AUJEF

ANADOLU UNIVERSITY

Aim and Scope

Anadolu University Journal of Education Faculty (AUJEF), which published its **_first issue in 1984_** (Print ISSN: 1300-5448, Online ISSN: 2602-2249) is a blind, peer-reviewed, open-access, free-of-charge international scientific academic journal published in educational sciences four times a year (March, June, September, and December). Besides, the AUJEF can publish additional issues in exceptional circumstances. AUJEF aims to present a compilation of up-to-date and innovative research papers, reviews, and argumentative essays on education in general and teacher education in particular. It is hoped that the studies published in AUJEF will provide the basis for timely discussions on the various areas of teacher education and give direction to innovative research and practices.

The papers published in AUJEF are also expected to raise issues related to teacher education in various fields, open up discussions related to those issues, and suggest different methods of handling those issues or solving the related problems. Authors who will contribute to AUJEF are expected to consider the following rules.

- Studies to be published in AUJEF must be conducted in any area of educational sciences, especially teacher education.
- AUJEF is published in English only. Article review processes are carried out only in English. Manuscripts not full-text in English at the first submission will be returned to the author.
- The authors can be carried out in quantitative, qualitative, or mixed-method research.
- Literature analyses, meta-analyses, meta-synthesis studies, and book reviews can be sent to AUJEF for reviewing and publication.
- AUJEF prioritizes research papers. Attention is paid to the issue of whether the number or quantity of review papers should overtake the number of research papers.

From the Editor

Dear Colleagues and Readers

It is with great pleasure that I present the third issue of the ninth volume of the _Anadolu University Journal of Education Faculty (AUJEF)_. This issue continues our tradition of publishing rigorous, timely, and diverse research that addresses the multifaceted challenges and opportunities in the field of education. The collection of articles in this volume reflects the dynamic nature of our discipline, spanning topics from the cross-cultural validation of assessment tools and the complexities of language pedagogy to the pervasive influence of technology on social behavior and the foundational importance of sustainability and systemic reform.

We begin this issue with a significant methodological contribution from. Zied Trabelsi and Abdelmajid Naceur, titled "Cross-cultural adaptation and validation of the Arabic version of the Stages of Concerns (SoC) questionnaire for measuring teachers' concerns regarding the adoption of educational technologies." Their study meticulously adapts and validates the SoC questionnaire for Tunisian in-service primary teachers. With a robust sample of 1,110 educators, the authors employ confirmatory factor analysis to establish the Arabic version's excellent psychometric properties and construct validity. This work provides a reliable and culturally relevant instrument for researchers and policymakers across Arabic-speaking regions to understand better and support teachers navigating the integration of educational technologies.

ANADOLU
UNIVERSITY

Fikri Geçkinli explores the nuanced world of language pedagogy in "Rethinking language precision in the context of English as a global lingua franca: Pedagogical perspectives." This mixed-methods study investigates the attitudes of tertiary-level English teachers and students in Türkiye towards non-standard lexical and grammatical features of English. The findings reveal a complex perspective: while both groups display a general acceptance of features that do not impede comprehension, they maintain a concern for grammatical accuracy in formal contexts[6]. Geçkinli's research underscores the critical importance of mutual intelligibility over rigid adherence to native-speaker norms, offering valuable insights for curriculum development in an era where English serves as a global lingua franca.

Suzan Arslan and Levent Vural delve into the "Hidden curriculum in visual arts education." Through qualitative interviews and observations in secondary schools in Edirne, Türkiye, the authors identify how extracurricular activities, exhibitions, and even the physical arrangement of school spaces shape students' values and attitudes beyond the formal curriculum. Their findings demonstrate that these hidden elements have profound educational, sensory, and aesthetic impacts, highlighting the crucial role that school administrators and teachers play in cultivating an enriching artistic environment.

In their timely research, "Determination of ecological footprints of pre-service teachers (the case of Kırıkkale University)," Figen Durkaya, Berfin Ekin, and Kübra Ergüç assess the environmental awareness of future educators. Using the Ecological Footprint Awareness Scale, the study reveals that pre-service teachers exhibit the highest awareness in "Energy" and "Water Consumption" but the lowest in the "Food" sub-dimension. The research also finds significant differences in awareness based on gender, economic income, and mother's education level, providing critical data for enhancing sustainability education within teacher training programs.

Our fifth article offers a compelling cross-cultural analysis. In "Exploring language teachers' assessment identity: a comparative review of teacher beliefs on L2 writing assessment in China and Iran," Humyra Anjum Maliha, Mo Yuanfa, Xiao Yuhan, Wang Ying, and Wang Yun examine how cultural and institutional factors shape assessment practices. The review reveals that while teachers in both exam-driven systems believe in formative assessment, they often resort to summative methods due to systemic pressures like high-stakes exams and large class sizes. This study highlights the universal tension between pedagogical ideals and institutional realities, calling for better training and policy support to align teachers' beliefs with their practices.

Thseen Nazir provides a comprehensive review of a modern social disruption in "Phubbing in the digital age: Understanding and mitigating the impact on social interactions and relationships." Synthesizing a decade of literature, this article defines the phenomenon of "phone snubbing," categorizes its various forms (parental, partner, boss, and academic phubbing), and analyzes its psychological and social predictors, such as smartphone addiction and personality traits. Nazir's work not only offers a robust theoretical framework for understanding this behavior but also proposes concrete strategies to foster healthier relationships with technology.

This issue also features two insightful book reviews. First, Handan Erem Altın Kaya and İsmail Yaman review Carol Griffiths' edited volume, *The practice of English as a medium of instruction (EMI) around the world*. They find the book to be a valuable resource that presents studies on EMI from diverse global contexts, allowing readers to compare policies, practices, and challenges. While noting its strength in providing rich empirical data, the reviewers point out a limitation in its offering of actionable, context-specific solutions.

ANADOLU
UNIVERSITY

Finally, Aylin Kirişçi-Sarıkaya reviews *The drivers: Transforming learning for students, schools, and systems* by Michael Fullan and Joanne Quinn. The review highlights the book's timely and comprehensive framework for systemic educational reform, centered on four interrelated "drivers": Well-Being and Learning, Social and Machine Intelligence, Equity-Equality Investments, and "Systemness". Kirişçi-Sarıkaya praises the book as a practical and humanistic vision for education systems, making it a valuable resource for leaders, policymakers, and academics alike.

The articles in this issue collectively demonstrate the vibrant and evolving landscape of educational research. They challenge us to think critically about our practices, our environments, and the very definitions of learning and communication in the 21st century. I extend my deepest gratitude to our authors for their scholarly contributions, to our dedicated reviewers for their invaluable feedback, and to our entire editorial team for their tireless efforts. I am confident that you, our readers, will find this collection both enriching and thought-provoking. I would like to thank all the authors who have found AUJEF to be a platform to publish their work. I would also like to thank my colleagues on the Editorial Board and the valuable stakeholders who served as reviewers for improving the quality of the studies published in AUJEF. See you again in the fourth issue of the ninth volume.

Editor-in-Chief

Dr. Servet Üztemur

Volume 9 Issue 3 Reviewers

CONTENTS
(Volume 9, Issue 3, 2025)

ANADOLU UNIVERSITY

RESEARCH ARTICLE   **OPEN ACCESS**

Cross-cultural adaptation and validation of the Arabic version of the Stages of Concerns (SoC) questionnaire for measuring teachers' concerns regarding the adoption of educational technologies*

Zied Trabelsi [1c] iD, and Abdelmajid Naceur[1] iD

[1] Virtual University of Tunis, Tunis Higher Institute of Education and Training, Education Department, Tunisia
[c] **Correspondence Author(s):** Zied Trabelsi, Virtual University of Tunis, Tunis Higher Institute of Education and Training, 43, rue de la Liberté 2019 Le Bardo Tunisie. zied.trabelsi@isefc.uvt.tn
*The study protocol was in-depth reviewed and received the full approval by the ethical committee of the ECOTIDI research unit, Tunis, Tunisia.

195

Abstract

Our study aimed to translate the Stages of Concerns (SoC) questionnaire into Arabic and culturally adapt it for measuring the concerns of Tunisian in-service primary teachers about the adoption of educational technologies, and to validate this version by exploring its psychometric properties. For cross-cultural adaptation, we adopt the ITC guidelines for translating and adapting tests by the International Test Commission (2017). A total of 1.110 teachers from various public schools participated in the study. The five-dimensional alpha coefficients of the SoC indicate an excellent internal consistency, respectively, of 0.801 (Awareness), 0.909 (Informational/Personal), 0.834 (Management), 0.882 (Consequence/Collaboration), and 0.928 (Refocusing). The final Arabic version of the SoC questionnaire shows excellent CFA fit indices ($\chi 2$/df=2.523, AGFI=0.950, CFI=0.984, RMSEA=0.037, SRMR=0.0367), demonstrating the robustness and the construct validity of the survey. Multigroup confirmatory factor analysis (MGCFA) results confirmed configurational, metric, and scalar invariance based on the amount of gender and seniority. We conclude that the Arabic version of the SoC questionnaire is reliable and is equally applicable to different subgroups within the Tunisian primary teacher population.

1. Introduction

Research in the field of educational change proposes several models for analyzing the process of change in the context of innovation adoption. The Concerns-Based Adoption Model (CBAM) is one of the most widely used in the literature over the last 30 years to analyze how teachers adopt or reject school innovations (de Vocht et al., 2017; Dunn, 2016, p. 2023; Lau & Jong, 2023; Rakes & Dunn, 2015). It is based on concern theory that emerged in the late 1960s from the pioneering research of Frances Fuller and her colleagues at the Research and Development Center for Teacher Education at the University of Texas at Austin (Hall & Hord, 1987). Gene E. Hall and his team considered that Fuller's work could be extended to any change induced by an innovation or a new approach, and to any actor involved in a change (Hall et al., 1977, 1978; Hall & Hord, 2015). Since the early 1970s, they have developed the principles, tools, and methods of the CBAM model as a theoretical and procedural framework for analyzing, understanding, and managing the change process (Byrne & Prendergast, 2020; Lau & Jong, 2023). According to CBAM, to analyze the change process, it is necessary to conduct ongoing diagnoses based on teachers' concerns. Three dimensions have been identified and verified by research to carry out this diagnosis: (1) Stages of Concerns, (2) Levels of Use and (3) Innovation Configurations. Our literature review revealed that the majority of studies adopting the CBAM framework have focused essentially on measuring teachers' concerns (Hall & Hord, 2015).

As the contexts of change and the nature of innovations have evolved, new versions of the questionnaire have been developed. The most widely utilized adaptation is that by Derek Cheung and colleagues (Cheung et al., 2001), who conducted a comparative analysis of four alternative models to the original questionnaire and constructed a new 22-item, 5-stage instrument. Since 2019, Fisher and colleagues (Fischer et al., 2019) have proposed a revised version with improved psychometric properties, retaining the same structure and number of items as Cheung's version. Therefore, the survey has been translated and adapted to several languages, including German (van den Berg, 1981) and French (Meunier, 2010). For the Arabic language, no empirical validation has been identified according to standard transcultural adaptation protocols. Researchers have often been content to bypass the cross-cultural adaptation process (Alshammari, 2000; Baytar et al., 2023). Without an empirically validated version, it is challenging to conduct reliable analyses that can help decision-makers implement change more effectively.

The aim of this study was (1) to carry out a cross-cultural adaptation of the English version of the Stages of Concerns questionnaire (SoC) into Arabic, and (2) to evaluate its psychometric properties for applications among Tunisian primary teachers. The underlying hypotheses are: (1) The English version of SoC-22 can be culturally adapted into Arabic, and (2) the Arabic version of SoC-22 presents good psychometric properties among Tunisian primary teachers.

2. Literature Review

2.1. Conceptualization of the Stages of Concern

Concern theory stems from Frances Fuller's work in the 1960s. She suggested that an individual's feelings about an innovation should be considered as concerns (Fuller, 1969). Hall and Hord (1987) developed the CBAM model based on the concern concept. Concerns are considered, *"as the feelings, perceptions, preoccupations, considerations, motivations, satisfactions, and frustrations that collectively describe an individual's stage in the affective response to the adoption of a new innovation."* (Rakes & Dunn, 2015, p. 3). Teachers' concerns about an object or a change situation evolve as they progress through the change process over seven stages of concern (Hall & Hord, 2015).

Firstly, the teacher is not concerned with the innovation. This is not automatically because the person does not want to learn about innovation, but sometimes other concerns take priority and are more important at this point. This stage indicates the extent to which change is at the core of the individual's thinking. It does not reflect if the teacher implements the change or not, but only the importance he or she attaches to it (Y.-H. Chen & Jang, 2014; Hall & Hord, 2015; Hatley, 2011). This

stage is referred to as the Awareness stage. Next, the teacher wants to know the general information, not the details. People with high scores in this stage do not necessarily lack knowledge of the innovation, but want to learn more. They want to determine what the change will entail and what is required to implement it (Hatley, 2011). This is the Informational stage. The Personal stage follows, the teacher asks questions that are self-oriented and generally not about the innovation; for example, "What is it?" and "How will it affect me?" (Hall & Hord, 2015). He starts to feel worried or anxious about how the change will affect him and begins to analyze his role, make decisions, and become involved. Teachers want to know about the benefits of implementing the change, including the value, praise, and gratification. The focus on the "self" absorbs the thought processes at this stage. After answering these highly personal questions, the questions become more task-oriented; for example, "How do I do it?" (Hall & Hord, 2015; Kim & Paik, 2016; Lau & Jong, 2023). Concerns at this stage are related to feelings of anxiety, doubt about the knowledge required, or the uncertainty of the situation he or she is about to face (Rismiati, 2012). The teacher begins to experiment with innovation and implement changes. They deal with task organization and time management to implement the innovation. Teachers at this stage are concerned with the workflow, resources, and overall management of the innovation. They are concerned with being efficient and doing their best with the innovation (Chen & Jang, 2014; Hall & Hord, 2015; Hatley, 2011). This is the Management stage. Once the problems of the task have been solved, the teacher can now focus on the impact of the change, asking questions such as "Do my students like this innovation?" and "Is there anything that could work better?" (Hall & Hord, 1987). At this stage, the teacher considers how the change is benefiting learners, examines the advantages, and makes modifications to the innovation to improve its performance. Concerns evolve on their own and begin to focus on learners, how change can impact learners' learning, and how they can ensure their practices improve (Hatley, 2011). This is the Consequence stage. Once the teacher is confident about the relevance of the innovation, they can then consider possible ways to refine it to ensure a greater impact on learners. Furthermore, some teachers may attempt to observe how others are utilizing the innovation and seek to collaborate with colleagues to maximize its potential (Chen & Jang, 2014). This is the collaboration stage. Ultimately, the teacher begins to ask new questions, such as "Are they learning what they need to know?" and "Is there anything that would work even better?" (Hall & Hord, 2015). Indeed, at this stage, people are confident and well informed enough to make significant changes to the innovation that they see as improvements. These people sometimes feel that something is wrong with the innovation and want to change it, or they may consider that something else is better (Fan & Zhao, 2023). This is the Refocusing stage.

2.2. The Stages of Concerns Questionnaire (SoCQ)

To measure these concerns, Hall and colleagues have developed a Stages of Concerns (SoC) questionnaire with seven 5-item dimensions (Hall et al., 1977). Each dimension assessed the concerns of each stage. The first version had a total of 35 items. Since its publication in 1977, the SoC has been utilized in hundreds of studies across various fields of education and research. The items have been continually modified in line with the characteristics of the application fields and the nature of the innovations and reforms being investigated.

The Stages of Concerns Questionnaire (SoCQ) has undergone several adaptations and refinements over time on three main levels: (1) Contextual Adaptations: The SoCQ has been adapted to various educational contexts, encompassing primary and secondary education, higher education, and even healthcare settings (Armer et al., 2004; Christou et al., 2004; Yan & Deng, 2019), (2) Cultural Adaptations: It has been modified to fit different cultural contexts. Research based on SoCQ has been carried out in North and South America (Armer et al., 2004; Cardoza & Tunks, 2014; Fischer et al., 2019; Lochner et al., 2015; Longyhore, 2020; Meunier, 2010; Murza & Ehren, 2015), Europe (de Vocht et al., 2017; Dörrenbächer-Ulrich et al., 2020; Goktalay & Cangur, 2008; Wiedemann et al., 2017), Africa (Baytar et al., 2023; Dele-Ajayi et al., 2021; Makwinya et al., 2022; Sackstein et al., 2022; Trabelsi & Naceur, 2025), the Middle East (Al-Furaih & Al-Awidi, 2020; Alshammari, 2000), Asia (W.-R. Chen, 2023; Y.-H. Chen & Jang, 2014; Fan & Zhao, 2023; Yan & Deng, 2019) and Australia (Forlin et al., 2008; Thompson et al.,

2020), and (3) Innovation Adaptations: The SoCQ has been used to evaluate concerns about a range of innovation adoptions, including different educational technologies (i.e. mobile-assisted language learning, e-learning platforms, serious games, robotics and the employment of AI in the classroom), curriculum and pedagogical changes (Alshammari, 2000; Byrne & Prendergast, 2020; Christou et al., 2004; Darr, 1985; Gokcek & Baki, 2013; Makwinya et al., 2022).

The latest versions of SoCQ are based on five stages rather than seven. In fact, the researchers have demonstrated that merging the "Information/Personal" and "Consequence/Collaboration" stages, and reducing the number of items, yields better psychometric properties. Initially designed with 35 items, new versions of the SoC contain only 22. Since the work of Cheung et al. (2001), most adaptations use 22 items spread over 5 stages, respectively "Awareness" (4 items), "Informational/Personal" (5 items), "Management" (4 items), "Consequence/Collaboration" (4 items) and "Refocusing" (5 items). All items are scored on a 0 -7 Likert-type scale. A comparison of the psychometric qualities of the different versions led us to choose Fisher's version (2019). Table 1 illustrates the statistical properties of the confirmatory factor analyses (CFA) of the six most frequently used versions of the SoC questionnaire.

Table 1. Fit of alternative models

Model	Items	χ^2	df	χ^2/df	RMSEA	TLI	CFI
7 subscales (Hall et al., 1978)	35	4798	539	8.9	.082	.76	.79
5 subscales (Bailey & Palsha, 1992)	15	1033	80	12.9	.092	.77	.83
5 subscales (Shotsberger & Crawford, 1996)	27	3523	314	11.21	.092	.74	.77
5 subscales (Cheung et al., 2001)	22	1428	132	10.81	.087	.85	.87
5 subscales (Meunier, 2010)	22	799	366	2.18	.08	.86	.83
5 subscales (Fischer et al., 2019)	22	290	131	2.12	.056	.911	.95

3. Method

3.1. Research Design

For the purposes of the cross-cultural adaptation, we adopted the recommendations of the International Test Commission (2017) and the APA standards (American Educational Research Association et al., 2014) which were adapted to the context of our study (Gana et al., 2021). The process of cross-cultural adaptation is presented in Figure 1.

Firstly, to obtain the necessary permission from the holder of the intellectual property rights relating to the Stages of concerns questionnaire, we sent an electronic request to The American Institutes for Research (AIR) on 27 February 2023. We received authorization on 28 February 2023.

Secondly, a translation from English to Arabic was performed by two translators who are both native speakers of Arabic and fluent in English. They are also experts in educational technologies. It was requested of both translators to translate conceptually rather than literally. Then, the back translation was carried out by an English teacher who had not participated in the first step and not informed of the study purpose. Next, to obtain a pre-final Arabic version, the original and back-translated versions were thoroughly reviewed and compared for semantic, experiential, and conceptual equivalence. Finally, a sample of 67 primary school teachers tested the Arabic pre-final version to ensure that instructions and item content were understandable and easy to answer. The used questionnaire employs a for-point Likert-type response scale from "Not at all clear" to "Absolutely clear". The results showed that the instructions and the 22 items were well understood by teachers. No changes were necessary after this pretest (See Appendix I).
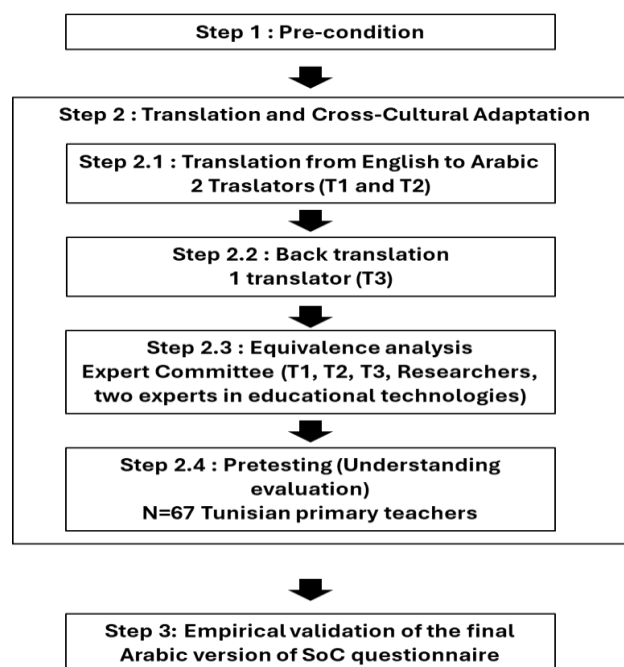
Figure 1. The cross-cultural adaptation process of the SoCQ to Arabic

3.2. Sample

In total, 1110 in-service Tunisian primary school teachers belonging to 24 states participated in this study (269 male and 841 female). All were volunteers who took part anonymously and confidentially. They teach several disciplines (Science, Arabic, French, English, Biology, Technology).

