables

Variable	1	2	3
1. Academic procrastination	1		
2. Hopelessness	.41*	1	
3. Academic resilience	-.23*	-.41*	1

N=625, *p< .001.

As seen in Table 2, there is a moderate positive relationship between the academic procrastination variable and hopelessness (r = .41, p< .001); a low negative relationship between the academic procrastination variable and academic resilience (r= -.23, p< .001); and a moderate negative relationship between the hopelessness variable and academic resilience (r= -.41, p< .001). In multiple linear regression analysis, a relationship level higher than 0.80 between predictor variables indicates a multicollinearity problem (Büyüköztürk, 2009: p. 100). As seen in Table 2, the relationship between academic resilience and hopelessness is -.41. This indicates that there is no multicollinearity problem among the predictor variables of the study. Additionally, tolerance, VIF (Variance Inflation Factor), and CI (Condition Index) values were examined to determine if there is a multicollinearity problem between the predictor variables. According to Field (2009, pp. 297-298), when tolerance values are greater than .20, VIF values are less than 10, and CI values are less than 30, it can be concluded that there is no multicollinearity problem. As seen in Table 3, these values are within the desired range, indicating that there is no multicollinearity problem.

Table 3. Values regarding multicollinearity problem among predictor variables

		Multicollinearity		
Dependent Variable	Independent Variable	Toler.	VIF	CI
Academic procrastination	Academic resilience	.834	1.198	3.020
	Hopelessness	.834	1.198	9.765

To evaluate the independence of the error values associated with the independent variables and to address potential autocorrelation issues, the Durbin-Watson statistic was analyzed. This statistic is a requisite for conducting multiple regression analysis. A Durbin-Watson value ranging from 1.00 to 3.00 indicates the absence of autocorrelation among the error values of the independent variables (Field, 2009, p. 337). In this analysis, the Durbin-Watson value was determined to be 1.744, suggesting that autocorrelation is not a concern. Furthermore, Cook's Distance was employed to detect the presence of outliers within the dataset. The highest Cook's Distance value recorded was .032, which falls below the threshold of 1. This finding indicates that the data does not contain any significant outliers.

As another preliminary analysis, the Normal P-P plot was examined to determine whether the errors of the predictions follow a normal distribution, and it was found that the errors of the predictions follow a normal distribution. Finally, the homoscedasticity (equality of variance) condition was examined.

Findings from the Multiple Linear Regression Analysis

A multiple linear regression analysis was conducted to examine whether hopelessness and academic resilience, the main variables of this study, significantly predict academic procrastination. The findings obtained are presented in Table 4.

Table 4. Findings of multiple linear regression analysis

Dependent Variable	Independent Variables	Unstandardized Coefficients				β	t	p
		B	S. Dev.	%95 BCA Confidence Interval				
				Lower	Upper			
Academic procrastination	(Sabit)	51.878	2.257	47.447	56.310		22.990	.000*
	Academic resilience	-.133	.069	-.269	.002	-.077	-1.929	.054
	Hopelessness	.985	.103	.783	1.187	.382	9.576	.000*

Note. F(2, 622)=66.188, *p< .001; Adj. R^2 = .173; Durbin-Watson=1.744.

When examining the data from the multiple regression analysis in Table 4, it is observed that the tested model is significant [F(2, 622)=66.188, p< .001] and the independent variables explain 17.3% of the total variance (Adj. R^2) of the dependent variable. Accordingly, the variables of hopelessness and academic resilience significantly predict the variation in academic procrastination (p< .001).

When the effects of the independent variables on the dependent variables are examined in detail, it is found that the hopelessness variable significantly predicts academic procrastination (p< .05), while the academic resilience variable does not significantly predict it (p> .05). Hopelessness positively predicts academic procrastination, and a 1-unit increase in hopelessness leads to a .985 -unit increase in academic procrastination (with a 95% confidence interval between .783 and 1.187 units). The regression equation predicting academic procrastination, the dependent variable in this study, is calculated as: "Academic Procrastination = 51.878 – .133*Academic Resilience + .985*Hopelessness."

Conclusion and Discussion

This study examined the predictive roles of hopelessness and academic resilience in academic procrastination among high school students. The findings showed that hopelessness is a significant predictor of academic procrastination, while academic resilience alone does not significantly predict procrastination. However, when both variables are considered together in the same model, they meaningful contribute to explaining procrastination behavior. In other words, students who feel more hopeless tend to delay their academic tasks more often. On the other hand, academic resilience, although generally thought to reduce procrastination, did not show a meaningful effect when examined on its own in this study. The analysis revealed that the combined influence of hopelessness and academic resilience explains 17.3% of the variation in academic procrastination. This suggests that while hopelessness plays a stronger role, academic resilience may still have an indirect or supportive function when considered alongside hopelessness.

The first key finding indicates that hopelessness is a significant predictor of academic procrastination. Specifically, as students' levels of hopelessness increase, their tendency to procrastinate academically also rises. This aligns with previous research that has established a relationship between hopelessness and procrastination among both high school and university students (Akdamar & Kızılkaya, 2022; Odacı & Kaya, 2019; Yılmaz, 2016). Studies show that students with high hope tend to have more constructive academic aspirations, whereas those with low hope are more likely to give up on their goals and develop negative self-perceptions (Wang et al., 2022). A lack of hope in high school students is linked to an aversion to academic tasks, which leads to procrastination behaviors (Nabaei et al., 2021). In line with Temporal Motivation Theory (TMT), students who harbor negative expectations about their abilities may see academic tasks as futile, leading them to delay completing them. Additionally, hopeless students may hold negative beliefs about their future, such as expecting failure or believing their efforts will go unrecognized, which exacerbates procrastination (Balkis & Duru, 2019; Panzarella et al., 2006). Thus, hopelessness has a clear, negative effect on motivation and academic engagement, making it a reliable predictor of procrastination.

The second key finding reveals that academic resilience, contrary to expectations, does not significantly predict academic procrastination. This finding differs from previous research that has identified academic resilience as a predictor of reduced procrastination among high school students (Astutik & Firdana, 2023; Cahyani et al., 2023; Hossinlou & Jadidi, 2020). Academic resilience refers to students' ability to maintain high self-efficacy, set effective goals, plan their activities, and persist through challenges while managing anxiety related to academic tasks (Martin & Marsh, 2006). According to the Temporal Motivation Theory (TMT), students with these qualities are expected to show reduced procrastination and enhanced motivation toward academic tasks (Steel, 2007). Given this theoretical expectation, the finding that academic resilience did not significantly predict procrastination may seem surprising. This discrepancy can be attributed to environmental factors that may hinder the manifestation of resilience's full potential.

TMT suggests that procrastination often arises from diminished motivation (Steel, 2011), and motivation is influenced by both internal factors (such as personal interests, values, and expectations) and external factors (such as rewards, incentives, and societal pressures) (Ryan & Deci, 2000). While academic resilience is generally considered an intrinsic motivational factor, external influences—like societal pressures, family expectations, and academic structures—could significantly impact students' motivation, thereby fostering procrastination despite their resilience. In Türkiye, for instance, students face the university entrance examination, which is perceived as a critical determinant of their future careers. However, the high unemployment rates among university graduates (Yamak et al., 2023) may lead students to question the value of their academic pursuits, thereby reducing their motivation and exacerbating procrastination. Additionally, the exam-centric educational system in Türkiye places heavy emphasis on short-term goals (Taşdemir, 2015), further discouraging long-term academic engagement. The high academic pressures, coupled with unrealistic expectations from parents, can also contribute to academic stress and burnout (Tatlı & Atmaca, 2023), which may undermine the positive effects of academic resilience on motivation.

Therefore, while academic resilience is an important intrinsic factor, its influence on academic procrastination may be moderated or overridden by the external pressures within the educational system and societal expectations. This suggests that the relationship between academic resilience and procrastination is influenced not only by personal traits but also by environmental and cultural contexts.

The study also highlights that the combined effect of hopelessness and academic resilience significantly predicts academic procrastination. While this effect may seem modest, it is an important finding, as it contributes to a deeper understanding of the dynamics that contribute to procrastination. TMT highlights the role of self-efficacy in academic motivation (Steel & König, 2006), and it is plausible that a student's perception of their ability to succeed, coupled with their levels of hopelessness and resilience, shapes their approach to academic tasks. If students lack hope or self-efficacy, they are more likely to procrastinate, whereas resilience can serve as a buffer against this tendency, though it is not always sufficient in the face of overwhelming external stressors.

The implications of academic procrastination are substantial, as it can have lasting effects on high school students. Procrastination may seem like a harmless behavior at first, but if it becomes habitual, it can lead to poor academic performance, heightened stress, and missed educational opportunities. Such patterns of procrastination may also lead to long-term issues in students' social, familial, and psychological well-being. As such, it is crucial to identify and address the underlying factors that contribute to procrastination in high school students. This research underscores the importance of providing preventive guidance and psychological counseling services to help students manage feelings of hopelessness, build resilience, and develop strategies for reducing procrastination.

Strategies aimed at mitigating hopelessness and fostering academic resilience could be effective in reducing academic procrastination. Counselors and educators should focus on helping students recognize and confront feelings of hopelessness, reinforce their self-efficacy, and bolster their resilience to navigate academic challenges. By addressing these psychological factors, students' motivation to engage with academic tasks can be improved, potentially reducing procrastination behaviors.

In conclusion, this study is one of the first to examine the combined effects of hopelessness and academic resilience on academic procrastination among high school students. The findings provide valuable insights into the psychological factors that contribute to procrastination and highlight the importance of both individual and environmental factors in shaping academic behavior. The results suggest that while academic resilience can play a significant role in reducing procrastination, external factors, such as societal pressures and the exam-centric education system, must also be considered when developing strategies to address academic procrastination. By understanding and addressing the interplay between hopelessness, resilience, and external influences, educators and counselors can better support students in overcoming procrastination and achieving academic success.

Recommendations

This study makes a valuable contribution to the existing literature on academic procrastination; however, it is not without limitations. The sampling method employed may introduce bias. Therefore, future research should aim to minimize measurement error by utilizing more robust sampling techniques. Moreover, the study's focus on students from public secondary schools in Kütahya restricts the generalizability of the findings. Broader studies that include participants from various provinces and educational levels could provide more representative results. Future investigations should analyze academic procrastination within the framework of the ZMT model, incorporating variables such as self-efficacy, impulsivity, attention distraction, self-regulation, and goal setting. Notably, the finding that academic resilience does not predict procrastination contradicts some existing research, highlighting the need for further studies to explore its impact, particularly among at-risk populations.

School counselors assisting high school students should take into account levels of hopelessness when addressing procrastination. By implementing preventive measures aimed at reducing hopelessness, counselors can facilitate a decrease in procrastination while enhancing academic performance. Furthermore, it is crucial for counselors to integrate resilience-promoting strategies into their annual plans to bolster student success. In addition, school counselors should be encouraged to work in collaboration with teachers and families to monitor students who consistently exhibit procrastination and provide them with individual psychological support when necessary.
Parents should adopt a supportive and understanding approach when discussing their children's academic struggles. Rather than imposing excessive pressure, they should maintain open communication and work in cooperation with schools to better understand the underlying causes of procrastination. Creating a home environment that nurtures autonomy, fosters realistic expectations, and encourages perseverance can help children develop stronger coping skills and motivation for academic tasks.

Teachers should monitor the academic and emotional progress of at-risk students, utilizing class risk maps to provide targeted guidance. Additionally, providing students with timely, constructive feedback, helping them set realistic goals, and emphasizing the value of academic tasks can contribute to strengthening their motivation and reducing procrastination.

Provincial and district education directorates should develop action plans to support schools encountering academic and psychological challenges, with an emphasis on fostering resilience and hope among students, educators, and school administrators. These plans should prioritize fostering a school climate that promotes resilience and hope. Additionally, professional development programs for educators can enhance their capacity to identify and intervene effectively with students exhibiting procrastination behaviors. Policy-level support is essential to ensure that efforts to address academic procrastination are sustained, inclusive, and responsive to the contextual challenges faced by both students and educators.

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Authors Contribution Rate

Authors contributed equally.

Ethical Approval

This research received approval from the Ethics Committee for Social and Human Sciences at Adıyaman University, with decision number 484, dated August 12, 2023.

References

Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, *96*(2), 358–372. https://doi.org/10.1037/0033-295X.96.2.358

Ackerman, D. S., & Gross, B. L. (2005). My instructor made me do ıt: Task characteristics of procrastination. *Journal of Marketing Education*, *27*(1), 5–13. https://doi.org/10.1177/0273475304273842

Akdamar, E., & Kızılkaya, Y. M. (2022). Üniversite öğrencilerinin akademik erteleme eğilimleri ile umutsuzluk seviyeleri ve akademik başarıları arasındaki ilişkinin incelenmesi. *Kahramanmaraş Sütçü İmam Üniversitesi Sosyal Bilimler Dergisi*, *19*(1), 212–221. https://doi.org/10.33437/ksusbd.844605

Anlayışlı, C., & Bulut Serin, N. (2019). Lise öğrencilerinde internet bağımlılığı ve depresyonun cinsiyet, akademik başarı ve internete giriş süreleri açısından incelenmesi. *Folklor/Edebiyat, 25*(97), 730-743. https://doi.org/10.22559/folklor.977

Ashraf, M., Malik, J. A., & Musharraf, S. (2019). Academic stress predicted by academic procrastination among young adults: Moderating role of peer influence resistance. *Journal of Liaquat University of Medical & Health Sciences*, *18*(01), 65–70.

Astutik, F., & Firdana, W. D. (2023). The use of academic resilience in mediating the effect of self-efficacy on students' academic procrastination during the Covid-19 pandemic. *Conference of Psychology and Flourishing Humanity (PFH 2022)*, 33–41. https://doi.org/10.2991/978-2-38476-032-9_5

Aydın, M., Erdoğan, S., Yurdakul, M., & Eker, A. (2013). Sağlık yüksekokulu ve sağlık meslek lisesi öğrencilerinin umutsuzluk düzeyleri. *SDU Journal of Health Science Institute / SDÜ Saglik Bilimleri Enstitüsü Dergisi*, *4*(1), 1–6.

Balkis, M., & Duru, E. (2009). Prevalence of academic procrastination behavior among pre-service teachers, and its relationship with demographics and individual preferences. *Journal of Theory & Practice in Education (JTPE)*, *5*(1), 18-32.

Balkis, M., & Duru, E. (2019). Procrastination and rational/irrational beliefs: A moderated mediation model. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *37*(3), 299–315. https://doi.org/10.1007/s10942-019-00314-6

Bayhan, G., & Dalgiç, G. (2012). School dropout according to the views of high school leavers. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, *13*(3), 107-130.

Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology*, *42*(6), 861–865. https://doi.org/10.1037/h0037562

Beswick, G., Rothblum, E. D., & Mann, L. (1988). Psychological antecedents of student procrastination. *Australian Psychologist*, *23*(2), 207–217. https://doi.org/10.1080/00050068808255605

Büyüköztürk, Ş. (2019). *Sosyal bilimler için veri analizi el kitabı: İstatistik, araştırma deseni, SPSS uygulamaları ve yorum* (25th ed.). Pegem Akademi.

Cahyani, L. M., Kristiani, K., & Sabandi, M. (2023). The phenomenon of academic procrastination during the Covid-19 pandemic influenced by academic resilience and social support. *Pegem Journal of Education and Instruction*, *13*(1), 41–49. https://doi.org/10.47750/pegegog.13.01.05

Çakıcı, D. Ç. (2003). *Lise ve üniversite öğrencilerinde genel erteleme ve akademik erteleme*. (Master's thesis). Retrieved from ProQuest Dissertations & Theses. (31160555).

Cavusoglu, C., & Karatas, H. (2015). Academic procrastination of undergraduates: Self-determination theory and academic motivation. *The Anthropologist*, *20*(3), 735–743. https://doi.org/10.1080/09720073.2015.11891780

Çelik, Ç., & Odacı, H. (2015). Akademik erteleme davranışının bazı kişisel ve psikolojik değişkenlere göre açıklanması [Explanation of academic procrastianation by some personal and psychological variables]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, *30*(3), 31–47.

Çetin, N. (2016). *Lise öğrencilerinin akademik erteleme davranışlarının incelenmesi.* (Master's thesis). Retrieved from ProQuest Dissertations & Theses. (28635366).

Denissen, J. J. A., Zarrett, N. R., & Eccles, J. S. (2007). I like to do it, i'm able, and i know i am: Longitudinal couplings between domain-specific achievement, self-concept, and interest. *Child Development*, *78*(2), 430–447. https://doi.org/10.1111/j.1467-8624.2007.01007.x

Durak, A., & Palabıyıkoğlu, R. (1994). Beck umutsuzluk ölçeği geçerlilik çalışması. *Kriz Dergisi*, *2*(2), 311-319. https://doi.org/10.1501/Kriz_0000000071

Erikson, E. H. (1968). *Identity youth and crisis*. W. W. Norton & Company.

Eskin, M., Ertekin, K., Harlak, H., & Dereboy, Ç. (2008). Lise öğrencisi ergenlerde depresyonun yaygınlığı ve ilişkili olduğu etmenler. *Turk Psikiyatri Dergisi*, *19*(4), 382-389.

Fee, R. L., & Tangney, J. P. (2000). Procrastination: A means of avoiding shame or guilt? *Journal of Social Behavior & Personality*, *15*(5), 167–184.

Ferrari, J. R., Johnson, J. L., & McCown, W. G. (1995). *Procrastination and task avoidance: Theory, research, and treatment*. Springer Science & Business Media.

Field, A. (2009). *Discovering statistics using IBM SPSS statistics* (3rd Edition). SAGE Publications Limited.

Flett, G. L., & Hewitt, P. L. (2002). Perfectionism and maladjustment: An overview of theoretical, definitional, and treatment issues. In *Perfectionism: Theory, research, and treatment* (pp. 5–31). American Psychological Association. https://doi.org/10.1037/10458-001

Henkel, V., Bussfeld, P., Möller, H.-J., & Hegerl, U. (2002). Cognitive-behavioural theories of helplessness/hopelessness: Valid models of depression? *European Archives of Psychiatry and Clinical Neuroscience*, *252*(5), 240–249. https://doi.org/10.1007/s00406-002-0389-y

Heppner, P. P., Wampold, B. E. ve Kivlighan, D. M., Jr. (2013). *Psikolojik danışmada araştırma yöntemleri* (1st ed.). (Çev.: D. M. Siyez). Ankara: Mentis Yayıncılık.

Hossinlou, M., & Jadidi, H. (2020). Evaluation of the effectiveness of motivation management on academic resilience and academic procrastination of female high school students. *Journal of Psychology New Ideas*, *6*(10), 1–16.

Hwang, E., & Shin, S. (2018). Characteristics of nursing students with high levels of academic resilience: A cross-sectional study. *Nurse Education Today*, *71*, 54–59. https://doi.org/10.1016/j.nedt.2018.09.011

Kağan, M., Çakır, O., İlhan, T., & Kandemir, M. (2010). The explanation of the academic procrastination behaviour of university students with perfectionism, obsessive – compulsive and five factor personality traits. *Procedia - Social and Behavioral Sciences*, *2*(2), 2121–2125. https://doi.org/10.1016/j.sbspro.2010.03.292

Kapıkıran, Ş. (2016). Ebeveyn akademik başarı baskısı ve desteği ölçeğinin psikometrik değerlendirmeleri ve yapısal geçerlik: Ortaokul ve lise öğrencileri. *Ege Eğitim Dergisi*, *17*(1), 62-83. https://doi.org/10.12984/eed.07848

Kapikiran, S. (2012). Validity and reliability of the academic resilience scale in Turkish high school. *Education*, *132*(3), 474–484.

Karaman, G. (2020). *Üniversite öğrencilerinin akademik başarısı ile stres ve kaygının ilişkisi*. (Unpublished master's thesis). İstanbul Gelişim Üniversitesi Lisansüstü Eğitim Enstitüsü, İstanbul.

Kim, K. R., & Seo, E. H. (2015). The relationship between procrastination and academic performance: A meta-analysis. *Personality and Individual Differences*, *82*, 26–33. https://doi.org/10.1016/j.paid.2015.02.038

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, *57*(9), 705. https://doi/10.1037/0003-066X.57.9.705

Martin, A. J., & Marsh, H. W. (2006). Academic resilience and its psychological and educational correlates: A construct validity approach. *Psychology in the Schools*, *43*(3), 267–281. https://doi.org/10.1002/pits.20149

Martin, A. J., & Marsh, H. W. (2009). Academic resilience and academic buoyancy: Multidimensional and hierarchical conceptual framing of causes, correlates and cognate constructs. *Oxford Review of Education*, *35*(3), 353–370. https://doi.org/10.1080/03054980902934639

Melges, F. T., & Bowlby, J. (1969). Types of hopelessness in psychopathological process. *Archives of General Psychiatry*, *20*(6), 690–699. https://doi.org/10.1001/archpsyc.1969.01740180074007

Milgram, N. (Noach), & Naaman, N. (1996). Typology in procrastination. *Personality and Individual Differences*, *20*(6), 679–683. https://doi.org/10.1016/0191-8869(96)00018-9

Nabaei, S., Salahyan, A., & Gharibi, H. (2021). Predicting academic procrastination based on basic psychological needs, academic hope and academic identity in tenth grade male high school students. *Rooyesh-e-Ravanshenasi Journal(RRJ)*, *10*(9), 103–114.

Neuman, W. L. (2013). *Social research methods: Qualitative and quantitative approaches* (7th ed.). Pearson Education.

Odacı, H., & Kaya, F. (2019). Mükemmeliyetçilik ve umutsuzluğun akademik erteleme davranışı üzerindeki rolü: Üniversite öğrencileri üzerinde bir araştırma. *Yükseköğretim ve Bilim Dergisi*, *1*, 43–51.

Oran, S. (2018). *Anadolu lisesi öğrencilerinde akademik erteleme davranışının incelenmesi*. (Unpublished master's thesis). Çağ Üniversitesi Sosyal Bilimler Enstitüsü, Mersin.

Owens, A. M., & Newbegin, I. (1997). Procrastination in high school achievement: A causal structural model. *Journal of Social Behavior & Personality*, *12*(4), 869–887.

Panzarella, C., Alloy, L. B., & Whitehouse, W. G. (2006). Expanded hopelessness theory of depression: On the mechanisms by which social support protects against depression. *Cognitive Therapy and Research*, *30*, 307–333. https://doi/10.1007/s10608-006-9048-3

Patrzek, J., Sattler, S., van Veen, F., Grunschel, C., & Fries, S. (2015). Investigating the effect of academic procrastination on the frequency and variety of academic misconduct: A panel study. *Studies in Higher Education*, *40*(6), 1014–1029. https://doi.org/10.1080/03075079.2013.854765

Ragusa, A., González-Bernal, J., Trigueros, R., Caggiano, V., Navarro, N., Minguez-Minguez, L. A., Obregón, A. I., & Fernandez-Ortega, C. (2023). Effects of academic self-regulation on procrastination, academic stress

and anxiety, resilience and academic performance in a sample of Spanish secondary school students. *Frontiers in Psychology*, *14*. https://doi.org/10.3389/fpsyg.2023.1073529

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*(1), 54–67. https://doi.org/10.1006/ceps.1999.1020

Schouwenburg, H. C. (1995). Academic Procrastination. In J. R. Ferrari, J. L. Johnson, & W. G. McCown (Eds.), *Procrastination and Task Avoidance: Theory, Research, and Treatment* (pp. 71–96). Springer US. https://doi.org/10.1007/978-1-4899-0227-6_4

Schrank, B., Stanghellini, G., & Slade, M. (2008). Hope in psychiatry: A review of the literature. *Acta Psychiatrica Scandinavica*, *118*(6), 421–433. https://doi.org/10.1111/j.1600-0447.2008.01271.x

Seber, G., Dilbaz, N., Kaptanoğlu, C., & Tekin, D. (1993). Umutsuzluk ölçeği: Geçerlilik ve güvenirliği. *Kriz Dergisi*, *1*(3). https://doi.org/10.1501/Kriz_0000000045

Shih, S.-S. (2017). Factors related to Taiwanese adolescents' academic procrastination, time management, and perfectionism. *The Journal of Educational Research*, *110*(4), 415–424. https://doi.org/10.1080/00220671.2015.1108278

Shiomi, K. (1995). Correlations of hopelessness with motivation and personality traits among japanese school children. *Perceptual and Motor Skills*, *80*(3), 717–718. https://doi.org/10.2466/pms.1995.80.3.717

Siaputra, I. B. (2010). Temporal motivation theory: Best theory (yet) to explain procrastination. *Anima Indonesian Psychological Journal*, *25*(3), 206-214.

Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology*, *31*(4), 503–509. https://doi.org/10.1037/0022-0167.31.4.503

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, *133*(1), 65–94. https://doi.org/10.1037/0033-2909.133.1.65

Steel, P. (2011). *The Procrastination Equation*. Murdoch Books.

Steel, P., & Klingsieck, K. B. (2016). Academic procrastination: Psychological antecedents revisited. *Australian Psychologist*, *51*(1), 36–46. https://doi.org/10.1111/ap.12173

Steel, P., & König, C. J. (2006). Integrating theories of motivation. *Academy of Management Review*, *31*(4), 889–913. https://doi.org/10.5465/amr.2006.22527462

Steiner, H. ve Feldman, S. S. (2008). *Ergen terapisi.* (Y. Özkardeşler-Şallı, Çev.) (İdil Matbaacılık.). İstanbul: Prestij Yayınları.

Tabachnick, B. G. & Fidell, L. S. (2013). Using multivariate statistics. Boston, MA: Pearson.

Taşdemir, M. (2015). Öğretmen adaylarının Türk mili eğitim sistemi üzerine algıladıkları sorunlar. *Journal of Turkish Studies*, *10*(7), 881–881. https://doi.org/10.7827/TurkishStudies.7898

Tatlı, S., & Atmaca, T. (2023). Ebeveyn başarı baskısı ve akademik stresin ortaöğretim öğrencilerinin okul tükenmişliğini yordama düzeyi. *Bayburt Eğitim Fakültesi Dergisi*, *18*(40) 1328 - 1349,. https://doi.org/10.35675/befdergi.1322675

Türel, Y. K., & Dokumaci, O. (2022). Use of media and technology, academic procrastination, and academic achievement in adolescence. *Participatory Educational Research*, *9*(2), 481-497. https://doi.org/10.17275/per.22.50.9.2

Undheim, A. M., & Sund, A. M. (2005). School factors and the emergence of depressive symptoms among young Norwegian adolescents. *European Child & Adolescent Psychiatry*, *14*(8), 446–453. https://doi.org/10.1007/s00787-005-0496-1

Uzun Özer, B., Demir, A., & Ferrari, J. R. (2009). Exploring academic procrastination among turkish students: possible gender differences in prevalence and reasons. *The Journal of Social Psychology*, *149*(2), 241–257. https://doi.org/10.3200/SOCP.149.2.241-257

Wampold, B. E., & Freund, R. D. (1987). Use of multiple regression in counseling psychology research: A flexible data-analytic strategy. *Journal of Counseling Psychology*, *34*(4), 372-382. https://doi.org/10.1037/0022-0167.34.4.372

Wang, M. C., Haertal, G. D., & Walberg, H. J. (1993). *Educational resilience in inner-city America: Challenges and prospects* (M. C. Wang & E. W. Gordon, Eds.). Routledge.

Wang, S., Shi, J., Sheng, R., Yu, S., & Xu, W. (2022). Hope and academic procrastination in adolescents: A moderated mediation model. *International Journal of Mental Health Promotion*, *24*(6), 933–944. https://doi.org/10.32604/ijmhp.2022.023083

Waxman, H. C., Rivera, H., & Powers, R. (2012). English language learners' educational resilience and classroom learning environment. *Educational Research Quarterly*, *35*(4), 53-72.

Wolters, C. A. (2003). Understanding procrastination from a self-regulated learning perspective. *Journal of Educational Psychology*, *95*(1), 179–187. https://doi.org/10.1037/0022-0663.95.1.179

Yamak, N., AbdiOğlu, Z., & Doğan, S. (2023). İşsizlik süresine etkide bulunan faktörler: Türkiye için mikro veri analizi. *Sosyal Güvenlik Dergisi (Journal of Social Security)*, *13*(1), 1–14. https://doi.org/10.32331/sgd.1317913

Yıldız, S., & Yıldız, K. (2016). The relationship between academic procrastination and hopelessness perceptions of primary school teaching department students. *International Online Journal of Educational Sciences*, *8*(3). https://doi.org/10.15345/iojes.2016.03.018

Yılmaz, N. (2016). *Lise öğrencilerinin akademik erteleme davranışı ile problem çözme becerileri ve umutsuzluk düzeyleri arasındaki ilişkiler*. (Unpublished master's thesis). Karadeniz Teknik Üniversitesi Eğitim Bilimleri Enstitüsü, Trabzon.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice*, *41*(2), 64-70. https://doi.org/10.1207/s15430421tip4102_2

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University Students' and Teachers' Perceptions on the Effectiveness of MOOCs in the Teaching-Learning Process

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Abstract
Massive Open Online Courses (MOOCs) have become one of the highly accepted sources of online teaching and learning these days. Even though MOOCs have gotten wider popularity, its efficacy in teaching and learning is an ongoing topic of discussion. The narrative review in this paper provided the detailed insights of the effectiveness and the limitations of the MOOCs in the academic literature. The present research performs qualitative data analysis using Grounded Theory method (interpretative approach) to find out the effectiveness of MOOCs in teaching and learning involving university teachers handling MOOCs modules and students learning them in a longitudinal study of two successive academic years. The research identifies the benefits, drawbacks, and ideas and recommendations for enhancing MOOC-based teaching and learning.

Keywords: Effectiveness of MOOCs, Teaching, Learning, Grounded theory, Advantages, Limitations, Suggestions, Recommendations

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Introduction

MOOCs aim to improve access to higher education, provide an affordable alternative to formal education, facilitate the achievement of Sustainable Development Goals, offer a flexible learning schedule and create online collaborations. There is a coalescence of interest from the educational institutions in offering individualized and personalized instructions to its stakeholders. Individualized instruction gained momentum owing to its pedagogical benefits like the use of learner-specific or inclusive teaching and assessment methods. Furthermore, integrating ICT allows the students to continue their learning ensuring that they get proper guidance, flexibility, and learning support to expand opportunities for academic growth. MOOCs are one such innovation that integrates social networking and online resources. Most significantly, MOOCs allow learners to self-organize their learning based on their knowledge, skills, and interests. It is considered an innovation in open online courses with several options e.g., accessible open resources, open-ended outcomes, and free-open registration. Similar opinions were documented by Hollands and Tirthali (2014) who reported that 38 % of the institutions they studied offer MOOCs as a new model in higher education and innovation in pedagogy. Students choose to enroll in MOOCs for a variety of reasons. The university students' main drive to enroll in MOOCs is to gain knowledge and acquire degrees; whereas, it is research and professional development for the general public (Mohan et al., 2020). Students choose MOOCs primarily to understand subject matter without any demand to achieve anything or complete, for gaining social experience, to overcome barriers posed by traditional education systems and, to be involved in online education (Sonwalkar & Maheshkar, 2015). Siemens (2013) observed MOOC as a platform that offers balanced teaching-learning to its stakeholders who are tangled between standardized educational backgrounds and colossal perplexed open web data. Vázquez-Cano et al. (2021) concede MOOCs as accessible, practical, and encouraging methods to learn online. Sonwalkar and Maheshkar (2015) clarify that the registered students who do not complete the course do not curtail the other students' chance of enrolling in the course. Thus, MOOCs foster a culture of continuous learning in an increasingly digital and interconnected world. *The following narrative review provides insight into the advantages and limitations of MOOCs as discussed in the academic literature.*

Advantages of MOOCS in Teaching-Learning Process

Kesim and Altınpulluk (2015) documented the transparent nature of the MOOCs program, where it spells out the fee charged for receiving the certification, fundamentals to be known to take the course, and learning outcomes in the course description. Chew (2015) highlighted that students registering for MOOCs courses do not need to take any test or possess any prerequisite knowledge or qualifications. Further, Kesim and Altınpulluk (2015) perceived that MOOCs had assisted teachers in cognizing their teaching and its consequences on students' cognitive development through quantitative data gathered from a good number of enrolled students' behavior (Kesim & Altınpulluk, 2015). Teachers perceived that MOOCs delivered premier learning opportunities to a large group of students with openness and provided access to quality resources (Cabrera & Fernández-Ferrer, 2017). Further, MOOCs allow students to revisit the learning materials as and when required to understand the concepts (Chew, 2015). The participants reported MOOCs' role in alleviating infrastructure constraints, providing flexibility in time and place of study, continuing education, providing a no-risk and low-cost option in completing the course on time and, covering the global audience. The strategies adopted by MOOCs in enhancing the educational outcomes include course re-designing, immediate feedback, short videos, gamification, and adaptive learning. Institutions offering MOOCs use web-based tools to support the educational outcomes of their learners (Hollands & Tirthali, 2014). Further, Azevedo et al., (2024) in their analysis observed that the MOOCs with multimodal resources, such as videos and subtitles, were particularly valued, contributing to a better understanding of the course content in learners.

Vázquez-Cano et al. (2021) highlighted the following significant points of MOOCs that use web-based tools: Attain an optimal level of learning, attend to individual characteristics, accountable for obtaining process efficiency, active participation of students and act as a valuable teaching resource that aid knowledge construction. These web-based tools allow MOOCs to slot lectures for participants beyond geographical boundaries having different time zones. It allows the students to recoup the missed lectures at a suitable time of their choice (Chew, 2015). Also, by integrating these web-based tools, MOOCs support the students in solving real-life problems. It facilitates the students to understand the theories and concepts, thereby sharing ideas during discussions for review and assessment of the peer groups (Faizuddin & Azeeza, 2015). In addition to the traditional resources e.g., readings, videos, and assessment questionnaires, web-based tools in MOOCs promote learners to interact and collaborate with a community including students, teachers, and teaching assistants (Vázquez-Cano et al., 2021).

MOOCs are said to be trending as a techno-social innovation in higher education that promotes a novel interactive environment to a considerable number of learners (Vázquez-Cano et al., 2021). Yuan et al. (2014) documented the contribution of MOOCs in providing opportunities for learners to team up with individuals interested in similar topics and make significant collaborations with a massive community beyond the courses. The students gain a broader perception prevailing among different groups of people from different countries on a particular topic as MOOCs pave the way for interaction as put forth by Sonwalkar and Maheshkar (2015).

Vázquez-Cano et al. (2021) perceived that the significance of MOOCs like flexibility, accessibility to resources, and collaboration in social networks could be considered in transforming and improving formal higher education in the following ways: Relating and improving the formal processes with the activity of students in social networks, endorsing the universal teaching methods that support all students to learn at flexible timings and interact with other students and promoting access to quality education which supports in attaining the objectives of sustainable development.

The revolution initiated by MOOCs in the curriculum and teaching resulted in enhancing teaching and research in educational institutions. MOOCs ensued a paradigm shift in teaching from traditional, teacher-centered classes to innovative, learner-centered ones. MOOCs help students become active participants in knowledge construction rather than remaining passive receivers (Li, 2019). Similarly, Abhishek et al. (2025) documented that MOOCs have a more positive influence on students learning efficiency as perceived by both students and teachers in Indian context.

MOOCS as a simulated learning platform connects individuals in their interested field of study and provides flexible teaching. MOOCs magnify students' training opportunities without their affiliation to a particular institution and act as a breaking point and a revolution in higher education (Vázquez-Cano et al., 2021). Another notable revolution is that the students can get the certification in the aspired field with the help of a credit-transferring system that converts their MOOCs' scores into credits (Li, 2019).

Further, Vázquez-Cano et al. (2021) characterize MOOCs as a significant factor in promoting universalization of education and continuous training. MOOCs promote the learning of individuals who require it at any place. It guarantees education to the displaced population of society e.g., refugees from fragile socio-cultural contexts, thus promoting the globalization of knowledge. Faizuddin and Azeeza (2015) also express similar views as MOOCs offer equal rights to the participants in accessing quality education. Similarly, MOOCs promote digital inclusion in students who are excluded and offer divergent contents that are interesting and of high standards (Vázquez-Cano et al., 2021).

In addition to facilitating learning of a specific subject, MOOCs provide free quality training to any individual with an internet connection, irrespective of their previous training experiences (Vázquez-Cano et al., 2021). Also, students can make choices from a wide variety of courses and provide opportunities to enroll in those that suit best to one's individual needs (Sonwalkar & Maheshkar, 2015).

Likewise, Walker and Loch (2014) acknowledge MOOCs as an efficient system in providing a user-friendly platform with flexible rules and regulations to the large group of students in terms of economy and providing quality resources. Chew (2015) observes that certain MOOCs permit their students to access expensive resources such as images taken with the help of fully automated robotic telescopes for their research investigations.

In addition, it provides opportunities to learn a wide range of trending and updated topics (Cabrera & Fernández-Ferrer, 2017). Similar merits of MOOCs are reported by Li (2019), who acknowledge the diversity of courses, autonomy, openness, and accessibility with a choice of varied languages. Apart from the theoretical courses, one can find practical and other skill-oriented ones (Li, 2019). The platform allows individuals to choose a particular course from a distinguished university and by a renowned educator having known expertise in it (Sonwalkar & Maheshkar, 2015).

Specific courses offered in MOOCs are closely associated with industries that allow students to access the industrial resources and play a pivotal role in their progress (Li, 2019). In another case reported by Hoy (2014), MOOCs fulfill the physicians' requirements in providing courses related to continuing medical education and patient education with a modest fee.

In the case of teachers, MOOCs provide opportunities to professionally develop their skills related to content, design, evaluation, and integration of web-based tools in their teaching (Li, 2019) further amplifying the reputation of teachers or universities offering quality MOOCs. It is believed that re-using MOOCs materials, sharing course

materials, replacing on-campus courses with MOOCs, reducing the need for institutional facilities, and developing quality courses to offer across institutions are possible cost-saving mechanisms for the higher educational institutions (Hollands & Tirthali, 2014). An effective MOOCs course that attracts huge participants brings laurels to the teacher and can be equated to any research. MOOCs provide academic growth to young teachers interested in teaching amidst competition in research activities (Li, 2019).

Research in these fields results in ideal forms of perennial learning environments that support the disadvantaged individuals by digital inclusion on one hand and groups the communities virtually with mutual intelligence and knowledge on the other (Vázquez-Cano et al., 2021).

Limitations of MOOCS in Teaching-Learning Process

On the one hand, Hollands and Tirthali (2014) presume it difficult to measure the values gained by MOOCs unless they can be tied to further, more tangible objectives. On the other hand, Sonwalkar and Maheshkar (2015) assert that the benefits of MOOCs are said to be already realized with Open and Distance Learning (ODL) innovations. MOOCs are merely a package with over content in the name of innovations.

Hollands and Tirthali (2014) record that 38% of the institutions interviewed offer MOOCs to lower the costs as well as to increase revenues. The interviewees believe that offering credit and charging tuition, drawing MOOC participants into existing full-tuition degree programs, increasing class size, earning licensing fee for using MOOC materials and other additional services and training of employers as some of the potential current and future sources of revenue generation by the institutions offering MOOCs. Carrera and Ramírez-Hernández (2018) state that enrolling in certain MOOCs requires a registration procedure and involves cost. If the learner requires a completion certificate, one has to pay the required fee depending upon the reputation of the institution offering courses. Also, the duration of the MOOCs depends on the free access and no-cost courses. Further, the MOOCs providers have to spend a considerable amount of money for maintenance purposes. It was also found that 41% of the institutions (studied) acknowledged that they offer MOOCs as a vehicle to expand their brand and attract students (Hollands & Tirthali, 2014).

The major challenge reported (Atiaja & Proenza, 2016; Chew, 2015; Kesim & Altınpulluk, 2015; Li, 2019; Mohan et al., 2020; Sonwalkar & Maheshkar, 2015; Walker & Loch, 2014) to be associated with MOOCs is low completion rates of courses by the participants. Atiaja and Proenza (2016) documented low completion rates, resulting in 75 % to 95% of students dropping out of the courses. Walker and Loch (2014) highlighted that the success rate of learners completing the courses is reported to be less than 10 % and expressed concerns about the value addition of these courses.

Students enrolled in MOOCs are dropping out due to various reasons, primarily for low motivation and engagement of them (Chew, 2015). Mohan et al. (2020) reported time limits, technical problems, monotonous learning, and less efficacy than traditional learning as the reasons for the low usage of MOOCs. Students reported difficulty managing their time with their regular class schedules to participate effectively in MOOCs. It was found that students' behavioral dispositions like self-control and attitudes played a significant role in using the MOOCs and successfully completing them (Faizuddin & Azeeza, 2015). Further, Hollands and Tirthali (2014) documented that the learners in MOOCs are already well educated; only a small segment of them fully engages with the courses. The MOOCs increase the gaps in access to education rather than decrease them.

In addition, Li (2019) discussed the following reasons for higher dropout rates of students from MOOCs: Problems in satisfying individualized learning needs, failure in updating the course, lack of motivation and self-stimulation, lack of interaction, the mismatch between student's knowledge and their needs and low coverage of credit certificates.

Following the higher dropout rates, MOOCs' assessment and evaluation processes are considered a challenge to the MOOC providers. Kesim and Altınpulluk (2015) claimed that meaningful evaluation of learners is not practiced in MOOCs. Even though advanced learning analytics and peer-reviews are administered during the assessment, they do not have a more comprehensive application. Cabrera and Fernandez (2017) pointed out the pedagogical limitations of MOOCs in terms of continuous internal assessments.

Berrocoso et al. (2014) asserted that MOOCs replicate traditional classroom practices e.g., audio-visual presentations, which encourages students' rote learning and mechanical guess-work assessments. Further, it

focuses on regulating learners' knowledge and follows the same assessment procedure for all the learners irrespective of their inherent differences (Berrocoso et al., 2014).

Designing and delivering online lectures to massive students is possible. Faizuddin and Azeeza (2015) reported the difficulty of teachers associated with evaluating students from all over the world. In Indian context, Abhishek et al. (2025) found issues like cheating during the assessment. Similarly, Sonwalkar and Maheshkar (2015) emphasized the difficulties associated with credibility during examinations and grading of the courses in MOOCs. The MOOC providers adapt technical verification of learners' identities from different geographical locations during online examinations. However, the legal bodies in most countries do not testify to the authenticity of those identities. Even though the traditional evaluation system was criticized as passive means of knowing students' understanding; evaluations done in MOOCs are not exceptional as it faces difficulties owing to a heterogeneous group of learners (Li, 2019).

Kesim and Altınpulluk (2015) highlighted that certain MOOCs do not hold accountable to award formal degrees to the learners or attain credits. Chew (2015) noted accreditation and certification as a significant challenge in MOOCs. So far, no standards have been framed for evaluating the credibility of certifications and courses. Only a handful of institutions are accrediting the courses offered by them. Chatterjee and Nath (2014) noted that the MOOCs providers are often renowned institutions that are few and do not have scope for broader distribution and diversification.

Further, Chatterjee and Nath (2014) observed that the attitudes of acceptance towards formal education are much superior to the courses completed with distance mode and MOOCs. MOOCs' credibility issues have prevented it from being treated on par with the traditional education system. Similarly, the absorption of learners in jobs after completing courses in MOOCs is jeopardized as it does not support a formal award of degrees and accreditation (Kesim and Altınpulluk, 2015).

The other difficulty associated with MOOCs is judging individual differences during the teaching-learning process. The students enrolled in MOOCs involve learners from heterogeneous backgrounds e.g., non-students, new students, final-year students, graduates, and even professionals giving a tough challenge to the teaching methodology (Sonwalkar and Maheshkar, 2015). Also, there is no mechanism available to monitor the students' learning as it is based on the principle of self-learning (Kesim and Altınpulluk, 2015). The courses in MOOCs have many resources that are designed to meet the standard requirements of students, but it is not successful in catering to the needs of the individual learners (Berrocoso et al., 2014). Cabrera and Fernandez (2017) highlighted that MOOCs have limited scope in offering personalized and immediate feedback to their learners. Even though MOOCs provide autonomy to learners to analyse their work and initiate interaction with other students, it does not guarantee students to receive individualized instructions.

As language and culture play a vital role in students' thinking and learning, the same has to be considered by the MOOC providers. Chatterjee and Nath (2014) poised that MOOCs fail to fulfill students' language and cultural requirements. In order to accommodate the vast audience, English is used as a medium of instruction in MOOCs. However, the students who lack adequate fluency in English face problems in understanding the content. Offering the MOOC in regional languages is prone to lack uniformity and quality.

Similarly, Li (2019) reported the failure of MOOCs in not adequately updating the courses. Sonwalkar and Maheshkar (2015) documented the voices of learning practitioners in accepting the value of MOOCs. The practical difficulties related to accessing MOOCs by disadvantaged learners and learners without ICT skills were reported.

The other major disadvantage of MOOCs documented in the literature is that it restricts the learners from contacting and interacting with teachers. The scope for teachers' guidance and support is limited. Further, the students enrolled in MOOCs pointed out that it limits them from collaborating with their peers (Berrocoso et al., 2014).

Sonwalkar and Maheshkar (2015) claimed that learners could only act as passive listeners with MOOCs where only one-way communication is possible from teachers. On the one hand, the teachers cannot give active feedback for assignments and tests of the students. On the other hand, the students cannot interact with teachers and can give feedback about the nature of class (Faizuddin and Azeeza, 2015).

In addition to the lack of interaction during the teaching-learning process, Walker and Loch (2014) noted an imbalance in the demand and supply of the digital resources for the large number of students enrolled while

analysing the quality of MOOCs programs. Carrera and Ramírez-Hernández (2018) noted the requirement of the internet and computer to enroll in the MOOCs apart from possessing basic knowledge and skills in using ICT.

Walker and Loch (2014) documented the limitations of MOOCs in supporting learners in developing countries. They highlighted the lack of infrastructure for basic online learning in non-urban regions. The learners from regions who do not have access to traditional forms of education have not enrolled in MOOCs as per the demographic data. Problems related to language were underlined to be a major reason for zero enrolments of learners from regions where English is not their first language.

Chew (2015) documented the prevalence of digital divides in developing countries that hinder the opportunities for the students to have access to MOOCs. Limitations in the internet infrastructure facilities and lack of technology and tools are obstacles to accessing MOOCs. As most students in developing countries have access to smart mobiles, MOOCs providers are trying to make their learning materials accessible using mobile. However, only a few MOOC providers have made their content accessible using mobile so far.

Further, the learner's level of engagement with ICT has to be taken into account for the successful completion of courses (Kesim and Altınpulluk, 2015). Chatterjee and Nath (2014) indicated the lack of digital literacy among 90% of the Indian population. The digital divide between rural and urban students prevented them from accessing MOOCs without any hindrances. In addition, high internet speed is considered as one of the requisite infrastructures to access MOOCs. However, India was reported to have low internet speed compared to other Asian countries. Similarly, Rajendran et al. (2022) posited the emergence of a deeper digital divide among students with disabilities because of digital inclusion and the emergence of newer innovations in the teaching-learning process.

Educational outcomes are considered as one of the major goals of the MOOC providers. Hollands and Tirthali (2014) recorded that the institutions offering MOOCs have not been actually involved in knowing the MOOCs' impact on educational outcomes. The pedagogy of the courses and the learning materials used in the MOOCs should be carefully chosen. However, the learning materials are copied from existing traditional class notes accompanied with videos that are non-interactive/crude in nature. Further, plagiarized course content and lectures and duplicity of organized classes are some of the reasons raised to question the quality of MOOCs (Walker and Loch, 2014). They reported that the students enrolled in MOOCs were dissatisfied with the quality of materials and videos that are poorly made. Also, the videos are excessively lengthy. Baturay (2015) criticized the MOOCs for being merely the online version of the textbook that failed to enhance learners' higher-order thinking skills.

The major drawback with the pedagogy of MOOCs is the utilization and direct transfer of on-campus materials that do not fit to the online format. MOOCs are like traditional classroom practice where the lecturer will be talking into the camera (Walker and Loch, 2014). In one instance, Walker and Loch (2014) observed that some faculty in the universities were asked to withdraw their courses due to the lack of quality in the materials prepared by them.

Sonwalkar and Maheshkar (2015) underlined the legal issues like intellectual property rights, data protection, public funding, employment, and examinations in MOOCs. The legal evaluation considers target groups (students and general public) and the MOOCs' fee structure (cost-free/chargeable). However, these terms are not clearly defined, causing clear legal classification problems.