3.3. Data Analysis

The ITC Guidelines for Translating and Adapting Tests (ITC, 2017) suggest providing statistical evidence to establish the construct equivalence of the new adapted version. We conducted three majors' analysis.

To examine the reliability of the scale, Cronbach's α, McDonald's ω, and Gutmann's λ6 were used to evaluate the internal consistency of the sub-scales and the overall score of the instrument.

To investigate the factor structure of the scale, a confirmatory factor analysis (CFA) of the first order with maximum likelihood estimation was conducted. We used various indices to evaluate the model's fit, based on the literature's recommendations (Gana et al., 2021; Kline, 2023): chi-square, chi-square/degrees of freedom, goodness-of-fit index (GFI), goodness-of-fit index (AGFI), comparative fit index (CFI), Tucker–Lewis index (TLI), Root mean square error of approximation (RMSEA) and Root mean square residuals (RMSR). In order to perform the CFA, we carried out some preliminary analysis: (1) checking the rate of missing values, which must not exceed 5% to avoid biasing the results (Tabachnick & Fidell, 2007),(2) examine the outliers, (3) check the variables' normality using the Skewness and Kurtosis indices, (4) check the variables' multinormality using the Mardia test, (5) check the ratio between the extremes of the variances. Therefore, we analyzed the convergent and discriminant validity of the scale by evaluating the Standardized Factor Loading, the Composite Reliability (CR), the Average Variance Extracted (AVE), and the Maximum Shared Variance (MSV) (Fornell & Larcker, 1981).

In line with Kline's (2023) recommendations, model refinement was conducted to improve overall fit by reducing the chi-square statistic. Modification Indices (MIs) were examined, and additional error covariances were specified only when theoretically justified—specifically, when items belonged to the same latent construct and exhibited high semantic or structural similarity.

Finally, we performed a multi-group confirmatory factor analysis (MGCFA) to assess measurement invariance across genders and seniority, which is examined from three angles: configurational, metric and scalar invariance (Campbell et al., 2008; Fornell & Larcker, 1981; Xu & Tracey, 2017)(Campbell et al.,

2008; Fornell & Larcker, 1981; Xu & Tracey, 2017). To perform all these analyses, we used the software programs JASP (0.18.3) and AMOS (version 25, IBM, Armonk, NY, USA).

4. Results

4.1. Sample characteristics

The study sample was composed mostly of female participants (75.76%). The proportion of teachers with a bachelor's degree or higher is 75%. Teachers working in an urban area account for 60% of the population. Thirty-two percent of respondents declared a career span of less than 5 years. As regards seniority in teaching, we proposed three choices: less than 6 years, between 6 and 15 years, and more than 16 years. The respective answers were 32.79%, 35.85% and 31.35%. See Table 2 for the distribution of the sample by gender and seniority.

Table 2. Distribution of the study population by gender and seniority

Gender	Seniority			Total
	<6	[6..15]	>15	
Male	67	66	136	269
	24.907%	24.535%	50.558%	
Female	297	332	212	841
	35.315%	39.477%	25.208%	
Total	364	398	348	1110
	32.793%	35.856%	31.351%	

4.2. Internal Reliability

To examine the reliability of the scale, Cronbach's α, McDonald's ω, and Gutmann's λ6 were used to evaluate the internal consistency of the overall score of the instrument as well as the five sub-scales. Cronbach's coefficient α for the entire Arabic version of SoCQ (ASoCQ) is acceptable at 0.804. Furthermore, the value of the McDonald's ω and the Gutmann's λ6 coefficients of the scale are good (McDonald's ω=0.754, Gutmann's λ6=0.905). The findings reported in Table 3 show that all five sub-scales have good internal consistency coefficients.

Table 3. Score Ranges and Internal Reliability Coefficients for the ASoCQ subscales

Subscales	McDonald's ω	Cronbach's α	Guttman's λ6	Mean	SD	Score range
Awareness	0.803	0.802	0.760	8.071	5.133	4 to 28
Informational/Personal	0.908	0.910	0.908	29.329	6.980	5 to 35
Management	0.843	0.839	0.808	17.428	6.912	4 to 28
Consequence/Collaboration	0.882	0.884	0.854	21.959	6.402	4 to 28
Refocusing	0.928	0.929	0.917	26.556	9.027	5 to 35

4.3. Construct validity: Confirmatory factor analysis

The CFA was adopted on the assumption that the structure of the short version of the 22-item Stages of Concern questionnaire was empirically validated by several studies (Bailey & Palsha, 1992; Cheung et al., 2001; Fischer et al., 2019; Hall et al., 1978; Meunier, 2010; Shotsberger & Crawford, 1996) (Bailey & Palsha, 1992; Cheung et al., 2001; Fischer et al., 2019; Hall et al., 1978; Meunier, 2010; Shotsberger & Crawford, 1996). Before proceeding with the CFA, assumption tests were carried out to ensure the data were suitable for analysis (Kline, 2023).

The rate of missing values in our data does not exceed 1%. The use of the Maximum Likelihood method to carry out the CFA requires the absence of missing data. We have therefore adopted the data imputation method to overcome this problem (Kline, 2023). To verify the presence of outliers, we used the Mahalanobis distance, which revealed no major violations in the multivariate extreme outliers. Skewness index analysis reveals an acceptable asymmetry, ranging from -1.730 to +1.729 (considered

acceptable between -3 and +3). Likewise for Kurtosis scores, they vary between -1.339 and +2.248 (acceptable between -10 and +10) (Kline, 2023; Mhiri, 2019). The Mardia test is used to evaluate the multivariate normality of the data. It is a multivariate generalization of the Kurtosis test. According to Kline (2023), a multivariate Kurtosis score greater than 5 is an indicator of multinormality. In our case, this score is 8.636, well above 5. We can therefore confirm multivariate normality, just as we did for univariate normality. Kline (2023) suggested that the ratio of maximum to minimum variance should be less than 10. In our case, the highest variance is 4.669 and the lowest is 2.306. The ratio is 2.024, which is less than 10. These analyses validated the assumptions to conduct CFA. Table 4 shows these findings.

Table 4. Assessment of normality

Fisher's version items	Mean	Variance	Skewness	Kurtosis
Q1	2.213	2.768	1.105	0.066
Q6	1.949	2.518	1.631	1.641
Q11	1.940	2.340	1.658	1.936
Q17	1.970	2.895	1.729	1.865
Q14	5.713	2.984	-1.350	0.876
Q16	5.821	2.789	-1.502	1.358
Q20	5.823	2.765	-1.528	1.490
Q21	5.982	2.306	-1.690	2.247
Q22	5.991	2.462	-1.734	2.247
Q2	4.369	4.190	-0.326	-1.110
Q3	4.054	4.515	-0.136	-1.301
Q7	4.112	4.602	-0.124	-1.339
Q13	4.893	4.395	-0.608	-0.979
Q8	5.007	3.944	-0.626	-0.877
Q15	5.614	3.242	-1.198	0.294
Q9	5.580	3.441	-1.228	0.327
Q15	5.758	3.239	-1.420	0.861
Q10	4.911	4.669	-0.706	-0.935
Q19	5.329	4.039	-1.083	-0.146
Q4	5.508	3.862	-1.251	0.252
Q12	5.432	4.121	-1.182	0.033
Q18	5.376	4.330	-1.112	-0.170
Multivariate				8.636

To assess the model, we first analyze the chi-square value. This value was statistically significant $x2(192) = 484.471$, $p<0.001$). The chi-square test is very sensitive to the number of observations (Kline, 2023). That is why this result was expected, given the large sample size. The significant p-value does not necessarily indicate that the data do not match the model well. So, the model fit was assessed with the following indices: the chi-square/degree of freedom ($\chi2/df$) = 2.523, the goodness of fit index (GFI = 0.962), the goodness of fit index (AGFI = 0.950), the Tucker–Lewis index (TLI = 0.978), the comparative fit index (CFI = 0.982), the root mean square error of approximation (RMSEA = 0.037) and the standardized root mean square residual (SRMR = 0.0367). The 22 items of the ASoC demonstrated strong factorial loadings overall. Item 13 yielded an acceptable score (0.56 > 0.55), while Item 1 stood out with a notably high value (0.64 > 0.63). The remaining 20 items exhibited excellent loadings, all exceeding 0.71, underscoring the robustness of the scale. Table 5 presents the model's fit indices alongside their critical thresholds. These results confirm that the Arabic version of the SoC-22 aligns well with Fisher's model and adheres to the theoretical framework (see Figure 2).

Table 5. Model fits of ASocQ

Indices	χ^2	df	χ^2/df	GFI	AGFI	TLI	CFI	RMSEA	SRMR
ASoC	484.471	192	2.523	0.962	0.950	0.978	0.982	0.037	0.0367
Excellent			<3	>0.95	>0.90	>0.95	>0.95	<0.05	<0.05
Acceptable			<5	>0.90	>0.85	>0.90	>0.90	<0.08	<0.08
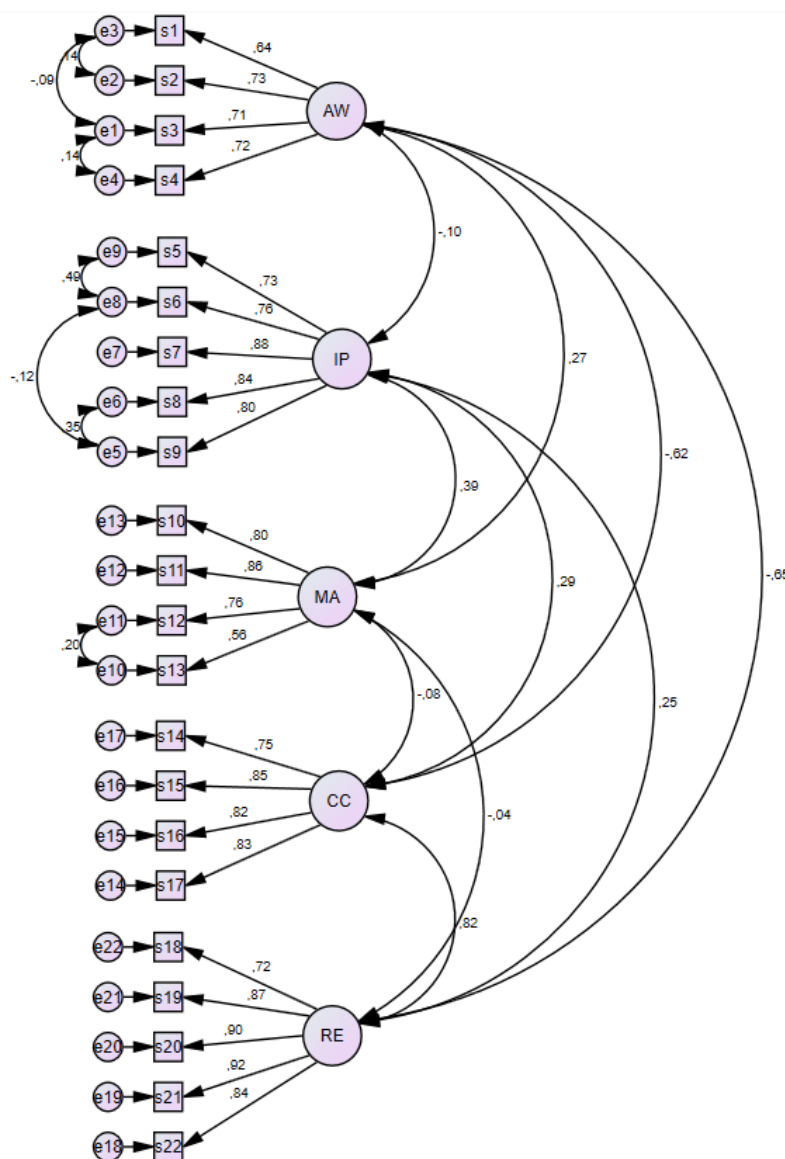
AW : Awerness - IP : Informational/Personal - MA : Management - CC : Consequence/Collaboration - RE : Refocusing

Figure 2. Final confirmatory factor analysis (CFA) model of the Arabic version of SoC-22 for Tunisian primary school teaching (N=1110)

4.4. Convergent and Discriminant Validity

Table 6 displays Model Validity Measures. Composite reliability (CR) for all items is above 0.70, indicating good reliability. The AVE (Average Variance Extracted) is also greater than 0.50 for the four dimensions Informational/Personal, Management, Consequence/Collaboration, and Refocusing, indicating excellent convergent validity (Hair et al., 2023; Hu & Bentler, 1999). For the Awareness dimension, the AVE is equal to 0.476, which is below the threshold of 0.5.

To establish discriminant validity, we employed the criteria proposed by Fornell & Larcker (1981) and Hu and Bentler (1999). The results show acceptable validity. We only identified two weaknesses: (1) The AVE for Awareness sub-scale is less than the MSV, and (2) the square root of the AVE for Consequence/Collaboration is less than its correlation with Refocusing. Malhotra and Dash (2011) argue

that AVE is often too strict (Malhotra & Dash, 2011) and that reliability can be established through CR alone. In this way, we can confirm that the reliability of the Arabic version of SoC-22 among Tunisian primary school teachers is satisfactory.

Table 6. Model Validity Measures

	CR	AVE	MSV	MaxR(H)	AW	IP	M	CC	RE
D1	0.781	0.472	0.552	0.784	0.687				
D2	0.893	0.626	0.236	0.901	-0.043	0.791			
D3	0.858	0.603	0.236	0.872	0.250**	0.486***	0.777		
D4	0.856	0.597	0.668	0.858	-0.743***	0.236**	-0109	0.773	
D5	0.912	0.677	0.668	0.929	-0.651***	0.201**	-0.004	0.817***	0.823

4.5. Measurement Invariance: Multigroup Confirmatory Factor Analysis

In our study, measurement invariance is examined under three headings: configurational, metric, and scalar invariance (Ansong et al., 2016; Campbell et al., 2008; Xu & Tracey, 2017). We investigated the generalizability of the final five-factor model across genders and seniority. First, we assessed the adequacy of the final model for the three categories of teachers, according to their seniority (0..5; 6..15 and 16+ years) individually, as well as for men and women. All five models obtained a good fit with the data. Table 7 shows all MGCFA results.

Table 7. Fit indices of the five MGCFA models

Indices	χ^2/df	AGFI	TLI	CFI	RMSEA	SRMR
Male-only sample	1.799	0.865	0.949	0.957	0.055	0.0506
Female-only sample	2.149	0.944	0.979	0.982	0.037	0.0389
Seniority1-only sample	1.600	0.909	0.968	0.973	0.041	0.0449
Seniority2-only sample	1.967	0.893	0.959	0.966	0.049	0.0470
Seniority3-only sample	1.767	0.895	0.970	0.974	0.047	0.0447
Excellent	<3	>0.90	>0.95	>0.95	<0.05	<0.05
Acceptable	<5	>0.85	>0.90	>0.90	<0.08	<0.08
Seniority1 :[0..5] ; Seniority2 : [6..15] ; Seniority3 : >15						

Next, we evaluated configurational invariance by assessing measurement models for the two variables gender and seniority. The gender and seniority-based models showed adequate fit: (1) (χ 2 = 772.454; df=401; χ2/df=1.926; GFI=0.941; AGFI=0.925; CFI=0.977; RMSEA=0.029; SRMR=0.0510) and (2) (χ2= 1240.042; df=654; χ2/df=1.896; GFI=0.908; AGFI=0.893; CFI=0.962; RMSEA=0.028; SRMR=0.0737). This indicates that each group is represented by the same number of factors, which are defined by the same variables. Next, we evaluated the Metric Invariance by constraining the factor loadings of all manifest variables. The fit of the metric invariance was adequate for gender (χ 2 = 802.098; df=416; χ2/df=1.928; GFI=0.939; AGFI=0.926; CFI=0.976; RMSEA=0.029; SRMR=0.0629) and for seniority (χ2 = 1272.438; df=669; χ2/df=1.902; GFI=0.905; AGFI=0.893; CFI=0.961; RMSEA=0.029; SRMR=0.0656). Next, we compared the metric invariance models with gender and seniority configural invariance models: for gender variable (Δχ2=29.644; Δdf=15; p=,0.107; ΔCFI<0.01; ΔRMSEA<0.01) and for seniority (Δ χ2=32.396; Δdf=15; p=,0.016>0.01; ΔCFI<0.01; ΔRMSEA=0.01). These comparisons yielded statistically nonsignificant results suggesting gender and seniority metric invariance.

Finally, we tested scalar invariance to determine whether item intercepts were similar between gender and seniority groups. For both gender and seniority, the scalar invariance's overall model fit proved suitable (For gender : χ2=954.193; df=445; χ2/df=2.144; GFI=0.921; AGFI=0.911; CFI=0.968; RMSEA=0.032; SRMR=0.0642 and for seniority : χ2=1396.114; df=698; χ2/df=2.000; GFI=0.897; AGFI=0.888; CFI=0.955; RMSEA=0.030; SRMR=0.0665). Finally, we compared the scalar invariance models with gender and seniority metric invariance models. These comparisons yielded statistically nonsignificant results suggesting gender invariance (For gender: Δχ2=152.095; Δdf=29; p=0.013>0.01; ΔCFI<0.01; ΔRMSEA<0.01). However, the seniority comparison yielded statistically significant results (Δχ2=32.396; Δdf=15; p=,006; ΔCFI<0.01; ΔRMSEA<0.01), suggesting seniority scalar non-invariance. Multigroup confirmatory factor analysis (MGCFA) results are sufficiently robust to support

configurational, metric, and scalar invariance based on the amount of gender. For seniority, only scalar invariance has not been established.

5. Discussions

The primary objective of this study was to translate and culturally adapt the Stages of Concerns (SoC) questionnaire into Arabic and validate its psychometric properties among Tunisian primary school teachers. The results of our study provide strong evidence supporting the reliability and validity of the Arabic version of the SoC questionnaire in the Tunisian context. Our findings indicate that the ASoCQ demonstrates excellent internal consistency across all five subscales, with Cronbach's alpha coefficients ranging from 0.802 to 0.929. By comparing the scores of our adaptation with those of Cheung (2001) and Fisher (2019), the ASoCQ exhibits the highest internal consistency among the three versions, followed by the Fisher version (Cronbach's alpha values ranging from 0.75 to 0.84), and then the Cheung version (Cronbach's alpha values ranging from 0.67 to 0.77).

The confirmatory factor analysis (CFA) results also show a good fit for the five-factor model, with indices such as CFI (0.982), TLI (0.978), and RMSEA (0.037) indicating robust construct validity. A comparison of the ASoCQ scores with those in Table 1 illustrates that it has displays excellent model fit indices, comparable to the Fischer et al. (2019) version, and significantly better than the other versions. The Fisher version has the best fit with a χ^2/df (Chi-square/degrees of freedom) of 2.12 followed by Meunier's adaptation (2010) with a χ^2/df=2.18. The other models have much higher χ^2/df values, indicating poorer fit. The ASoCQ questionnaire has an RMSEA (Root Mean Square Error of Approximation) of 0.037, which is excellent (less than 0.05 is considered excellent). Fischer et al. (2019) also have a good RMSEA of 0.056. The other models have RMSEA values above 0.08, indicating a poorer fit. For the TLI (Tucker-Lewis Index) and CFI indices, the findings are similar.

In terms of convergent and divergent validity, our research is the first to explore these indicators thoroughly. Other studies have limited their focus to analyzing the factor loadings of the items and eliminating those with scores below 0.4. While the analysis of convergent validity showed good results, the analysis of divergent validity using the AVE revealed two weaknesses. Malhotra and Dash (2011) argued that AVE is a very strict analysis. We believe that this is why previous studies are limited to analyzing factor loading scores (Cheung et al., 2001; Fischer et al., 2019; Meunier, 2010; van den Berg, 1981).

The Multi-Group Confirmatory Factor Analysis (MGCFA) was conducted to assess the measurement invariance of the ASoCQ across different groups, specifically gender and seniority. None of the SoC adaptations reported in the published works have featured MGCFA analyses. The confirmation of configurational, metric, and scalar invariance across gender and seniority groups validates the ASoCQ as a reliable and robust tool for assessing teachers' concerns regarding the adoption of educational technologies, suggesting that the questionnaire is equally applicable to different subgroups within the Tunisian primary teacher population. This means that researchers can use this tool in future studies involving diverse teacher populations in Tunisia. However, due to the lack of invariance in seniority, the uncritical use of the ASoCQ in other contexts is hazardous.

The rigorous process of cross-cultural adaptation, following the ITC guidelines, ensured that the Arabic version of the SoC questionnaire is not only linguistically accurate but also culturally relevant. The results of the ASoCQ have far-reaching implications for educators, administrators, policymakers, researchers, and technology developers.

In the Tunisian context, the Arabic version of the SoC questionnaire serves as a culturally relevant instrument for identifying teachers' specific concerns regarding the adoption of educational technologies. This localized insight enables a more precise response to the challenges educators face. Consequently, professional development programs can be tailored to address these concerns directly, enhancing their effectiveness and supporting the integration of new technologies into classroom practice.

Moreover, the findings can inform policy development, guiding decision-makers in crafting strategies that align with teachers' needs at each stage of concern. School administrators can also leverage the results to allocate resources more strategically—whether in training, technical support, or infrastructure—based on where teachers experience the most difficulty (Dele-Ajayi et al., 2021; de Vocht et al., 2017; Jesmin et al., 2024; Lin et al., 2025)

Beyond Tunisia, the successful adaptation and validation of this tool demonstrate its potential for broader application across Arabic-speaking regions. Such efforts could foster a deeper understanding of teacher concerns throughout the Arab world and support regional initiatives aimed at improving educational technology adoption. For instance, collaborative training programs, digital resources, and support networks could be developed to address the shared challenges identified through this instrument.

6. Limitations

This study has limitations that require discussion. The first study drawback is that we were unable to use a probabilistic sampling technique due to both administrative and logistical reasons. We attempted to match the characteristics of the population of primary school teachers in Tunisia according to the gender and school zone variables. We employed a volunteer sampling technique, recruiting participants until they matched the original population in terms of gender and school zone.

Secondly, we were unable to perform the test-retest reliability analysis of the Arabic version of the SoC questionnaire (ASoCQ), as recommended by the International Test Commission (ITC) guidelines for cross-cultural adaptation and validation, and Ganna (2021). In fact, without test-retest reliability, it's unclear whether the ASoCQ can consistently measure teachers' concerns over time, especially since perceptions and attitudes toward technology adoption may fluctuate.

Thirdly, while the ASoCQ is validated in the Tunisian context, its applicability to other Arabic-speaking regions or different educational contexts may require further validation and adaptation. In addition, scalar invariance across seniority groups was not fully established, which could affect the comparison of concerns across teachers with varying levels of experience.

Finally, although the translation and cultural adaptation followed rigorous guidelines, some cultural or contextual nuances might not have been fully captured, potentially impacting the interpretation of specific questionnaire items.

7. Conclusion

This study successfully translated and culturally adapted the Stages of Concerns (SoC) questionnaire into Arabic, validating its psychometric properties among Tunisian primary school teachers. The Arabic version of the SoC questionnaire (ASoCQ) demonstrated excellent internal consistency across all five subscales and proved to be both linguistically accurate and culturally appropriate. The confirmatory factor analysis (CFA) results showed a good fit for the five-factor model, indicating strong construct validity. The Multi-Group Confirmatory Factor Analysis (MGCFA) confirmed the configurational, metric, and scalar invariance of the ASoCQ across genders, as well as configural and metric invariance for seniority groups. This validation suggests that the ASoCQ is equally applicable to different subgroups within the Tunisian primary teacher population, making it a reliable tool for future studies involving diverse teacher populations in Tunisia. The rigorous cross-cultural adaptation process, following the ITC guidelines, ensured that the Arabic version of the SoC questionnaire is both linguistically accurate and culturally relevant. The results have significant implications for educators, administrators, policymakers, and researchers in Tunisia and other Arabic-speaking regions. In Tunisia, the ASoCQ offers a culturally relevant tool to help teachers understand their specific concerns regarding the adoption of educational technologies. This understanding can help address the unique challenges faced by teachers in Tunisia. For other Arabic-speaking regions, the successful adaptation and validation of the ASoCQ in Tunisia demonstrate the feasibility of adapting similar tools for these contexts. This can lead to a broader understanding of teacher concerns across the Arab world and support regional efforts

to improve educational technology adoption. Regional initiatives, such as training programs, online resources, and support networks, can be developed to address the concerns identified by the ASoCQ. Overall, this study contributes to the field of educational change by providing a validated tool for assessing teachers' concerns in the context of technology adoption.

8. References

Al-Furaih, S. A. A., & Al-Awidi, H. M. (2020). Teachers' change readiness for the adoption of smartphone technology: Personal concerns and technological competency. *Technology, Knowledge and Learning*, *25*(2), 409-432. https://doi.org/10.1007/s10758-018-9396-6

Alshammari, B. S. (2000). The developmental stages of concern of teachers toward the implementation of the information technology curriculum in Kuwait (Doctoral dissertation, University of North Texas). University of North Texas Digital Library. https://digital.library.unt.edu/ark:/67531/metadc2662/

Ansong, D., Chowa, G. A., & Masa, R. D. (2016). Cross-cultural adaptation and validation of the commitment-to-school scale using a sample of junior high school youth in Ghana. *The Journal of Experimental Education*, *84*(4), 621-638. https://doi.org/10.1080/00220973.2015.1123666

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *Standards for educational and psychological testing*. American Educational Research Association. https://www.testingstandards.net/

Armer, J. M., Harris, K., & Dusold, J. M. (2004). Application of the concerns-based adoption model to the installation of telemedicine in a rural Missouri nursing home. *Journal for Nurses in Staff Development*, *20*(1), 42-49. https://doi.org/10.1097/00124645-200401000-00008

Bailey, D. B., & Palsha, S. A. (1992). Qualities of the stages of concern questionnaire and implications for educational innovations. *The Journal of Educational Research*, *85*(4), 226-232. https://doi.org/10.1080/00220671.1992.9941120

Baytar, E. M., Ettourouri, A., Saqri, N., & Ouchaouka, L. (2023). Moroccan teachers' perceptions and concerns about ICT integration. *IAFOR Journal of Education*, *11*(2), 79-96. https://doi.org/10.22492/ije.11.2

Byrne, C., & Prendergast, M. (2020). Investigating the concerns of secondary school teachers towards curriculum reform. *Journal of Curriculum Studies*, *52*(2), 286-306. https://doi.org/10.1080/00220272.2019.1643924

Campbell, H. L., Barry, C. L., Joe, J. N., & Finney, S. J. (2008). Configural, metric, and scalar invariance of the modified Achievement Goal Questionnaire across African American and White university students. *Educational and Psychological Measurement*, *68*(6), 988-1007. https://doi.org/10.1177/0013164408318766

Cardoza, Y., & Tunks, J. (2014). The bring your own technology initiative : An examination of teachers' adoption. *Computers in the Schools*, *31*(4), 293-315. https://doi.org/10.1080/07380569.2014.967626

Chen, W.-R. (2023). Gifted education teachers' concerns about competency-based instruction. *Gifted Education International*, *39*(3), 443-458. https://doi.org/10.1177/02614294221141990

Chen, Y.-H., & Jang, S.-J. (2014). Interrelationship between stages of concern and technological, pedagogical, and content knowledge: A study on Taiwanese senior high school in-service teachers. *Computers in Human Behavior*, *32*, 79-91. https://doi.org/10.1016/j.chb.2013.11.011

Cheung, D., Hattie, J., & Ng, D. (2001). Reexamining the Stages of Concern Questionnaire: A test of alternative models. *The Journal of Educational Research*, *94*(4), 226-236. https://doi.org/10.1080/00220670109598756

Christou, C., Eliophotou-Menon, M., & Philippou, G. (2004). Teachers' concerns regarding the adoption of a new mathematics curriculum: An application of CBAM. *Educational Studies in Mathematics*, *57*, 157-176. https://doi.org/10.1023/B:EDUC.0000049271.01649.dd

Darr, A. D. (1985). *Factors affecting the implementation of a new curriculum by classroom teachers* [Research report]. ERIC. https://eric.ed.gov/?id=ED267514

Dele-Ajayi, O., Fasae, O. D., & Okoli, A. (2021). Teachers' concerns about integrating information and communication technologies in the classrooms. *PLOS ONE*, *16*(5), e0249703. https://doi.org/10.1371/journal.pone.0249703

de Vocht, M., Laherto, A., & Parchmann, I. (2017). Exploring teachers' concerns about bringing responsible research and innovation to European science classrooms. *Journal of Science Teacher Education*, *28*(4), 326-346. https://doi.org/10.1080/1046560X.2017.1343602

Dörrenbächer-Ulrich, L., Stark, L., & Perels, F. (2020). Profiles of teachers' concerns about heterogeneity in classrooms. *Educational Research and Evaluation*, *26*(7-8), 433-459. https://doi.org/10.1080/13803611.2021.1977153

Fan, B., & Zhao, G. (2023). Unpacking Chinese in-service teachers' concerns about integrating artificial intelligence into teaching from the perspective of a Concerns-Based Adoption Model. In *Proceedings of the 2023 Twelfth International Conference on Educational Innovation through Technology (EITT)* (pp. 41–45). IEEE. https://doi.org/10.1109/EITT61659.2023.00015

Fischer, C., McCoy, A., Foster, B., Eisenkraft, A., & Lawrenz, F. (2019). Use of the stages of concern questionnaire in a national top-down reform effort. *Teaching and Teacher Education*, *80*, 13-26. https://doi.org/10.1016/j.tate.2018.12.019

Forlin, C., Keen ,M., & Barrett, E. (2008). The concerns of mainstream teachers: Coping with inclusivity in an Australian context. *International Journal of Disability, Development and Education*, *55*(3), 251-264. https://doi.org/10.1080/10349120802268396

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, *18*(3), 382-388. https://doi.org/10.1177/002224378101800313

Fuller, F. (1969). Concerns of teachers: A developmental conceptualization. *American Educational Research Journal*, *6*(2), 207-226. https://doi.org/10.3102/00028312006002207

Gana, K., Boudouda, N. E., Ben Youssef, S., Calcagni, N., & Broc, G. (2021). Adaptation transculturelle de tests et échelles de mesure psychologiques: Guide pratique basé sur les Recommandations de la Commission Internationale des Tests et les Standards de pratique du testing de l'APA [Transcultural adaptation of psychological tests and scales: A practical guide based on the ITC guidelines for translating and adapting tests and the standards for educational and psychological testing]. *Pratiques Psychologiques*, *27*(3), 223-240. https://doi.org/10.1016/j.prps.2021.02.001

Gokcek, T., & Baki, A. (2013). Turkish mathematics teachers' concerns about the curriculum reform in the first year of implementation. *Eurasia Journal of Mathematics, Science and Technology Education*, *9*(2), 177-190. https://doi.org/10.12973/eurasia.2013.928a

Goktalay, S. B., & Cangur, S. (2008). Assessing the reliability and validity of the Turkish version of the stages of concern questionnaire. *Eurasian Journal of Educational Research*, *33*, 55-72. https://ejer.com.tr/wp-content/uploads/2021/01/ejer_2008_issue_33.pdf

Hair, J. F., Jr., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2023). *Advanced issues in partial least squares structural equation modeling* (2nd ed.). SAGE Publications.

Hall, G. E., George, A. A., & Rutherford, W. L. (1977). *Measuring stages of concern about the innovation: a manual for the use of the SoC questionnaire* [Manual]. Research and Development Center for Teacher Education, The University of Texas at Austin. https://eric.ed.gov/?id=ED147342

Hall, G. E., & George, A. A. (1978). Stages of concern about the innovation: *The concept, verification, and implications* [Research report]. Research and Development Center for Teacher Education, The University of Texas at Austin. https://files.eric.ed.gov/fulltext/ED188716.pdf

Hall, G. E., & Hord, S. M. (1987). *Change in schools: Facilitating the process*. State Univ. of New York Press.

Hall, G. E., & Hord, S. M. (2015). *Implementing change: Patterns, principles, and potholes* (4th ed.). Pearson.

Hatley, M. (2011). What books don't tell you: Teacher-eye-view of universal design for learning and the implementation process [Doctoral dissertation, Loyola University Chicago]. eCommons. https://ecommons.luc.edu/luc_diss/42

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1-55. https://doi.org/10.1080/10705519909540118

International Test Commission. (2017). *The ITC Guidelines for Translating and Adapting Tests (2nd ed.)*. https://www.intestcom.org/files/guideline_test_adaptation_2ed.pdf

Jesmin, T., Osula, K., Niglas, K., & Ley, T. (2024). A large-scale study to profile teachers' use of games in the classrooms: From concerns to adoption. *Technology, Knowledge and Learning*, *30*, 483-508. https://doi.org/10.1007/s10758-024-09781-y

Kim, S., & Paik, S. (2016). An analysis of science teachers' stages of concern and levels of use on descriptive assessment. *Journal of the Korean Chemical Society*, *60*(5), 353-361. https://doi.org/10.5012/jkcs.2016.60.5.353

Kline, R. B. (2023). *Principles and practice of structural equation modeling*. Guilford publications.

Lau, W. W. F., & Jong, M. S. Y. (2023). Typology of teachers' stages of concern for STEM education. *Research in Science and Technological Education*, *41*(4), 1560-1578. https://doi.org/10.1080/02635143.2022.2064447

Lin, X.-F., Shen, W., Huang, S., Wang, Y., Zhou, W., Ling, X., & Li, W. (2025). Exploring Chinese teachers' concerns about teaching artificial intelligence: The role of knowledge and perceived social good. *Asia Pacific Education Review*. Advance online publication. https://doi.org/10.1007/s12564-024-10034-x

Lochner, B., Conrad, R.-M., & Graham, E. (2015). Secondary teachers' concerns in adopting learning management systems: A U.S. perspective. *TechTrends*, *59*(5), 62-70. https://doi.org/10.1007/s11528-015-0892-4

Longyhore, D. S. (2020). Pharmacy residency directors' concerns with implementing in-training examinations in pharmacy residencies. *Journal of the American College of Clinical Pharmacy (JACCP)*, *3*(8), 1451-1457. https://doi.org/10.1002/jac5.1328

Makwinya, N. M., McKinnon, D. H., & Lummis, G. W. (2022). Depicting science teachers' concerns regarding the Tanzanian inquiry-based science curriculum. *International Journal of Science Education*, *44*(12), 1978-1993. https://doi.org/10.1080/09500693.2022.2107724

Malhotra, N. K., & Dash, S. (2011). *Marketing research: An applied orientation* (6th ed.). Pearson.

Meunier, S. (2010). *Le changement organisationnel: La prédiction des comportements de soutien et de résistance par le biais des préoccupations* [Organizational change: Predicting supportive and resistant behaviors through concerns] [Doctoral dissertation, Université de Montréal]. Papyrus. https://papyrus.bib.umontreal.ca/xmlui/handle/1866/3949

Mhiri, S. (2019). Les effets de la charge de travail et du plafonnement de carrière sur les trois dimensions de l'implication organisationnelle des cadres [The effects of workload and career plateau on the three dimensions of managerial organizational commitment]. *Revue de gestion des ressources humaines*, *111*(1), 35-55. https://doi.org/10.3917/grhu.111.0035

Murza, K. A., & Ehren, B. J. (2015). Data-based decision making in professional learning for school speech-language pathologists. *Language, Speech, and Hearing Services in Schools*, *46*(3), 181-193. https://doi.org/10.1044/2015_LSHSS-14-0101

Rakes, G. C., & Dunn, K. E. (2015). Teaching online: Discovering teacher concerns. *Journal of Research on Technology in Education*, *47*(4), 229-241. https://doi.org/10.1080/15391523.2015.1063346

Rismiati, C. (2012). *Teachers' concerns regarding the implementation of integrated thematic instruction: A study of primary grade teachers in Kanisius Catholic schools in Yogyakarta, Indonesia* [Doctoral dissertation, Loyola University Chicago]. ProQuest Dissertations Publishing. https://search.proquest.com/openview/6de86794680a4c1b3501cb664f3f2ad6/1?pq-origsite=gscholar&cbl=18750

Sackstein, S., Matthee, M., & Weilbach, L. (2022). Understanding the influence of Teachers' Beliefs and Professional Dispositions on Technology use in South African Secondary Schools before and during COVID. 84, 140-152. https://doi.org/10.29007/84dl

Shotsberger, P. G., & Crawford, A. R. (1996). *An analysis of the validity and reliability of the Concerns Based Adoption Model for teacher concerns in education reform*. ERIC. https://eric.ed.gov/?id=ED400278

Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics*. Pearson.

Thompson, G., Hogan, A., Shield, P., Lingard, B., & Sellar, S. (2020). Teacher concerns regarding commercialisation. In A. Hogan & G. Thompson (Eds.), *Privatisation and commercialisation in public education* (1st ed., pp. 152-167). Routledge.

Trabelsi, Z., & Naceur, A. (2025). Vers un modèle prédictif des comportements de soutien et de résistance face au changement: Cas du numérique éducatif en Tunisie [Towards a predictive model of supportive and resistant behaviors in the face of change: the case of educational technology in Tunisia]. *Revue Euro-Méditerranéenne de l'Éducation et de la Formation*, *2*, 5-35. https://www.grem.uha.fr/wp-content/uploads/2025/02/N2_REEF_VD.pdf

van den Berg, R. M. (1981). *Onderwijsinnovatie in verschuivend perspectief* [Educational innovation in shifting perspective]. Zwijsen.

Wiedemann, P. M., Freudenstein, F., Böhmert, C., Wiart, J., & Croft, R. J. (2017). RF EMF risk perception revisited: Is the focus on concern sufficient for risk perception studies? *International Journal of Environmental Research and Public Health*, *14*(6), 620. https://doi.org/10.3390/ijerph14060620

Xu, H., & Tracey, T. J. G. (2017). Use of multi-group confirmatory factor analysis in examining measurement invariance in counseling psychology research. *The European Journal of Counselling Psychology*, *6*(1), 75-82. https://doi.org/10.23668/psycharchives.2041

Yan, T., & Deng, M. (2019). Regular education teachers' concerns on inclusive education in China from the perspective of concerns-based adoption model. *International Journal of Inclusive Education*, *23*(4), 384-404. https://doi.org/10.1080/13603116.2018.1435741

9. Appendix I

Fisher's version items	ASoCQ items
Stage 1: Awareness	
Q1: I do not even know what is different about the AP redesign	أنا لا أعلم شيئا عن استخدام التكنولوجيا في التعليم.
Q6: I am not concerned about the AP redesign	أنا غير مهتمّ/ة باستخدام التكنولوجيا في عملي حاليّا.
Q11: I am preoccupied with things other than the AP redesign	أنا منشغل/ة باهتمامات أخرى لا علاقة لها باستخدام التكنولوجيا في التعليم.
Q17: I am not interested in learning about the AP redesign	في الوقت الحاضر، أنا غير مهتمّ بتعلّم استخدام التكنولوجيا في التعليم.
Stage 2: Informational/Personal	
Q14: I would like to know what the AP redesign will require in the immediate future	أريد معرفة ما سيتطلّبه منّي استخدام التكنولوجيا في عملي على المدى القريب (الوقت، المهارات، الأجهزة الرقميّة، الخ).
Q16: I would like to have more information on the time and energy commitments the AP redesign will require	أريد الحصول على معلومات أكثر حول الالتزامات التي يتطلّبها منّي استخدام التكنولوجيا في عملي على مستوى الوقت والمجهود.
Q20: I would like to know how my role will change with the AP redesign	أودّ أن أتبيّن كيف سيتغيّر دوري عند استخدام التكنولوجيا في عملي.
Q21: I would like to know how the AP redesign is better than the current course/exam	أريد معرفة أفضليّة استخدام التكنولوجيا في التعليم عمّا يتوفّر لدينا حاليّا من طرائق تعليميّة.
Q22: I would like to know how the redesigned AP is different than the current AP	أرغب بمعرفة كيف يمكن لاستخدام التكنولوجيا أن يُغيّر من طريقتي في التدريس.
Stage 3: Management	
Q2: I am concerned about not having enough time to organize myself each day	أشعر بالانشغال إزاء عدم توفّر الوقت الكافي لتنظيم التعلّمات في حالة استخدام التكنولوجيا في عملي
Q3: I would like to know how to effectively meet the obligations of the revised AP	أنا قلق/ة إزاء التّضارب بين اهتماماتي باستخدام التكنولوجيا في التعليم من جهة ومسؤوليّاتي من جهة أخرى.
Q7: I am concerned about my inability to manage all that the AP redesign requires	أنا قلق/ة من عدم قدرتي على إدارة كل ما يتطلّبه استخدام التكنولوجيا في التعليم (الوقت، المهارات التكنولوجيّة، الخ).
Q13: I am concerned about time spent on non-academic problems related to the AP redesign	أنا قلق/ة إزاء الوقت الذي أقضيه في التّعامل مع المشاكل التقنيّة (عطب في جهاز الحاسوب أو العرض، الخ) أو اللوجستية (توفير الأجهزة في المدرسة، توفّر الربط بالانترنت، الخ) حين استخدم التكنولوجيا في عملي على حساب الوقت المخصّص للتعلّمات.
Stage 4: Consequence/Collaboration	
Q8: I would like to familiarize others with the progress of the AP redesign	أرغب في أن أطلع أطرافا آخرين (في مجال التربية) على آخر المستجدّات في مجال استخدام التكنولوجيا في التعليم وتأثيرها الإيجابي على المتعلّمين.
Q15: I would like to coordinate my teaching with others to maximize the AP redesign's effects	أرغب في تنسيق جهودي مع الآخرين للاستفادة أكثر من استخدام التكنولوجيا في التعليم.
Q9: I am concerned about evaluating my impact on students	أنا مهتمّ/ة بتقييم مدى تأثير استخدامي للتكنولوجيا على المتعلّمين.
Q15: I would like to develop working relationships with other teachers implementing the AP redesign	أرغب في تطوير علاقات عمل مع المدرّسين الذين يستخدمون التكنولوجيا في التعليم من داخل أو من خارج مؤسّستي.
Stage 5: Refocusing	
Q10: I would like to revise the AP redesign's approach	أرغب في مراجعة وإعادة النظر في استخدام التكنولوجيا في عملي.
Q19: I would like to use feedback from students to change the AP redesign	أرغب في استغلال ملاحظات المتعلّمين لتغيير وتطوير استخدام التكنولوجيا في عملي.
Q4: I am concerned about revising my implementation of the AP course	أرغب في مراجعة المقاربة البيداغوجيّة لاستخدام التكنولوجيا لتحسينها وتعزيز فاعليّتها.
Q12: I would like to modify our implementation of the AP redesign based on the experiences of our students	أريد أن أعدّل طريقة استخدامي للتكنولوجيا بناء على تجارب المتعلّمين معها لتتناسب أكثر مع معارفهم وانتظاراتهم.
Q18: I would like to determine how to supplement, enhance, or replace the AP redesign	أريد أن أحدّد كيفيّة تطوير وتحسين أو استبدال التكنولوجيا بطرق حديثة أخرى أكثر نجاعة.