The problems related to sustainable development and intellectual property, incomplete courses owing to the mismatch between teaching modes and online course requirements, ambiguity in categorizing the online courses under specific disciplines, failure to meet the needs of the heterogeneous group of learners, excessive focus on technology and neglect of the need for interactions and little attention to the diversity and variation of the teaching process are pointed out by Li (2019).

The other practical issue less addressed in the literature is the teachers' attitudes, knowledge, and skills in offering MOOCs. Sonwalkar and Maheshkar (2015) pointed out that teachers lacking competency in using digital instruction and technologies had compelled the university administration to replace them with administrative personnel to reduce expenditure.

Walker and Loch (2014) addressed the impact of MOOCs on teaching faculty as it is not as exact as teaching in traditional classes. Teachers' locus of control is influenced as some of their roles as lecturers change according to the open nature of MOOCs. In addition, time management is also a significant factor in deciding the teaching and

completion of courses to the vast majority of students—all these influences the job satisfaction of teachers negatively.

The educational institutions offering the programmes in MOOCs platform had either flourished by playing a significant role in marketing or lost their reputation because of technical problems. The authenticity of the credits, course completion certificates, and academic qualifications provided by institutions offering MOOCs have been questioned (Walker and Loch, 2014). These difficulties can be mended effectively. The literature noted some functional strategies that the MOOC providers can follow.

Mohan et al. (2020) suggested that the faculty identify the relevant MOOCs to be embedded in the traditional courses and facilitate blended learning with suitable assessments and time frames to complete the course by the students. Blended learning facilitates interactions with faculty through which they can motivate the students to inculcate self-directed learning.

Li (2019) suggested organizing MOOCs curriculum with due considerations to cultural backgrounds and the practical needs. The institutions should extend their support by offering MOOCs with classroom teaching to enhance the acceptability of courses and playing an active role in fulfilling the learners' needs.

MOOCs suffer from limitations due to problems associated with low completion rates, assessment and evaluation, lack of individualized learning, lack of resources and quality learning materials, and other practical issues. The use of MOOCs as supplements instead of alternatives has to be prioritized during blended learning in the classroom for enhancing students' motivation and engagement (Chew, 2015). Based on the narrative review done, the authors attempted to explore the perception of university students and teachers on the advantages and limitations of MOOCs in the local context and analysed the results with the review.

Justification for the Present Study

Despite the growing popularity of Massive Open Online Courses (MOOCs), there remains a scarcity of qualitative investigations that explore how learners and faculty in Indian higher education perceive their effectiveness. The above literature clearly underlines the paucity of MOOCS research at Indian context and the existing literature emphasizes quantitative metrics such as enrollment and completion rates, leaving a gap in understanding the lived experiences, challenges, and expectations of stakeholders within the Indian university context. This study addresses that gap by drawing on grounded theory to capture nuanced perspectives of both students and faculty members at a central university. Understanding these perceptions is significant because MOOCs represent both opportunities and constraints in the teaching-learning process. On the one hand, they democratize access to high-quality, low-cost, and flexible education; on the other hand, they present challenges such as low interaction, digital divides, limited personalization, and high dropout rates. Examining the pros and cons from the standpoint of actual users offers valuable insights for improving course design, pedagogical strategies, and institutional support systems. Moreover, in a developing country like India, where disparities in digital access persist, such insights are critical for ensuring that MOOCs serve as inclusive and sustainable models of higher education rather than reinforcing existing inequities.

Research Questions

Questions for the research are mainly framed according to three following notions of the study.

RQ1. What are the major advantages of MOOCs in teaching and learning?

RQ2. What are the limitations of MOOCs in teaching and learning?

RQ3. What can be done to improve MOOC modules?

Methodology

The research used the interpretative approach (Corbin & Strauss, 1998) of the Grounded Theory method for collecting and analysing the data. Grounded Theory is a method in the social sciences involving the construction of theories through methodological gathering and analysis of data.

Qualitative data were collected with the help of semi-structured interview schedules developed by the investigators. To ensure content validity, the interview schedules were reviewed by subject experts. Feedback from this pilot process was incorporated to refine the wording, sequence, and clarity of the questions.

The final schedules were administered to both students and teachers of the Central University of Tamil Nadu. Participants were selected using a purposeful and convenience sampling method, necessitated by the constraints of the COVID-19 pandemic, which limited access to a larger and more randomized pool of respondents.

In the first leg of research during the Academic Year 2018–2019, data were collected purposefully from 10 students on volunteer basis, face to face across various departments and levels of education, from undergraduate to postgraduate. In the second and final stage during the Academic Year 2019–2020, in-depth interviews (IDIs) were conducted with 7 professors purposefully from departments (Media and Communication, Microbiology, Epidemiology and Public Health, Library and Information Science, Management, Geography, Education), who had coordinated Massive Open Online Course (MOOC) modules during the academic year, participated in the study. Broad, open-ended questions were asked to elicit a deep understanding of participants' perceptions.

To ensure validity and transparency, several strategies were employed. The investigators minimized researcher bias by maintaining neutrality in questioning, encouraging participants to speak freely, and cross-checking interpretations with respondents when necessary (participant validation). Interview transcripts were coded systematically using sentence-by-sentence analysis, and constant comparison was applied to refine categories and subcategories. This transparency in coding and categorization enhanced the trustworthiness and credibility of findings.

During the interview, the researchers audio recorded took notes and the same was transcribed verbatim. Once interviews were transcribed, major concepts were coded and grouped into categories and sub-categories through open coding. Axial coding was used to link subcategories with their respective categories, followed by selective coding to integrate and refine the central phenomenon. Although the study did not reach full theoretical saturation due to time and resource constraints, the findings represent a robust theoretical scheme rather than a complete grounded theory (Corbin & Strauss, 1998, p. 293).

Data Analysis

Given below is the analysis of data collected from students and academicians of Central University of Tamil Nadu during the Academic Year 2018-19.

Open Coding: *Categories and sub categories* were open coded. Categories/sub categories were analysed in *memo* writing in terms of its properties and dimensions of the phenomenon it represented, conditions that gave rise to it, the action/ interaction by which it was expressed, and the consequences it produced.

Axial Coding: Axial Coding is the coding, or the process of inductively locating linkages between the data. In *axial coding*, through the *coding paradigm* (The phenomenon it represents, conditions which give rise to it, the action/interaction by which it is expressed, and the consequences it produces), *sub categories* are related to their respective *categories*. The *sub categories* are divided as Source, Message, Channel and Receiver under the main categories Advantages, Limitations and Suggestions & Recommendations i.e., *sub categories* 'Source', 'Message', 'Channel' and 'Receiver' were related to *categories* 'Advantages', 'Limitations' and 'Suggestions & Recommendations'.

Selective Coding: *Selective coding* is the process of integrating and refining a theory by unifying all categories under a core-category, which was a central phenomenon of the study. Central category was defined in terms of properties and dimensions.

The categories formulated from the study are: Advantages, Limitations, Suggestions & Recommendations. A central or core category which could unify all categories stated above is: *Effectiveness of MOOCs in Learning*. The findings were presented as a set of interrelated concepts and not just listing of themes.

[Subdivide text into unnumbered sections, using short, meaningful sub-headings. Please do not use numbered headings. Please limit heading use to three levels. Please use 12-point bold for first-level headings, 10-point bold for second-level headings, and 10-point italics for third -level headings with an initial capital letter for any proper nouns. Leave one blank line after each heading and two blank lines before each heading. (Exception: leave one line between consecutive headings.) Please margin all headings to the left.

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Table 1: Showing category (Advantages- Students), its subcategories (Source, Message, Channel and Receiver) and their concepts

Category	Sub-Categories and their Concepts (Students)			
	Source	**Message**	**Channel**	**Receiver**
Advantages	On-demand	Greater clarity	Audio clarity	Learning flexibility
	Time-space independent	Quality content	Video clarity	Learning alternative
	Experienced teachers	Live content	User friendly apps	Access flexibility
	Subject specialists	Repetitive content		Bridging gap
		Multimedia content		Time-Space independence
	Reputed teachers	Structured content		Greater clarity
		Effective content		Additional knowledge
		Negligible cost		Submission ease

Table 2: Showing category (Advantages-Teachers), its subcategories (Source, Message, Channel and Receiver) and their concepts

Category	Sub-Categories and their Concepts (Teachers)			
	Source	**Message**	**Channel**	**Receiver**
Advantages	Experienced teachers	Quality content	User friendly	Open to all
	Time-Space independent	Detailed content	Audio clarity	New experience
	Reputed institutes	Repeated telecast	Video clarity	Understandable
	Reputed host	Variety Q &A		Additional knowledge
	Proven technique	Competitive exam friendly		Clarification source
		Fixed style		Convenient
		Certified course		Flexible
		Quality content		Personal attention
	Quality presentation	Credit system		Student motivation
				Homely environment
				Login pliability
				Self-paced Learning

Table 3: Showing category (Limitations- Students), its subcategories (Source, Message, Channel and Receiver) and their concepts

Category	Sub-Categories and their Concepts (Students)			
	Source	**Message**	**Channel**	**Receiver**
Limitations	Pace of teaching	Content repetition	Uncertainty of reply	Communication
	Assessment schedule	Less infographics		Doubts

	Course cost Student interaction Progress monitoring Teacher comparison	Forced participation	Technical glitches	Student presence Low priority Teamwork Socialization Learning environment Technical issues

Table 4: Showing category (Limitations- Teachers), its subcategories (Source, Message, Channel and Receiver) and their concepts

Category	**Sub-Categories and their Concepts (Teachers)**			
	Source	**Message**	**Channel**	**Receiver**
Limitations	Less interaction	Efficacy concern	Channel literacy	Screen time
	Delayed feedback	Monotony	Availability	Assessment issues
	Instructor deficit	Lacks field experience	Accessibility	Instant feedback
		Compulsory participation	Channel noise	Doubt clearance
		Majority subject selection	Feedback	Class activities
		Information bombardment	Constrained medium	More drop out
		Theory centric		Less interest
				Less serious
				Students' irregularity
				Learning environment

Table 5: Showing category (Suggestions & Recommendations-Students), its subcategories (Source, Message, Channel and Receiver) and their concepts

Category	**Sub-Categories and their Concepts (Students)**			
	Source	**Message**	**Channel**	**Receiver**
Suggestions and Recommendations	Encouragement	Pace	Individual interaction	Syllabus-courses
	Information	Rural awareness	Technical improvement	Course variety
	Continuous assistance	Multilingual		Offline-online linkage
	Skill based courses			
	Instructor variety			
	Wider awareness			

Table 6: Showing category (Suggestions & Recommendations- Teachers), its subcategories (Source, Message, Channel and Receiver) and their concepts

Category	**Sub-Categories and their Concepts (Teachers)**			
	Source	**Message**	**Channel**	**Receiver**
Suggestions and Recommendations	Improved guidelines	Interesting content	Improved interaction	Access to instructors
	Curriculum centric	Time management	Channel fidelity	Remedial lectures

	Availability	Feedback process	Poor student assistance
	Improved presentation	Easy study materials	MOOCs awareness
	Course selection	More infographics	Practical learning
	Assessment scheduling	Multilingual	Online-offline linkage
	Supplementary exams		
	Local mentors		
	Technical support		

Discussions and Conclusions

The present study's findings show significant advantages of MOOCs as they provide access to courses with high quality course materials with a user-friendly, systematic approach to content accessibility and delivery along with an opportunity to self-paced learning among students at any time and place. This echoes and further strengthens the research findings of Walker and Loch (2014), Gaebel (2013), Chew (2015), Vázquez-Cano et al. (2021) and Hollands and Tirthali (2014).

The students in the current study praise the quality of the content and its various delivery methods with the orderly arrangement of the videos and study materials. Teachers find negligible ambiguity in the content delivery that may have resulted from the contents' systematic arrangement as perceived by students. This gets support from Downing (1994) who finds that 'advance organizer models of teaching' helps teachers convey vast amounts of information as effectively and meaningfully as possible while enabling students to learn and retain the content. Further, critical thinking is essential for students to solve problems and have good reasoning skills. Teachers of the present study claim that the Question-and-Answer sessions in between lectures support this. Further, the teachers proclaim that MOOCs allow students to learn in a familiar, stress-free, relaxed environment getting parental support when needed. However, this needs further probing as several domestic factors may influence students' learning.

The limitations of MOOCs, as reported by teachers and students, are lack of interaction, excessive strain on eyes, less awareness of courses being offered, slow pace of teaching, problems related to assessment, dependency on internet speed, and high dropout rates. Both teachers and learners deplore over lack of high-speed internet connectivity, which the literature suggests is a crucial prerequisite for using MOOCs (Carrera & Ramírez-Hernández, 2018; Chatterjee & Nath, 2014). According to a constructivist viewpoint, students learn more when interacting actively during teaching-learning. However, teachers and students point out lack of sufficient student interaction as a major limitation, which precludes the possibility of constructivism. Teachers also mention lack of sufficient student feedback. The students' lack of participation and feedback make it challenging for the teachers to determine their level of understanding.

Teachers also point out other drawbacks of MOOCs, including a lack of experiential learning, inadequate assignments, lengthy, interesting lectures, discursive study materials, physical discomforts like eye strain, a lack of continuous internal assessments, and the mere administration of summative assessments. The authors assume that all these elements may have contributed to the high student dropout rates. Similar issues such as lack of interaction, a lack of motivation, and a lack of self-stimulation among students are flagged off by Li (2019) as contributing factors to the high dropout rates.

Regarding the students' learning experiences, it is noted that the teaching process is slow, doubts are not often answered, information repeated, fewer infographics are used, and ad hoc assessment schedules are implemented. The forced enrollment of students in some courses is also reported by teachers and students alike. The authors believe this may be because of a lack of interest and competency among teachers. Teachers have also noted lower course enrolment due to students' unawareness of courses.

In addition to the merits and the limitations of MOOCs, the students recommend and suggest creating interaction, availability of courses in multiple languages, continuous assistance, availability of multiple course instructors for a better selection, skill and need-based courses, facilitating devices free of cost to access content among other recommendations and suggestions. In the opinion of both teachers and students, the scope of interaction in MOOCs should be increased. The authors opine this is doable with web-based tools (Vázquez-Cano et al., 2021). Additionally, courses should be offered in various languages to address diversity for better understanding, as students and teachers report that non-English speaking students struggle to understand the courses offered only in

English (Chatterjee & Nath, 2014). In order to address this problem, the authors poise that the same shall be accomplished by hiring linguists who can create subtitles in various regional languages. The students also advocate for having more than one course instructor in each course so that they could pick the one who best suits their requirements. They also emphasize the necessity of orientations to raise awareness of various courses and their importance.

The results highlight a strong demand from both students and faculty for greater support structures and pedagogical innovations in MOOCs. The call for a round-the-clock support system and the inclusion of local mentors, especially in rural areas, underscores the persistent challenges of accessibility and contextualization in the Indian higher education landscape. This suggests that while MOOCs are designed for mass delivery, they often overlook localized learner needs, particularly those of students from non-urban and resource-constrained environments. Such findings resonate with the critique that MOOCs, in their current form, may inadvertently widen rather than close digital and pedagogical divides (Chatterjee & Nath, 2014).

The recommendation for quicker pacing of instruction indicates that learners perceive certain MOOCs as monotonous or excessively lengthy, which aligns with earlier research pointing to disengagement and high dropout rates (Li, 2019). However, this must be interpreted cautiously: while some learners prefer faster delivery, others may struggle without opportunities to revisit content. This tension reflects the broader challenge of personalization in MOOCs.

The endorsement of flipped classrooms and blended learning provides a promising way forward. Blended approaches have been widely recognized (Chew, 2015; Mohan et al., 2020) for balancing the flexibility of online learning with the interaction and feedback of face-to-face teaching. However, the feasibility of implementing blended models in India depends on institutional commitment, teacher training, and adequate infrastructure. Without these, blended learning risks becoming another aspirational reform rather than a practical solution. This finding illustrates that MOOCs, while offering access and flexibility, require structural, pedagogical, and contextual reinforcements to ensure meaningful engagement. The emphasis on mentorship, pacing, and blended models reflects an urgent need to move MOOCs from a one-size-fits-all paradigm toward inclusive, adaptive, and sustainable designs.

In order to improve interaction and feedback during instructional time, instructors suggest creating captivating videos and activity-based sessions. The teachers also suggest a concise but high standard study materials to enhance students' interest. Further, the teachers find students' difficulty participating in MOOCs without owning digital devices (Chew, 2015; Walker & Loch, 2014) and suggest giving them away for free to encourage MOOC participation.

It is important to note that while MOOCs have limitations, they continue to evolve, and advancements in technology and pedagogy can address some of these concerns over time. The authors propose that the content of MOOCs needs to be validated against several quality criteria, and teachers' competency should be improved by imparting necessary training to develop and offer MOOCs along with participating in meaningful evaluation.

Limitations and Suggestions for Future Research

While the present study provides valuable insights into the perceptions of students and faculty on the effectiveness of MOOCs, certain methodological and contextual limitations must be acknowledged. First, the study employed a relatively small sample size (10 students and 7 faculty members) from a single institution, limiting the generalizability of the findings. The use of convenience sampling, necessitated by the COVID-19 pandemic, may have introduced selection bias, as participants who were accessible and willing might not fully represent the wider university community. Furthermore, although grounded theory was adopted, theoretical saturation was not achieved due to time and resource constraints. As a result, the categories and themes developed should be regarded as a theoretical scheme rather than a complete theory. In addition, reliance on self-reported interviews raises the possibility of recall bias or socially desirable responses, especially given that participants were reflecting on MOOCs coordinated within their own university context.

The findings are also limited by the institutional scope of the study, as it reflects the experiences of a single central university in Tamil Nadu. Factors such as institutional culture, infrastructure, and faculty preparedness may differ significantly across other contexts. Moreover, the study focused on perceptions rather than measurable learning

outcomes such as skill development, employability, or academic performance. The pandemic context may also have amplified participants' sensitivity to online learning challenges, which may not be as pronounced in normal conditions.

Future research should address these gaps by incorporating larger, more diverse samples across multiple institutions and regions to enhance representativeness. Mixed-methods approaches that combine qualitative perspectives with enrollment, completion, or performance data would provide a more comprehensive understanding. In particular, future studies should examine the practical implementation of blended and flipped learning models, explore the impact of local mentorship and multilingual support, and assess how digital divides and socio-economic inequalities influence access to MOOCs. Such inquiries would strengthen the evidence base for designing inclusive and sustainable online learning in higher education.

Author (s) Contribution Rate

All authors contributed equally to the completion of the work.

Ethical Approval

The study was conducted in accordance with necessary ethical procedures, where informed consent was obtained from all participants prior to data collection and no sensitive information was elicited from the study participants.

References

Abhishek N., Abhinandan Kulal, Divyashree M.S., Sahana Dinesh (2025). Effectiveness of MOOCs on learning efficiency of students: a perception study. *Journal of Research in Innovative Teaching & Learning*, 18 (1), 145–164. https://doi.org/10.1108/JRIT-12-2022-0091

Atiaja, L. A., & Proenza, R. (2016). The MOOCs: origin, characterization, principal problems and challenges in Higher Education. *Journal of e-Learning and Knowledge Society*, *12*(1). https://doi.org/10.20368/1971-8829/1093

Azevedo, B., Pedro, A., & Dorotea, N. (2024). Massive open online courses in higher education institutions: The Pedagogical Model of the Instituto Superior Técnico. *Education Sciences*, *14*(11), 1215. https://doi.org/10.3390/educsci14111215

Baturay, M. H. (2015). An overview of the world of MOOCs. *Procedia-Social and Behavioral Sciences*, *174*, 427-433. https://doi.org/10.1016/j.sbspro.2015.01.685

Berrocoso, J. V. (2014). MOOCS: A critical view from the Educational Sciences. Profesorado, *Revista de Currículum y Formación del Profesorado*, 18(1), 93-111. https://revistaseug.ugr.es/index.php/profesorado/article/view/19127

Cabrera, N., & Fernández-Ferrer, M. (2017). Examining MOOCs: A comparative study among educational technology experts in traditional and open universities. *International Review of Research in Open and Distributed Learning*, *18*(2), 47-67. https://doi.org/10.19173/irrodl.v18i2.2789

Carrera, J., & Ramírez-Hernández, D. (2018). Innovative education in MOOC for sustainability: Learnings and motivations. *Sustainability*, *10*(9), 2990. https://doi.org/10.3390/su10092990

Chatterjee, P., & Nath, A. (2014, December). Massive open online courses (MOOCs) in education—A case study in Indian context and vision to ubiquitous learning. In *2014 IEEE International Conference on MOOC, Innovation and Technology in Education (MITE)* (pp. 36-41). IEEE.

Chew, L. K. (2015). Instructional strategies and challenges in MOOCs. *Advances in the Scholarship of Teaching and Learning*, *2*(1), 41-50. https://edc.lums.ac.ir/uploads/69/2024/Jul/17/INSTRUCTIONAL%20STRATEGIES%20AND%20CHALLENGES%20IN%20MOOCS.pdf

Corbin, J. M., & Strauss, A. L. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (Second ed.). Thousand Oaks: Sage.

Downing, A. (1994). An Investigation of the Advance Organizer Theory as an Effective Teaching Model. Paper presented at the Annual Meeting of the Australian Teacher Education Association (24th, Brisbane, Queensland, Australia, July 3-6, 1994). Retrieved from https://files.eric.ed.gov/fulltext/ED377150.pdf

Faizuddin, S. M., & Azeeza, S. E. (2015). Massive Open Online Courses (MOOCs): Advantages and challenges. *An International Peer Reviewed Journal of Multidisciplinary Research*, *2*, 48-52. https://www.ksijmr.com/2.2.5.pdf

Gaebel, M. (2013). MOOCs –Massive Open Online Courses EAU Occasional papers available at http://www.eua.be//Libraries/Publication/EUA_Occasional_Papers_MOOCs.sflb.ashx

Hollands, F. M., & Tirthali, D. (2014). MOOCs: expectations and reality. Full report. Center for Benefit Cost Studies of Education, Teachers College, Columbia University, NY. Retrieved from: http://cbcse.org/wordpress/wpcontent/uploads/2014/05/MOOCs_Expectations_and_Reality.pdf

Hoy, M. B. (2014). MOOCs 101: an introduction to massive open online courses. *Medical reference services quarterly*, *33*(1), 85-91. https://doi.org/10.1080/02763869.2014.866490

Kesim, M., & Altınpulluk, H. (2015). A theoretical analysis of MOOCs types from a perspective of learning theories. *Procedia-Social and Behavioral Sciences*, *186*, 15-19. https://doi.org/10.1016/j.sbspro.2015.04.056

Li, Y. (2019, May). MOOCs in higher education: opportunities and challenges. In *5th International Conference on Humanities and Social Science Research (ICHSSR 2019)* (Vol. 10). https://doi.org/10.2991/ichssr-19.2019.10

Mohan, M. M., Upadhyaya, P., & Pillai, K. R. (2020). Intention and barriers to use MOOCs: An investigation among the postgraduate students in India. *Education and Information Technologies*, *25*, 5017-5031. https://doi.org/10.1007/s10639-020-10215-2

Rajendran, P., Gouda, N.K., Srinivasavarathan, S. (2023). Understanding the Digital Divide in Inclusive Classrooms. In: The Palgrave Handbook of Global Social Problems. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-68127-2_419-1

Siemens, G. (2013). Massive open online courses: Innovation in education? In R.McGreal, W.Kinuthia, & S. Marshall (Eds.), Open Educational Resources: Innovation, Research, and Practice (pp. 5-15). Vancouver: Commonwealth of Learning. http://oasis.col.org/handle/11599/486

Sonwalkar, J., & Maheshkar, C. (2015). MOOCS: a massive platform for collaborative learning in a globalized way. *Journal of Management Research and Analysis*, *2*(2), 142-149. https://www.jmra.in/article-details/711

Vázquez-Cano, E., López-Meneses, E., Gómez-Galán, J., & Parra-González, M. (2021). Innovative university practices on the educational advantages and disadvantages of MOOC Environments. http://dx.doi.org/10.6018/red.422141

Walker, L., & Loch, B. (2014). Academics' perceptions on the quality of MOOCs: An empirical study. *INNOQUAL-International Journal for Innovation and Quality in Learning*, *2*(3), 53-63. https://www.researchgate.net/publication/308691929_Academics'_Perceptions_on_the_Quality_of_MOOCs_An_Empirical_Study

Yuan, L., Powell, S. J., & Olivier, B. (2014). Beyond MOOCs: Sustainable online learning in institutions. https://publications.cetis.org.uk/wp-content/uploads/2014/01/Beyond-MOOCs-Sustainable-Online-Learning-in-Institutions.pdf

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Beyond Classrooms: High School Students' Experiences with Digital Competence and English Language Development in Etwinning Projects

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Abstract
This study explores high school students' perspectives on digital competence and English language skills in the context of e-Twinning projects. With the increasing integration of technology into education, digital competence has become a vital skill for students, especially in language learning environments. E-Twinning, as a European initiative promoting cross-border collaboration through digital platforms, offers a rich context for enhancing both digital and linguistic abilities. Adopting a qualitative research design, this study collected data from students who participated in e-Twinning projects across various high schools in Turkey. Data were gathered through semi-structured interviews and observations.The findings reveal that students perceived e-Twinning projects as highly beneficial for improving their English skills, particularly in speaking and writing, due to the necessity of real-life communication with international peers. Moreover, students reported significant growth in their digital literacy, including the effective use of online tools, collaborative platforms, and digital communication strategies. The results also indicate an increase in students' motivation, cultural awareness, and confidence in using English in authentic contexts. Despite these benefits, some challenges were identified. It was noted that the projects were not always carried out under ideal conditions, with limitations such as inadequate technical infrastructure, issues with mobile compatibility, and challenges in time management. The study concludes that integrating e-Twinning projects into the language curriculum can significantly support students' language development and digital skills. Recommendations are provided for educators and policymakers to facilitate more equitable and effective implementation of such projects in high school settings.

Keywords: eTwinning, digital competence, English language skills, language learning, student perspectives

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Introduction

The widespread use of digital technologies in rapidly evolving educational systems has necessitated the adoption of contemporary approaches in teaching. As education adapts to the digital age, pedagogies that integrate face-to-face and virtual environments with digital tools have become increasingly prevalent. In this process, instructional content has shifted from traditional text-based models to multimedia-supported structures that encourage community contributions (Thierstein, 2009).

E-Twinning is one such secure and free online learning platform where teachers and students from various schools collaborate to achieve shared goals. The platform's main objective is to contribute to the development of joint projects by all school levels through information and communication technologies, especially the use of the internet, and to create a collaborative working network among European schools. In 2004, the European Commission brought schools together through the European School Education Platform (ESEP) and created an informal school network. ESEP was officially established at a conference held in Brussels in 2005 (Gilleran, 2007). Since 2014, it has been closely integrated with Erasmus+, the European Education, Training, Youth, and Sport Programme. E-Twinning is perhaps the largest teacher network in the history of education for schools in Europe (Kearney and Gras-Velázquez, 2015).

Ten years after its inception, the e-Twinning initiative has evolved from a tool for teachers to find partners to carry out their planned projects into a rich teaching and learning community across Europe and a rapidly growing community among European schools (Brecko et al., 2014). According to official statistics from February 2021, approximately 926,784 teachers have registered on the platform, more than 216,720 schools from 28 member states of the European Union have joined the platform, and 121,101 projects have been included in the system. E-Twinning is also supported at the national level by 38 National Support Services and 8 Joint Support Agencies in 44 countries. The National Support Service (NSS) is the organization that represents and supports e-Twinning at the national level in each country. Each National Support Service provides education and support at the regional and national levels, organizes events, and conducts media and communication campaigns (General Directorate of Innovation and Educational Technologies, 2025).

E-Twinning projects are centered around thematic collaboration on the eTwinning platform and aim to equip students with a range of competencies. Throughout the project period, creative, original, and project-oriented activities planned in partnership are implemented collaboratively. eTwinning serves as a collaborative learning environment across Europe, standing out as a significant educational tool that enhances students' foreign language proficiency and digital literacy. Technology by itself is not a solution since it will only have a minimal influence unless it is combined with an effective teaching strategy.

The integration of Information and Communication Technology (ICT) is considered essential for facilitating and sustaining communication among participants (European Commission, 2021). Communication through ICT—even asynchronous tools like chatrooms and TwinSpace, as well as online meetings—enables students to interact with peers from diverse cultural backgrounds, engage in authentic language practice, and develop their digital communication skills within meaningful pedagogical contexts.

The portal provides teachers with an online environment where they can write projects, search for partners for their projects, and share ideas and practices. e-Twinning, a European initiative that promotes school collaboration through Information and Communication Technologies (ICT), offers countless benefits for students and teachers. After a teacher registers on the ESEP platform, the platform offers them the opportunity to write projects or participate in existing ones. After completing the project phase, they move on to collaborating with partner countries to include volunteer students in the system. The teachers and students participating in the project determine meeting frequencies. Students from all countries in the project are divided into mixed groups using the same system to complete a given group assignment, allowing them to communicate in English. The more frequent the online meetings, the more opportunities students have to speak the language. Presentations are made about the project stages and the topic, and ideas are exchanged.Moreover; there are also extra meetings where teachers plan without the students present.

Studies in the literature show that these projects contribute to students in various ways. Songmuang and his friends'research (2024) results showed that the students' approaches to learning English had changed as a result of dijital tools. Additionally, their study discovered that letting students actively plan utilizing a variety of applications to encourage engagement, introducing innovative content to reduce limitations expanding areas for self-directed learning, and offering platforms for disseminating student results could all improve with the help of using dijital tools.

Research done by Stergaki et al. (2025) investigates the development of students' linguistic, communicative, and collaborative skills through eTwinning projects. Teachers reported that participation in eTwinning projects helps students learn to accept and respect diversity, fosters an alternative way of thinking, and enhances their digital, linguistic, communicative, and collaborative skills. Empowering students language skills outside the classroom helps them improve their four skills by using them in real life communication.In another study done by Tran and Hoang (2021) a club-based strategy was implemented to help kids study outside of the classroom. In order to assist students improve their English proficiency and develop their 21st century abilities for both personal and professional growth, it placed a strong emphasis on meaningful communication, authentic assignments, student agency, community engagement, and learner leadership.

Another research indicates that eTwinning engagement enhances not only students' skills in cultural awareness, communication, and self-expression but also significantly contributes to teachers' digital literacy and professional development. In a comparative study across two European universities, Huertas-Abril & Palacios-Hidalgo (2023) revealed that participation in eTwinning substantially improved pre-service language teachers' digital competencies and pedagogical preparedness.

At the same time, e-Twinning projects provide an interactive learning environment that supports foreign language acquisition and contributes to the development of the four basic language skills (listening, speaking, reading, and writing) in a holistic way (Condruzbacescu, 2016). These projects, particularly those conducted in a multicultural communication context, enable students to develop their listening skills by exposing them to different accents and language usage patterns, and provide opportunities for them to practice speaking through online meetings and collaborative work. Students' natural development of language competence is fostered through interactive tasks that provide opportunities to use the target language in authentic communicative contexts (Long, 1985). The influence of eTwinning in higher education is examined in a study by Basantes (2025), which emphasizes the advantages of virtual interactions for language proficiency, digital literacy, and cultural awareness.

Additionally, the challenges that students faced throughout the application procedure were identified, and a number of recommendations were made to address these issues and improve the effectiveness of the projects. In addition to significant similarities, the study also revealed notable variances between the viewpoints of students from various nations regarding eTwinning initiatives.

In addition, e-Twinning projects include a wide range of creative and academic writing activities that encourage the growth of reading and writing abilities.With the help of useful assignments like group texts, blog entries, e-books, and narratives created for the project, students can effectively use reading strategies to improve their comprehension and critical thinking abilities. Students can improve their written expression skills in grammar, vocabulary, and style through peer evaluation procedures and group writing projects.

Students can see learning a foreign language as a useful tool for international communication rather than just an academic subject thanks to the structured, digital, and interaction-driven learning environment provided by e-twinning programs.To put it another way, the successful execution of e-Twinning programs depends heavily on the digital literacy and linguistic proficiency of the pupils.In this context, this study aims to thoroughly examine the contributions of e-Twinning projects to students' language development and digital literacy.There are studies in the literature that indicate that e-Twinning projects contribute to these two areas.

Importantly, these collaborative, digitally mediated environments align with Vygotsky's (1978) social constructivist theory, which emphasizes that learning occurs through social interaction and co-construction of knowledge, underscoring the role of eTwinning as a platform for meaningful, culturally embedded learning experiences.In e-Twinning projects, students engage in cross-cultural collaboration using digital platforms, which aligns strongly with the principles of social cognitive theory as discussed by Eggen and Kauchak (2013). According to this perspective, learning is significantly influenced by observing others, as learners acquire behaviors, skills, and attitudes through modeling rather than only direct reinforcement. Eggen & Kauchak emphasize that reinforcement and punishment shape learners′ motivation indirectly, creating cognitive expectations that guide behavior (Eggen & Kauchak, 2013). Within e-Twinning contexts, students observe peers from other countries using foreign language, collaborating creatively, and employing ICT tools. Witnessing such practices enables learners to imitate effective communication strategies, build digital literacy, and internalize collaborative behaviors. This process reflects the dynamic interplay between cognition, behavior, and environment that is central to Eggen & Kauchak's interpretation of social cognitive learning.

Furthermore; Paulo Freire (1970) established critical pedagogy, which stresses education as a way to develop critical consciousness and provide students the tools they need to challenge and change social reality. This viewpoint emphasizes how cooperative, cross-cultural activities in the framework of eTwinning initiatives foster learners' capacity to critically engage with global concerns, identify disparities, and create agency in communication in addition to honing their language and digital abilities. Students are urged to go beyond mechanical language practice and instead take part in conversations that dispel preconceptions, cultivate multicultural understanding, and inspire democratic engagement by interacting authentically with peers from a variety of backgrounds. Therefore, eTwinning programs can be seen as places to empower students to become critically reflective and socially conscious global citizens in addition to serving as skill-development platforms.

The educational impact of eTwinning projects can also be viewed through the perspective of digital learning theories, especially those influenced by digital literacies frameworks (Jenkins et al., 2009) and connectivism (Siemens, 2005). According to this perspective, learning is the process of building and navigating online communities, information networks, and tool sets. This theoretical position is supported by the multimodal and interactive aspects of eTwinning, which allow students to build knowledge cooperatively through digital platforms, produce and distribute content, and gain self-reliance as digital learners.

Digital learning theory emphasizes the development of crucial 21st-century abilities such as critical thinking, problem solving, cooperation, creativity, and media literacy. Technology-supported environments allow students to work on authentic assignments, solve problems interactively, and cooperate beyond the classroom. In this way, digital learning not only improves subject-specific knowledge but also provides learners with the skills required to succeed in fast changing global environments (Partnership for 21st Century Skills, 2009).

Digital tools and platforms dramatically improve learner motivation and engagement. Gamification, multimedia resources, and adaptive learning technologies give students with dynamic and individualized experiences that promote long-term interest in learning. Furthermore, digital learning analytics enable instructors to monitor learner progress and alter instruction accordingly, increasing participation and active involvement in the learning process (Johnson et al., 2016).

Additionally, students' reported experiences with Canva, PowerPoint, and Voki not only demonstrate how they have learned new skills, but they also represent the digital learning processes by which students adjust to new technologies, incorporate them into their daily routines, and develop lifelong learning habits. Accordingly, eTwinning is emphasized by digital learning theories as a potent setting where language and digital skills are jointly developed via technology-enhanced cooperation.

While the literature consistently underscores eTwinning's value for developing language skills—especially communicative abilities (Stergaki et al.,2025) critical gaps remain. Few studies have longitudinally examined whether these language gains are sustained beyond project participation, and there is limited exploration of how deep intercultural competence develops within eTwinning projects beyond surface-level exchanges (Karataş & Öztay, 2023). Moreover, there is a disconnect between these high-level standards and their practical implementation in classroom-based project work. The evolving demands of digital education—including integrating innovative tools, addressing infrastructural inequalities, and aligning classroom practices with policy frameworks—highlight the need for further research.

This research is considered important because it comprehensively evaluates the gains offered by e-Twinning projects by focusing on student experiences and provides a broader perspective by supporting the findings of previous studies. The results obtained aim to reveal the contributions of e-Twinning projects to digital skills and foreign language learning and to offer suggestions for the development of these projects. In this context, the research was designed using a phenomenological approach, and qualitative data collection methods, specifically interviews, were used in the study. Data was collected through semi-structured interview and observation forms from students attending a science high school in Ankara, Turkiye who had previously participated in e-Twinning projects. "What are high school students' opinions on the effects of eTwinning projects on digital skills and English language development?" was the issue that was investigated in this context.

Method

This study was designed using the phenomenological pattern, one of the qualitative research methods. In qualitative research, phenomenology is distinguished by its emphasis on interpreting lived experience from the viewpoint of the individual (Creswell, 2021). By exposing the subjective experiences and perceptions of individuals, phenomenology research seeks to expose the unique and question structural or normative assumptions rather than testing hypotheses or attempting to generalize findings to a larger population. This method is especially useful for breaking through accepted beliefs and conventional wisdom and for learning more about people's motivations and behaviors. This design made it possible to thoroughly investigate participants' perceptions, providing a full picture of high school students' experiences with eTwinning initiatives.

Study Group

The study group consists of twelve tenth grade students and they are enrolled in a public science high school in Ankara, which has really active engagement in multiple eTwinning projects and provide a rich context for exploring students' experiences in depth. The participants were selected using maximum variation sampling which cannbe explained as a purposive selection method designed to identify key topics from a variety of perspectives (Patton, 2014). However, the relatively small number of participants and the fact that they were all drawn from a single school may limit the generalizability of the findings. While the chosen group allowed for an in-depth exploration of diverse perspectives within that specific context, caution should be exercised in transferring the results to broader populations or different educational settings.

As Creswell and Poth (2018) states that in phenomenological research, the study group includes individuals who have firsthand experience with the phenomenon under investigation. Accordingly, sample sizes are typically kept relatively small, often around 10 participants, to reveal clear results for an in-depth exploration of their experiences. Based on their level of e-Twinning experience, the participants were split into three groups: four students who had never engaged in e-Twinning before, four students who were currently engaged in a project, and four students who had previously completed a project. The demographics of the students are detailed in Table 1.

Table 1. The demographics of the students

Participant	Gender	Age	e-Twinning Experience
P1	Female	16	Has not participated in any e-Twinning projects before.
P2	Female	16	Has not participated in any e-Twinning projects before.
P3	Male	16	Has not participated in any e-Twinning projects before.
P4	Male	15	Has not participated in any e-Twinning projects before.
P5	Male	15	Is participating in an ongoing e-Twinning project.
P6	Male	16	Is participating in an ongoing e-Twinning project.
P7	Female	15	Is participating in an ongoing e-Twinning project.
P8	Female	16	Is participating in an ongoing e-Twinning project.
P9	Female	16	Has participated in at least one e-Twinning project before.
P10	Male	16	Has previously participated in at least one e-Twinning project.
P11	Female	15	Has previously participated in at least one e-Twinning project.
P12	Male	16	Has previously participated in at least one e-Twinning project.

Data Collection Process

Data for this study was gathered using semi-structured interview and observation forms that the researchers had developed. The researchers carefully maintained the observation forms by active participation in online meetings and classroom sessions, enabling a comprehensive and contextualized description of the interactions and processes seen. The primary technique for obtaining information for phenomenological studies is interviewing (Creswell & Poth, 2018).

According to Patton (2015), interviews are a data collection technique that uses verbal communication techniques. The primary distinction between interviews and informal conversations is that the former are carried out with a specific objective and in accordance with a pre-established plan. The question-and-answer formats used in

interviews are considered tools for establishing rapport and gathering information throughout the data collecting phase.

The purpose of this study's interview questions was to gather students' thoughts and experiences on their digital competencies and English language ability. Prior to the interviews, the study's purpose was stated and participants were informed that they might withdraw from the study at any time. Individual, in-person interviews were conducted and each one was audio recorded before being transcribed. The interviews were conducted during the lunch break in the guidance room of the school where the pupils were enrolled. Each interview lasted approximately 20 minutes. To make the students feel more at ease, a little informal discussion was held with them before to the formal interview.

Data Collection Tool

In this study, a semi-structured interview and an observation form developed by the researchers were used. Semi-structured interviews can be described as lying between structured and unstructured formats. In this approach, the interviewer typically follows a prepared guide; however, depending on the characteristics of the participants, modifications can be made within this general framework. To examine different aspects of the subject, this could involve changing the questions, adding new ones, or leaving some out (Creswell & Poth, 2018).

The interview questions for this study were created by the researchers and sent to an expert for evaluation. To test them, two 10th students who were not in the study group were asked to read the questions aloud. Following this pilot testing, the final draft of the interview questions was created. Along with various modifications and follow-up questions, the semi-structured interview form consists of eight main questions. The interview questions were designed to explore and understand the students' digital competencies and English language ability.

During the project sessions, the researchers filled out the semi-structured observation form.In class and outside the classroom during the online meetings 4 observation forms were filled by the researchers and all the observations lasted nearly 9 classes,one of which lasted 40 minutes. All of the project's teachers and students gathered for these meetings to talk about planning, process assessments, and the project's progress. The meetings lasted one to one and a half hours and were conducted electronically.The researchers filled out the observation form while attending meetings for four active projects at the school where the data was collected. Before the primary observations, a pilot observation was conducted, and the form was adjusted as necessary.Following these modifications, the primary observations were conducted.

Data Analysis

The content analysis method, which is commonly used in qualitative research, was used to analyze the data collected for this study. As Creswell (2021) emphasizes, content analysis involves coding the data into meaningful categories, identifying themes, and interpreting patterns that emerge from participants' narratives . Determining and examining the nature of social reality is another area in which this technique excels.

The interview audio recordings were transcribed by the researchers, and the obtained transcripts were carefully read line by line for preliminary coding. Subsequently, expressions with similar meanings were grouped, and codes were generated. Based on these codes, themes were identified. The coding process was conducted using an inductive approach, and the data were structured directly based on participants' statements. Throughout the data analysis process, the researchers continuously compared the codes and themes, reaching a consensus. The findings were supported and interpreted through direct quotations from the participants' statements. Observation notes were also analyzed alongside interview transcripts to triangulate findings and enrich the description of students' experiences."

Validity and Reliability Studies

Following the transcription of the interviews, participants were asked to review the interview transcripts for member checking. Additionally, an independent field expert reviewed the transcripts and evaluated the adequacy of the responses. To ensure content validity, two 10th-grade students who were not part of the study group were asked to read the interview questions aloud and assess their clarity and comprehensibility. During the coding phase, the intercoder reliability between the researchers was calculated using Miles & Huberman's (1994:64) formula, yielding a similarity coefficient of 0.78.

Researcher Role

The researchers took on the roles of an active observers and interviewers for this investigation. The researchers were able to closely observe the organic flow of communication between participants by participating in both in-person and virtual project meetings. By playing two roles, the researchers were able to minimize observer bias and establish a connection with the students. The researchers made sure that the data collection procedure was genuine and considerate to participants' living experiences by taking a collaborative yet non-intrusive approach. In order to preserve the integrity and uniformity of the research process, the researchers also personally performed each interview and recorded the data.

Credibility

Throughout the investigation, a number of strategies were used to guarantee trustworthiness. The first step in member verification was giving participants the opportunity to verify their interview transcripts for accuracy and to make sure their opinions were accurately expressed. Second, the confirmation of emergent themes from various data sources was aided by the triangulation that was accomplished through the use of both observational data and interviews. Thirdly, an independent field expert reviewed the data and the coding procedure as part of the peer debriefing process. Rich, detailed descriptions and direct quotes from participants, which support the authenticity of the kids' voices, further increased the findings' credibility.

Transferability

In order to facilitate transferability, comprehensive contextual details about the research environment, participant demographics, and eTwinning project types were supplied. Readers can assess the findings' relevance to comparable educational contexts thanks to these descriptions. Additionally, a wider range of viewpoints were offered in the study due to the inclusion of varied student experiences made possible by the use of purposive maximum variation sampling. The findings may be a useful resource for educators, policymakers, and researchers who wish to duplicate or modify similar projects in various contexts because they provide insight into how students with varying degrees of eTwinning experience view digital competence and language development.

Ethical Considerations

Since the participants in the study were under the age of 18, their legal guardians were asked to complete a consent form indicating their permission for their children's participation in the research. In addition, ethical approval for this study was obtained from the Ethics Committee in Hacettepe University with the document number E-51944218-050-00004308467 on 30th of June,2025.

Findings

The results of high school students' perceptions of how involvement in eTwinning projects affected their digital literacy and English language development are presented in this section. Students' opinions on how these initiatives improved their technological proficiency and language learning experiences were highlighted by a number of interconnected themes that emerged from the examination of the interview data. These topics cover both perceived advantages and difficulties, and direct quotes are used to accurately represent the opinions of the students.

In order to allow themes and sub-themes to directly emerge from participant responses, the data were carefully coded using an inductive technique. A comprehensive coding scheme was created, and codes were grouped into more general thematic groupings to represent features and perceptions in the data. To improve the analysis's consistency and reliability, ongoing comparison and researcher confirmation were used throughout. The finished themes reflect recurrent viewpoints and observations made by the participants about the subject of the study. The main themes and sub-themes derived from the coding of the interview data are presented below.

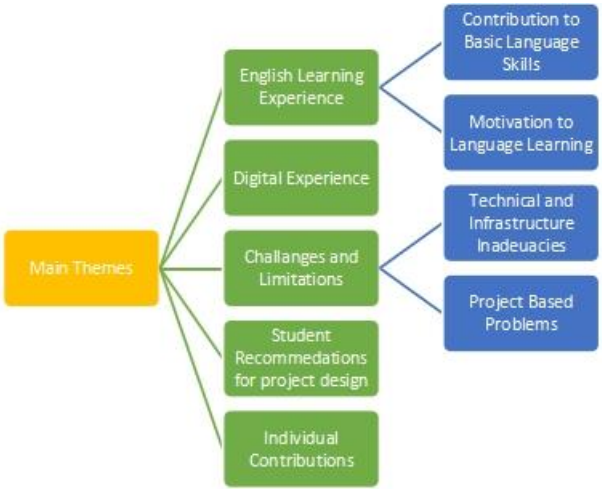

Figure 1. Themes Derived from the Analysis of the Interviews

The figure above outlines the thematic structure derived from the analysis of students' responses, highlighting their perceptions of the impact of eTwinning projects on their English language learning. In the following section, each of these themes is discussed in detail, supported by participant quotations and observational data to provide a deeper understanding of their experiences.

1. Findings Related to the English Learning Experience

Table 2. Sub-Themes, Codes, Participants, and Frequencies Related to the Theme of English Learning Experience

Sub-Themes	Codes	Participants	Frequency
Contribution to Basic Language Skills	Contribution to writing skills	P2, P3, P4, P5, P6, P8, P9, P10, P11, P12	10
	Contribution to reading skills	P2, P3, P4, P11	4
	Contribution to listening skills	P2, P3, P4, P5	4
	Contribution to speaking skills	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12	12
	Contribution to vocabulary development	P4, P5, P6, P7, P10	5
Motivation for Language Learning	Developing a positive attitude towards the language	P1–P12 (all participants)	12
	Expectation of improvement in the language	P1, P2, P5, P6, P12	5
	Increased self-confidence in using the language	P3, P7, P8, P9, P10, P11, P12	7
	Decrease in fear of speaking	P1, P3, P4, P5, P6, P7, P8, P9, P10, P12	10

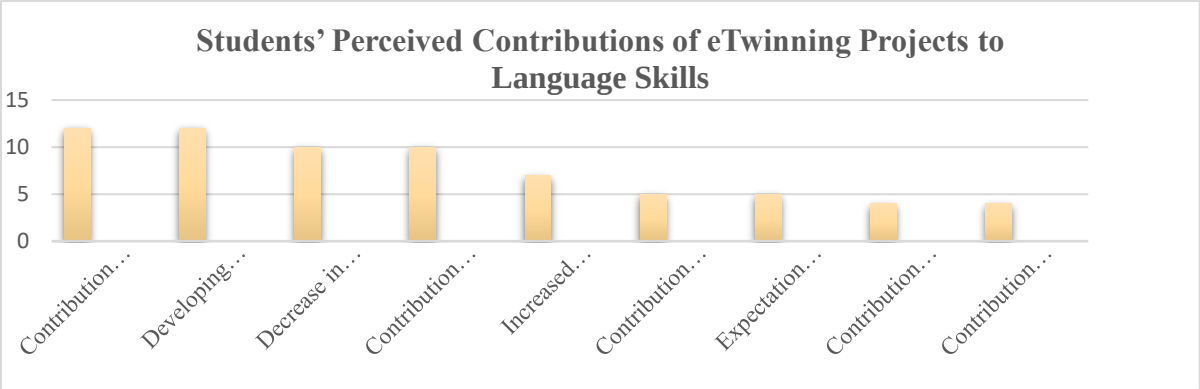

Figure 2. Students' Perceived Contributions of eTwinning Projects to Language Skills

Most participants stated that taking part in eTwinning projects had a positive impact on the four core language skills—listening, speaking, reading, and writing. Among these, speaking was the most emphasized skill, with students noting that activities such as Zoom meetings, presentations, and interactive conversations played an effective role in improving their speaking abilities. Consistent with these self-reports, online meeting and classroom observations revealed that students actively participated in peer-to-peer interactions during project-based tasks, demonstrated increased willingness to communicate in English, and used target language expressions spontaneously in authentic contexts. These observations further support the interview findings, indicating that the collaborative and communicative nature of eTwinning activities provided students with meaningful opportunities to practice and enhance their speaking skills.