RESEARCH ARTICLE　　　　　　　　　　　　　　　　　　**OPEN ACCESS**

Rethinking language precision in the context of English as a global lingua franca: Pedagogical perspectives*

Fikri Geçkinli[1c] (iD)

[1] İstanbul Sabahattin Zaim University, English Preparatory School, Türkiye
[c] **Correspondence Author:** Fikri Geçkinli, İstanbul Sabahattin Zaim University, English Preparatory School, Türkiye; Halkalı Merkez, Halkalı, 34303 Küçükçekmece/İstanbul; +905355453619; fgeckinli@gmail.com
* This research was approved by the İstanbul Sabahattin Zaim University Ethics Committee's Social and Human Sciences Ethics Committee's decision, No. 2024/06, dated 19/07/2024.

Abstract

This study examines the use of English as a lingua franca (ELF) among non-native speakers, focusing on its role in enhancing communication and perceptions of non-standard lexical and grammatical features among tertiary-level preparatory school English teachers (N = 32) and students (N = 245). Using a mixed-methods approach involving questionnaires and interviews, students rated linguistic features such as "dropping third person 's'" (e.g., "he sits") and "non-standard use of articles" (e.g., "he is best player") on a five-point Likert scale to evaluate their acceptability. Quantitative findings indicate that students generally held neutral opinions on most items, with only one feature, "being overly explicit" (e.g., "black colour" instead of "black"), deemed acceptable. In contrast, teachers identified five features as unacceptable, including "confusing relative pronouns" (e.g., "the place who") and "non-standard question tags" (e.g., "he lives in the USA, isn't it?"), while finding "being overly explicit" acceptable, and expressing neutrality on the rest. Qualitative data supported these results, with interview participants emphasizing the importance of mutual intelligibility over grammatical accuracy yet expressing concerns about the appropriateness of non-standard forms in formal contexts. While neither group fully endorsed non-standard English, they displayed a general acceptance of features that did not hinder comprehension, such as "non-standard use of prepositions" (e.g., "we are studying about..."). These findings emphasize the complex attitudes of ELF users toward non-standard English usage in educational contexts.

211

1. Introduction

Prioritizing "correctness" above all else, the growth of second or foreign language competency was formerly rooted in the rote memorization of vocabulary and grammatical rules. In order to avoid fossilization, behaviorist research, as demonstrated by Han (2004), placed a strong emphasis on the prompt correction of non-standard language. Nevertheless, the focus on errors in language learning started to fade as they were recognized as a natural aspect of the process. Communicative competence emerged as a significant factor during this time. In the 1970s, attention shifted from memorization to the importance of meaningful communication. This evolution in language instruction continued to develop through various contributions that reinforced this new approach. As a result, there was a general agreement that strict requirements for "accuracy" were no longer critical in an international setting where English is the primary language. Linguistic accuracy is not as important as the capacity to communicate ideas clearly and succinctly in English.

Throughout history, English has served as a lingua franca for individuals with differing native tongues who require a common means of communication, a practice dating back to colonial times. At first, it was mostly used locally, but in more recent times, English, sometimes known as a Lingua Franca (ELF) (Seidlhofer, 2011), has developed into a worldwide language. Despite worries about the consequences of linguistic imperialism, which scholars like Phillipson (1992) and Canagarajah (1999) have brought to light, English has emerged as the de facto lingua franca in a globe growing more interconnected by the day. Since 2000, this tendency has grown much more apparent due to the rise of the internet, global media, and the dominance of English in education and international business (Seidlhofer, 2011; Jenkins, 2009). Scholars Phillipson (2008) and Qiang and Wolff (2007) have also questioned whether the rapid spread of ELF could harm other languages and cultures. However, despite these cautions, ELF has expanded quickly. Dewey (2014), who views it as the first truly global language phenomenon, has compared its evolution to the fast proliferation of wild mushrooms, a metaphor originally discussed by Sowden (2012), who used it to highlight ELF's rapid and, in his view, somewhat troubling growth. Even in its brief history, ELF has generated a great deal of controversy and discussion.

In many disagreements on ELF, ontological issues usually surface. Initially, ELF was conceptualized as a mode of communication tailored for individuals lacking a shared native language or culture (Firth, 1996). This meant that native English speakers were excluded, as interactions were typically limited to participants from different English language cultures, none of whom spoke English as their first language (House, 1999). However, the perspective on ELF has evolved, now acknowledging it as a fundamental communication tool embraced by participants worldwide, including native English speakers (Mauranen, 2018). Bayyurt and Dewey (2020) highlight the multifaceted nature of ELF, encompassing a diverse array of English speakers—both native and non-native—hailing from various linguistic and cultural backgrounds.

The epistemological framework for understanding language phenomena is a subject of extensive discourse, as evidenced by the works of Svensson (1997), Halliday (1993), and Mercer et al. (2004). While Sowden (2012) asserts, quite rightly, that proficiency in one's native English remains the pinnacle of linguistic achievement, others highlight the global diversity of the English language (Rose & Galloway, 2017). They argue that prioritizing comprehension over native English proficiency is more pertinent for the majority of individuals (Cogo, 2012). Thus, the discussion encompasses contrasting perspectives on the significance of English proficiency and comprehension in understanding language phenomena.

Comprehensibility serves as a fundamental cornerstone of effective communication, a point underscored by Mauranen (2006). It is evident that without mutual understanding, communication cannot thrive. A key component of reaching this understanding is the concept of accuracy. Referencing recognized language rules, such as those described in publications like the Oxford English Grammar (Greenbaum, 1996), is frequently necessary for assessing accuracy. As a result, notions like accepted pronunciation (Sangster, 2014) and standard English (Seidlhofer, 2018) are frequently used, establishing a baseline that goes beyond native speakers' intuitive understanding. However, determining appropriate usage can be difficult since even native speakers vary in their language use, as researchers Cook (2015),

Holliday (2006), and Timmis (2002) have shown. Despite this complication, most of the discussion on language training is based on the premise that native language and proper are nearly identical.

The issue that raises the research problem is the conflict between the traditional focus on linguistic accuracy and the increasing prominence of intelligibility in communication, especially in English as a lingua franca setting. The arrival of ELF undermines the view that accuracy is the cornerstone of language competency and emphasizes successful communication above native-like norms (Soruç & Griffiths, 2024; Liao & Zhang, 2024; Junnier, 2024; Navarro et al., 2022). This transition poses considerable issues for EFL teachers, who must reconcile contradictory expectations in evaluation techniques and instructional methodologies, while students are required to adapt to changing standards of language competency. Examining the opinions of teachers and students on this issue aims to contribute to the literature in terms of assessment and curriculum development.

1.1. Previous Studies

Research on ELF has historically been limited because ELF is still a comparatively new phenomenon worldwide. Nonetheless, the landscape has markedly shifted since the turn of the millennium, with a notable surge in publications addressing ELF (Sowden, 2012). In the early 21st century, a series of studies shed light on various stakeholders' attitudes towards ELF and the desired proficiency levels among learners. Decke-Cornill (2003) examined teacher attitudes, revealing a consensus in favor of delivering English instruction deemed appropriate.

Similarly, Friedrich (2003) found that Argentinean students aspired to achieve a level of mastery akin to native speakers. Matsuda's (2003) investigation among Japanese high school students suggested a preference for closely adhering to native English speaker usage. In Greece, Sifakis and Sougari's (2005) survey of elementary school teachers highlighted a shared goal across lower and upper secondary levels to teach according to standard native speaker norms. Kuo's (2006) study involving participants from the UK indicated an acknowledgment of occasional mispronunciation and grammatical errors during communication, yet an enduring aspiration to emulate native speaker models in learning. Jenkins' multinational study (2007) reinforced this sentiment, revealing a widespread preference for native-speaker accents. Goh's (2009) examination of Chinese and Singaporean teachers demonstrated a prevailing belief among Chinese educators (87%) in the benefits of teaching English as a native language, although Singaporean teachers, while less supportive, still leaned towards this model. Ranta's (2010) research among Finnish high school students and teachers echoed these findings, underscoring a collective inclination towards the native English speaker model despite English's ubiquitous presence in the real world.

In the subsequent decade, research delved into various aspects of language acquisition and attitudes toward native speaker norms among diverse cultural contexts. Subtirelu (2013) highlighted 'open contradiction patterns' among Chinese and Saudi participants, while Galloway (2013) examined their attitudes. Exploring English Language Teaching (ELT) students across 52 Japanese universities, a study revealed that despite acknowledging ELF usage, 76.9% expressed a desire to emulate native English speakers, reinforcing the persistence of ideal native English speakers. Ke and Cahyani (2014) facilitated an online exchange project involving 58 Taiwanese and 48 Indonesian university students to foster a shared linguistic environment. Taiwanese students demonstrated a desire to be taught by native speakers (NS) and to sound like NSs, although downplaying the significance of standard grammar and displaying a greater acceptance of their local accents. In the United Kingdom, Jenkins and Wingate (2015) discovered a divergence in perceptions between students, who often viewed existing language policies as unjust, and instructors, who advocated for adherence to 'standard' English, particularly for international students. In a similar vein, Ren et al. (2016) investigated the opinions of 400 students from Taiwan and mainland China for phonetic and lexical-grammatical elements, finding a considerable desire among students to develop an accent similar to that of a native speaker. Similarly, Wang and Du (2018) found that Taiwanese English teachers largely endorsed a model based on native English in teaching and learning, despite some differing opinions among interviewees.

Recent research indicates that non-standard English forms commonly associated with ELF are increasingly prevalent. Griffiths and Soruç (2019) discovered conflicting findings: while students were drawn to ELF, they also emphasized the importance of speaking English properly and appropriately. This ambiguity is exemplified by Dewey and Pineda's (2020) research, which found that many individuals, including those aware of ELF, nevertheless adhere to traditional standards of accuracy. Similar findings were also documented by Irham et al. (2021); Indonesian educators persist in utilizing local English standards because they believe their peers or institutions do not support them, even when they are aware of the advantages of ELF. Jenkins (2022) contends that promoting concepts of flexibility is more crucial than rigidly defining what is right or wrong.

Along the same lines, in the most recent studies, looking at the perceptions of EFL teachers and students, Soruç and Griffiths (2024) found that the participants embraced the view that the success of communication in an international setting is driven by intelligibility and mutual understanding rather than native-like accuracy. Likewise, Liao and Zhang (2024) examined the influences of ELF on the attitudes and classroom practices of Chinese EFL students. They observed that students prioritized being understood over sounding like a native speaker. Also, in a study conducted by Junnier (2024), EFL teachers stated that, in ELF settings, it is not fair and relevant to enforce a kind of assessment derived from native-speaker models. Last but not least, Navarro et al. (2022) examined the classroom interactions of EFL learners and their use of ELF strategies for successful communication. They observed that accepting variation and highlighting strategic competence are crucial in an ELT classroom.

1.2. The Study

The arrival of ELF advocates for successful communication over native-like norms; hence, investigating EFL teachers' and students' views regarding this relatively new language phenomenon would contribute to the literature on language assessment and curriculum development. This study aims to fill a gap by exploring how tertiary-level preparatory school EFL teachers and students perceive the disagreement between established accuracy-based assessment and communication-driven demands of ELF. The study builds on Soruç and Griffiths (2023), incorporating some modifications in the sample, population, and methods to investigate whether their findings hold true under different conditions.

The research questions addressed in this study focus on evaluating the acceptability of certain English language features that are often labeled as "incorrect," non-standard, or non-native. They are as follows:

1. How do tertiary-level EFL teachers and students perceive non-standard usages of English?
2. Are there any differences in their perceptions regarding these usages of English?

2. Method

2.1. Research Design

In this study, a sequential explanatory mixed-approach research design incorporating both quantitative and qualitative methodologies was utilized. The reason this design was chosen for this study is that it allows for an in-depth analysis of the findings using qualitative data, following the identification of general trends through quantitative data; thus, the researcher can better evaluate the meaning behind the numbers (Dörnyei, 2007). In this respect, the researcher aimed to investigate EFL teachers' and students' views regarding non-standard English features from a quantitative perspective first to explore their general viewpoints and then carry out a qualitative analysis to understand the reasons behind them. In the first stage of the study, quantitative data were gathered using a questionnaire, followed by qualitative data, including focus group interviews. Moreover, a cross-sectional technique was employed, as data were collected from a population at a single point in time (Fraenkel et al., 2015).

2.2. Setting and Participants

The study was held at a foundation university in Istanbul, Turkey, where students in the English preparatory school follow a modular system (A1, A2, B1, and B2). Each module lasts eight weeks, and

students attend 26 hours of classes per week, divided into 18 hours for the main course, 4 hours for reading and writing, and 4 hours for listening and speaking. Students who achieve an average grade of 70 or higher progress to the next level. Successful completion of B2 grants them access to departmental courses where English constitutes either 30% or 100% of the instruction. A total of 277 participants took part in the study, comprising 32 EFL teachers and 245 students. Of the teachers, 20 held degrees in ELT, while 12 had backgrounds in English Literature. Participants at the B1 and B2 levels were placed in these proficiency levels based on the Cambridge Placement Test administered at the beginning of the academic year. The reason for selecting these levels was that they were classified as "intermediate" in the Common European Framework of Reference (CEFR), indicating that students had a sufficient level of proficiency to engage meaningfully with language learning tasks.

2.3. Data Collection

Data collection involved distributing a questionnaire online via Google Forms and conducting focus group interviews. Firstly, the questionnaire about ELF features, adopted from Soruç and Griffiths (2023) was conducted. Before the survey was administered, necessary permissions were obtained from the university ethics committee and the English preparatory school coordinator. Participants were informed that their participation in the survey was voluntary, their information would be kept confidential, and students' course grades would not be affected in any way. Afterwards, focus group interviews were held with groups of five students (B1 and B2) and teachers selected through purposive sampling. The interviews aimed to examine the data obtained from the survey in depth. The reason for conducting semi-structured interviews was to allow participants as much flexibility as possible in their responses. To ensure consistency and obtain more in-depth data, the interview questions were developed in parallel with the survey questions. Participants generally answered questions about their awareness of grammatical errors, the frequency at which these errors occur, how they respond to these errors, and the impact of these errors on meaning and communication.

2.4. Measures

The questionnaire used in this study was based on previous research examining ELF-related concerns. Some key features of ELF identified by Seidlhofer (2004) and brought to educators' attention were expanded by subsequent studies, including those by Soruç and Griffiths (2023). In their study, they added another feature about the confusion of gender pronouns, which is considered an additional challenge to handle. Hence, the questionnaire used in this study, based on a 5-point Likert scale, encompasses the ELF features identified by Seidlehofer's study and subsequent studies. Concerning the qualitative data, the interview questions in this section were prepared by the researcher in line with the concepts in the survey items.

2.4.1. Reliability and Validity of Measures

To ensure the reliability and validity of the quantitative data collection tool, the questionnaire items were piloted. The result obtained was .88, which is considered satisfactory in the literature (Dörnyei, 2007). This result indicates the internal consistency of the questionnaire, which signifies its applicability in measuring participants' views of ELF features. Additionally, content validity was observed through finding feedback from experts holding PhDs in ELT. Similarly, the reliability and validity of the interview questions were ensured by achieving expert feedback from experienced EFL teachers. Furthermore, the relevance and clarity of the concepts about ELF features were piloted with a small group from the target audience. The results revealed that the participants comprehended and responded to the concepts appropriately, without requiring a major change.

2.5. Data Analysis

The relevant data on teachers' and students' perceptions of non-standard English usage were examined both quantitatively and qualitatively. Firstly, quantitative data were examined using the SPSS program. To examine the group difference in a survey using a 5-point scale, non-parametric tests such

as the Mann-Whitney U test and the Median were employed (Cohen et al., 2018; Dörnyei, 2007). The medians were preferred explicitly because they give the best central tendency with the least influence from outliers. Regarding the qualitative data, the interviews, transcribed with the assistance of an expert EFL teacher, were analyzed using MaxQDA 2020. The data transferred to the software were coded under labels parallel to the topics (grammatical errors, frequency of these errors, the responses they elicit, and the effects of these errors on meaning and communication) included in the quantitative data. Categories were then obtained from these codes based on the patterns with repeated applications of the process. In these processes, MaxQDA's visualization tools discovered the connections between the codes and enabled access to key themes.

3. Results

The purpose of this study was to investigate how non-native speakers of English use it as a lingua franca, with an emphasis on how it improves communication. It especially looked into how EFL teachers and students in tertiary-level English preparatory schools perceived non-standard lexical-grammatical elements of English. The following are the findings of the study that was done for this aim. These findings are presented in a structured manner: first, quantitative data from statistical analyses (mean ranks, Mann-Whitney U test and median ratings) are discussed along with qualitative insights from focus group interviews with EFL teachers and students. This arrangement ensures a comprehensive understanding of both numerical trends and contextualized perspectives.

Following is a comparison of EFL teachers' and students' views observing the acceptability of non-standard features of English. While Table 1 displays the results of mean rank comparisons between EFL teachers and students in their acceptance of non-standard features than teachers, Table 2 shows the Mann-Whitney U test results regarding the statistical differences between these two groups.

Table 1. Ranks comparing EFL teachers' and students' views acceptability of non-standard features of English

	Groups	N	Mean Rank	Sum of Ranks
Median	Students	245	141.8	34,746.0
	Teachers	32	117.4	3,757.0
	Total	277		

The mean ranks presented in Table 1 indicate that EFL students generally perceived the acceptability of non-standard English features (mean rank of 141.82) to be higher than EFL teachers (mean rank of 117.41). However, despite this observed discrepancy, the Mann-Whitney U test did not yield statistically significant evidence to support the observed difference.

Table 2. Mann-Whitney U test comparing EFL teachers' and students' views regarding the acceptability of non-standard features of English

	Median
Mann-Whitney U	3,229.0
Wilcoxon W	3,757.0
Z	-1.67
Asymp. Sig. (2-tailed)	.095

p<.05

The findings from Table 2 demonstrate that there was no statistically significant variance between the perspectives of EFL teachers and students concerning the acceptability of non-standard English features (U = 3229.000, z = -1.672, p = .095). Although both groups have relatively similar views on the matter, this does not necessarily indicate that the groups are identical. Put differently, the observed difference is not strong enough to reach a statistically significant conclusion.

The medians were chosen for this study because they better reflect the central tendency of the Likert scale ratings, with a minimum influence from outliers. Hence, they provide a more reliable measure regarding the acceptability of non-standard English features by EFL teachers and students in the comparison of their perceptions.

Table 3. Acceptability of non-standard features of English

Feature	Median (Students)	Median (Teachers)	Qualitative Insights (Students)	Qualitative Insights (Teachers)
Dropping third person 's' (e.g., "he sit")	3	2	" I do not see it as a problem, but it becomes a problem in exams."	"Correction must be suggested."
Confusing relative pronouns (e.g., "the place who")	3	2	" I think it is normal in daily communication, but not in writing."	"I would encourage them to correct it."
Non-standard use of articles (e.g., "he is best player")	3	2	"Acceptable in daily use but not in academic writing."	"They must be guided to be more careful."
Non-standard use of question tags (e.g., "he lives in USA, isn't it?")	3	2	"I see it as a problem in writing but normal in communication."	"I would suggest them to pay more attention to it."
Non-standard use of prepositions (e.g., "we are studying about...")	3	3	"It is ok in speaking, but they are not accepted in formal English."	"It is a problem in formal writing, but not in communication."
Non-standard use of certain verbs (e.g., "do", "have", "put", "take")	3	3	"I see it as a problem in formal use but normal in communication."	"I respect anyone trying to communicate, some attention is required though"
Use of a 'that' clause instead of an infinitive (e.g., "I want that...")	3	2	"Better use of English is needed in writing, but this is normal in day-to-day communication."	"State that it is wrong and direct them to work on it."
Being overly explicit (e.g., "black colour")	4	4	"This does not cause any harm to communication."	"It does not harm the message, and this might be a mother tongue influence."
Non-standard use of collocations (e.g., "drive a bike")	3	3	"I see it as a problem in writing but normal in communication."	"Effort to communicate is more important, with best possible care though."
Non-standard use of phrasal verbs (e.g., "turn off it")	3	3	"No problem in everyday communication, not sure about writing though."	"I personally respect anyone trying to communicate in another language though I want it to be correct."
Pluralizing uncountable nouns (e.g., "informations", "homeworks")	3	3	"It may cause a bit confusion in communication, but normal for everyday communication."	"In conversation, they can be ignored but not in writing."
Failing to invert interrogatives (e.g., "When he is coming?")	3	3	"It is not important in communication, but a little more attention should be paid in writing."	"Language should be used appropriately in formal writing, but this is normal in day-to-day communication."
Confusing gender pronouns (e.g., "my wife/he", "my brother/she")	3	3	"I think it seems like a slip of the tongue while using English."	"I personally value communication effort though I expect a better use of English."