> Google Meet meeting, 25.05.2025: During the presentation, students were willing to speak in English. Some students spoke fluently, while others spoke more slowly, but most of them were understandable. Students from different countries asked each other questions. Most of the students presenting explained the pages they created in English. They participated in the process using spontaneous expressions.

Additionally, the research done by Stergaki et al. (2025) concluded that eTwinning practices positively influenced students' English language skills and increased their level of classroom participation. Similarly, in their study, Karataş and Öztay (2023) reported that both teachers and students participating in eTwinning projects expressed that these projects provided various positive gains. For students, participation contributed to the development of digital literacy, language and communication skills, collaboration, self-confidence, and self-expression. For teachers, the projects supported professional development, digital literacy, project development, and teamwork skills. Additionally, another study done by Trun and his friends (2024) describes an original strategy that uses video-conferencing platforms to facilitate interaction between students from Vietnam and volunteer English speakers from other nations once a week. The project gives students the chance to improve their speaking and listening abilities in English while taking part in real-world discussions.In addition to improving the speaking and listening abilities of the learners, the project also stimulates them and boosts their confidence in using English, according to feedback from the participating students and volunteer communicators.

Some of the participants' statements are as follows:

> *"It actually helped me overcome my fear a little. I used to be a bit hesitant to speak English… In that sense, I can say it was educational." (P12)*

> *"We had conversations with the students there. We asked each other questions during the first introduction… I think my English vocabulary has improved." (P7)*

> *"I think speaking was the skill I improved the most. But my writing also got better because we had to prepare texts for the presentations." (P1)*

As these statements indicate, the project processes created an action-oriented and motivating environment where students had the opportunity to actively use their language skills.

2. Findings Related to the Digital Experience

Table 3**.** Codes, Participants, and Frequencies Related to the Theme of Digital Experience

Codes	Participants	Frequency
Getting to know new digital tools	P1, P2, P4, P5, P6, P7, P8, P9, P10, P11, P12	11
Learning different functions of the tools used	P3, P5, P6, P8, P7, P9, P10, P11, P12	9
Integrating digital tools into daily life	P1, P2, P5, P6, P7, P8, P9, P10, P12	9
Creating products with digital tools	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12	12

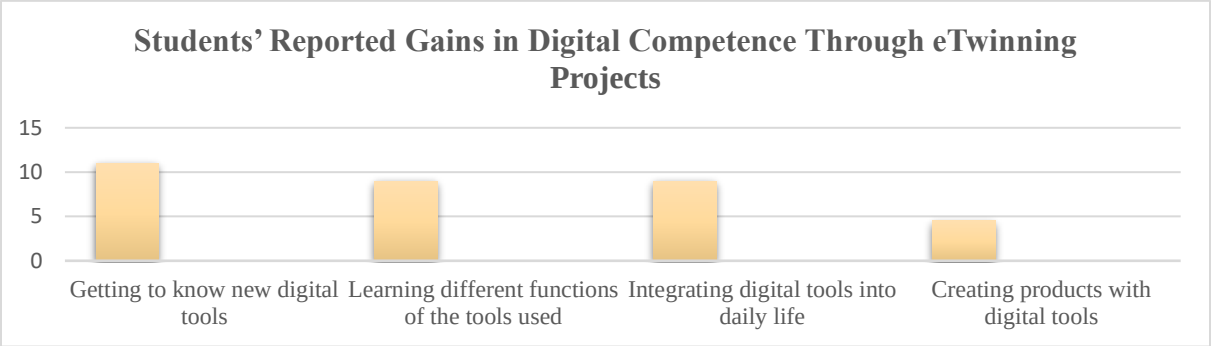

Figure 3. Students' Reported Gains in Digital Competence Through eTwinning Projects

All participants stated that through eTwinning projects, they created products using digital tools. Programs such as Canva, PowerPoint, Word, Zoom, and Voki were among the most frequently used digital tools. Eleven participants reported that they had the opportunity to discover new digital tools thanks to the projects, while nine stated that they had integrated these tools into their daily lives. Classroom observations supported these statements, as students were frequently seen collaboratively engaging with these platforms during project activities, particularly when designing visual content and preparing presentations. It was also noted that students displayed increased autonomy in selecting and utilizing digital tools, indicating a growing confidence and digital literacy that extended beyond the project context.It has been observed that such projects enhance students' language skills, digital competence, intercultural awareness, and motivation. According to parents' perceptions, students who participated in these projects showed improvement in both their level and competence in using technology (Basantes , 2025).

> Google Meet meeting, 30.05.2025: Students stated that they enjoyed using the applications assigned through monthly tasks and that they had made significant progress with many digital tools they had not known before. One student, who initially struggled with preparing presentations, shared that the frequent presentation assignments throughout the project helped them improve and become more confident in creating their own digital content.
>
> Google Meet meeting, 03.06.2025: Teachers exchanged ideas about various digital applications. For the tools unfamiliar to some, screen sharing was used to provide step-by-step explanations. It was collectively decided that these new tools would be integrated into the project work.
>
> Google Meet meeting, 05.06.2025: Students presented their work using various digital tools such as Canva and PowerPoint. While presenting, they explained the functions of the tools they had used. One student mentioned struggling with Canva templates but overcame the challenge by watching YouTube tutorials. Students demonstrated notable confidence in using digital platforms and were observed working collaboratively to complete their tasks.

Some of the participants' statements are as follows:

"I didn't really know how to use Canva… We prepared 3–4 presentations. So, it was really nice. I learned how to use Canva." (P12)

"We started learning the game rules. Now we open that game on the classroom board." (Referring to a game used during the project that they continued to play afterward) (P8)

"We created our own avatars with the Voki app. I designed a character that looks like me." (P9)

These experiences not only enhanced participants' skills in using digital tools but also supported their creativity and added enjoyment to the learning process.

3. Findings Related to the Challenges and Limitations Encountered

Table 4. Sub-Themes, Codes, Participants, and Frequencies Related to the Theme of Challenges and Limitations

Sub-Themes	Codes	Participants	Frequency
Technicaland Infrastructure Inadequacies	Mobile incompatibility	P8, P9, P10, P11, P12	5
	Internet access issues	P3, P7, P9	3
Project-Based Problems	Inequality in task distribution	P9, P11	2
	Time management problems	P1, P2, P4, P6, P7, P9, P11	7
	Mismatch in students' language levels	P10, P12	2
	Having to work with irresponsible group members	P8, P9, P11	3
	Age mismatch among student groups	P1, P2, P3	3
	Lack of clear instructions	P8, P11	2
	High number of participants	P3, P6	2
	Projects being too similar	P2, P4, P8, P9, P10	5

Although participants generally reported a positive experience, they also mentioned several challenges. One of the most frequently cited limitations was the lack of physical equipment and technical infrastructure. The need to access projects and complete tasks via computers, rather than mobile devices, was described as a difficulty by five students due to compatibility issues. Seven students stated that time management was not handled efficiently during the implementation of the projects, and the waiting periods between phases were sometimes too long for students, causing a loss of momentum. Working with groups of different age levels led to decreased motivation for some students. Additionally, five students expressed that the projects were too similar and repetitive, and they wished to be involved in more diverse and engaging projects. These interview findings were also reflected in classroom observations, where occasional delays in project phases appeared to reduce student engagement, and some younger participants were visibly less active during collaborative sessions with older peers. Furthermore, instances of technical difficulties—such as device incompatibility or insufficient access to equipment—were observed to disrupt the flow of activities, reinforcing the participants' reported concerns regarding infrastructure and time management.Some of the participant statements are as follows:

"There's no computer in the dorm. Uploading things with a phone is difficult. The platform requires a computer. It's hard to upload anything to the platform using a phone. Mobile compatibility should be improved." (P12)

"We were matched with a middle school level group. There was an age gap, and it led to a lack of seriousness." (P12)

4. Findings Related to Student Recommendations for Project Design

Table 5. Codes, Participants, and Frequencies Related to the Theme of Student Recommendations for Project Design

Codes	Participants	Frequency
Possibility to work face-to-face	P1, P3, P5	3
Fewer participants	P3	1
Focus on social issues	P12	1
Groups consisting of peers	P7	1

Although participants expressed general satisfaction with the overall structure of the projects, some offered suggestions to make the learning experience more effective and enjoyable. Three participants stated that they would prefer to take part in projects that involve face-to-face collaboration. This preference was also evident in classroom observations, where students appeared more engaged and motivated during in-person group discussions and hands-on collaborative activities compared to virtual interactions. These observations suggest that while online tools facilitated project implementation, integrating more face-to-face components could enhance students' sense of connection and overall engagement with the projects.

> Google Meet meeting, 05.06.2025: In mixed international groups, some students remained silent and kept their cameras off at the beginning. However, by the end of the session, most of them had turned on their cameras and participated actively to share their final products. This suggested a gradual increase in motivation through visible group engagement.
>
> Google Meet meeting, 30.05.2025: Some students were initially hesitant to speak and kept their cameras off, but by the end of the meeting, most of them turned their cameras on and started expressing their opinions. This indicates that direct interaction gradually increased their participation and motivation

One participant shared the following view:

> *"I would design international projects focused on social issues. That would catch everyone's interest." (P11)*

5. Findings Related to Individual Contributions

Table 6. Codes, Participants, and Frequencies Related to the Theme of Individual Contributions

Codes	Participants	Frequency
Communication with foreign peers	P1, P2, P7, P8, P9, P10	6
Cultural awareness	P1, P2, P3, P4, P5, P7, P8, P10, P11, P12	10
Sense of responsibility	P1, P4, P6	3
Experience of teamwork	P5, P6, P7, P11	4
Using the language in real interaction settings	P1, P2, P3, P4, P5, P6, P7, P8, P9, P11	10

Participants emphasized that eTwinning projects contributed not only to their academic growth but also to their personal development. The most frequently mentioned gains included developing cultural awareness, having the opportunity to use the language in real communication settings, and engaging in communication with foreign peers. Three participants said the projects helped them acquire a feeling of responsibility, and four said the initiatives helped them become better team players. These self-reports were supported by observations conducted both in-person and virtually, where students were seen showing interest in interacting with culturally appropriate content, managing project responsibilities, and functioning well in groups. These behaviors demonstrate how the programs fostered an environment that supported intercultural competency and critical soft skills like responsibility and cooperation.

> Google Meet meeting, 30.05.2025: One student stated that through the e-book, they learned how various Spanish dishes are prepared. Another student shared that thanks to the collaborative e-book, they discovered tourist attractions in Spain and Turkey they had not known before. These statements reflected their growing cultural awareness through project activities.

> Google Meet meeting, 05.06.2025: Italian students presented an e-book focused on traditional foods of their country. Each page was prepared by a different student and included visual elements. They explained the cultural background of the dishes during the presentation, which encouraged questions from students of other countries. This illustrated meaningful intercultural communication and sharing.

Similarly in the study done by Tran (2024) subjects like food, festivals, education, fashion, and transportation that are common across many cultures kept the participants interested. Since they have been exposed to these aspects of their own culture since birth and encounter them on every day, they found it easy to discuss them.With the help of these online meetings learners can improve their crosscultural awareness.

İnce and Çekik (2024) claim that eTwinning programs are a valuable tool for promoting sustainable educational changes and empowering students with global citizenship skills. Basantes (2025) claims that students who participated in eTwinning projects also showed improvements in their digital, collaborative, and modeling learning abilities. According to students, eTwinning is a project that provides the chance to work with people from different nations, acquire a foreign language, and become familiar with diverse cultures (Yılmaz, 2012). Regarding extracurricular learning possibilities, students actively developed ways to acquire English outside of the classroom. In the study it is explained that students made an effort to engage with foreigners as much as they could. To boost the likelihood of using English in real-life communication, students established friends with foreigners. Furthermore; it positively effects their productivity in English (Nguyen & Stracke, 2020)

By the project's conclusion, students also stated that they had become more proficient in a foreign language, developed self-confidence, learnt how to collaborate with others, and learned to appreciate cultural diversity. Some quotes from the participants are as follows:

> *"I made such wonderful friends. For example, I still talk to one of them. As crucial as learning the language was getting to know people." (P5)*
>
> *"Giving a presentation felt challenging at first, but I felt better after finishing it. I feel more at ease now." (P3)*
>
> *"I became aware that I was assuming greater responsibilities. I also started to better organize my time." (P2)*
>
> *"It felt great to converse with people from other nations. I now consider myself to be a more receptive individual." (P10)*

Figure 4. Overall Model of Findings: Gains, Challenges, and Recommendations

Based on these findings, it is possible to conclude that the efforts helped students improve their social and personal awareness, as well as their language and technical skills. Throughout the study, students actively participated in collaborative activities that promoted international communication and empathy, which greatly aided their social growth. For example, by collaborating with peers from other nations, students got a better awareness of different points of view and cultural nuances, improving their capacity to behave politely and successfully in a multicultural setting. Furthermore, the observations and the interwievs revealed improvements in self-confidence and autonomy, indicating an increase in personal awareness. In terms of language learning, the frequent use of digital communication technologies provided authentic opportunities for practicing English, resulting in significant improvements in linguistic competence. Furthermore, the integration of numerous technology platforms encouraged project collaboration while also developing students' digital literacy, which is an important skill in today's educational context. These various advantages emphasize each project's overall impact, proving that eTwinning projects go beyond academic accomplishment to promote broader social and personal growth.

Discussion, Conclusion, and Recommendations

This study revealed that eTwinning projects significantly enhanced students' English language proficiency, particularly in productive skills such as speaking and writing, alongside improvements in digital competencies. The strong emphasis on speaking skill development in participants' responses aligns with Stergaki et al (2025), who found that interactive project-based activities provide authentic contexts for language use. However, our findings extend this by showing that students not only improved their communication skills during project interactions but also transferred these abilities into other academic and social contexts, reflecting a more sustainable impact on language learning. This suggests that eTwinning projects function not merely as supplementary activities but as immersive environments where language becomes a tool for meaningful communication rather than an academic exercise.

It was also interesting how project-based work improved digital skills. Our participants reported incorporating these tools into their everyday routines and using them for creative product development, such as making presentations or avatars, even though previous studies (Çetin & İzci, 2021) focused on the function of eTwinning in promoting fundamental technology literacy. This portrays students as active creators of digital content rather than passive consumers, which is in line with digital literacy concepts that place an emphasis on participation, collaboration, and content creation (Jenkins et al., 2009). It was observed that participants embraced digital technology into their everyday lives and used them to build imaginative products. In this sense, students are becoming both digital consumers and creative artists (Karataş & Öztay, 2023).

At the same time, this study identified several barriers that limit the effectiveness of eTwinning programs. Concerns raised in the study by Stergaki and his colleagues (2025) are supported by technological challenges such poor mobile compatibility and insufficient infrastructure, which are persistent issues of digital inequality. The disappointing reports of project theme repetition and group composition inconsistencies indicate how eTwinning's design is still evolving in terms of project diversity and age-appropriate collaboration. Addressing these barriers is crucial for maintaining student participation and enhancing the educational value of such efforts.

Beyond academic achievement, eTwinning programs promoted social growth, collaboration, and cross-cultural awareness. According to Huertas-Abril & Palacios-Hidalgo (2023), who highlighted the value of eTwinning in developing global citizenship skills, young people reported being more confident and culturally sensitive while interacting with peers from different nations. Through actual cross-cultural interaction, students covered a number of perspective and explored the actual use of English. The combination of computer literacy, language acquisition, and intercultural competency highlights the various educational advantages of eTwinning programs.

In conclusion, high school students' digital competencies and English language ability can be enhanced through eTwinning programs. Additionally, students reported improvements in their social skills and intercultural understanding. From a theoretical standpoint, this study contributes to our knowledge of how project-based, digitally mediated cooperation aids in the development of digital literacy and language acquisition. The results demonstrate how eTwinning programs establish genuine zones of proximal development where students co-construct knowledge through significant cross-cultural contacts, drawing on Vygotsky's (1978) social constructivist theory. Jenkins et al. (2009) provided a participatory culture framework that is further supported by the active use of digital technologies for creative creation, emphasizing students as both language learners and members of a common online community. The study extends current models of collaborative and technology-

enhanced learning by integrating these theoretical perspectives and highlighting the dual roles of eTwinning projects as language-learning settings and incubators for 21st-century digital competencies.

However, for these projects to be implemented more effectively, there is a need to strengthen the technical infrastructure and increase the diversity of projects. In this context, the following recommendations are provided:

- The technical infrastructure should be improved, mobile compatibility should be enhanced, and equal digital access for all students should be supported.
- Project content should be diversified to avoid repetition of similar themes, and instead, original projects focusing on social issues, environmental topics, or scientific innovations should be developed.
- Student groups should be formed in a balanced manner according to age and language proficiency levels to ensure more effective interaction within the group.
- Students' active participation in project processes should be encouraged; guidance should be clear and simple, and task distribution should be equitable.
- Structures that allow for face-to-face or hybrid activities should be promoted to increase student interaction and strengthen their engagement with the projects.
- Teachers should be encouraged to integrate eTwinning projects into their language curricula as complementary activities that foster authentic communication and digital competence. Providing students with structured guidance, equitable task distribution, and feedback mechanisms can enhance their engagement and learning outcomes.
- School administrators should support the technical infrastructure necessary for effective eTwinning implementation, including reliable internet access and compatible devices. They are also advised to encourage professional development activities that familiarize teachers with innovative digital tools and collaborative project design.
- At the policy level, integrating eTwinning projects into national curricula and ensuring equitable digital access across schools can enhance both language learning and digital literacy. Policymakers should also promote long-term funding and institutional support to sustain international collaboration opportunities for students.
- Future studies could adopt longitudinal designs to measure whether eTwinning-driven improvements in language and digital skills persist over time or transfer to academic achievement.

Taking these recommendations into consideration is believed to enhance the sustainability and effectiveness of eTwinning projects, contributing to a more inclusive and meaningful learning experience for students.

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Authors Contribution Rate

The contributions to the study were as follows: Esen Nur Günerhan 40%, Şevval Karsavuranoğlu Atasoy 40%, and Eda Gürlen 20%.

Ethical Approval

Ethical permission (30th of June, 2025 /E-51944218-050-00004308467) was obtained from the Ethics Committee in Hacettepe University for this research.

References

Basantes, M. C. (2025). *Adaptation of eTwinning in higher education: Its impact on English teaching*. LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades, 6(1), 1695. https://doi.org/10.56712/latam.v6i1.3445

Camilleri, R. anne. (2016). Global education and intercultural awareness in eTwinning. *Cogent Education*, *3*(1). https://doi.org/10.1080/2331186X.2016.1210489

Condruzbacescu, M. (2016). E-TWINNING - THE COMMUNITY FOR SCHOOLS IN EUROPE. *eLearning and Software for Education*.

Crawley, C., Gerhard, P., Gilleran, A., & Joyce, A. (2008). *Adventures in language and culture*. Brussels: Central Support Service for eTwinning.

Creswell, J.W. (2021). Nitel araştırma yöntemleri- Beş yaklaşıma göre nitel araştırma ve araştırma deseni. (Çev.: M. Bütün ve S. B. Demir). Ankara: Siyasal Kitabevi.

Eggen, P., & Kauchak, D. (2013). *Educational Psychology: Windows on Classrooms* (9th ed.). Upper Saddle River, NJ: Pearson Education.

European Commission. (2021). Teaching media literacy and fighting disinformation with eTwinning. Publications Office of the EU.

Făt, S. (2012). The impact study of eTwinning projects in Romania. In Conference Proceedings of "eLearning and Software for Education" (eLSE) (pp. 152–156). Bucharest.

Freire, P. (1970). *Pedagogy of the oppressed*. New York: Continuum

Gilleran, A. (2007). eTwinning – A new path for European schools. *eLearning Papers.* https://www.openeducationeuropa.eu/sites/default/files/legacy_files/old/media13562.pdf

Huertas-Abril, C. A., & Palacios-Hidalgo, F. J. (2023). *eTwinning and the development of language teachers' digital literacy: A comparative study between two European universities*. ENSAYOS, Revista de la Facultad de Educación de Albacete, 38(2), 86–101. blog.eera-ecer.de+3dergipark.org.tr+3files.eric.ed.gov+3researchgate.net+2eu-jer.com+2

İnce, P., & Çelik, K. (2024). eTwinning projelerinin sürdürülebilir eğitimdeki rolü ve önemi. *Yönetim ve Eğitim Bilimleri Dergisi.*

Jenkins, H., Purushotma, R., Weigel, M., Clinton, K., & Robison, A. J. (2009). Confronting the challenges of participatory culture: Media education for the 21st century. MIT Press.

Johnson, L., Adams Becker, S., Estrada, V., & Freeman, A. (2016). *The NMC horizon report: 2016 higher education edition*. The New Media Consortium.

Karataş, F. R., & Öztay, E. S. (2023). Öğretmen ve öğrencilerin eTwinning proje uygulamalarına yönelik görüşleri. *IBAD Sosyal Bilimler Dergisi.*

Kearney, C., & Gras-Velázquez, À. (2015). *eTwinning ten years on: Impact on teachers' practice, skills, and professional development opportunities, as reported by eTwinners.* Central Support Service of eTwinning – European Schoolnet.

Long, M. H. (1985). A role for instruction in second language acquisition: Task-based language teaching. In K. Hyltenstam & M. Pienemann (Eds.), *Modeling and assessing second language acquisition* (pp. 77–99). Clevedon, UK: Multilingual Matters.

Miles, M, B., & Huberman, A. M. (1994). Qualitative data analysis: An expanded Sourcebook. (2nd ed). Thousand Oaks, CA: Sage.

Nguyen, V., & Stracke, E. (2020). Learning experiences in and outside class by successful Vietnamese tertiary students studying English as a foreign language. *Innovation in Language Learning and Teaching*, *15*(4), 321–333. https://doi.org/10.1080/17501229.2020.1801692

Partnership for 21st Century Skills. (2009). *P21 Framework Definitions*. Washington, DC: Author. Retrieved from https://files.eric.ed.gov/fulltext/ED519462.pdf

Patton, M. Q. (2014). Nitel araştırma ve değerlendirme Yöntemleri (M. Bütün ve S. B. Demir, çev.). Ankara: Pegem Akademi.

Phung, H., Tran, N., & Hoang, D. (2021). Empowering students with authentic tasks to learn English beyond the classroom: a club-based model. *Innovation in Language Learning and Teaching*, *17*(2), 191–201. https://doi.org/10.1080/17501229.2021.1998068

Prieto, J. P. A., & Cirugeda, I. L. (2017). Higher education perspectives on eTwinning: The future of Initial Teacher Training learning. In *INTED2017 Proceedings* (pp. 1073-1076). IATED.

Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning, 2*(1), 3–10.

Songmuang, J., Boonsuk, Y., & Assalihee, M. (2024). English learning behaviors in computer-mediated communication during COVID-19 in Thailand's Deep South. *Innovation in Language Learning and Teaching*, *19*(1), 33–47. https://doi.org/10.1080/17501229.2024.2321267

Stergaki, C., Kougiourouki, M., & Passa, E. (2025). The Contribution of eTwinning Projects to the Development of Students' Linguistic, Communicative, and Collaborative Skills in Primary Education: Teachers' Perspectives. *European Journal of Education and Pedagogy*, *6*(2), 78–84. https://doi.org/10.24018/ejedu.2025.6.2.945

Thierstein, J. (2009). Education in the digital age. *Educause*. https://er.educause.edu/articles/2009/1/education-in-the-digital-age

Tran, N., Hoang, D. T. N., Gillespie, R., Yen, T. T. H., & Phung, H. (2024). Enhancing EFL learners' speaking and listening skills through authentic online conversations with video conferencing tools. *Innovation in Language Learning and Teaching*, 1–11. https://doi.org/10.1080/17501229.2024.2334809

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Yenilik ve Eğitim Teknolojileri Genel Müdürlüğü. (2025, Mart 3). *What is an eTwinning project?* eTwinning Online. https://etwinningonline.eba.gov.tr/lesson/what-is-an-etwinning-project/

Yılmaz, F. (2012). Çokkültürlülük projesi: eTwinning uygulamalarına ilişkin öğrenci görüşleri. *Dicle Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 4*(8).

Zhao, Y. (2010). Preparing globally competent teachers: A new imperative for teacher education. *Journal of Teacher Education, 61*, 422–431. doi:10.1177/0022487110375802

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Three Dimensional Leader-Member Exchange Scale (LMX-3D): A Scale Development Study

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Abstract
The aim of this study is to develop a valid and reliable measurement tool to measuring teachers' leader-member exchange behaviors. The study group of the research consists of 396 teachers working in secondary schools in the central districts of Eskişehir, Odunpazarı and Tepebaşı, in the 2018-2019 academic year. The construct validity of the scale was examined by exploratory factor analysis. According to the results of the analysis, the scale measures a three-factor structure. It was also confirmed by confirmatory factor analysis that the scale measures the three-factor structure. The total variance rate explained by the scale was determined as 67,72%. In order to determine the reliability of the scale, the Cronbach Alpha internal consistency coefficient value was checked and this value was determined as 0.922. The results of all validity and reliability analyzes show that the Three Dimensional Leader-Member Exchange Scale (LMX-3D) can be used as a valid and reliable measurement tool in the studies that teachers will be taken as a working group.

Keywords: Leadership, Leader-member exchange, Leader-member exchange theory, İnteraction.

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Introduction

One of the most important factors in organizations' ability to sustain their existence and achieve their goals is leadership. An organization with a successful leadership structure not only maintains its existence by using the decision-making mechanism correctly, effectively and quickly; At the same time, it makes the best use of emerging opportunities and finds the most useful way for the organization in solving problems encountered at unexpected moments. Thus, the organization develops in every field. Therefore, it would not be wrong to say that leadership is very important in making the right decisions at the right time and taking actions that are beneficial to the organization.

When it comes to leadership, we first think of individuals who are in a higher position as leaders, that is, those who give direction, who can make others listen to their words and who can mobilize the masses. Individuals who are in the leaders' sphere of influence and follow the leader are generally ignored because they are considered to be individuals who act according to the instructions from the leader and are in a more passive position. Perhaps for this reason, in research and studies on leaders, leadership and leadership theories, the characteristics of leaders have generally been discussed, and studies involving followers have been conducted much less.

Many studies on leadership have contributed to the emergence of different theories on the subject (Bolden, Gosling, Marturano & Dennison, 2003: 6; Cherry, 2014:1-2 One of the most prominent theories among the theories put forward is the Leader-Member Exchange (LMX) Theory, which is a relationship-based theory. (Graen & Uhl-Bien, 1995: 225; Robbins & Judge, 2011: 377-378). Leader-Member Exchange Theory, unlike other leadership theories, is a theory that focuses on the relationship and interaction (a dyadic exchange) between the leader and the subordinate, as opposed to the leader's characteristics, behaviors, situational styles or other variables (Truckenbrodt, 2000: 234).

Another aspect of this theory that differs from other leadership theories is that it does not accept that those in managerial positions treat all their subordinates in the same way. According to the Leader-Member Exchange Theory, leaders establish a special relationship with a few people they choose from among their subordinates due to the idea of sufficient time or using it more effectively. These people form the in-group, that is, the leader's solidarity group. Leaders choose the people in this solidarity group they create from among subordinates who are similar to themselves in terms of their behaviors and characteristic features or who are talented. The leader trusts the subordinates in this group more, and the subordinates in this group have a greater effect on the leader than those outside the group. Since those who are members of this group (high-quality LMX) focus the leader's attention much more than others, they are more likely to gain special privileges. Subordinates who are not members of the group are members of the outgroup (low-quality LMX). Leaders spend less time with subordinates in this group, which consists of all employees outside the in-group, and these subordinates are less preferred when rewards are distributed. In addition, their relationship with the leader cannot go beyond the relationships established with formal authority. According to the theory, leaders and followers of the same gender tend to have closer (high-quality LMX) relationships than those of different genders. According to the theory, early in the history of the interaction between a leader and a given follower, the leader implicitly categorizes whether to include him/her in the in-group or leave him/her in the out-group. This idea usually does not change over time. However, in order for the LMX relationship to remain intact, the leader and especially the subordinates in the in-group must make an effort to continue the relationship (Graen & Uhl-Bien, 1995: 225; Bauer & Green, 1996: 1538-1539; Robbins & Judge, 2011: 377-378; Bauer & Erdogan 2015:3).

Major Theories about Leadership

When studies on leadership are examined, leadership theories are mostly under the headings of Traits, Behavioral and Situational Theories; It is seen that approaches other than these are examined under the headings of "New Approaches/Theories" or "Other Approaches/Theories" (Bakan & Büyükbeşe, 2010; Cevrioğlu, 2007: 7; Uğurluoğlu & Çelik, 2009). This study is based on the classification of leadership theories as Trait (Character/Personality) Theories, Behavioral Theories, Contingency (Unexpected Situation) Theories and Interactive Theories (Bildik, 2009: 29-30; Bolden, Gosling, Marturano and Dennison, 2003; Poornima, 2017; Yukl, 1989).

Interactive theories, which have been put forward more recently than other theories, are based on the relationship and interaction between the leader and the follower as a result of the leaders' interaction with the followers and the

conditions associated with it. As Gibb's (1958) stated, in the interaction between the leader and the followers, the personalities of the leader and the followers; followers' needs, values, attitudes; The nature of the job, the structure of interpersonal relationships and environmental conditions are important (Bass, 1990: 44). One of the theories that can be given as an example of interactive theories is Leader-Member Exchange Theory.

Leader-Member Exchange Theory

When we look at the studies in the field of leadership, it is seen that the subject is generally evaluated in terms of leadership or the group being managed, but not many studies have been conducted focusing on the dyadic relations between them (Graen & Uhl-Bien, 1995: 222). However, it would not be wrong to say that good or effective leadership partly results from good bilateral (dyadic) relations between leaders and followers. Relationship-based approaches in studies on leadership began to develop towards the end of the 21st century. Each unique relationship between leader and follower is called a "dyad." The dyad refers to the individualized relationship between the leader and each follower in a work unit. Theorists working in this field have focused on the development of separate dyadic relationships between leaders and followers and their effects (Achua & Lussier, 2010: 240).

LMX is a relationship-based theory that focuses on the bilateral relationship between the leader and the follower (Graen & Uhl-Bien, 1995: 221-225). The basic thesis of the theory is that an effective leadership process will occur when the relationships between the leader and the follower reach maturity (partnership) that can achieve many benefits (Graen & Uhl-Bien, 1995: 225). It can also be said that leader-member exchange is a theory that examines how leaders affect member behavior (Achua & Lussier, 2010: 247). Many studies have been conducted to conceptualize the Leader-Member Exchange (LMX) theory since its introduction in the 1970s, and many improvements and adjustments have been made on the theory through these studies. The theory, which began as an alternative to the average leadership style, has become a guide to producing more effective leadership through the development and maintenance of mature leadership relationships (Graen & Uhl-Bien, 1991: 219-220).

Developmental Stages of Leader-Member Exchange

Graen and Uhl-Bien (1995) suggested that the development of LMX theory can be thought of as four stages. These are expressed as: the first stage is the discovery of differentiated dyads, the second stage is the investigation of characteristics of LMX relationships and their organizations implications (e.g. LMX results), the third stage is the description of dyadic partnership building, and the fourth stage is the aggregation of differentiated dyadic relationships to group and network levels. These stages occurred sequentially, and each stage was transitioned from the previous stage. These transitions show what LMX reveals as a leadership model and the evolution of thought about this theory - also based on the results of studies on LMX (Graen & Uhl-Bien, 1995: 225).

Dimensions of Leader-Member Exchange Theory

When the studies on the dimensionality of LMX are reviewed, it can be seen that Dienesch and Liden (1986, p. 624) were the first to state that LMX is multidimensional. Dienesch and Liden defined the dimensions of LMX as perceived contribution, loyalty, and affect (Graen & Uhl-Bien (1995: 236). Dienesch and Liden suggested that LMXs may be based on task-related behaviors (contribution), loyalty to one another (loyalty), and simply liking each other (affect) (Liden & Maslyn 1998: 45). Liden and Maslyn (1998) added "professional respect" as a fourth dimension to these dimensions. Graen and Uhl-Bien (1995: 237) also stated that LMX includes three dimensions: respect, trust and obligation, and that the proposal to establish an LMX partnership is based on these three factors. However, when the literature is scanned, it is seen that the most accepted dimensioning is the dimensioning that was finalized by adding the 4th dimension by Liden and Maslyn (1998).

Graen and Uhl-Bien (1995) stated that LMX theorizing and research has evolved, and that research has led to change and progress. They also suggested that LMX measurement has changed over the years, but that there is still debate about the measurement and dimensionality of the LMX construct, and that, accordingly, new and improved versions of LMX psychometrically will continue to be developed (Graen & Uhl-Bien 1995: 235-236). Therefore took "continuation of dimensionality studies in LMX" as the basis for this study.

Dimensions in the Three Dimensional Leader-Member Exchange Scale (LMX-3D)

Previous studies were largely used in determining the items within the scope of the study and naming the dimensions (Dansereau, Graen ve Haga 1975; Dienesch & Liden 1986; Liden & Maslyn 1998; Graen & Uhl-Bien 1995), but an attempt was made to develop a scale more suitable for the Turkish culture and education system with the contributions made by taking the essence of LMX as the criterion. The dimensions of the Three-Dimensional Leader-Member Exchange Scale developed in this study are briefly explained under the following headings.

Task:

This dimension is related to factors that reveal the situation related to working life and the task performed. The employee's acceptance of his superior as a leader is related to this dimension. If the employee trusts and believes in his leader, he will work harder to achieve the set goals and objectives. It is important for the leader to leave the initiative to the employees he trusts, to determine to what extent the work done is beneficial and which employees come to the fore. Because by acting in this way, individuals can improve themselves and become responsible.

Support:

This dimension is mostly related to the concepts of sacrifice, helpfulness, volunteering and supporting. A leader suitable for this dimension tends to make employees' jobs easier and remove obstacles that may prevent them from working extra hours. Employees perform their jobs in exchange for a certain gain. Therefore, they normally find it sufficient to work in accordance with what is in their job descriptions and expect extra gains for the time they work outside of their job descriptions. However, those who behave in accordance with this dimension try to contribute to the achievement of the organization's goals without calculating any extra benefit or expecting a reward. Sometimes they may even suffer losses because they give up their own benefits for the sacrifices they make. The most important factor for these employees, who respect and value the leader, is to make them feel that they are supported and valued by the manager. Since such employees do not prioritize their interests and make quick decisions based on intuition, without making too much profit calculations, loss of time in decision-making is prevented. In addition, such employees, that is, those who act on intuition without seeking self-interest, are more prone to cooperation.

Relationships:

This dimension is related to human relations. It is important for employees and the leader to develop positive relationships. The most important source of motivation for employees who respect and love their leaders is for the leader to make them feel loved. Employees who do their jobs will have high performance depending on their positive relationship with the leader. Employees who are appreciated professionally within the organization are kept in positions close to them by the leader, which is related to this dimension.

Aim of the research

The purpose of this research is to develop a valid and reliable measurement tool capable of measuring leader-member interaction behaviors of teachers according to the perceptions of teachers working in public secondary schools.

Method

Method of the research

The research is a scale development study aimed at creating the "Three-Dimensional Leader-Member Interaction Scale".

Participants

The study group consisted of 396 teachers working in secondary schools in Odunpazarı and Tepebaşı, which are the central districts of Eskişehir, in the 2018-2019 academic year. 66.4% of the study group is female, 33.6% is male; 86.4% is married, 13.6% is single; 90.7% has a bachelor's degree, 9.3% has a postgraduate degree; 64.1% is union member, and 35.9% is not union member.

Measurement Tool

In the process of developing the "Three-Dimensional Leader-Member Interaction Scale", first of all, a literature review was conducted. In the literature review, books written on Leader-Member Exchange (Robbins & Judge, 2011; Yıldız, 2015; Bauer & Erdogan, 2015), theses (Cevrioğlu, 2007; Gürboyoğlu 2009; Öztürk, 2015; Cinel, 2014; Oğuzhan, 2015; Bader, 2008; Bayraktar, 2014; Çöp, 2015; Soylu, 2017); and articles (Dienesch & Liden, 1986; Liden, Sparrowe, & Wayne, 1997; Case, 1998; Liden & Maslyn, 1998; Schriesheim, Castro, & Cogliser, 1999; Truckenbrodt, 2000; Maslyn & Uhl-Bien, 2001; Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012; Dunegan, Duchon & Uhl-Bien, 1992; Erdoğan, Liden, & Kraimer, 2006; Graen & Uhl-Bien, 1995); Leow & Khong, 2009; Çöp & Öztürk, 2017; Kırboğa, 2017; Akdoğan, Cingöz, & Mirap, 2009; Akkoç, Çalışkan, Uçak, & Özalp, 2013; Alparslan & Oktar, 2015; Altuntaş, Akça & Dönmez-Polat, 2020; Aras, 2013; Aslan & Özata, 2009; Avcı & Turunç, 2012; Ayan, Uysal & Eser, 2013; Baş, Keskin & Mert, 2010; Bolat, 2011; Ceylan, Özbal, Dinç & Kesgin 2005; Çekmecelioğlu & Ülker, 2014; Çınar & Koçak, 2017; Dal & Çorbacıoğlu, 2014; Dansereau, Graen & Haga, 1975; Demir & Demirkaya, 2011; Erdoğan & Rofcanin, 2013; Göksel & Aydıntan, 2012; Karcıoğlu & Kahya, 2011; Kaşlı & Seymen, 2010; Katrinli, Atabay, Günay & Çangarlı 2009; Ordun & Aktaş, 2014; Özdaşlı, Kanten & Alparslan, 2013; Özutku, Ağca & Cevrioğlu, 2008; Şahin, 2011; Turgut, Tokmak & Ateş, 2015; Uğurluoğlu, Şantaş & Demirgil 2013; Ürek & Uğurluoğlu, 2015; Yaşlıoğlu, Pekdemir & Toplu, 2013; Yıldız, Özutku & Cevrioğlu, 2008; Yolaç, 2011) were examined.

As a result of the literature review, an attempt was made to determine the dimensions that could best measure Leader-Member Exchange behaviors, and in this direction, an item pool consisting of 34 items was created based on an institutional basis (Tezbaşaran, 1997). While creating the item pool, studies conducted by Aslan & Özata (2009), Baş, Keskin, & Mert (2010), Cevrioğlu (2007), Graen & Uhl-Bien (1995), Dansereau, Graen & Haga (1975), Dienesch & Liden (1986), Liden & Maslyn (1998), Yıldız, Özutku, & Cevrioğlu (2008) were also utilized.

In the second stage, the number of items was reduced to 27 after the statements that were not found to be related to the underlying dimensions or that were perceived to have very little relationship and the removal of similar items.

In the third stage, the opinions of field experts were obtained for the scope and face validity of the measurement tool. In this direction, the information and opinions of faculty members who can be considered experts in the field of educational sciences were consulted. Following expert review, the number of items in the measurement tool was reduced to 23 by making adjustments to the statements.

In the fourth stage, an expert in Turkish Language and Literature was consulted in order to ensure the linguistic comprehensibility of the measurement tool. The scale items were reviewed in line with the opinions on spelling rules and the use of punctuation marks.

Finally, the items were listed directly on the draft scale without any dimensioning; a guideline explaining the purpose of the study and the participants' response principles and items (4 items) aimed at obtaining personal information about the participants were added to the scale. The draft scale, which was ready for implementation, was named as the "Three-Dimensional Leader-Member Exchange Scale" (LMX-3D). The scale, consisting of the options of Completely Agree (5), Significantly Agree (4), Moderate Level Agree (3), Disagree (2) and Completely disagree (1), was created in a way that would determine the responses of the participants to the items in the scale with a Likert-type five-point rating. A preliminary application was made to 24 teachers to determine the comprehensibility of the statements in the draft scale by the teachers. In the preliminary application, no criticism was made by the teachers to the items in the scale, and the teachers who had the preliminary application stated that the items were quite comprehensible. Thus, the draft scale consisting of 23 items was given its final form.

Data Analysis

In order to determine whether the measurement tool is a reliable measurement tool, it was applied to 420 teachers working in secondary schools in Odunpazarı and Tepebaşı, which are the central districts of Eskişehir province, in the 2018-2019 academic year. In order to collect data efficiently in the application, the necessary permissions

were obtained from the relevant authorities and the distributed scales were later collected by the researchers. 401 of the 420 measurement tools applied were returned, and when the returned scales were examined, it was determined that 5 measurement tools were filled incompletely or incorrectly (measurement tools with two, three, four or five options marked). As a result of removing the incorrectly filled scales, the number of scales to be used in the analysis was 396. Statistical analyzes were performed after the data were obtained. Since it is important for the sample group to represent the universe, the appropriate sample group and number should be determined. Gorsuch (1983) suggested that N should be at least 100, and Kline (1979) supported this suggestion (MacCallum, Widaman, Zhang & Hong 1999: 84). Guilford (1954) suggested that N should be at least 200, and Cattell (1978) argued that the minimum desirable N is 250 (MacCallum, Widaman, Zhang & Hong 1999: 84). Comrey and Lee (1992) suggested that 200 = fair, 300 = good, 500 = very good, 1,000 or more = excellent (MacCallum, Widaman, Zhang & Hong, 1999: 84).

When the literature was reviewed, it was understood that there were views emphasizing that the number of people to whom the measurement tool will be applied, that is, the sample size, should be determined by taking into account the number of items in the scale. In the scan, it was observed that there were authors who suggested that the number of participants in the application of the measurement tool should be five times or more than the number of items in the draft measurement tool (Bryman & Cramer, 2001), while there were also authors who suggested that the number of participants should be 10 (Nunually, 1978) or even 15 times (Gorusch, 1983) (Delice & Ergene, 2015: 64). According to these views, it is possible to say that the number of participants forming the research group is large enough to conduct factor analysis.

The suitability of the obtained data for factor analysis was determined using the Kaiser-Meyer-Oklin (KMO) sampling adequacy test and the Bartlett Sphericity test (BS). According to Ferguson and Cox (1993), KMO is performed to determine whether the relationships between the variables in the correlation matrix can be calculated by a smaller set of factors (as cited in Tehrani, 2004: 145). The reliability of the scale was determined by examining the Cronbach Alpha value, which determines the internal consistency measure, and the item total correlations. The construct validity of LMX-3D was examined by Exploratory Factor Analysis (EFA). Factor analysis is an important tool used in the development, improvement and evaluation of tests, scales and measures. EFA is an applied statistical approach widely used in the fields of information systems, social sciences, education and psychology (Williams, Brown and Onsman 2010: 1; as cited in Taherdoost, Sahibuddin and Jalaliyoon 2014: 375). With the EFA application, it was tried to determine how many factors LMX-3D, which has 23 items, has. For this purpose, principal component analysis and varimax, a rotation method, were used. In this study, the KMO value of the collected data was found to be .910 and the BS test result was found to be significant ($p<.05$, $df=253$). Looking at these values, it is understood that the data are suitable for factor analysis.

Confirmatory factor analysis (CFA) is a multivariate statistical procedure used to test how well the variables being measured represent the number of constructs. As a multivariate procedure, confirmatory factor analysis is used to test multiple hypotheses that collectively form a measurement model. Confirmatory factor analysis (CFA) is a tool used to confirm or reject measurement theory ("Statistical Solutions", 2013: 1, Hoyle, 2004: 169). CFA is performed with structural equation modeling (SEM). LISREL is one of the popular programs used in structural equation modeling. There are many similar programs to LISREL, which has been updated several times, such as EQS and Mplus (Prudon, 2015: 1). In this study, SPSS and LISREL programs were used to analyze data and determine the suitability of the factor structure in the measurement tool.

In order to determine whether the model is suitable for the data, a selection of commonly used goodness of fit indices was used. Chi-square, Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR) and Standardized-Root Mean Square Residual (SRMR), Normed Fit Index (NFI) and Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI), Parsimonious Goodness of Fit Index (PGFI) and Parsimony Normed Fit Index (PNFI) are widely used by researchers (Erkorkmaz, Etikan, Demir, Özdamar & Sanisoglu 2013; Schermelleh-Engel, Moosbrugger & Müller 2003). In this study, the most commonly used fit indices, RMSEA, SRMR, CFI, GFI and Chi-Square, were used to determine the suitability of the model.

Findings

Construct Validity

Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were applied to test the construct validity of the measurements obtained from LMX-3D.

Exploratory Factor Analysis (EFA)

In the analysis studies, firstly the results of BS and KMO tests were examined. KMO test determines how suitable the data obtained from the sample are for extracting factors or in other words, the degree of suitability. The test result, whose value varies between 0 and 1.0, is high, that is, close to 1.0, means that a variable in the measurement tool can be perfectly predicted by other variables (Giesen 2004, cited by Şencan (2005: 384). If the values are zero or close to zero, factor analysis cannot be performed based on these values since there is a dispersion in the distribution of correlation coefficients. If the test result is greater than .50, it means that factor analysis can be continued. Kaiser (1974) reported that values lower than .50 are unacceptable regarding the KMO test, values between .50-.60 are bad; values between .60-.70 are weak; values between .70-.80 are average; values between .80-.90 are good, and values greater than .90 are excellent (Şencan, 2005: 384, cited in Jackson and Holland). The Bartlett Sphericity test, on the other hand, It gives the chi-square statistical value. In this test, as in other chi-square tests, the significance value is examined. If the significance value is less than .05, it is evaluated that factor analysis can be done for the data structure on which the test is applied; if it is greater, it is evaluated that it cannot be done (Şencan 2005: 384). In this study, the KMO value of the collected data was found to be .910 and the BS test result was found to be significant ($p<.05$, $df=253$). These values show that the data are suitable for factor analysis.

To determine the number of factors in the measurement tool, first the eigenvalues were examined. Köklü (2002) gave importance to factors with eigenvalues of 1 and above. In the first factor analysis conducted using the data obtained from the research, 4 factors with factor eigenvalues greater than 1 emerged. It was observed that the variance rate explained by these factors was 38.25% in the first factor, 14.03% in the second factor, 11.07% in the third factor and 4.36% in the fourth factor, making a total of 67.72%. Seçer (2017:164) emphasized that each of the sub-factors should explain at least 5% of the total variance in the scale; and that dimensions with a variance value above 5% should be determined as sub-dimensions when determining the number of factors. Accordingly, since the variance value of the fourth factor was below 5%, items 7, 11 and 20 in this factor were removed from the scale. After this stage, it was seen that the scale had a 3 factor structure with the renewed analysis, the number of factors was fixed to 3 in line with the expert opinion, and the rotation process was performed in the second stage to better determine the factor loadings of the items.

"Varimax", an orthogonal rotation method, was selected as the rotation method. After the second analysis was performed, it was seen that 4 items (9, 15, 17, 23) in the scale consisting of 3 factors were overlapped. Items with a difference of less than 0.1 between the loading values they have in two or more factors are called overlapped items. Since an item is intended to measure only one feature, overlapping is an undesirable situation in EFA (Çokluk, Şekercioğlu & Büyüköztürk, 2014: 234). For this reason, items 9, 15, 17 and 23, which were overlapped, were removed from the scale. In addition, when the correlation matrix was examined and the relationships between the items were examined, it was seen that there was a very low ($r<30$) relationship between items 13, 14 and 22 and many other items (Can, 2014: 303). Therefore, these items were also removed from the scale and the analysis was renewed.