1 = completely unacceptable; 2 = unacceptable; 3 = no strong opinion; 4 = acceptable; 5 = completely acceptable.

As depicted in Table 3, the analysis of students' perspectives reveals that only one item (item number 8, pertaining to being overly explicit) attained an overall median rating of 4, indicating acceptability. Conversely, the remaining items (n = 12) garnered a rating of 3, signifying a lack of strong opinion. Notably, no items fell within the unacceptable range (median = 1 or 2). Turning to the evaluation of teachers' viewpoints, it emerges that five items (1, 2, 3, 4, and 7) received an overall median rating of 2, denoting their unacceptability. Conversely, one item (item number 8, concerning being overly explicit) achieved a median rating of 4, indicating acceptability. The remaining items (n = 7) were rated 3, suggesting a neutral stance. Overall, the data elucidate divergent perceptions between students and teachers, with distinct patterns of acceptability across the assessed items.

Focus group interviews were also utilized to gather qualitative data about the perspectives of EFL teachers and students. English teachers in the focus group expressed varying perspectives (Table 3) on correctness in the context of English as a global language. While some participants deemed certain mistakes acceptable as long as communication was achieved, emphasizing the importance of understanding and respecting language learners' efforts, others firmly opposed deviations from standard English, highlighting the necessity of explicitly addressing errors to facilitate learning and maintain

linguistic standards. A subset of teachers held a neutral stance, suggesting that while deviations could be overlooked in casual conversation, they should be corrected in formal writing, emphasizing the importance of balancing appreciation for linguistic diversity with the teaching of standard grammar and usage.

Likewise, during the focus group discussion on non-standard English usage, the students provided a range of viewpoints (Table 3). Some contend that these irregularities are appropriate in informal settings where comprehension and widespread usage are more important than strict adherence to grammatical rules. Some, on the other hand, take a neutral stance, acknowledging that mistakes will inevitably be made when learning a language and emphasizing comprehension and tolerance over strict compliance. Nonetheless, a significant number of participants strongly object to the use of non-standard English in formal settings such as academic writing. They stress how important it is to correct errors in order to maintain the integrity of the language and promote individual development. They range from strict adherence to grammatical rules to acceptance and tolerance of non-standard English usage.

All in all, a deeper understanding of the rationale behind participants' opinions was made possible by qualitative data combined with quantitative data. Different English teachers had different opinions on what constitutes correctness; some stressed communication above following rules of grammar, while others supported explicit correction as a means of upholding language norms. Similarly, students exhibited diverse attitudes towards deviations from standard English, influenced by factors such as usage context (Subtirelu, 2013) and personal goals, with some prioritizing understanding and common usage while others highlighted the importance of accuracy (Noels et al., 2000; Darvin & Norton, 2018; Soruç & Griffiths, 2021), particularly in formal settings like academic writing. Correspondingly, quantitative data showed that although EFL students tended to display no rejection (median ratings generally 3) against non-standard features of English as opposed to EFL teachers, the difference was not statistically significant. This implies that their overall responses were not divergent enough to consider the diversity significant. Lastly, both groups valued effectiveness in communication over grammatical accuracy in daily interactions; however, when it comes to formal use of English, particularly in writing, they displayed more concern for linguistic accuracy. The data suggest that the reason for these scattered perceptions of EFL teachers and learners seems to be the situational requirements of the use of English such as its utilization for communicative or academic purposes.

4. Discussion

Considering the broader role of English as a Lingua Franca (ELF), the discussion of these findings should be contextualized. Previous research has highlighted participants' ambivalence towards ELF (Lai, 2020; Sung, 2018; Takahashi, 2017), reflecting ongoing debates around linguistic norms and standards in a globalized world (Jenkins, 2020). The need to embrace and appreciate different English variants is becoming more widely acknowledged, even if educational policy has historically been dominated by regional English ideology (Chen et al., 2020; Navarro et al., 2022).

The discrepancy between EFL students and teachers regarding the acceptability of nonstandard English elements is further demonstrated by the average rankings displayed in Table 1. Teachers seem to have a more conservative viewpoint, while students generally see these variances with greater tolerance. Nevertheless, statistical analysis did not yield strong evidence to support the observed difference, as shown in Table 2, indicating a need for more investigation into the underlying reasons impacting these varied viewpoints. This could be due to the fact that EFL teachers are more likely to be influenced by institutional norms and their concerns about meeting stakeholders' expectations (Jenkins, 2022; Irham et al., 2021).

The study's findings shed light on the differing opinions, though not significant, between English language learners and teachers regarding the acceptability of nonstandard English elements. Table 3 displays the attitudes of both the teachers and the students. Students generally showed a neutral attitude toward most language components, except for item number 8, which indicated acceptance. This is consistent with the findings of Soruç and Griffiths (2023), where the majority of items were rated neutral

by students, except for items 2 and 13, which indicated rejection. Similarly, teachers also demonstrated neutrality for most items, except for items 1, 2, 3, 4, and 7, which they found unacceptable, while item 8 was marked as acceptable. This divergence in perceptions between students and teachers underscores the challenges in evaluating language competence across different learning contexts (Jenkins & Wingate, 2015; Griffiths & Soruç, 2019).

4.1. Implications for Theory and Practice

In light of this, it is critical that teachers include ELF awareness into their lessons (Maley, 2009; Sifakis & Bayyurt, 2018; Junnier, 2024) and provide their students with the linguistic skills they need to successfully negotiate everyday conversations (Hino, 2021; Navarro et al., 2022). This calls for finding a middle ground between teaching traditional English and valuing linguistic variety. As a result, educators will be more equipped to fulfill the different requirements of students in today's globalized society (Selvi, 2016; Soruç & Griffiths, 2024; Liao & Zhang, 2024). In-service teacher training programs can play a vital role in raising knowledge of theory and practice connected to ELF (Sifakis & Bayyurt, 2015).

However, it is challenging for educators to use ELF pedagogy due to a lack of pedagogical knowledge, market decisions that favor standard English, and a lack of teaching resources (Choi & Liu, 2020). Further, even though they understand how critical ELF awareness is to fulfill the varied needs of their students, overworked teachers find it challenging to make it a priority (Soruç & Griffiths, 2021). Biricik Deniz et al. (2020) suggest that exposure to ELF theory and practice may encourage educators to employ an ELF approach that strikes a balance between communication skills and accuracy. This is particularly true when there are conflicting goals and scarce resources.

4.2. Limitations and Directions for Future Research

This study offers valuable insights into how instructors and students of English perceive the language and the acceptability of using non-standard English components in conversations. However, a few flaws and possible research directions are noted. The results of this study may not be as relevant in other contexts because its main focus was on perceptions at university-level English preparation schools. Furthermore, while the qualitative data highlights the need for more research into the underlying mechanisms generating these attitudes and presents a range of perspectives on non-standard English, the quantitative analysis shows some item-based disparities between the viewpoints of instructors and students, though these are not statistically significant. To better address the varied demands of students in a global setting, future studies should examine how cultural and educational backgrounds affect attitudes toward language and the effectiveness of ELF-aware pedagogies.

5. Conclusion

In conclusion, given the current discussion about the legitimacy of nonstandard English features, it is critical to acknowledge the changing character of language and adapt teaching strategies to better reflect the linguistic realities of a global society. By adopting an ELF-aware viewpoint and fostering a friendly and caring learning environment, teachers may provide their students with the tools they need to interact successfully in the increasingly connected world (Sifakis et al., 2020).

Author Biography

Fikri Geçkinli is an instructor at the English Preparatory School of Istanbul Sabahattin Zaim University. His research interests focus on English as a Lingua Franca, World Englishes, and translanguaging, reflecting his dedication to exploring the dynamic and evolving nature of global English usage.

6. References

Bayyurt, Y., & Dewey, M. (2020). Locating ELF in ELT. *ELT Journal*, *74*(4), 369–376. https://doi.org/10.1093/elt/ccaa048

Biricik Deniz, E., Kemaloglu-Er, E., & Ozkan, Y. (2020). ELF-aware pre-service teacher education: Practices and perspectives. *ELT Journal*, *74*(4), 453–462. https://doi.org/10.1093/elt/ccaa040

Canagarajah, S. (1999). *Resisting linguistic imperialism in English teaching*. Oxford: Oxford University Press.

Chen, F., Kao, S., & Tsou, W. (2020). Toward ELF-Informed bilingual education in Taiwan: Addressing incongruity between policy and practice. *English Teaching & Learning*, *44*, 175–191. https://doi.org/10.1007/s42321-020-00055-1

Choi, K., & Liu, Y. (2020). Challenges and strategies for ELF-aware teacher development. *ELT Journal*, *74*(4), 442–452. https://doi.org/10.1093/elt/ccaa036

Cogo, A. (2012). English as a lingua franca: Concepts, use and implications. *ELT Journal*, *66*(1), 97–105. https://doi.org/10.1093/elt/ccr069

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge. https://doi.org/10.4324/9781315456539

Cook, V. (2015). Where is the native speaker now? *TESOL Quarterly*, *50*(1), 186–189. https://doi.org/10.1002/tesq.286

Darvin, R., & Norton, B. (2018). Identity, investment, and TESOL. In J. I. Liontas (Ed.), *The TESOL Encyclopedia of English Language Teaching* (pp. 1–7). https://doi.org/10.1002/9781118784235.eelt0802

Decke-Cornill, H. (2003). We would have to invent the language we are supposed to teach: The issue of English as a lingua franca in language education in Germany. In M. Byram & P. Grundy (Eds.), *Context and culture in language teaching* (pp. 59–71). Clevedon: Multilingual Matters.

Dewey, M. (2014). Pedagogic criticality and English as a lingua franca. *ATLANTIS Journal of the Spanish Association of Anglo-American Studies*, *36*(2), 11–30.

Dewey, M., & Pineda, I. (2020). ELF and teacher education: Attitudes and beliefs. *ELT Journal*, *74* (4), 428–441. https://doi.org/10.1093/elt/ccaa047

Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*. Oxford: Oxford University Press.

Firth, A. (1996). The discursive accomplishment of normality: On 'lingua franca' English and conversation analysis. *Journal of Pragmatics*, *26*(2), 237–259. https://doi.org/10.1016/0378-2166(96)00014-8

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2015). *How to design and evaluate research in education* (9th ed.). McGraw-Hill Education.

Friedrich, P. (2003). English in Argentina: Attitudes of MBA students. *World Englishes*, *22*(2), 173–184. https://doi.org/10.1111/1467-971X.00286

Galloway, N. (2013). Global Englishes and English language teaching (ELT) – bridging the gap between theory and practice in a Japanese context. *System*, *41*(3), 786–803. https://doi.org/10.1016/j.system.2013.07.019

Goh, C. (2009). Perspectives on spoken grammar. *ELT Journal*, *63*(4), 303–312. https://doi.org/10.1093/elt/ccp004

Greenbaum, S. (1996). *Oxford English grammar*. Oxford: Oxford University Press.

Griffiths, C., & Sorucç, A. (2019). Contextual differences regarding students' perceptions of English as a lingua franca according to subject major and nationality. *The Journal of Language Learning and Teaching*, *9*(1), 53–69.

Halliday, M. A. K. (1993). Towards a language based theory of learning. *Linguistics and Education, 5*, 93–116.

Halliday, M. A. K., & Martin, J. R. (1993). *Writing science. Literacy and discursive power.* London: Falmer Press.

Han, Z.-H. (2004). Fossilization: Five central issues. *International Journal of Applied Linguistics*, *14*(2), 212–242. https://doi.org/10.1111/j.1473-4192.2004.00060.x

Hino, N. (2021). Language education from a post-native-speakerist perspective: The case of English as an international language. *Russian Journal of Linguistics*, *25*(2), 528–545. https://doi.org/10.22363/2687-0088-2021-25-2-528-545

Holliday, A. (2006). Native-speakerism. *ELT Journal*, *60*(4), 385–387. https://doi.org/10.1093/elt/ccl030

House, J. (1999). Misunderstanding in intercultural communication: Interactions in English as a lingua franca and the myth of mutual intelligibility. In C. Gnutzmann (Ed.), *Teaching and learning English as a global language* (pp. 73–89). Tübingen: Stauffenburg.

Irham, Huda, R., Sari, R., & Rofiq, Z. (2021). ELF and multilingual justice in English language teaching practices: Voices from Indonesian English lecturers. *Asian Englishes*, *24*(3), 263–278. https://doi.org/10.1080/13488678.2021.1949779

Jenkins, J. (2007). *English as a lingua franca: Attitude and identity*. Oxford: Oxford University Press.

Jenkins, J. (2020). Where are we with ELF and language testing? An opinion piece. *ELT Journal*, *74* (4), 473–479. https://doi.org/10.1093/elt/ccaa045

Jenkins, J. (2022). Accommodation in ELF: Where from? Where now? Where next? In I. Walkinshaw (Ed.), *Pragmatics in English as a lingua franca* (pp. 17–34). Boston/Berlin: De Gruyter Mouton.

Jenkins, J., & Wingate, U. (2015). Staff and students' perceptions of English language policies and practices in 'International' universities: A case study from the UK. *Higher Education Review*, *42* (2), 1–27. https://eprints.soton.ac.uk/382880

Junnier, M. (2024). English as a lingua franca discourse in European Union higher education and research policy. *European Journal of Language Policy*, *16*(1), 115–134. https://doi.org/10.3828/ejlp.2024.8

Ke, I.-C., & Cahyani, H. (2014). Learning to become users of English as a Lingua Franca (ELF): How ELF online communication affects Taiwanese learners' beliefs of English. *System*, *46*, 28–38. https://doi.org/10.1016/j.system.2014.07.008

Kuo, I. (2006). Addressing the issue of teaching English as a lingua franca. *ELT Journal*, *60*(3), 213–221. https://doi.org/10.1093/elt/ccl001

Lai, M. L. (2020). English as a lingua franca: Rhetoric or reality? Attitudes of prospective English teachers in postcolonial Hong Kong. *Asian Studies Review*, *44*(3), 494–514. https://doi.org/10.1080/10357823.2019.1693977

Liao, Y., & Zhang, X. (2024). The role of English as a lingua franca in FDI: Evidence from China. *Applied Economics*, *56*(10), 1091–1107. https://doi.org/10.1080/09638199.2023.2175307

Maley, A. (2009). ELF: A teacher's perspective. *Language and Intercultural Communication*, *9*(3), 187–200. https://doi.org/10.1080/14708470902748848

Matsuda, A. (2003). The ownership of English in Japanese secondary schools. *World Englishes*, *22* (4), 483–496. https://doi.org/10.1111/j.1467-971X.2003.00314.x

Mauranen, A. (2006). Signaling and preventing misunderstanding in English as lingua franca communication. *International Journal of the Sociology of Language*, *177*(177), 123–150. https://doi.org/10.1515/IJSL.2006.008

Mauranen, A. (2018). Conceptualising ELF. In J. Jenkins, W. Baker, & M. Dewey (Eds.), *The routledge handbook of English as a Lingua Franca* (pp. 7–24). London: Routledge.

Mercer, N., Dawes, L., Wegerif, R., & Sams, C. (2004). Reasoning as a scientist. Ways of helping children to use language to learn science. *British Educational Research Journal*, *30*(3), 359–377. https://doi.org/10.1080/01411920410001689689

Navarro, F., Mauranen, A., & Plo Alastrué, R. (2022). Rethinking English as a lingua franca in scientific-academic contexts. *Journal of English for Research Publication Purposes*, *3*(1), 23–45. https://doi.org/10.1075/jerpp.21012.nav

Noels, K., Pelletier, L., Clement, R., & Vallerand, R. (2000). Why are you learning a second language? Motivational orientations and self-determination theory. *Language Learning*, *50*(1), 57–85. https://doi.org/10.1111/0023-8333.00111

Phillipson, R. (1992). *Linguistic imperialism*. Oxford: Oxford University Press.

Phillipson, R. (2008). The new linguistic imperial order: English as an EU lingua franca or lingua frankensteinia? *Journal of Irish and Scottish Studies*, *1*(2), 189–203. https://doi.org/10.57132/jiss.180

Qiang, N., & Wolff, M. (2007). Linguistic failures. *English Today*, *23*(1), 61–64. https://doi.org/10.1017/S0266078407001125

Ranta, E. (2010). English in the real world versus English at school: Finnish English teachers' and students' views. *International Journal of Applied Linguistics*, *20*(2), 156–177. https://doi.org/10.1111/j.1473-4192.2009.00235.x

Ren, W., Chen, Y.-S., & Lin, C.-Y. (2016). University students' perceptions of ELF in mainland China and Taiwan. *System*, *56*, 13–27. https://doi.org/10.1016/j.system.2015.11.004

Rose, H., & Galloway, N. (2017). Debating standard language ideology in the classroom: Using the 'speak good english movement' to raise awareness of global Englishes. *RELC Journal*, *48*(3), 294–301. https://doi.org/10.1177/0033688216684281

Sangster, C. (2014). *RP and BBC English*. Retrieved March 4, 2021, from www.bbc.co.uk

Seidlhofer, B. (2004). 10. research perspectives on teaching english as a lingua franca. *Annual Review of Applied Linguistics*, *24*, 209–242. https://doi.org/10.1017/S0267190504000145

Seidlhofer, B. (2011). *Understanding English as a Lingua Franca*. Oxford University Press.

Seidlhofer, B. (2018). Standard English and the dynamics of ELF variation. In J. Jenkins, W. Baker, & M. Dewey (Eds.), *The routledge handbook of English as a Lingua Franca* (pp. 85–100). London: Routledge.

Selvi, A. (2016). The role of teacher education at a crossroads of tensions and opportunities. *Asian Englishes*, *18*(3), 258–264. https://doi.org/10.1080/13488678.2016.1237010

Sifakis, N., & Bayyurt, Y. (2015). Insights from ELF and WE in teacher training in Greece and Turkey. *World Englishes*, *34*(3), 471–484. https://doi.org/10.1111/weng.12150

Sifakis, N., & Bayyurt, Y. (2018). ELF-aware teaching, learning, and teacher development. In J. In: Jenkins, W. Baker, & M. Dewey (Eds.), *The routledge handbook of English as a Lingua Franca* (pp. 456–467). London: Routledge.

Sifakis, N., & Sougari, A. (2005). Pronunciation issues and EIL pedagogy in the periphery: A survey of Greek state schoolteachers' beliefs. *TESOL Quarterly*, *39*(3), 467–488. https://doi.org/10.2307/3588490

Sifakis, N., Tsantila, N., Masina, A., & Vourdanou, K. (2020). Designing ELF-aware lessons in high-stakes exam contexts. *ELT Journal*, *74*(4), 463–472. https://doi.org/10.1093/elt/ccaa031

Soruç, A., & Griffiths, C. (2021). Inspiring pre-service English language teachers to become ELF- aware. *RELC Journal*, 1–13. https://doi.org/10.1177/00336882211001966

Soruç, A., & Griffiths, C. (2024). The role of 'correctness' in the age of English as a lingua franca: Implications for teaching practice. *Asian Englishes*. https://doi.org/10.1080/13488678.2023.2266611

Sowden, C. (2012). ELF on a mushroom: The overnight growth in English as a Lingua Franca. *ELT Journal*, *66*(1), 89–96. https://doi.org/10.1093/elt/ccr024

Subtirelu, N. (2013). What (do) learners want?: A re-examination of the issue of learner preferences regarding the use of 'native' speaker norms in English language teaching. *Language Awareness*, *22*(3), 270–291. https://doi.org/10.1080/09658416.2012.713967

Sung, C. C. C. (2018). Investigating Perceptions of English as a Lingua Franca in Hong Kong: The Case of University Students. *English Today 133* (34): 38–44. https://doi.org/10.1017/S0266078417000293

Takahashi, R. (2017). Attitudes of Japanese learners and teachers of English towards non-standard English in coursebooks. *Changing English*, *24*(1), 42–52. https://doi.org/10.1080/1358684X.2016.1228444

Timmis, I. (2002). Native-speaker norms and International English: A classroom view. *ELT Journal*, *56*(3), 240–249. https://doi.org/10.1093/elt/56.3.240

Wang, C., & Du, P. C. (2018). Attitudes toward English diversity of teachers and staff who help promote internationalization at a Taiwanese university. *English Teaching & Learning*, *42*(1), 95–116. https://doi.org/10.1007/s42321-018-0005-5

RESEARCH ARTICLE   **OPEN ACCESS**

Hidden curriculum in visual arts education*

Suzan Arslan[1c] iD, and Levent Vural[2] iD

[1] Trakya University, Faculty of Education, Arts and Crafts Education, Türkiye
[2] Trakya University, Faculty of Education, Educational Sciences, Türkiye
[c] **Correspondence Author:** Suzan Arslan, Trakya University, Faculty of Education, Arts and Crafts Education, Türkiye, suzanarslan@trakya.edu.tr
*Ethical clearance was first obtained for the study by decision number 2024.07.08 of 03.07.2014 of the "Trakya University's Social and Human Sciences Scientific Research Ethics Committee"

Abstract

The unspoken type of curriculum through which values, attitudes, and skills are learned in schools beyond the formal curriculum is called the hidden curriculum. Through the hidden curriculum, students develop certain positive and negative traits in many classes. One example is the visual arts classes in schools. Through activities in visual arts classes and the projects shared in the school setting, students acquire many values and attitudes that extend beyond the official curriculum. This study primarily aims to identify the elements that comprise the hidden curriculum and to examine how these elements influence students. A qualitative research method was used in this study. The participants consisted of 8 schools located in the central district of Edirne, including both visual arts teachers and administrators working in these schools. Data was collected through semi-structured interviews with teachers and administrators, along with field observations. The data was analyzed qualitatively, revealing the hidden elements within the visual arts field, how these elements reflect on learners, and the responsibilities, roles, and suggestions for teachers and administrators regarding these aspects. The study found that schools implement various hidden curriculum activities such as exercises, classes, club workshops, out-of-school trips, exhibitions, competitions, and physical space arrangements. These activities have educational, sensory, and aesthetic impacts on learners. Administrators ensure the organization of these activities and sometimes collaborate with teachers. They play a vital role in establishing the hidden curriculum program. The results were discussed in light of the literature and relevant studies, resulting in various suggestions.

223

Citation: Arslan, S. & Vural, L. (2025). Hidden curriculum in visual arts education. *Anadolu University Journal of Education Faculty, 9*(3), 223-245. https://doi.org/10.34056/aujef.1659046

1. Introduction

The hidden curriculum is an explicit yet effective educational process that imparts values, attitudes, and social skills beyond the official school curricula. Operating based on unwritten rules and values, the hidden curriculum can significantly influence the social and emotional development of learners. The term 'hidden curriculum' was introduced by Jackson (1968) in his book "Life in Classrooms" as a response to mass education, which was shown to be ineffective in eliminating class, race, and gender inequalities (Rossouw & Frick, 2023). According to Jackson, education is a socially structured socialization process. In this process, learners are not only taught accepted knowledge but also social norms and values. Learners acquire much of this from interactions in the classroom and school, beyond what is specified in official programs (Veznedaroğlu, 2007). The hidden curriculum can be as influential as academic curricula in preparing students for social life. Demirel (2017) describes the hidden curriculum as a broad concept that includes extracurricular activities. In this context, it can be argued that both in-school and out-of-school factors influence the hidden curriculum. In-school influences encompass teachers' attitudes and behaviors during lessons, school management style, classroom climate, school culture, physical environment, formal curriculum, teaching materials, assessment systems, extracurricular activities, and socio-cultural events. Out-of-school factors include family, society, environment, media, social media, and the broader educational system. All these elements guide learners by shaping their values and beliefs. It is also important to note that sometimes the hidden curriculum diverges from the formal curriculum. For example, school climate and teachers' behaviors may clash with official teachings. Schimmel (2003) argues that although qualities like creativity, independence, and critical thinking are emphasized in the formal curriculum, through the hidden curriculum, students learn societal norms, rules, and beliefs—such as waiting in line, competing, conforming, obeying authority, showing respect, and sacrificing personal desires (as cited in Veznedaroğlu, 2007). While such discrepancies are plausible, generally, the hidden and formal curricula produce similar outcomes. Rossouw and Frick (2023) state that the hidden curriculum involves lessons learners are exposed to outside the formal classroom, which can influence the development of skills, values, and competencies. Furthermore, Ressa, Daniels, and Wells-Jensen (2021) suggest that even time can be considered a component of the hidden curriculum. With the rise of social media, recent studies have examined learner-learner and learner-teacher interactions on these platforms as parts of the hidden curriculum (Duek & Tourn, 2016; Şad & Demir, 2019). Additionally, physical elements like the school's structure, corridors, educational and artistic corners, posters, wall pictures, and photographs carry messages that contribute to the hidden curriculum. These elements can vary by subject area or remain as permanent features of the school's physical environment, influencing students over time. In this context, activity corners within classrooms can be important for shaping students' values and attitudes. Unfortunately, many educators are unaware of the concept of the 'hidden curriculum' and its implicit role in teaching (Rossouw & Frick, 2023).

It is common to cite many classes that align with the hidden curriculum in school environments, which may also be considered part of this scope. Visual arts is one of the subjects with strong potential to influence students beyond the curriculum through the products created during the course. The visual arts class is scheduled for 1 hour per week in all grades of primary and secondary schools in Turkey. For high schools, the schedule varies by the type of high school; for example, it is scheduled for 2 hours per week in each grade at Anatolian high schools. Visual arts class is defined as "a requirement for individuals of all ages at all levels as it provides favorable gains to the personal life of the individual, such as ability to express oneself, gaining aesthetic awareness, and advantages for societies" (MoNE, 2018) in the primary and secondary school curricula for 2018.

The class's learning domains were identified as visual communication and design, cultural heritage, art criticism, and aesthetics in primary and secondary schools. In this scope, 15 achievements are set for 1st grades, 17 for 2nd and 3rd grades, 16 for 4th grades, 19 for 5th grades, 21 for 6th grades, and 20 for 7th and 8th grades in each of the three learning domains. Additionally, the curriculum emphasizes that "it is necessary to provide the opportunity of exhibiting the works of learners and assign active roles to learners in organizing the exhibitions." In this context, artistic activities in schools create opportunities

for hidden curriculum elements to emerge for other learners. Through these activities, learners can receive a wide variety of messages within the framework of the hidden curriculum. It has been observed that there is no research in the literature examining the effects of the elements of the hidden curriculum that arise from these opportunities, or their impact on student development and school environments. For this reason, the study aims to scrutinize the effects of the hidden curriculum elements generated by artistic activities on learners' development and their manifestations within various educational settings. As such, it intends to determine the elements that are included in hidden curriculum, which has an important role in shaping the cognitive, affective, and motor skills of learners within the field (discipline) of visual arts beyond the official curricula, and the effects of such elements on learners in secondary schools. Within this framework, answers to some questions will be sought through the data to be collected. These questions; (i) What are the elements of hidden curriculum which may influence learners in the field of visual arts beyond the official curriculum in schools?, (ii) What are the opinions of teachers and administrators on the reflections of hidden curriculum elements on learners?, (iii) What are the opinions of administrators and teachers on the responsibilities and roles expected of, and the suggestions made to, them?

This study is considered significant in terms of the findings it is expected to yield regarding the identification of hidden curriculum elements within the field of visual arts. The review of international and Turkish literature also revealed that no study has been carried out in this context, and this study will be the first in the literature. Moreover, the study is expected to provide valuable guidance for school administrators and teachers by introducing visual art-based practices that may contribute to shaping the perception of visual arts in schools.

2. Method

This section of the study covers the model and participants of the study, the data collection tool, and the analysis of the data collected.

2.1. Research Design

This study was conducted within a qualitative research framework. In this context, the research method can be described as basic qualitative research. Basic qualitative research design is a flexible and broad approach that does not adhere strictly to a specific methodological framework or philosophical stance. Its goal is to gain a deep understanding of participants' perspectives and the meanings they assign to particular phenomena or experiences (Merriam, 2015). Using this design, interviews and observations were conducted, and specific findings were identified through the content analysis of the collected data. Qualitative research refers to "the research where a qualitative process intended to demonstrate the phenomena and facts realistically and holistically within their natural environment is followed and data collection techniques such as observation, interview, and document analysis, etc, are employed" (Yıldırım & Şimşek, 2015). In this study, in accordance with the specified sub-objectives, participants' views were gathered, and efforts were made to observe activities related to the visual arts course within the natural school environment.

2.2. Participants of the Study

The participants of the study are visual arts teachers and administrators working in secondary schools. In this context, an application was submitted to the provincial directorate of national education to obtain the necessary permissions to conduct interviews with visual arts teachers in the central district of Edirne province. During the permission process, researchers emphasized that visual art classes should be taught by the relevant subject teachers. Consequently, it can be said that a purposive sampling method was used because the course was taught by the designated field teachers. The provincial directorate of national education approved interviews with eight secondary schools, whose names are detailed in the permission letter. Following this approval, the researchers contacted visual arts teachers and school administrators, informed them about the study's scope, and scheduled interviews. Ultimately, interviews were conducted with 8 administrators and 8 visual arts teachers. The administrators' tenure in their

schools ranges from 1.5 to 8 years, while most teachers have over 20 years of experience. Specifically, one teacher has 8 years, another 10 years, and another 11 years of professional experience. Separate appointment dates were arranged for each school, and interviews were conducted with all teachers and administrators for whom permission was granted, with no sampling beyond this scope.

2.3. Data Collection Tool of the Study

In the study, data were collected through semi-structured interviews and observations. The researchers primarily developed a semi-structured interview form to gather opinions from visual arts teachers on the hidden curriculum. In semi-structured interviews, the interviewer has a set of predetermined questions or themes but may also ask additional questions or explore topics further based on the responses or emerging topics during the interview (Yıldırım & Şimşek, 2015). Before creating the interview questions, the researchers reviewed the relevant literature and drafted questions based on the findings of relevant studies. They then consulted a domain expert for feedback on the draft questions. Based on the expert's review, some modifications were made to align the questions with the study's goals. Additionally, an "interview consent form" was developed to obtain prior consent and document voluntary participation from the participants. A test interview was conducted using the draft questions. After adjustments, it was decided to ask the participants seven questions. The test interview indicated that the interview would take approximately 15 to 20 minutes and that the questions were clear and understandable. Accordingly, the researchers and field experts shaped the final seven questions in line with their opinions. Some of the questions include: "What are the applications you have carried out in the visual arts lesson outside the official curriculum?" and "What kind of contributions do you think these applications might have on students?" Recording equipment was used during the interviews, and the analyses were based on the recordings. Additionally, observation data were collected by taking photographs and voice recordings of relevant spaces, with tours accompanied by the teacher or administrator. These observations were not aimed at assessing student work or lesson processes but rather aimed to support the school interview data by observing the school environment and documenting work related to the field of visual arts.

2.4. Ethical Approvals of the Study

Within the scope of the study, ethical approval was first obtained through decision number 2024.07.08 dated 03.07.2014 from the "Trakya University's Social and Human Sciences Scientific Research Ethics Committee," which stated that there were no ethical or scientific objections to conducting the research. Alongside this, an application was submitted to the Edirne Provincial Directorate of National Education to conduct interviews with visual arts teachers and school administrators, and approval was received for eight schools in the central district of the province. When the relevant institutions arrived for interviews, participants were shown the necessary permissions and informed that the study had been conducted in accordance with these approvals. Additionally, participants were informed beforehand through a voluntary participation form, and informed consent was obtained. To ensure the anonymity of the schools, teachers, and administrators in the research report, participants were identified using abbreviations such as "A.S.S. teacher" and "M.R.E.S.S. administrator."

2.5. Data Analysis

Based on the interview findings, it was initially decided that descriptive analysis alone would not be enough, so content analysis was chosen instead. To prepare the data for content analysis, the first step was to convert the audio recordings into written form. The interviews, which were in audio format, were listened to and transcribed into text. The transcriptions were then checked against the recordings to ensure accuracy. Afterward, the transcripts were shared with the participants for confirmation, and they were asked to note any corrections or additions. Once the participants confirmed the transcripts, the content analysis was carried out on the interview data. Content analysis is a unique approach to data interpretation, mainly because of how the content is structured (Krippendorff, 2004). The main process

involves grouping similar data into specific concepts and themes, organizing this information clearly, and then interpreting it (Yıldırım & Şimşek, 2005). During the analysis, the researchers independently examined about 30% of the data to identify codes and themes. The codes and themes identified by each researcher were then compared, and a 90% agreement was achieved using the Miles-Huberman (1994) method. Differences were discussed to reach a consensus on any conflicting units. After this, a single researcher completed the content analysis of the remaining data. NVivo 15 software was used to facilitate the analysis process.

2.6. Validity and Reliability of Data

The researchers conducted the interviews in a neutral and impartial manner, avoiding personal opinions when asking questions. Before the interviews, the purpose and sub-objectives of the research were shared with the field expert, and their opinion on how these relate to the interview questions was sought. Some adjustments were then made within this scope. During the interviews, practices were used to uncover the participants' views aligned with the sub-objectives, through follow-up questions. The interview transcripts were electronically sent to the participants for approval of their opinions. Additionally, in the findings section, direct quotations were included to present the participants' views, and a validation approach was followed regarding the identified codes and themes. A certain percentage of the findings were re-coded by the researchers to minimize bias. To gather participants' views with maximum validity and clarity, permissions from the ethics committee and the provincial directorate of national education were shared, and efforts were made to create a comfortable environment. Moreover, participants were informed that the research data would be accessible only to the researchers, and it was explained that their views would be presented using pseudonyms. Both researchers involved in the study have experience in qualitative research. To ensure data credibility, multiple sources were used, including teachers, administrators, and observations from one school. To prevent data loss, technological devices were employed; interviews were recorded with an audio device, and the analysis was conducted using NVivo 15 software.

3. Results

As a result of the data obtained in the study, several findings were revealed. These findings have been categorized in terms of research questions as *findings related to the hidden curriculum elements in the field of visual arts, findings related to the reflections of hidden elements on students, findings regarding the responsibilities, roles, and suggestions for administrators and teachers*, and under each of these categories, relevant themes and sub-themes have been created. These findings are presented in Table 1.

Table 1. Themes and sub-themes

Research Questions	Themes	Sub-Themes
Elements of the hidden curriculum in the field of visual arts	Exercises, courses, club activities Extracurricular trips Exhibitions and competitions	
	Organization of physical space	• Painting workshops-classrooms • Exhibition Areas • Wall paintings and painting works
	Instructional reflections	• Providing work motivation • Taking responsibility in tasks • Collaborative work between teacher and student
Reflections of Hidden Curriculum on Students	Affective contribution	• Feeling valued • Increased self-confidence • Positive behavioral changes in students • Adaptation to social environments • Modeling the teacher and successful students • Creating art awareness
	Artistic development	• Technical development • Discovering artistic talent
Responsibilities, Roles, and	Administrator and Teacher Responsibilities and Roles	• Administrators ensuring organization • Administrator-Teacher collaboration • Administrators providing resources

Suggestions for Administrators and Teachers	Suggestions of teachers and administrators	• Teachers' purposes for engaging in activities

3.1. Results Related to Hidden Curriculum Elements in the Field of Visual Arts

In the research, some findings related to the activities within the hidden curriculum in the field of visual arts in secondary schools have emerged. In this context, it was found that exercises, courses, and club activities are conducted in schools, extracurricular trips are organized, exhibitions and competitions are held, and arrangements are made in physical spaces. These findings were thematized as *exercises, courses, club activities, extracurricular trips, exhibitions and competitions, and the organization of physical spaces*, which are presented below.

3.1.1. Exercises, Courses, Club Activities

It was found that schools generally conduct at least one activity such as exercises, courses, or art club activities outside the formal curriculum. Visual arts teachers stated that within these activities, they develop students' drawing skills, apply different techniques that capture students' interest, organize activities related to special days and weeks, and prepare students for competitions. In this context, K.S.S. teacher mentioned that they focus on techniques that interest students, saying, "I make them do things they like and that will catch their attention. Like cutting and pasting rather than drawing and painting. They enjoy sticking something they found in nature and creating something from it." E.Y.S.S. administrator stated that they prepare for special days and weeks, saying, "if there is a topic for the week or if it coincides with a special day or week, they work on that subject when they gather," and the I.S.S. teacher said they prepare for competitions, explaining, "When competitions come, we make students in the club draw pictures, and we hang them on the bulletin board."

E.Y.S.S. teacher stated that they created a comprehensive activity in their exercise artwork. The teacher mentioned that, in this activity, they worked on reproductions of Turkish painters' paintings and exhibited these works at the city's shopping mall and expressed it with the following words: "*We made reproductions of Turkish painters' paintings, and at Erasta, we exhibited the works, which consist of about 90 pieces.*"

Some schools have reported that they were able to carry out exercise, course, and club activities in previous years. However, they are currently unable to conduct these activities due to certain adverse circumstances. This was attributed to the high cost of materials, a low number of students applying for the courses, and time constraints. In this context, the I.S.S. administrator explained that the high cost of materials negatively affected the opening of the course, saying, "The students stopped attending the course I opened earlier because they couldn't afford it financially. This is because the materials are very expensive." Similarly, the I.S.S. administrator mentioned that the low number of applicants also prevented the opening of courses, stating, "The children who are interested want to attend the courses. When we want to open the course, only a few people show up. Since the number isn't enough, we can't, even though we want to open the course." The A.S.S. administrator, on the other hand, pointed out that students do not dedicate time to the art club, which affects its activities, saying, "We had opened an art club a long time ago, but cannot work very actively. Because club activities are generally held outside of class hours. It's very hard to find students after school. So, the club activities are not very productive because of this."

3.1.2. Extracurricular Trips

The research revealed that schools organize extracurricular trips. Administrators and teachers mentioned that they organize visits to museums and, specifically for the visual arts, exhibition events, exhibition tours, and fine arts school trips. However, administrators and teachers stated that these trips are very few nowadays and usually involve a limited number of participating students. In this context, K.S.S. teacher mentioned that they don't organize many trips, but they did take some students to an art museum and expressed this situation by saying, "We don't do it very often. But last year, I took some students to the Osman İnci Museum. It was nice, they were interested." F.S.S. teacher and I.S.S. teacher

indicated that they only go to extracurricular art events with the participating students. The F.S.S. teacher expressed this as, "I took three of my students who displayed works in the exhibition and participated in the event," and the I.S.S. teacher said, "There was an exhibition with a peace theme at the Fine Arts High School, we sent paintings there but could not attend because it clashed with graduation. The municipality organized a wall painting event, and we participated in that." The A.S.S teacher mentioned that as part of school trips, they visit the fine arts high school and said, "We also have school trips every year. We always go to the Fine Arts High School. The children are amazed. They tour the art gallery and workshops." The F.S.M.S.S. teacher and T.B.S.S. administrator stated that in previous years, due to close proximity, they visited faculty exhibitions at the university and that currently they plan to attend an exhibition at the youth center. The F.S.M.S.S. teacher expressed this by saying, "Because it was close, we occasionally went to the exhibitions at the Faculty of Education at the end of terms when they were opened," and the T.B.S.S. teacher expressed it, saying, "We used to take exhibition tours at my previous school in Karaağaç, taking students to the Fine Arts Faculty exhibitions frequently. However, since we didn't hear about any exhibitions here, we did not go," and added, "The painting teacher at the Youth Center will be opening an exhibition at the Balkan Congress Center. We have talked with the travel club, and we will take our students there." The E.Y.S.S. teacher mentioned that they organized an exhibition with nearly 90 pieces of artwork at a shopping mall in the city and expressed this by saying, "We made reproductions of Turkish painters' artworks, in acrylic on canvas. We exhibited them at Erasta. There were about 90 pieces of artwork."

Schools have stated that they face certain limitations in organizing extracurricular trips. These limitations include financial constraints and time restrictions. Regarding financial constraints, schools mentioned that the cost of transportation for extracurricular trips puts pressure on them. The M.R.S.S. administrator expressed this by saying, "*The cost of school bus service is a minimum of 900 TRY for transportation within the city. The prices are very high. It is difficult for us, as a school, to bear such a cost. Suppose a teacher wants to organize such a trip for a class that aligns with the curriculum. In that case, they can, of course, do it by charging the students financially.*". Similarly, the K.S.S. administrator said, "*We sometimes have problems with transportation. Financially, it can be an issue because our school does not generate revenue.*" Time constraints were also mentioned as negatively affecting trips. The F.S.M.S.S. teacher said, "*We cannot visit museums because, for example, if I take the 7th grade class A to the museum, just traveling there and back would take hours and it would interfere with my other lessons.*"

3.1.3. Exhibitions and Competitions

The research revealed that schools organize exhibitions and participate in competitions. First and foremost, teachers mentioned that they organize various exhibitions throughout the year. These exhibitions include end-of-year exhibitions, term exhibitions, special day and week exhibitions, and post-event exhibitions. In this context, the A.S.S. teacher stated that they organize exhibitions at the end of events, saying, "At the end of every topic, we organize exhibitions within the school. We hang the works on our boards and the walls of the workshop," and the F.S.S. teacher mentioned that they organize exhibitions for special days and weeks, saying, "We create exhibitions for special days and weeks. I have the students create special works for these. For example, we made an extra exhibition for April 23rd," and the E.Y.S.S. teacher shared that they hold an end-of-year exhibition, saying, "Our end-of-year exhibitions always involve works from all the students," and the F.S.M.S.S. teacher mentioned that they organize both end-of-year and end-of-term exhibitions, saying, "We hold a normal end-of-year exhibition. Sometimes we also have term exhibitions at the end of the first term."