As a result of the third analysis, it was seen that there were no overlapping items on the scale. The existence of significant relationships between variables that are independent of each other indicates that there is a connection or multicollinearity between them. Of course, this is an undesirable situation in regression analyses (as cited in Albayrak, 2005: 109). Again, when the correlation matrix table was examined, it was seen that there was multiple collinearity between the items in items 2 and 3 (0.851). Can (2014: 300) suggested that the items with high correlations ($r> 0.8$) should be eliminated and the analysis should be repeated. Çokluk, Şekercioğlu ve Büyüköztürk (2014: 223) de açımlayıcı faktör analizinde madde çıkarma kararı verilmiş ise (bir maddenin çıkarılması ile diğer maddelerin faktör yük değerlerinde değişiklik meydana gelebileceği gerekçesi ile) maddelerin denemeler yapılarak analiz dışı bırakılmasının daha uygun olacağını vurgulamışlardır. Diğer bir değişle ölçek dışı kalması ile en iyi sonuca ulaştıracak maddenin analiz dışı bırakılması gerekmektedir. Bu nedenle ortak varyanslar tablosu incelenerek daha düşük faktör yükü olan maddelerin üstünün çizilmesi yoluna gidilmiştir. 2. maddenin ortak varyans değeri (0,834) 3. maddenin değerinden daha düşük (0,838) olduğu görüldüğünden 2. madde ölçek dışında bırakılmıştır. Korelasyon matrisi incelenmek suretiyle maddeler arası ilişkilere bakıldığında, aralarında kabul edilebilir ilişkinin ($r>30$) olduğu maddelerin sayısının oldukça fazla olduğu (Can, 2014: 303) görülmüştür. Ayrıca matrisin determinantının 0,001 olması da Can (2014: 303)'a göre faktör çözümlemesine imkan tanımaktadır (Determinant >0.0001).

An item may be related to more than one factor, and the sum of the squares of the correlation coefficients between an item and the factors it is related to constitutes the common variance of that item (Can, 2014: 305). In the communalities table, the ratios of each item explaining the variance in a common factor together are given. It should be carefully evaluated whether the items in this table that are seen to have lower values than the others work (Çokluk, Şekercioğlu & Büyüköztürk, 2014: 229). The common variance distributions of the data obtained through the research were also reviewed. As can be understood from Table 1, the common variances vary between 0.585 and 0.838.

Table 1. LMX-3D Scale Communalities Table

Items	Initial	Extraction
Madde 1	1,000	,757
Madde 3	1,000	,838
Madde 4	1,000	,789
Madde 5	1,000	,641
Madde 6	1,000	,585
Madde 8	1,000	,626
Madde 10	1,000	,648
Madde 12	1,000	,688
Madde 16	1,000	,774
Madde 18	1,000	,747
Madde 19	1,000	,743
Madde 21	1,000	,730

According to Field (2005), when the number of samples reached within the scope of the study exceeds 250, having a common variance average above 0.6 can increase the reliability of the criteria used in the research (Can, 2014: 306). In this study, the common variance average was calculated as 0.8566 / 12 = 0.71. In accordance with this calculated result, it was not deemed necessary to exclude any item from the scale based on the common variances of the items.

The factor loading values of the items in the scale obtained as a result of EFA and the item total correlation values are shown in Table 2. When Table 2 is examined, it is seen that the items in the scale form three separate factors. The factors that make up the scale; It was named by benefiting from the studies conducted by Aslan and Özata (2009), Baş, Keskin & Mert (2010), Cevrioğlu (2007), Çekmecelioğlu & Ülker (2014), Dienesch and Liden, (1986), Liden & Maslyn (1998), Yıldız, Özutku & Cevrioğlu (2008), Uğurluoğlu, Santaş & Demirgil (2013). In this context, the first dimension was named "Task"; the second dimension was named "Support" and the third dimension was named "Relationships".

Table 2. Factor Loadings and Item Total Correlation Values of the LMX-3D Scale

Factor	Items	Component	Item Total Correlation Values
Task (Loyalty)	4	,852	,686
	6	,601	,691
	10	,621	,733
	12	,658	,662
	19	,789	,742
	21	,828	,791
Support (Contribution)	5	,725	,594
	8	,710	,584
	16	,797	,639
Relationships (affect)	1	,786	,672
	3	,706	,708
	18	,729	,699

When Table 2 is examined, it is seen that the factor loadings of the items in the “Task” dimension vary between .601 and .852; the factor loadings of the items in the “Support” dimension vary between .710 and .797, and the factor loadings of the items in the “Relationships” dimension vary between .706 and .786. Factor loadings of items being 0.45 and above is often a desired situation in research (Büyüköztürk, 2010; Seçer, 2017). According to these

data, it can be said that the factor loading values of the Three-Dimensional Leader-Member Exchange Scale are at a sufficient level.

In order to reveal the discrimination of the items, the item-total score correlation was examined. The item-total correlation provides information about the relationship between the item scores and the total score. The fact that the item-total correlation is positive and at the same time high is an important factor in the high internal consistency of the test (Büyüköztürk, 2010: 171). It can be said that the items with an item-total correlation of 0.30 and higher have a good level of discrimination; items between 0.20-0.30 can be included in the test if necessary or corrections should be made on these items; and items below 0.20 should be excluded from the test (Büyüköztürk, Kılıç, Akgün, Karadeniz & Demirel, 2008). When the item-total correlations of the Three-Dimensional Leader-Member Interaction Scale are reviewed (Table 2), it is understood that the values are positive and generally high.

In its final form, the Three-Dimensional Leader-Member Exchange Scale has become a scale consisting of 12 items. Of these 12 items, 6 (4, 6, 10, 12, 19, 21) constitute the Task factor; 3 (5, 8, 16) constitute the Support factor and 3 (1, 3, 18) constitute the Relationships factor. The eigenvalues of the factors of the Three-Dimensional Leader-Member Exchange Scale (in its final form), which was determined to have three factors, and the variance rates they explain are shown in Table 3.

Table 3. Eigenvalues of LMX-3D Scale Factors and Variance Proportions They Explain

Factor	Eigenvalues	Variance **(%)**
Task	8,974	30,448
Support	3,975	21,054
Relationships	1,138	19,892
Overall Scale	---	71,394

After the completion of the exploratory factor analysis, it was understood that the scale, which took its final form before the confirmatory factor analysis, showed a three-factor structure as a result of excluding 11 items (2, 7, 9, 11, 13, 14, 15, 17, 20, 22, 23). As can be seen in Table 3, the variance rates explained by the factors were determined as 30.448% in the 1st factor, 21.054% in the 2nd factor, and 19.892% in the 3rd factor, respectively. It is seen in Table 3 that the first factor is stronger than the 2nd and 3rd factors in terms of explained variance. The total variance value explained by the factors was also determined as 71.394%. The variance rate explained by a measurement tool should be higher than the rate it could not explain (Seçer, 2017). Accordingly, it is possible to say that the total variance rate explained is sufficient.

In order to obtain a total score from the Three-Dimensional Leader-Member Interaction Scale or to obtain separate scores from its dimensions, the score ranges and the meanings they express have been arranged. In this direction, the work started with determining the range coefficient. Since the Likert-type five-point scoring technique is used in the scale, the rating items consist of the options “1 point”, “2 points”, “3 points”, “4 points”, and “5 points”. Based on the rule of dividing the value obtained by subtracting the largest measurement from the smallest measurement by the desired group number, the range coefficient was calculated as 5-1=4 and 4/5=0.80 and the option ranges were arranged accordingly. The score ranges of the Three-Dimensional Leader-Member Interaction Scale, the rating options and the meanings expressed by each are shown in Table 4.

Table 4. LMX-3D Scale Evaluation Ranges

Score Range	Rating	Meaning
1,00-1,80	Completely disagree	Very low
1,81-2,60	Disagree	Low
2,61-3,40	Moderate Level Agree	Middle
3,41-4,20	Significantly Agree	High
4,21-5,00	Completely Agree	Very high

Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) is a process that is carried out to create a latent variable, that is, a factor, based on observed variables through a previously created model. CFA, which is carried out to show that a previously determined structure is confirmed, is mostly used in scale development studies and validity analyses (Aktaran

Aytaç and Öngen, 2012). For this reason, the factor structure that emerged in the exploratory factor analysis of the Three-Dimensional Leader-Member Interaction Scale (in order to determine whether it is confirmed or not) was examined with CFA.

In order to reveal the fit adequacy of the models subjected to CFA in scientific studies, different fit index values are reviewed and a decision is made to accept or reject the model according to the results obtained (Ayyıldız, Cengiz and Ustasüleyman, 2006: 31). The most commonly used fit indices, RMSEA, SRMR, CFI, GFI and Chi-Square, were used to test the suitability of the model in this research.

RMSEA is an index that is somewhat similar to SRMR but is calculated and works differently (Steiger, 2000 as cited in Iacobucci, 2009: 96). It was developed by Steiger and Lind (Steiger 1980, 1990 as cited in Hooper, Coughlan, & Mullen, 2008: 54). Browne ve Cudeck (1993), .05 ve altındaki RMSEA değerlerini iyi uyum, .05 ile .08 arasındaki değerleri yeterli, .08 ile .10 arasındaki değerleri ise "vasat" olarak değerlendirirken, 10'dan büyük değerleri kabul edilemez olarak değerlendirmiştir. Genel olarak iyi bir model için kabul edilen RMSEA değeri .05'ten küçük olmasına rağmen Hu ve Bentler (1999), .06'dan küçük değerlerin iyi uyum olarak kabul edilmesi gerektiğini öne sürmüştür (Schermelleh-Engel ve Moosbrugger, 2003:36).

SRMR is the index of incompatibility (larger values indicate poor fit) and ranges from 0.0 to 1.0. When the model predictions perfectly match the data, SRMR is zero (Iacobucci, 2009: 91). In order to be a good fit indicator, the SRMR value obtained by the model should be below .05 (Hu & Bentler, 1995 as cited in Schermelleh-Engel, Moosbrugger, & Müller, 2003: 38), but values less than .10 can be interpreted as acceptable (Schermelleh-Engel, Moosbrugger, & Müller, 2003: 38).

CFI can give healthy results even if the sample size is small. This index, which came into use by researchers with Bentler (1990), assumes that all latent variables are unrelated to each other. The values for this statistic range from 0.0 to 1.0, and as with many other fit indices, values approaching 1.0 indicate good fit. While values of 0.90 and above were initially considered to be indicative of good fit, recent research has shown that a value higher than 0.90 is needed to prevent the acceptance of misspecificated models. Currently, values of 0.95 and above are considered to be an indicator of good fit (as cited in Hooper, Coughlan & Mullen, 2008: 55).

GFI, which is related to the relative variance and covariance amount, is expressed with values between 0 and 1, and the closer its value is to 1, the better the model is (Hair et al., 1995 as cited in Yılmaz, 2004: 82). Therefore, although the most emphasized acceptability limit for the GFI value is stated as 90 (as cited in Ergül, Baydık & Demir, 2013: 505), as Brown also stated, it is necessary to take into consideration the situations where the values of the fit indexes are very close to the acceptance limit (Ahioğlu-Lindberg & Demircan, 2013: 42). When the literature is examined, there are authors who state that GFI values between 0.80-0.89 are acceptable values (as cited in Dağlı, 2015: 213), researchers who suggest 0.85 as the limit (Ergul, Baydik & Demir, 2013: 505), and even authors who state that values above 0.80 indicate a good fit (as cited in Yener, 2015: 301).

The important test for evaluating the absolute suitability of the model to the database is Chi-square ($\chi 2$) (Bollen, 1989, cited in Özabacı, 2011:164). The Chi-square test is shaped according to the sample size and generally does not give reliable results when the sample size exceeds 200 (Schumacker and Lomax, 1996, cited in Özabacı, 2011:164). In this case, the degree of freedom (sd) is also an important criterion in the chi-square test. In large samples, the ratio of sd to $\chi 2$ can also be used as a criterion for adequacy. Although it is generally accepted that rates lower than 2 indicate good fit, there are also authors such as Çokluk, Şekercioğlu & Büyüköztürk (2014: 268) who accept rates of 3 and lower as good fit and rates up to 5 as sufficient fit.

These cut-off points are important for the research, but they should not be considered as absolutely necessary criteria. Because these indices can be affected by incorrect definition of the research model, small and biased sample, violations of normality and independence, and differences in estimation and evaluation style (as cited in Schermelleh-Engel, Moosbrugger, & Müller, 2003: 53). Therefore, even if one or more fit measurements indicate poor fit, it is always possible for a model to fit the data (Schermelleh-Engel, Moosbrugger, & Müller, 2003: 53).

The CFA results of the Three-Dimensional Leader-Member Exchange Scale are given in Table 5. After modification was made in line with the modification suggestions given for improvement purposes for the factor structure tested in the CFA, it was seen that the Chi-square value of the scale ($\chi 2$= 161.08, N=396, df = 47, p = 0.00) was significant and the $\chi 2$/sd ratio was 3.43.

Table 5. LMX-3D Scale CFA Results and Fit Index Value Ranges

Fit Measures	Acceptable Fit	Good Fit	Determined Value
RMSEA	.05 <RMSEA ≤.08	0 ≤ RMSEA ≤ .05	**0.078**
SRMR	.05 < SRMR ≤ .10	0 ≤ SRMR ≤ .05	**0.040**
CFI	.95 ≤ CFI < .97	.97 ≤ CFI ≤ 1.00	**0.96**
GFI	.85 ≤*GFI* < .95	.95 ≤*GFI* ≤1.00	**0.90**
X^2/sd	3< X^2/sd ≤5	0≤ X^2/sd ≤3	**3.43**

References: Schermelleh-Engel, Moosbrugger & Müller, 2003; Wakslak, Jost, Tyler & Chen 2007: 269; Ergül, Baydık & Demir, 2013: 505); Meyers, Gamst and Guarino, 2006; Bektaş, Kural & Orçan 2017: 82

When Table 5 is examined, it is seen that the SRMR fit index values are in the "good fit" range and the other fit indexes are in the "acceptable fit" range. As can be understood from Table 5, the fit index values obtained as a result of subjecting the model to CFA are in the satisfactory range. Therefore, according to the results, it can be claimed that the model consisting of three factors is acceptable. The path diagram for the model is shown in Figure 1.

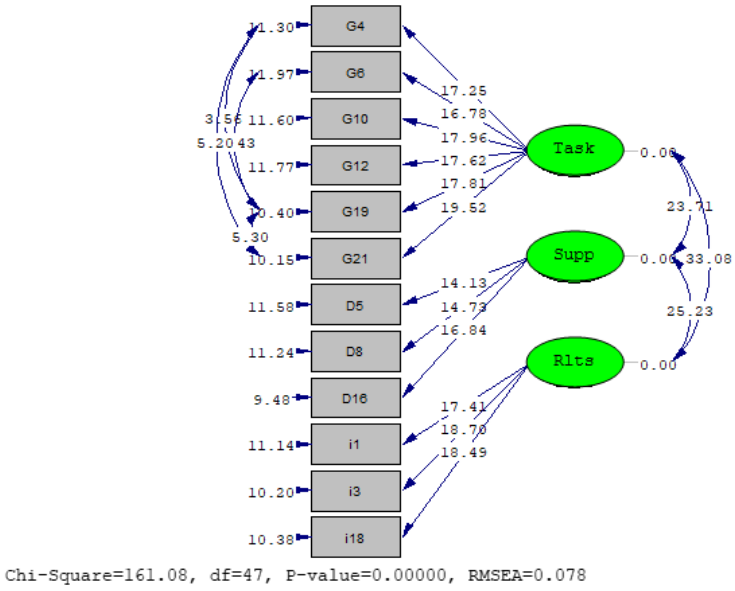

Figure 1. LMX-3D Scale "t-values" Diagram (LISREL Output)

The t values for the model were determined by the LISREL program. If the t-values exceed 1.96, they are significant at the 0.05 level; if they exceed 2.56, they are significant at the 0.01 level. If non-significant t-values are detected as a result of determining the t values, they should be excluded from the analysis (Çokluk, Şekercioğlu & Büyüköztürk, 2014: 304). When the t-values of the LMX-3D scale shown in Figure 1 are examined, it is understood that the values vary between 14.13 and 19.52, and accordingly, the t-values of the scale are significant at the 0.01 level.

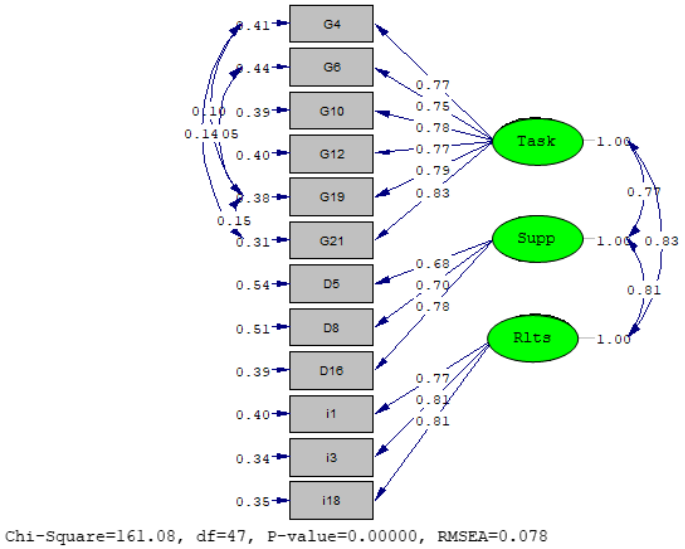

Figure 2. LMX-3D Scale "Standardized Solution" Diagram (LISREL Output)

One of the values that will be useful if reviewed in confirmatory factor analysis is the error variance. It is desired that the error variance, which shows the unexplained part of the variance related to the data set, is not too high, that is, not too close to 1.00 (Büyüköztürk, 2002: 473; Çokluk, Şekercioğlu and Büyüköztürk, 2014: 305; Çepni, 2010: 50). When the error variances of the scale are reviewed, it is understood that the highest value is 0.54 (item 5); the values of the other items vary between 0.31 and 0.51, and therefore there is no item in the scale with a very high error variance, that is, very close to 1.00 (Figure 2).

In addition, for models with multiple factors, it is expected that the correlations between factors should not exceed 0.85. If the factor correlations exceed 0.85, it is possible that the number of factors determined is greater than necessary and that the existing factors do not actually represent different concepts. (Çepni, 2010:50,142). When the factor correlations of the LMX-3D Scale are considered, it is understood that there is no value above 0.85 (Figure 2; Table 6).

Table 6. LMX-3D Scale Factor Correlations

Factors	Correlations Between Factors
Task	0,77
Support	0,83
Relationships	0,81

This situation shows that the exploratory factor analysis results confirm that the model-data fit can be achieved with 3 factors and that the 3 factors are separate concepts.

Reliability

Reliability can be defined as the results obtained with a measurement tool accurately revealing the phenomenon related to the conceptual structure and being consistent with the results of other measurement tools measuring the same conceptual structure; the similarity of the measurement/evaluation results made by different practitioners with the same measurement tool (Şencan, 2005: 7-9). Cronbach Alpha is the most widely used objective reliability measure. It was developed by Lee Cronbach in 1951 as a measure of the internal consistency of tests or scales, and therefore named Cronbach Alpha. Cronbach Alpha is expressed as a number between 0.00 and 1.00. A low alpha value may be due to a low number of questions, weak relationships between items or heterogeneous structures. There are different studies indicating that acceptable values of the alpha coefficient vary between 0.70 and 0.95 (Tavakol & Dennick, 2011: 53, 54). A high value for Cronbach's Alpha indicates that the internal consistency of the items within the scale is good, while .80 is a reasonable target. According to George & Mallery (2003), >.90

is excellent, >.80 is good, >.70 is acceptable, >60 is questionable, >.50 is poor, and <.50 is unacceptable (Gliem & Gliem, 2003: 87).

Cronbach Alpha value was examined to determine the reliability of the Three-Dimensional Leader-Member Exchange Scale. Cronbach Alpha values obtained regarding Leader-Member Exchange are given in Table 7.

Table 7. LMX-3D Scale Cronbach Alpha Coefficients.

Factors	Cronbach Alpha
Task	0,907
Relationships	0,834
Support	0,759
LMX-3D	**0,922**

The Cronbach Alpha reliability coefficient of the Three-Dimensional Leader-Member Interaction Scale was determined as 0.922. When the alpha reliability coefficients are considered in terms of dimensions, it is understood that the Cronbach Alpha coefficient calculated for the Task factor is 0.907; for the Relationships factor, 0.834 and for the Support factor, 0.759, as seen in Table 10. When all the analyses and other studies are evaluated together, it is possible to say that the LMX-3D scale is a valid and reliable measurement tool.

Results and Discussion

This study aimed to develop a valid and reliable measurement tool to determine the leader-member interaction behaviors of schools. The scale was prepared in a five-point Likert type. The scale, which initially consisted of 42 items, was applied to a total of 420 teachers; however, 401 of the measurement tools were returned. When the returned measurement tools were examined, it was determined that 5 measurement tools were filled incompletely or incorrectly (measurements with two, three, four or five options marked). Therefore, the total number of scales to be used in the analyses was determined as 396.

Before performing EFA, the KMO and BS test results were examined and it was seen that the KMO value was .910 and the BS value was less than p<.05. Accordingly, it was concluded that the data were suitable for EFA.

In order to determine the construct validity of the Three-Dimensional Leader-Member Interaction Scale, a total of 11 items were excluded from the scale with the EFA conducted and it was concluded that the scale had a 3-factor structure. The scale was sized in accordance with the determined factors. While the 1st Dimension (Task) of the scale explained 38.25% of the total variance; the 2nd Dimension (Support) explained 14.03% and the 3rd Dimension (Relationships) explained 11.07%. It was understood that the total variance explained by the three dimensions was 67.72%.

As a result of CFA, it was seen that the factor structure determined by EFA was confirmed and it was understood that the scale was 3-dimensional. In the CFA, the fit indices of the scale were also examined and it was seen that the Chi-square value ($\chi 2$= 161.08, N=396, df = 47, p = 0.00) was significant. The fit index values were determined as RMSEA 0.078, SRMR 0.040, CFI 0.96, GFI 0.90 and x2/df 3.43. According to these values, it can be stated that the model provided a good fit.

For the reliability of the scale, the Cranbach Alpha internal consistency coefficient was examined. The Cronbach Alpha internal consistency coefficient of the Three-Dimensional Leader-Member Exchange Scale was determined as 0.922 for the entire scale. Cronbach Alpha internal consistency coefficients for the dimensions of the scale were determined as 0.907 for the Task dimension; 0.834 for the Relationships dimension and 0.759 for Support.

Conclusion

When the studies and analyses are considered as a whole, it is possible to say that the Three-Dimensional Leader-Member Interaction Scale (LMX-3D) is a valid and reliable measurement tool that can be used to reveal the views of teachers working in schools on leader-member interaction behaviors.

Recommendations
It may be recommended to conduct comparative studies by applying the LMX-3D scale in different countries.

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Author (s) Contribution Rate
The first author contributed 50%, the second author 50%.

Ethical Approval
For this study, approval was received from the Dicle University Educational Sciences Ethics Committee with the decision numbered 2019/1-2 and dated 21/01/2019.

References

Achua, C. F. & Lussier, R. N. (2010) *Effective leadership*. 4th Edition, Canada, South-Western.

Ahioğlu-Lindberg, E. N. & Demircan, A. N. (2013). Ortaöğretim okullarında öğrenci görüşlerine göre aile katılımı: Bir ölçek uyarlaması. *Anadolu Journal of Educational Sciences International, 3*(1), 35-46.

Akdoğan, A., Cingöz, A. & Mirap, S. O. (2009, Mayıs). Lider-üye etkileşiminin /değişiminin yenilikçi iş performansı, görev performansı ve bağlamsal performans üzerindeki etkisinin belirlenmesi, 17. Ulusal Yönetim ve Organizasyon Kongresi, Osmangazi University İşletme Bölümü, Eskişehir.

Akkoç, İ., Çalışkan, A, Uçak, P. & Özalp, D. (2013, Mayıs-Haziran). Örgütsel destek, lider ve sosyal desteğin iş performansına etkisinde lider-üye etkileşiminin rolü, 21. Ulusal Yonetim ve Organizasyon Kongresi, Dumlupınar University İktisadi ve İdari Bilimler Fakültesi, Kütahya.

Alparslan, A. M. & Oktar, Ö. F. (2015). Türkiye'de lider-üye etkileşim kuramına dair makale kapsamındaki araştırmalar: Bibliyometrik bir içerik analizi, *Business and Economics Research Journal, 6*(1), 107-123.