The research also showed that schools participate in painting competitions. These competitions are organized both within the school and outside. External competitions are usually held nationwide or at the provincial level by the national Ministry of Education and other public and private organizations, and are announced to schools. Teachers noted that students are hesitant to participate in national competitions, but are more interested in participating in provincial ones. The A.S.S. teacher said, "Participation in nationwide competitions is less or none. Students don't want to participate, thinking

they can't win." The E.Y.S.S. teacher added, "There are competitions which we learn about from the Ministry of National Education through official letters. There are also competitions sent by municipalities or government agencies, such as the State Waterworks. We try to enter as many of these as possible," and the A.S.S. administrator mentioned, "Participation in competitions is good. Our visual arts teacher submits works to all these competitions. She informs the students who are interested, and the talented children create their paintings." Some teachers also hold school-level painting contests for special days and weeks. The I.S.S. teacher explained, "We sometimes organize them for special days and weeks. For example, we do it on Republic Day or April 23rd, both to highlight those feelings and to help students understand them better."

The research showed that the prize, theme, and frequency of competitions are key factors that affect participation. It was observed that good prizes motivate students and boost participation. The F.S.S. teacher said, "Participating in competitions with prizes motivates the students more. They try to produce works more frequently." Conversely, unappealing prizes and challenging themes were found to reduce participation. The F.S.M.S.S. teacher stated, "When announcing a competition, the first thing the students ask is, 'What's the prize?' If they feel it's not worth the effort, they decide not to participate," and the I.S.S. administrator noted that certain themes and the frequency of events can be discouraging, saying, "Some themes can be too difficult for our students. Or, when competitions are held constantly, there can be a loss of motivation. The students might not want to participate all the time."

3.1.4. Organization of Physical Space

It was found that there are physical arrangements in schools related to the visual arts. In this context, it was observed that schools have painting workshops, designated exhibition areas, and wall paintings and artworks displayed on school corridors and garden walls. These findings have been thematized through painting workshops, classrooms, *exhibition areas*, and *wall paintings* and *artworks*. The subthemes are presented below.

3.1.4.1. Painting workshops-classrooms

In most of the schools included in the research, it was found that a painting workshop is available (Figure 1), but many teachers conduct lessons in classrooms instead. In the painting workshops, it was observed that the seating arrangement was organized in a U or circular shape to allow students to move freely, and some of these workshops featured works created by students and informative visuals on the walls. Additionally, the workshops contained pieces of work, materials, and cabinets for storing them. In this context, the A.S.S teacher described the workshop arrangement as follows: "*We have a smart board. We also have all kinds of materials available for students. For students preparing for the fine arts, we have a still life corner. We also have a recycling corner where we collect colored lids,*" and the E.Y.S.S. teacher described the workshop arrangement, saying "*The arrangement in the workshop is U-shaped. We have large tables where students can see each other. They created works where they could express themselves very comfortably.*"

Teachers noted that the workshop provides a comfortable working environment, helping students feel part of the art space and motivating them to work. The F.S.S. teacher described the comfort of the workshop, saying, "It creates an environment where students can easily use their materials independently of the classroom setting and feel freer," while the A.S.S. teacher added, "The kids are more comfortable here. Our tables are big, everyone sits wherever they want, and they work comfortably. Even if they spill water, it's not a problem." The F.S.S. teacher also mentioned that the workshop gives the feeling of being in an art environment, stating, "In artistic terms, the workshop is essential to connecting with art and is one of the must-haves of art," and the A.S.S. teacher emphasized, "Students should come into the workshop and be immersed in art. They should feel the art environment." Additionally, teachers said the workshop motivates students to work, with the F.S.M.S.S. teacher explaining, "When students come to the workshop, they come specifically for the art lesson, and they are motivated by that," and the F.S.S. teacher adding, "Bringing their art materials into the workshop and breathing the air in the workshop environment motivates the students even more and becomes a source that pushes them to work."
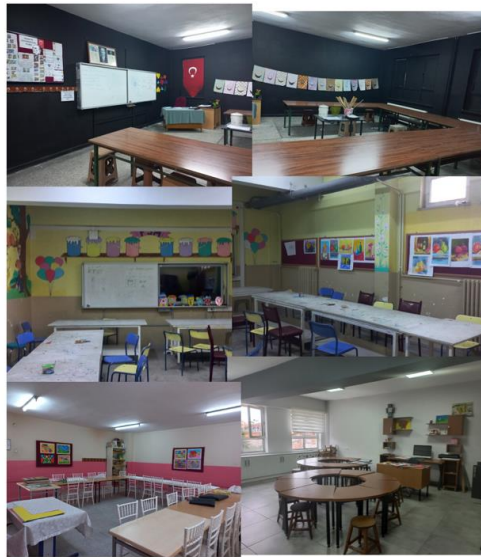
Figure 1. Painting workshops

They stated that some schools lack workshops due to inadequate physical conditions, which presents a challenge. The I.S.S. teacher explained this situation by saying, "Every space in our school is occupied. If possible, I would like there to be a workshop. Students forget and lose their materials," and the M.R.S.S. teacher added, "We don't have a workshop. Not only do we lack a workshop, but we also don't have a place to store our materials. At the very least, there should be a sink. When we do watercolor work, it's very difficult in the classroom to change water or wash hands." Most schools were observed to lack artworks or informative visuals related to visual arts in their classrooms. However, in the Secondary School K., it was noted that there are informative visuals related to visual arts displayed in the classrooms (Figure 2)
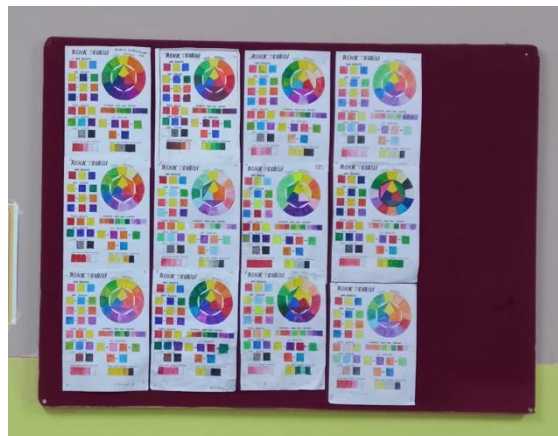
Figure 2. Informative visuals in K. Secondary School classes

3.1.4.2. Exhibition Areas

The research found that most schools use painting workshops, corridors, and bulletin boards as exhibition spaces (Figure 3). Schools display smaller exhibitions in workshops and school bulletin boards, while for larger exhibitions, such as year-end displays, they use bulletin boards, corridors, and easels. The A.S.S teacher explained this by saying, "*We display works created in class in the workshop. We exhibit works related to special days and weeks on various bulletin boards throughout the school.*". The M.R.S.S. teacher stated, "*Every week, we have an art bulletin board where we hang the works we've done every week, as much as it fits. We prepare the bulletin boards for special days and weeks. For the end-of-year exhibition, we used*

easels. We also have 4 to 5 bulletin boards, and we used it both-sided. We also stuck some works on the walls.".
The T.B.S.S. administrator mentioned that they use an empty classroom for exhibitions, saying, "*We have an empty classroom for exhibition space. We have freestanding bulletin boards. We arrange the desks and hang the students' works on the freestanding boards to display them.*" (T.B.S.S.Y.).

Figure 3. Exhibition Areas

It was observed that, in Secondary School A., there are two permanent exhibitions. One of these exhibitions features works by the school's alumni, while the other, called the Çınar Art Gallery, was created as part of a project and displays works by artists. Additionally, in the same school, reproductions of famous artworks are exhibited on canvas on the staircase walls (Figure 4). Some schools also have exhibition boards dedicated to visual arts, which continuously display paintings related to activities and significant days and weeks (Figure 3).

Figure 4. A. Secondary school exhibition areas

3.1.4.3. Wall paintings and painting works

It was observed that, in schools, paintings have been made on school corridors, classroom doors, and garden walls to beautify the space, (Figure 5) and various prints and reproductions have been hung on school corridors (Figure 6). The paintings on the school corridors and doors were found to be informative visuals related to various disciplines, created by the visual arts teacher and students together. The M.R.S.S. administrator explained this by saying, "*For the wall paintings, we took advantage of the teacher's talent to beautify the school. The visual arts teacher worked with the students. The paintings also*

add visual appeal to the school and give the idea that there are artistic activities in this school," and the E.Y.S.S. administrator described, "*Together with a group of 12 students, two of my teachers are painting the school corridors according to the subjects. Currently, they are working simultaneously on both the math and English corridors. The kids are learning both English and math formulas on the walls.*"

Figure 5. Wall and door painting

It was seen in three schools, that replicas and reproductions of notable artworks were displayed in the corridors (Figure 6). Particularly in the secondary school A., small-sized reproduction works were displayed on the staircase corridors. In the same school, a resting area called "Pinhani" was created in the basement for students, the walls of which were painted with murals, decorated with bulletin boards with student works, and reproduction works to ensure that the space was filled with art (Figure 6). The school's administrator explained this by saying, "*The place where my students gather during lunch breaks is called 'Pinhani.' Here, the visual arts teacher's boards are displayed. This space has been filled with artistic works. The idea is for the children not to look at empty walls but to look at the artworks.*"
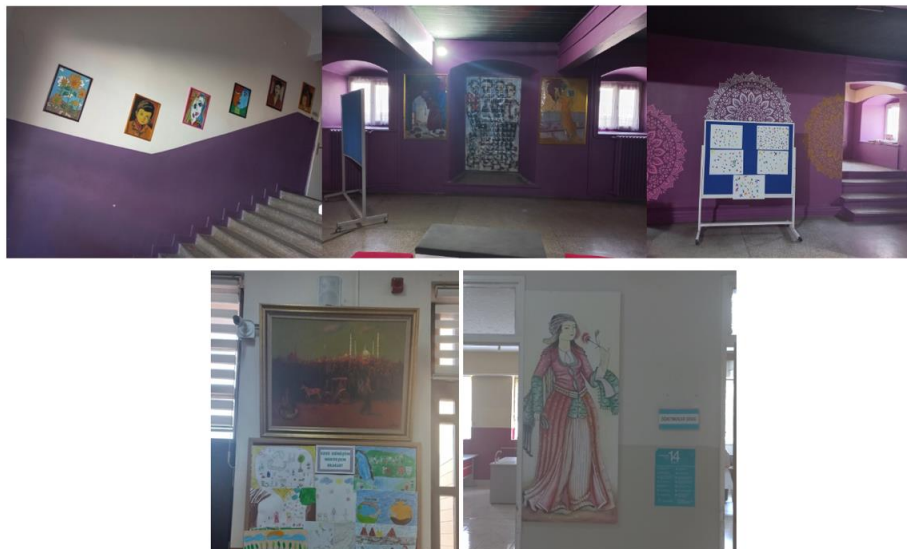

Figure 6. Reproductions and wall painting

3.2. The Findings Regarding the Reflections of Hidden Curriculum on Students

Based on the data obtained from the interviews with teachers and administrators in the research, some findings regarding the reflections of hidden curriculum on students have been identified. These

findings have been thematized as instructional reflections, affective reflections, and artistic development, which are presented below.

3.2.1. Instructional Reflections

The research has revealed that the hidden curriculum elements have instructional reflections on students. In this context, it was found that these elements provide students with work motivation, students take responsibility in the tasks carried out, and a task is carried out collaboratively by the student and teacher. These findings are presented under the sub-themes of *providing work motivation, taking responsibility in tasks and collaborative work between teacher and student*.

3.2.1.1. Providing work motivation

Teachers have stated that students who participate in exhibitions and competitions tend to feel happier, which motivates them to work harder. The F.S.M.S.S. teacher expressed that students work better when they know their works will be exhibited, saying, "*When students know their paintings will be displayed or that they will be exhibited, they work much better. It serves as a motivation for them.*" The teacher also noted that even a simple exhibition can motivate reluctant students, saying, "*To motivate reluctant students, even a simple exhibition or putting up a board can motivate them.*". Likewise, other teachers also mentioned that exhibitions motivate students to work. The F.S.S. teacher stated, "*Knowing that their work will be exhibited in the end motivates the student more,*" and the K.S.S. teacher said, "*It encourages them for their next work,*" and the T.B.S.S. administrator mentioned, "*When the products they create are appreciated, it motivates the children more. They will produce better things in the exhibition next year. We have also seen that a student who worked on the previous exhibition produced better works in the next year's exhibition.*" (T.B.S.S.A).

Teachers have stated that exhibitions also encourage students whose works are not displayed and motivate them to work. The A.S.S. teacher expressed this by saying, "*I think more than the competitions, the exhibition is where they see their work. My work was displayed too. This makes them happy. Sometimes they even ask, 'Teacher, will you hang mine up?' I tell them, 'If you do it well, I'll hang it,' and they say, 'I'll make it nice so the teacher will hang it.'*"

Teachers also mentioned that conducting the art lessons in the art workshop helps provide work motivation for students. The A.S.S. teacher shared this idea, saying, "*The workshop setup directly focuses the child on the lesson.*" (See also the theme of "art workshop-classrooms").

However, some teachers pointed out that while such activities motivate students who are already interested, they have little impact on students who are not engaged. The M.R.S.S. teacher expressed this by saying, "*The child whose artwork is displayed is the one who is always interested in the lesson. We do these exhibitions so that they can serve as examples for others. We want them to enjoy it and see their work. It does affect some, of course, but it does not interest some disinterested children at all.*". The F.S.M.S.S. teacher also mentioned, "*No matter what you do, nothing motivates the reluctant children. The child even struggles with bringing materials. Usually, most of the class participates in these activities. They enjoy them, but it is not a source of motivation for everyone.*"

3.2.1.2. Taking responsibility in tasks

Teachers stated that they assign tasks to students in activities such as preparing bulletin boards, organizing exhibitions, and creating wall paintings, and that students take responsibility in these tasks. In this context, the A.S.S. teacher mentioned that during important days and weeks, students are given the responsibility of preparing the bulletin board and that they take on these responsibilities by saying, "*I'm down with the November 24th celebration. We have already prepared our bulletin board. Tasks are distributed to the students. We celebrate together and set up our exhibitions... Students take responsibility. They work under a certain discipline.*"

The E.Y.S.S. teacher shared that student took on roles in the out-of-school exhibition they organized and enjoyed doing so, saying, "*Last year, we had a linocut exhibition. We even placed examples of the works on the table. The visitors were shown how to do it in practice by the students. They really enjoyed it,*

and they love taking on responsibilities. Additionally, students have assumed responsibility in creating wall paintings in corridors and have worked alongside their teachers. The M.R.S.S. administrator described this by saying, "*While the wall paintings were being made, there were a lot of paints and brushes around the teacher. Even if the child didn't have the talent, a responsibility was given to that child. They worked with the children as well*."

3.2.1.3. Collaborative work between teacher and student

Teachers and administrators have stated that teachers and students work together on bulletin boards and wall paintings in schools, and students enjoy this collaboration. The A.S.S teacher and M.R.S.S. administrator mentioned that they prepare the bulletin boards together with students, saying, "*We have main bulletin boards at the entrances. We prepare them. Tasks are distributed to the students. We celebrate together and set up our exhibitions*," (A.S.S.T.) and the M.R.S.S. administrator also shared, "*They prepare for special days and weeks. School bulletin boards are arranged together with students.*". The T.B.S.S. administrator emphasized that they prepare activities with students, saying, "*Students really enjoy participating in activities. They love not only doing the work but also preparing the activity together. They enjoy being part of it.*". Similarly, administrators mentioned that teachers also work alongside students on wall paintings in schools. This was explained by the F.S.S. administrator by saying, "*Beautification efforts are carried out in those parts of school areas according to the program. These are done through teacher-student collaboration.*". The M.R.S.S. administrator also stated that students enjoy working in collaboration with teacher, saying "*The wall is done to beautify the school. Teachers work together with students, and it becomes a large-scale activity.*". The M.R.S.S. administrator also noted that students enjoy working with teachers, saying, "*Students enjoy it. They enjoy being with the teacher, helping them, and chatting while working.*"

3.2.2. Affective Contribution

The research has revealed that hidden curriculum elements provide affective contributions to students. In this context, it was found that when students participate in activities such as exhibitions, competitions, and wall paintings, they feel valued, their self-confidence increases, they exhibit positive behavioral changes, develop skills to adapt to social environments, and model their teacher and successful students. These findings are presented under the sub-themes of *feeling valued, increased self-confidence, positive behavioral changes in students, adaptation to social environments, and modeling the teacher and successful students*.

3.2.2.1. Feeling valued

Visual arts teachers stated that students feel valued and take pride in themselves when they participate in competitions and exhibitions. The I.S.S. teacher explained that students feel proud of themselves when they win first place and receive an award, saying, "*The student goes up to the ceremony area, and after their name is called in front of the whole school, announcing that they are first, they feel proud of themselves.*". The F.S.S. teacher also mentioned that when students' artworks are selected for competitions, it makes them feel valued, saying, "*When their paintings are selected and sent to the Ministry of Education, they feel valued.*". The E.Y.S.S. teacher expressed that through exhibitions and competitions, he/she wants students to experience the feeling of being recognized in front of the community, saying, "*I love participating in exhibitions and competitions with my students. While participating in these, I want them to understand what it feels like to be recognized.*"

3.2.2.2. Increased self-confidence

Teachers have stated that students whose works are displayed in exhibitions experience an increase in their confidence regarding the lesson. The E.Y.S.S. teacher mentioned that when they organized an exhibition outside of school, the students who both participated in the event and had their work exhibited gained more confidence, saying, "*We had an exhibition at Erasta where students whose artworks were displayed were assigned specific tasks. The students learned to explain their work according to each age group, and they wanted to repeat this because the children's self-confidence increased.*" (E.Y.S.S.T.).

And the F.S.S. teacher explained that students whose works are displayed in exhibitions gain more confidence towards the lesson, stating, "*When a student's work is exhibited alongside their peers, especially at school, it increases their sense of achievement and self-confidence. At least, it boosts their self-confidence regarding my subject.*" (F.S.S.T)

3.2.2.3. Positive behavioral changes in students

Teachers have reported observing positive behavioral changes in students who participated in exhibitions and competitions or assumed responsibilities within these events. The E.Y.S.S. teacher mentioned that students who were involved in exhibitions and extracurricular activities showed positive behavioral changes in class, saying, "*Students who take part in exhibitions and especially extracurricular activities return to school more calm, more attentive, and with higher adaptability, even if they were mischievous or aggressive before,*" while the T.B.S.S. administrator also observed similar changes in students participating in an internal competition, expressing, "*Competitions provide us with an opportunity to get to know the children better. A student who had some behavioral problems became more motivated and started following the rules after creating that piece of art.*" (T.B.S.S.A.).

3.2.2.4. Adaptation to social environments

Teachers have stated that exhibitions and competitions help students develop the ability to adapt to social environments. The T.B.S.S. administrator expressed this by saying, "*First and foremost, students develop the ability to adapt to social environments.*" The E.Y.S.S. teacher also mentioned, saying "*Especially the exhibitions outside of school help children adapt to society along with the social environment.*" Also, "*They realized how beautiful and important the art class is as a social activity.*"

3.2.2.5. Modeling the teacher and successful students

The research revealed that students model their teacher and successful students. Teachers, in particular, noted that seeing them working motivates students to engage in their own work. The A.S.S teacher explained this by saying, "*Sometimes they see me working. When I'm preparing for the bulletin board, the students say, 'We're just sitting, but the teacher is working, so we should work too.' They might perceive that the works displayed on the walls are created by me, similarly to how they believe the teacher also produces them,*" and the E.Y.S.S. teacher also stated, "*By following current trends, we try to incorporate new, up-to-date activities for our students. My teacher does it, and I do it too.*"

Teachers have stated that students whose artworks are exhibited in exhibitions and who place in competitions serve as role models by increasing the motivation of other students. The A.S.S teacher explained this by saying, "*The student is happy because he/she ranked first in the competition at school. It also becomes attractive to other children. My friend won an award, I can participate too. They think, 'I can do it too,' and they get excited,*" while the F.S.S. teacher stated, saying "*Some students create works themselves with the desire to achieve the same success their friend did,*" and the M.R.S.S. teacher mentioned, "*They bring out the students who won awards at school and give them their prizes. They talk about how it happened. The children like it, honestly. They think to themselves, 'Next time, I can participate too.'*". Some teachers also pointed out that one reason they organize exhibitions is to set an example for other students. The E.Y.S.S. teacher expressed this by saying, "*Our students really enjoy seeing their works exhibited, and I believe these kinds of activities motivate students who don't engage in them,*" while the M.R.S.S. teacher also said, "*The child whose artwork is displayed is already a child who is constantly interested in the lesson. We, in fact, organize these exhibitions so that they can serve as an example to others.*". On the negative side, the F.S.S. teacher noted that some students do not consider themselves as talented as the successful ones and feel discouraged, and explained this, saying "*Sometimes, the opposite can happen. The student may think, 'We're not that talented,' and shy away even more.*"

3.2.3. Artistic Development

The research revealed that elements of the hidden curriculum contribute to students' artistic development. In this context, activities conducted outside the formal curriculum was to help create an

awareness of art in students, support their technical development, and enable them to discover their artistic abilities. These findings are presented under the subthemes of *creating art awareness*, *technical development*, and *discovering artistic talent*.