Altuntaş, G., Akça, M. & Dönmez-Polat, D. (2020). Yöneticiye duyulan güven ile işten ayrılma niyeti arasındaki ilişkide lider – üye etkileşiminin rolü. *Toros University İİSBF Journal of Social Sciences*, *7*(12), 86-114.

Aras, M. (2013, Mayıs-Haziran). İş özel yaşam dengesinin sağlanmasında lider üye etkileşiminin rolü 21. Ulusal Yonetim ve Organizasyon Kongresi, Dumlupınar University İktisadi ve İdari Bilimler Fakültesi, Kütahya.

Aslan, Ş. & Özata, M. (2009). Lider-üye etkileşiminin yöneticiye duyulan güven düzeyine etkisi. *Selçuk University İktisadi ve İdari Bilimler Fakültesi Dergisi, 9*(17), 95-116.

Avcı, U. & Turunç, Ö. (2012). Dönüşümcü liderlik ve örgüte güvenin kariyer memnuniyetine etkisi: lider-üye etkileşiminin aracılık rolü. *Uluslararası Alanya İşletme Fakültesi Dergisi, 4*(2), 45-55.

Ayan, D., Uysal, Ö. & Eser, G. (2013, Kasım). İşte kendilik kontrolü ile lider-üye etkileşimi ilişkisinin örgüte duygusal bağlılık ve işten ayrılma niyeti üzerindeki etkisi, 1. Örgütsel Davranış Kongresi, Sakarya University İşletme Fakülte, Sakarya.

Aytaç, M. ve Öngen, B. (2012). Doğrulayıcı faktör analizi ile yeni çevresel paradigma ölçeğinin yapı geçerliliğinin incelenmesi. *İstatistikçiler Dergisi*, *5*(1), 14-22

Ayyıldız, H., Cengiz, E. & Ustasüleyman, T. (2006). Üretim ve pazarlama bölümleri arası davranışsal değişkenlerin firma performansı üzerine etkisine ilişkin yapısal bir model önerisi. *Muğla University Institute of Social Sciences Dergisi*, (17), 21-38.

Bader, B. M., (2008). "Leader-Member Exchange And Work Outcomes: A Multiple Leadership Perspective", A Research Project Submitted to the School of Graduate Studies of the University of Lethbridge, Faculty of Management University of Lethbridge, Canada.

Bakan, İ. & Büyükbeşe, T. (2010). Liderlik "türleri" ve "güç kaynakları" na ilişkin mevcut-gelecek durum karşılaştırması: Eğitim kurumu yöneticilerinin algılarına dayalı bir alan araştırması, *KMÜ Sosyal ve Ekonomik Araştırmalar Dergisi, 12*(19), 73-84.

Bass, B. M. (1990). *Bass & Stogdill's handbook of leadership: theory, research, and managerial applications.* New York: Free Press; London: Collier Macmillan.

Baş, T., Keskin, N. & Mert, İ. S. (2010). Lider üye etkileşimi modeli ve ölçme aracının Türkçe'de geçerlik ve güvenilirlik analizi, *Ege Akademik Bakış*, *10*(3), 1013-1039.

Bauer, T. & Erdogan, B. (2015). Oxford Handbook of Leader-Member Exchange. 10.1093/oxfordhb/9780199326174.013.2, 3-9.

Bauer, T. & Green, S. (1996). Development of leader-member exchange: A longitudinal test. Academy of Management Journal, 39, 1538-1567.

Bayraktar, A. N. (2014). *Astların yöneticisini lider olarak kabul etmesinin lider üye etkisi yoluyla örgütsel sessizliğe etkisi.* (Unpublished doctoral dissertation). Marmara University, İstanbul.

Bektaş, F. Kural, B. & Orçan, F. (2017). Doğaya bağlılık ölçeğinin türkçe uyarlaması: geçerlik ve güvenirlik çalışması. *Niğde University Beden Eğitimi ve Spor Bilimleri Dergisi. 11*(1), 77-86.

Bildik, B. (2009). *Liderlik Tarzları, Örgütsel Sessizlik ve Örgütsel Bağlılık İlişkisi.* (Unpublished master's thesis). Gebze Yüksek Teknoloji Enstitüsü, İstanbul.

Bolat, O. İ. (2011). Lider üye etkileşimi ve tükenmişlik ilişkisi. *İş, Güç Endüstri İlişkileri ve İnsan Kaynakları Dergisi. 13*(2), 63-80.

Bolden, R., Gosling, J., Marturano, A. & Dennison, P. (2003). A review of leadership theory and competency frameworks. Report For Chase Consulting And The Management Standards Centre, *Centre For Leadership Studies*, University of Exeter, Uk. 1-44.

Büyüköztürk, Ş. (2002). Faktör analizi: Temel kavramlar ve ölçek geliştirmede kullanımı. *Kuram ve Uygulamada Eğitim Yönetimi,* (32), 470-483.

Büyüköztürk, Ş., Kılıç, Ç. E., Akgün, Ö. E., Karadeniz, Ş. & Demirel, F. (2008). *Bilimsel araştırma yöntemleri.* Ankara: Pegem Akademi.

Büyüköztürk, Ş. (2010). *Sosyal bilimler için veri analizi el kitabı.* Ankara: Pegem Akademi Yayıncılık.

Can, A. (2014). *SPSS ile nicel veri analizi*. Ankara: Pegem Akademi Yayınları.

Case, R. (1998). Leader member exchange theory and sport: possible applications, *Journal of Sport Behavior, 21*(4), 387-396.

Cevrioğlu, E. (2007). *Lider-üye etkileşimi ile bireysel ve örgütsel sonuçlar arasındaki ilişki: Ampirik bir inceleme.* (Unpublished doctoral dissertation). Afyon Kocatepe University, Afyonkarahisar.

Ceylan A., Özbal S., Dinç A. & Kesgin M. (2005). "Lider-Üye Etkileşimi ve Güvenin Psikolojik Güçlendirmeye Etkileri Üzerine Bir Araştırma". *İ. Ü. İşletme Fakültesi İşletme İktisadı Enstitüsü Dergisi,* (50), 25-40.

Cherry, K (2014). Leadership theories - 8 major leadership theories. Retrieved (01/05/2014) from http://psychology.about.com/od/leadership/p/leadtheories.htm

Cinel, M. O. (2014). *Müsamahacı ve kısıtlayıcı örgüt kültürünün lider-üye etkileşimi ve çalışanların iş tatmini üzerine etkisi: Fındık işletmelerinde çalışanlar üzerine bir araştırma.* (Unpublished doctoral dissertation). Süleyman Demirel University, Isparta.

Çekmecelioğlu, H. G. & Ülker, F. (2014). Lider-üye etkileşimi ve çalışan tutumları üzerindeki etkisi: eğitim sektöründe bir araştırma. *KOSBED*, (28), 35-58.

Çepni**,** Z**.** (2010). Yapısal eşitlik modellemesi.(Eğitimde ve psikolojide ölçme ve değerlendirme II. Ulusal kongresi kapsamında, Yapısal Eşitlik Modellemesi (LISREL Uygulamalı) konulu işlik çalışması). yunus.hacettepe.edu.tr/~cepni /mersinsemsunu.ppt, Erişim tarihi:19.01.2017.

Çınar, O. & Koçak, D. (2017). Lider üye etkileşimi ve örgütsel sessizlik arasındaki ilişki: Hizmet sektöründe bir uygulama. *Erzincan University Institute of Social Sciences Dergisi, 10*(2), 1-24.

Çokluk, Ö., Şekercioğlu, G. & Büyüköztürk, Ş. (2014). *Sosyal bilimler için çok değişkenli istatistik.* Ankara: Pegem Yayıncılık.

Çöp, S. (2015). *Lider üye etkileşim algısı ile örgütsel sessizlik davranış algısı arasında öz denetim kişilik özelliğinin aracılık rolü: otel işletmeleri üzerine bir araştırma.* (Unpublished doctoral dissertation). Gazi University, Ankara.

Çöp, S. & Öztürk, Y. (2017). Lider-üye etkileşiminin örgütsel sessizlik üzerindeki etkisi: konaklama işletmelerinde bir araştırma. *İşletme Araştırmaları Dergisi, 9*(2), 37-68.

Dağlı**,** A. (2015). Örgütsel muhalefet ölçeğinin Türkçe'ye uyarlaması: Geçerlik ve güvenirlik çalışması. Elektronik Journal of Social Sciences**,** 14(53)**,** 198 - 218**.**

Dal, L. & Çorbacıoğlu, S. (2014). Hizmetkâr liderlik davranışları ve lider-üye etkileşimi ilişkisi: bir devlet University üzerine araştırma. *Süleyman Demirel University İktisadi ve İdari Bilimler Fakültesi Dergisi, 19*(4), 287-310.

Dansereau, F., Graen, G. B. & Haga, W. J. (1975). A vertical dyad linkage approach to leadership within formal organizations: A longitudinal investigation of the role making process. *Organizational Behavior and Human Performance,* 13, 46-78.

Delice, A. ve Ergene, Ö. (2015). Ölçek geliştirme ve uyarlama çalışmalarının incelenmesi: Matematik eğitimi makaleleri örneği. *Karaelmas Journal of Educational Sciences*, *3*(1), 60-75.

Demir, H., & Demirkaya, H. (2011, Mayıs). Örgüt kültürü ve lider- üye etkileşiminin adanmışlık ve işten ayrılma niyeti üzerindeki rolü, 19. Yönetim ve Organizasyon Kongresi, Çanakkale Onsekiz Mart University, Çanakkale.

Dienesch, R. M. & Liden, R. C. (1986). Leader-member exchange model of leadership: A critique and further development. *Academy of Management Review, 11*(3), 618-634.

Dulebohn, J. H., Bommer, W. H., Liden, R. C., Brouer, R. L. & Ferris, G. R. (2012). A meta-analysis of antecedents and consequences of leader-member exchange integrating the past with an eye toward the future. *Journal of Management, 38*(6), 1715-1759.

Dunegan, K. J., Duchon, D. & Uhl-Bien, M. (1992). Examining the link between leadermember exchange and the subordinate performance: The role of task analyzability and variety as moderators. *Journal of Management,* (18), 59-76.

Erdoğan I. & Rofcanin Y. (2013, Mayıs-Haziran). Çalışan-yönetici uyumu ve lider-üye etkileşimi üzerine bütünsel bir analiz: iş tatmini ve örgütsel bağlılık üzerindeki etkiler, 21. Ulusal Yonetim ve Organizasyon Kongresi, Dumlupınar University İktisadi ve İdari Bilimler Fakültesi, Kütahya.

Ergül, C., Baydık, B. & Demir, Ş. (2013). Özel eğitim öğretmen adaylarının ve öğretmenlerinin zihin engelliler öğretmenliği lisans programı yeterliklerine ilişkin görüşleri. *Kuram ve Uygulamada Eğitim Bilimleri, 13*(1), 499-522.

Erkorkmaz, Ü., Etikan, İ., Demir, O., Özdamar, K., & Sanisoğlu, S. Y. (2013). Doğrulayıcı faktör analizi ve uyum indeksleri. Türkiye Klinikleri Journal of Medical Sciences, 33(1), 210-223. https://doi.org/10.5336/medsci.2011-26747

Gliem J.A. & Gliem R.R. (2003) Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. *2003 MidwestResearchto Practice Conference in Adult, Continuing, and Community Education,* (82-88), Columbus.

Göksel, A. & Aydıntan, B. (2012). Lider-üye etkileşimi düzeyinin örgütsel bağlilik üzerine etkisi: Görgül bir araştirma. *Süleyman Demirel University İktisadi ve İdariBilimler Fakültesi Dergisi*, *17*(2), 247-271.

Graen, G. & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, *6*(2), 219-247.

Gürboyoğlu, J. (2009). *Lider-üye etkileşiminin örgütsel adalet algısı ve tükenmişlik üzerine etkileri*. (Unpublished master's thesis). Balıkesir University, Balıkesir.

Hooper, D., Coughlan, J. & Mullen, M. (2008). Structural Equation Modelling: Guidelines for Determining Model Fit. *Electronic Journal of Business Research Methods, 6*(1), 53-60.

Iacobucci, D. (2009). Structural equations modeling: Fit indices, sample size, and advanced topics. *Journal of Consumer Psychology*, *20*(1), 90-98.

Karcıoğlu, F. & Kahya, C. (2011). Lider-üye etkileşimi ve çatışma yönetim stili ilişkisi. *Atatürk University Journal of Social Sciences*, *15*(2), 337-352.

Kaşlı, M. & Seymen, O. A. (2010). Kişilik özellikleri, lider-üye etkileşimi ve tükenmişlik ilişkisi. *Dumlupınar University Journal of Social Sciences*, 27, 109-122.

Katrinli, A., Atabay G., Günay G. & Çangarlı B.G. (2009, Mayıs). Lider-üye arsındaki etkileşimin psikolojik sözleşme ihlâli ile örgütsel vatandaşlık ilişkisi üzerindeki düzenleyici rolü, 17. Ulusal Yönetim ve Organizasyon Kongresi, Osmangazi University, Eskişehir.

Kırboğa, R. (2017). *Psikolojik sözleşme ihlâli ve örgütsel sinizm arasındaki ilişki: Lider-üye etkileşiminin aracılık etkisi*. (Unpublished master's thesis). Balıkesir: Balıkesir University, Institute of Social Sciences.

Leow, K. and Khong, K. (2009) Organizational Commitment: The Study of Organizational Justice and Leader Member Exchange (LMX) among Auditors in Malaysia. International Journal of Business and Information, 4, 161-198.

Liden, R. C. & Maslyn, J. M. (1998). Multidimensionality of leader-member exchange: An empirical assessment through scale development. *Journal of Management* (24), 43-72.

Liden, R. C., Sparrowe, R. T. & Wayne, S. J. (1997). Leader-member exchange theory: The past and potential for the future. In GR Ferris (ed.) Research in Personnel and Human Resources Management, 15: 47-119.

MacCallum, R. C.,Widaman, K. F., Zhang, S.& Hong, S. (1999). Sample size in factor analysis. *Psychological Methods, 4*(1), 84-99.

Maslyn, J. & Uhl-Bien, M. (2001). Leader–member exchange and its dimensions: effects of self-effort and other's effort on relationship quality. Management Department Faculty Publications.

Meyers, L., Gamst, G. & Guarino, A. J. (2006). *Applied Multivariate Research Design and Interpretation.* Newbury Park, CA: Sage.

Oğuzhan, T. (2015). *Algılanan etik iklim boyutları, lider üye etkileşimi ve öz kendilik değerlendirmesinin izlenim yönetimi taktikleri kullanımı üzerindeki etkileri.* (Unpublished doctoral dissertation). Kara Harp Okulu Savunma Bilimleri Enstitüsü, Ankara.

Ordun, G. & Aktaş, H. (2014). Lider-üye etkileşimi faktörlerinin liderler ve astlar tarafından karşılıklı algılanması: Bir perakende işletmesi çalışanları üzerinde araştırma. *Istanbul University Journal of the School of Business Administration, 43*(1), 120-135

Özabacı, N. (2011). İlişki Niteliği Ölçeği'nin Türkçe uyarlaması: Geçerlik ve güvenirlik çalışması. Eğitim ve Bilim, 36(162), 159–167.

Özdaşlı, K., Kanten, P. & Alparslan, M. (2013, Mayıs-Haziran). Lider-Üye Etkileşiminin Proaktif Davranışlar Üzerindeki Etkisi, 21. Ulusal Yonetim ve Organizasyon Kongresi, Dumlupınar University İktisadi ve İdari Bilimler Fakültesi, Kütahya.

Özutku, H., Ağca & Cevrioğlu, E. (2008). Lider-üye etkileşim teorisi çerçevesinde, yönetici-ast etkileşimi ile örgütsel bağlılık boyutları ve iş performansı arasındaki ilişki: Ampirik bir inceleme. *Atatürk University İktisadi ve İdari Bilimler Dergisi, 22*(2), 193-210.

Poornima, M. (2017). Theories of leadership http://egyankosh.ac.in/bitstream/123456789/ 8007/1/Unit-5.pdf**.** adresinden 23.02.2020 tarihinde edinilmiştir.

Robbins, S. P. & Judge, T. A. (2011) *Essentials of organizational behavior,* Pearson Education. USA.

Seçer, İ. (2017). *SPSS ve LISREL ile Pratik Veri Analizi.* Ankara: Anı Yayıncılık.

Schriesheim, C. A., Castro, S. L. & Cogliser, C. C. (1999). Leader- member exchange (lmx) research: a comprehensive review of theory, *Measurement, and Data-Analytic Practises, Leadership Quarterly, 10*(1), EBSCO host Database, 63-113.

Schermelleh-Engel, K., Moosbrugger, H. & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online. 8*(2), 23-74.

Soylu, İ. (2017). *Örgütsel güven ile lider-üye etkileşiminin örgütsel sağlık üzerindeki etkisi: Özel okullar üzerine bir araştırma*. (Unpublished master's thesis). Gaziosmanpaşa University, Tokat.

Şahin, F. (2011). Lider-üye etkileşimi ile işten ayrılma niyeti arasındaki ilişki üzerinde cinsiyetin etkisi, *Ege Akademik Bakış*, *11*(2), S:279

Şencan, H. (2005). *Sosyal ve davranışsal ölçümlerde güvenirlik ve geçerlilik.* Ankara: Seçkin Yayıncılık.

Tavakol, M. & Dennick, R. (2011). Making sense of Cronbach'salpha. *International Journal of MedicalEducation,2*, 53-55. doi: 10.5116/ijme.4dfb.8dfd

Tehrani, N. (2004). *Workplace Trauma: Concepts, Assessment and Interventions*. New York: Brunner-Routledge.

Tezbaşaran, A. A. (1997). *Likert tipi ölçek geliştirme kılavuzu*. Ankara: Türk Psikologlar Derneği.

Truckenbrodt, Y. B. (2000). The relationship between leader-member exchange and commitment and organizational citizenship behavior. *Acquisition Review Quarterly*, *7*(3), 233-244.

Turgut, H., Tokmak, İ., & Ateş, M. F. (2015). Lider-üye etkileşiminin işgören performansına etkisinde çalışanların örgütsel adalet algılarının rolü. *Çankırı Karatekin University İİBF Dergisi*, *5*(2), 1-26.

Uğurluoğlu, Ö. & Çelik, Y. (2009). Örgütlerde stratejik liderlik ve özellikleri. *Hacettepe Sağlık İdaresi Dergisi, 12*(2), 121-156.

Uğurluoğlu, Ö., F. Şantaş & B. Demirgil (2013). Lider-üye etkileşimi ile tükenmişlik ilişkisi: hastanelerde bir uygulama, *Hacettepe Sağlık İdaresi Dergisi*, *16*(1), 1-21.

Ürek, D. & Uğurluoğlu, Ö. (2015). Sağlık çalışanlarının lider-üye etkileşim düzeylerinin çeşitli özellikler açısından değerlendirilmesi. *Sosyoekonomi*, *23*(25), 7-30.

Wakslak, C. J., Jost J. T., Tyler T. R. & Chen E. S. (2007). Moral outrage mediates the dampening effect of system justification on support for redistributive social policies. *Psychological Science, 18*(3), 267–274.

Williams, B. A., Onsman, A., & Brown, G. T. (2010). Exploratory factor analysis: A five-step guide for novices. Journal of Emergency Primary Health Care, 8(3), 1 - 13.

Yaşlıoğlu, M. M., Pekdemir, I. & Toplu, D. (2013). Duygusal zekâ ve çatışma yönetimi yöntemleri arasındaki ilişki ve bu ilişkide lider üye etkileşiminin rolü. *Yönetim Bilimleri Dergisi. 11*(22), 191-220.

Yener, S . (2015). Psikolojik rahatlık ölçeğinin Türkçe formunun geçerlik ve güvenirlik çalışması. *ODÜ Sosyal Bilimler Araştırmaları Dergisi*, *5*(13), 280-305.

Yıldız, G., Özutku C. & Cevrioğlu, E. (2008). Lider-üye etkileşimine çok boyutlu yaklaşım: Liden ve Maslyn'in dört boyutlu lider-üye etkileşim ölçeğinin psikometrik özelliklerine yönelik görgül bir araştırma. *Akademik İncelemeler*, *3*(1), 95-123.

Yıldız, S. M. (2015). Lider-Üye etkileşimi, işyerinde mobbing ve mesleki tükenmişlik ilişkisi, Detay Yayıncılık

Yılmaz, V. (2004). Lisrel ile Yapısal Eşitlik Modelleri: Tüketici Şikâyetlerine Uygulanması. *Anadolu University Journal of Social Sciences*,*4*(1), 77-90.

Yolaç, S. (2011). Yöneticinin algılanan liderlik tarzı ile yöneticiye duyulan güven arasındaki ilişkide lider-üye etkileşiminin rolü. *Marmara University Institute of Social Sciences Dergisi*, *9*(36), 63-72.

Yukl, G. (1989). Managerial leadership: A review of theoryand research. *Journal of Management* - 15(2), 251-289.

Appendix A

THREE DİMENSİONAL LEADER-MEMBER EXCHANGE SCALE (LMX-3D) TURKİSH (ORİGİNAL LANGUAGE) VERSION

Açıklama: Aşağıdaki maddeler, aynı örgütte görev yapan lider ve üyeler arasında kişilerarası bir ilişkinin bulunduğunu öne süren "Lider-Üye Etkileşimi" Teorisi ile ilgilidir. Lütfen çalıştığınız kurumu göz önünde bulundurarak, size uygun olan seçeneğin altındaki kutucuğa "X" işareti koyunuz.		**Hiç katılmıyorum (1)**	**Az katılıyorum (2)**	**Orta düzeyde katılıyorum (3)**	**Önemli ölçüde katılıyorum (4)**	**Tamamen Katılıyorum (5)**
No	**Maddeler**					
	Görev					
1	Müdürüm bana işle ilgili davranışlarımda -mevzuat çerçevesinde- bağımsızlık sağlar.	1	2	3	4	5
2	Müdürüm ile okulumuzun amaçlarını gerçekleştirmek için yoğun çaba sarf ederiz.	1	2	3	4	5
3	Müdürüm işini mükemmel yaptığı için onu takdir ederim.	1	2	3	4	5
4	Müdürümün iş yeteneğine güvenirim.	1	2	3	4	5
5	Müdürüm okula katkı sağlayan öğretmenleri tespit eder.	1	2	3	4	5
6	Müdürüm bireysel karar vermeyi gerektiren işleri güvendiği öğretmenlere verir.	1	2	3	4	5
	Destek					
7	Öğretmenler okulun örgütsel ikliminden memnundurlar.	1	2	3	4	5
8	Öğretmenler birbirlerine güvenirler.	1	2	3	4	5
9	Öğretmenler meslektaşlarından destek alırlar.	1	2	3	4	5
	İlişkiler					
10	Müdürüm ile birbirimizi insan olarak severiz.	1	2	3	4	5
11	Müdürüm ile birlikte çalışmaktan keyif alırım.	1	2	3	4	5
12	Müdürüm mesleki bilgisine güvendiği öğretmenlerle ilişkilerini geliştirir.	1	2	3	4	5

Appendix B

ENGLİSH TRANSLATİON OF SCALE THREE DİMENSİONAL LEADER-MEMBER EXCHANGE SCALE (LMX-3D)

Explanation: The following items are related to the "Leader-Member Exchange" Theory, which proposes that there is an interpersonal relationship between leaders and members working in the same organization. Please put an "X" sign in the box under the option that suits you, taking into account the institution you work for.		Completely disagree (1)	Disagree (2)	Moderate level agree (3)	Significantly agree (4)	Completely Agree **(5)**
No	**Items**					
	Task					
1	My principal provides me with independence in my work related behavior within the framework of the legislation.	1	2	3	4	5
2	My principal and I work hard to achieve the goals of our school.	1	2	3	4	5
3	I commend my principal for doing her/his job perfectly.	1	2	3	4	5
4	I trust her/him work ability.	1	2	3	4	5
5	identifies teachers who contribute to the school.	1	2	3	4	5
6	assigns jobs that require individual decision making to teachers he trusts.	1	2	3	4	5
	Support					
7	Teachers are satisfied with the organizational climate of the school.	1	2	3	4	5
8	Teachers trust each other.	1	2	3	4	5
9	Teachers receive support from their colleagues.	1	2	3	4	5
	Relationships					
10	My principal and I like each other.	1	2	3	4	5
11	I enjoy working with my principal.	1	2	3	4	5
12	My principal develops relationships with teachers whose professional knowledge he trusts.	1	2	3	4	5