3.2.3.1. Creating art awareness

Teachers have stated that activities outside the formal curriculum contribute to the development of students' artistic awareness. The M.R.S.S. teacher emphasized the necessity of extracurricular activities, such as museum, exhibition, and workshop visits, noting that these activities increase interest in art, saying, "*When children see such environments, I believe they develop more, and their interest grows. At least their perspective on art changes, I think. Without these, interest in art tends to lag behind.*". Similarly, the T.B.S.S. administrator explained that the exhibition visit activity changed students' views on art, saying, "*You know children, when they see a different photo or a naked woman, they immediately get embarrassed, but we aim to broaden their horizons by explaining that this is art, and such things can be part of art. It seems to have worked. Children have started to look at art more beautifully,*" and the E.Y.S.S. teacher also highlighted that extracurricular exhibition activities help students adapt to art, stating, "*I believe that exhibitions outside the school are important for students to adapt to art alongside their social environment.*". The A.S.S teacher expressed that such activities help students approach art more consciously, saying, "*At least in the future, when they look at art or paintings, they will not just stare blankly.*"

The research also revealed that most schools organize various exhibitions and create exhibition spaces, wall paintings, bulletin boards, and informative visuals as part of their physical arrangements. This increases students' familiarity with visuals. In this context, the A.S.S. administrator explained that they created a rest area for students at their school, where they placed reproductions of artworks to familiarize students with artistic creations. The administrator described this by saying, "*They have filled this space with artistic works. We do not want the children to look at blank walls. The idea is that it would cheer them up, and they could look at the artworks.*"

3.2.3.2. Technical development

Teachers have stated that artistic activities outside the formal curriculum contribute to the development of students' technical skills. The A.S.S teacher explained that students use different technical skills in various artistic activities, saying, "*They see different techniques in an artistic sense. Preparing bulletin boards, cutting paper and cardboard neatly, using scissors, and applying paint in a technique-appropriate and smooth manner.*". Similarly, the F.S.S. teacher emphasized that extra activities allow students to experience different techniques and applications, stating, "*Through extra activities, we have the opportunity to use materials that are not included in the curriculum. For example, we can practice marbling through an additional activity.*"

3.2.3.3. Discovering artistic talent

Teachers have stated that some students are unaware of their talents, but through activities such as exhibitions, competitions, wall paintings, and courses, they become aware of their abilities, which directs them towards the field of art. The F.S.S. teacher mentioned that competitions raise awareness of talent, saying, "*Some of our students have talent but are not aware of it. Through these competitions, awareness is created,*" while the I.S.S. teacher explained that the art course helped a students recognize their abilities and consider art as a profession, stating, "*I had opened an art course. They became aware of themselves and started thinking about fine arts.*". The T.B.S.S. administrator added that they discovered talented students through competitions, saying, "*We did a poster project related to Yunus Emre. We discovered two talented students. We didn't know they were skilled in this area. These competitions provide us with an opportunity to get to know the children better.*"

3.3. Findings Regarding the Responsibilities, Roles, and Suggestions for Administrators and Teachers

As a result of the data obtained from the interviews with teachers and administrators in the research, some findings have been made regarding the responsibilities, roles, and suggestions for

administrators and teachers. These findings have been thematized as *administrator and teacher responsibilities and roles*, and the *suggestions of teachers and administrators*. These themes are presented below.

3.3.1. Administrator and Teacher Responsibilities and Roles

In the research, some findings were obtained regarding the responsibilities and roles of administrators and teachers in the activities that form the hidden curriculum. According to these findings, administrators organize activities outside the formal curriculum, some activities are carried out through teacher-administrator collaboration, administrators need to provide resources for the activities to take place, and teachers engage in activities with specific objectives in mind. These findings are presented under the subthemes of *administrators ensuring organization*, *administrator-teacher collaboration*, *administrators providing resources*, and *teachers' purposes for engaging in activities*.

3.3.1.1. Administrators ensuring organization

It has been revealed that administrators ensure the organization of activities in schools. In this context, administrators stated that they plan and manage various activities such as the end-of-year exhibitions, announcing external competitions, organizing award ceremonies, opening courses, conducting exercise sessions, and creating wall paintings. The F.S.M.S.S. administrator explained that they organize the end-of-year exhibitions, saying, "*When the exercise sessions are completed at the end of the year, the works created throughout the year are exhibited. We handle the organization of this.*" and the M.R.S.S. administrator stated that they request the end-of-year exhibition from the teachers, saying, "*We ask the teacher for the end-of-year exhibitions.*". Administrators generally mentioned that they announce and manage the connections for external competitions. This process was explained by the F.S.S. administrator and the F.S.M.S.S. administrator in the following statements:

> As a routine, there are announcements for painting competitions from the local education authority for special days and weeks. We print out these announcements from the system, along with the participation conditions, and present them to our teacher. Our teacher handles the rest of the process, and then provides feedback to us. We then send the artworks to the local education authority. (F.S.S.A.)

> On national and official holidays, we organize various painting and poetry competitions within the school. The winners of such competitions are sent to the provincial competition. During ceremonies, we also display the artworks of the students who placed in the competition and have them applauded along with their names. (F.S.M.S.S.A.)

Administrators have stated that they also plan the wall paintings. The F.S.S. administrator explained this by saying, "Within the available resources, we identify potential areas both inside and outside the school where the paintings can be done. We discuss with our teacher and carry out beautification works in the school's areas according to the program."

Administrators have also mentioned that there are challenges they face in carrying out these activities. In this context, the F.S.M.S.S. administrator stated that due to time constraints, teachers hesitate to give exercise sessions, avoid museum visits due to class hours, and organizing additional competitions creates extra workload. These situations negatively impact the realization of the activities. The administrator explained this view with the following words:

> Sometimes, teachers may not be willing to conduct extracurricular exercises because they are outside of class hours... If you plan a museum visit, it has to be done during class time. The teacher might say, 'I need to teach math, I'm already struggling to finish the topic.' No one is very keen on it... Organizing an additional competition also creates extra workload. Schools may be unwilling to get too involved so as to avoid imposing additional burdens.

The I.S.S. administrator mentioned that sometimes the heavy topics in competitions and the frequent organization of competitions reduce students' motivation and decrease participation. They also expressed that they were unable to open courses due to insufficient number of applicants. They explained such cases with the following statements: "*Some themes can be too difficult for our students.*

When competitions are organized constantly, the children may not want to participate all the time." and "*When we want to open a course, only a few students show interest. Because the number is not sufficient, we cannot open those courses.*". Administrators also stated that financial constraints negatively impact museum visits. The M.R.S.S. administrator explained this situation by saying, "*Financial issues are very challenging. The school bus fare to the city center is not less than 900. The prices are very high. It's difficult for us as a school to cover this.*"

3.3.1.2. Administrator-Teacher collaboration

Administrators have stated that they plan art-related activities in schools, especially for special days, weeks, and end-of-year exhibitions, together with teachers. The F.S.S. administrator explained this by saying, "*Especially on national holidays, we plan the art exhibition together with our school's art teacher,*" and the K.S.S. administrator mentioned that they organize the exhibition for the school's spring festival in collaboration with the teacher, saying, "*Last year, we discussed together how to organize it. We decided to do it together so that more people could see it.*". The T.B.S.S. administrator also stated, "*We always make sure to hold our exhibition annually. We communicate this with the teacher colleagues, and they don't say no; we prepare the exhibition together.*".

3.3.1.3. Administrators providing resources

Teachers and administrators have stated that the attitude of administrators is crucial for the implementation of visual arts activities in schools, and that administrators need to provide opportunities and support teachers within those possibilities. In this context, the A.S.S teacher mentioned that her administrator supports her, and this makes her feel good and expressed this opinion by saying, "*The administrators are where it all ends. I feel very good. Thanks to my principal. He is always with me, supporting me. He gets me whatever I want, he makes it happen. Otherwise, I might not have been able to do it. That would have made me unhappy.*". The A.S.S administrator, on the other hand, stated that a teacher cannot act alone and that the role of the administrator is essential. He expressed this by saying, "*If the school administration does not support, the teacher cannot do anything on their own. We support our teacher here.*". Similarly, the I.S.S. administrator stated that it is the administrator's duty to provide opportunities for the teacher, saying, "*It is to be a source of motivation for both the teacher and the students, to provide opportunities. If our teacher wants to open a course, we provide the greatest opportunities,*" and the M.R.S.S. administrator also mentioned that they always try to provide opportunities for the teacher, saying, "*We do whatever the teacher needs. We facilitate her requests. As long as the teacher asks for it.. she asked for an easel, we get an easel. For example, if she says it's needed for an exhibition, we try to meet every need, everything the teacher requires, financially.*"

It has been stated that the perspective of the principal and vice principals on art is also important in providing opportunities for the teacher. The A.S.S teacher expressed this by saying, "*It all ends with the administration. If your administration has a modern perspective and is someone who loves art, they won't hinder you. They'll just ask, 'What else are you going to do?'*" and the T.B.S.S. administrator explained it by saying, "*The perspective of the administrators on art also affects the situation. If the administrator has the mindset of 'it's fine if the student goes to the exhibition, it's fine if they don't,' then there's nothing left to do.*"

3.3.1.4. Teachers' purposes for engaging in activities

Teachers stated that they carry out activities outside of the official curriculum for certain purposes. These purposes include ensuring students' art literacy, encouraging the students to be willing, fulfilling certain mandatory activities, and motivating their own professional growth. Firstly, some teachers mentioned that they carried out these activities to ensure the students gain art literacy. The A.S.S teacher explained this idea by saying, "*Look, this is a warm color, this is a cool color. I've heard of this artist. It's like we had practiced this technique. They should know about it. After all, none of them will be artists... At least when they look at art in the future, they won't look at it blankly,*" and the M.R.S.S. teacher added, "*I do it for the students, so they can see visual things. So they can see the works of their other friends. I want them to grasp beauty and aesthetics.*" Some teachers, however, stated that students' willingness and happiness

motivated them, and the I.S.S. teacher explained this by saying, "*The biggest factor is their willingness. Because painting is something that will be done more voluntarily. It is something they will do more willingly. When they are willing, I also try to do my best,*" and the E.Y.S.S. teacher expressed it saying "*The children enjoy it, and receiving feedback from it, is an additional factor for us. We love working with children, exhibiting their works, and seeing the happiness on their faces.*". The F.S.M.S.S. teacher, mentioned that some of these activities are mandatory, and they are also done to maintain the teacher's motivation. She explained this by saying, "*Some of these are mandatory anyway; you have to do them. For example, the end-of-year exhibition,*" and "*Participating in a competition, organizing an exhibition, or doing any work outside of lessons is purely for motivation. If you are appreciated, your motivation increases. If you are not appreciated, your motivation is lost.*"

3.3.1. Suggestions of Teachers and Administrators

Teachers and administrators have made suggestions regarding activities and the teaching staff. Firstly, teachers have proposed that inter-institutional collaborative projects could be carried out for activities, and that courses aimed at developing students' talents could be opened. In this context, the A.S.S. administrator suggested that an exhibition project could be organized jointly by schools under the provincial directorate of national education and expressed this suggestion by saying, "*Different things can be organized at the provincial level by the Ministry of National Education. A collective exhibition could be created at a certain location where all the schools come together. The Ministry of National Education should organize these types of events.*" Similarly, the A.S.S. teacher suggested increasing inter-school collaboration and stated, "*There could be more cooperation between schools. There could be joint projects with students, like material collaboration. It would be nice for the children; a student from another school would come and they would work together. We also expect support from the university; we could do something together.*" The A.S.S. administrator and the I.S.S. teacher both suggested opening talent-development courses. The A.S.S administrator expressed this idea by saying, "*There should be free courses, suitable for children's talents, provided by the state. The children should go there and develop their abilities in that course,*" and the I.S.S. teacher said, "*If they have the means, students stand out in the courses. They do it with a lot of passion. I would recommend they open courses in workshops.*" As another suggestion, the A.S.S. administrator pointed out that the Ministry of National Education should increase the rewards in competitions and expressed this suggestion by saying, "*The Ministry of Education could increase the rewards for children. It could be encouraging.*"

Suggestions for teachers emphasize the need for them to be enthusiastic, active, and courageous in organizing activities, to encourage students to participate in events such as exhibitions and competitions, and to support students' development. First, the suggestion was made that teachers should be courageous, active, and willing. This was expressed by the E.Y.S.S. teacher, who said, "*They should not be afraid of working with the students or increasing responsibilities. They should not be afraid of organizing activities. The feedback is very positive.*" The M.R.E.O. teacher stated, "*Definitely, art teachers should be active, discover talented children, work with them individually, and help them develop... They need to be willing.*" The T.B.S.S. administrator said, "*The planning and preparation of this, when I do exhibitions, is quite challenging at first, but you need to keep the energy high, you need to be willing.*". The I.S.S. teacher, on the other hand, suggested that teachers should encourage students to participate in activities and expressed this opinion by saying, "*If they encourage students to participate in competitions and such activities, participation is guaranteed.*"

4. Discussion Conclusions, and Suggestions

The research aimed to identify the elements of the hidden curriculum and their effects on students. Accordingly, the study collected data on these elements within the field of visual arts, examining how they influence students, as well as the responsibilities, roles, and suggestions of administrators and teachers in this process. The findings, discussions, and recommendations related to these points are presented below.

As a result of the study, several elements of the hidden curriculum in middle school visual arts programs were identified. These include exercises, courses, club activities, extracurricular trips, exhibitions, competitions, and arrangements of physical space. Hatipoğlu and Semerci (2019) found through their interviews with teachers that social and cultural activities, along with the physical environment, significantly influence the development of aesthetic values, allowing students to gain aesthetic experiences through these channels. The research determined that schools usually conduct one of these activities, such as exercises, courses, or club activities. During these activities, it was noted that painting projects were developed, various techniques that engaged students' interest were applied, activities for special days and weeks were organized, students prepared for competitions, and large-scale events were held. Similarly, related studies have highlighted that these kinds of activities, which support implicit learning, are practical tools in student development (Hatipoğlu, 2018; Ishiguro et al., 2021). However, it was also found that some unfavorable circumstances created barriers to implementing these activities. For example, the high cost of materials limited participation in courses; some courses could not be offered because they did not attract enough students; and students could not find time for club activities outside of class hours. From these findings, it can be concluded that students' interest in these activities is relatively low, and efforts are needed to improve student participation.

It was found that schools organize extracurricular trips as part of the hidden curriculum. These trips include visits to museums, art museums, out-of-school exhibitions, exhibition tours, and visits to art schools. According to Şen (2019), extracurricular trips promote interactive learning and support the development of cognitive, affective, and psychomotor skills. Additionally, similar studies have shown that students who participate in such activities develop a greater interest in art and become more engaged in school (Arts Education Partnership, 2019). However, the research revealed that these activities are currently limited and are attended by only a small number of students. This creates the perception that students undervalue visual arts and that top students are prioritized. In his research, Gülüm (2016) emphasized the importance of exhibition tours, stating that students can observe new artistic techniques, enhance their aesthetic judgments, and develop a habit of attending exhibitions. Therefore, increasing the frequency of these activities and student participation is vital for gaining aesthetic knowledge and perspectives. The study also identified some barriers to organizing these activities, including the distance to exhibition venues, financial constraints, and the discouraging effect of disrupting class schedules on teachers.

It was found that schools organize various exhibitions and competitions and participate in external events. In this context, it was determined that schools hold year-end exhibitions, term exhibitions, celebrations for special days and weeks, end-of-event exhibitions, and competitions for special occasions, as well as participate in external contests. It was mentioned that students take part in internal competitions and provincial contests, but are hesitant to join national competitions due to reduced chances of winning. Additionally, it was noted that a lack of attractive prizes, challenging topics, and the frequency of events contributed to decreased participation.

It was found that the physical arrangements related to visual arts are established in schools. In this context, schools were observed to have art classrooms, exhibition areas, wall paintings, and displayed artworks in hallways. Specifically, most schools have art classrooms where student artworks, art materials, storage cabinets, and informative visuals are present. It was noted that workshops provide a comfortable working environment, help students feel immersed in an artistic atmosphere, and motivate them to engage in their work. Similar studies indicate that educational environments with quality physical conditions increase student success and motivation (Broome, 2013; Şengöz & Sağgöz, 2015), help students feel special, and boost their interest in art (Specialist Schools and Academies Trust, 2007). Therefore, it can be argued that adequate physical facilities lead to positive student outcomes. However, it was observed that very few schools actually utilize the art classrooms. Some schools mentioned that due to inadequate physical conditions, art classrooms were missing, causing difficulties during lessons. Tekin Kırışoğlu (2005) stated that the marginalization of art classes in schools also results in a lack of suitable spaces, with classrooms being used as workshops that are not suitable for art lessons. In this

context, the absence of dedicated art classrooms and proper facilities implicitly suggests that art lessons are considered of secondary importance for schools.

It was observed that in schools, display areas such as art classrooms, bulletin boards in corridors, and corridor walls are used. Some schools had a small bulletin board dedicated to visual arts. However, having only one bulletin board for visual arts is likely insufficient. In one of the research schools, a permanent gallery showcasing artists' works was found. It was also noted that various wall paintings and artworks are present in schools. Many schools featured wall paintings related to interdisciplinary topics on garden walls and corridors. Yet, many classrooms lack visuals related to visual arts. Some schools displayed posters of prints and reproductions along the hallways. One research school had a large number of reproductions hung up. In this regard, Hatipoğlu and Semerci (2019) emphasized the importance of the school climate in transmitting aesthetic values. Therefore, an increase or decrease in spaces and visuals related to visual arts in schools can influence the school climate and, consequently, the transmission of aesthetics.

In his research, Yüksel (2007) stated that the hidden curriculum in schools plays an important role in helping students acquire knowledge, skills, and attitudes. Similar studies have observed that students who engage actively with art show increased academic success (Arts Education Partnership, 2019). This study also revealed that the hidden curriculum activities in schools have instructional, affective, and artistic effects on students. Instructionally, the study found that students who participated in activities such as exhibitions and competitions were more motivated to work, and even students who did not participate were encouraged to work with enthusiasm. Similarly, Tiryaki (2024) concluded that students who receive awards in society boost the motivation of other students. Ayaydın (2009) noted that exhibitions motivate students and emphasized that care should be taken to ensure that every student's work is displayed to maintain motivation. Similar studies have also found that student participation in exhibitions improves the quality of their work (Hardly, 2022). The research revealed that students took on responsibilities by participating in activities such as preparing exhibitions and bulletin boards, and that teachers and students collaborated on creating bulletin boards and wall paintings. It was also noted that students enjoyed this collaborative process.

The study revealed that hidden curriculum activities have affective implications for students. According to Yuksel (2002), one of the most important features of the hidden curriculum is its ability to impart affective qualities. The study found that students who participated in exhibitions and competitions, and those who received awards by presenting their work in front of the public, felt valued and experienced an increase in their confidence related to the field. It also showed that students felt happy when taking part in activities such as exhibitions, painting competitions, and wall painting projects, and that behavioral problems of troubled students decreased. Additionally, students who engaged with social environments through exhibitions and competitions developed better social adaptation skills. Teachers and students involved in these activities acted as role models, encouraging others to engage in their work. Tekin Kırışoğlu (2009) similarly stated that successful students create a driving force for their peers. Other studies have generally indicated that the hidden curriculum helps students develop positive affective traits (Abroampa, 2020; Uysal, 2023; Beydoğan, 2012; Saracaloğlu & Küçükoğlu, 2022). However, it was also noted that some students, by comparing themselves to successful peers, felt inadequate and withdrew. This situation could unintentionally lead to negative outcomes.

It was determined that the hidden curriculum activities related to visual arts contribute to students' artistic development. In this context, it was found that extracurricular art activities and physical arrangements help develop students' art awareness, leading to increased awareness, interest, and familiarity with art. Through art activities, students encounter different techniques, which enhance their technical skills, and as a result of all these activities, students discover their talents, influencing their professional futures. In his research, Tuncel (2008) also indicated that hidden curriculum activities help reveal students' areas of interest.

It was found that both administrators and teachers have specific responsibilities and roles in activities related to the hidden curriculum. In this context, it was noted that administrators are

responsible for organizing activities such as year-end exhibitions, announcing competitions, creating wall paintings, offering courses, and overseeing exercises. However, factors like financial limitations, lack of student participation, avoidance of excessive workload, and teachers' difficulties in allocating time for these activities were identified as elements that negatively affect organization. It was also found that administrators and teachers collaborate, especially in organizing processes for certain activities like exhibitions. Similarly, Hatipoğlu (2018) and Başar, Akan, and Çankaya (2014) stated that teachers and administrators play a key decision-making role in shaping the school's hidden curriculum by organizing such activities. The study strongly emphasized that administrators must provide resources for these activities and mentioned that some administrators make efforts to support teachers. In similar studies, it has been noted that the skills and attitudes of school administrators are crucial for achieving the goals of the hidden curriculum and enhancing school quality (Mulyani & Tanuatmodjo, 2021; Brücknerova & Novotny, 2019). The research also identified several factors that motivate teachers to organize such initiatives, including promoting students' artistic literacy, the motivation derived from students' willingness, teachers' own professional motivation, and the necessity of some activities being mandatory.

Administrators and teachers have offered several suggestions regarding these activities. In this context, it was noted that collaborative projects with various institutions could be developed, and courses aimed at students' artistic growth could be introduced. In this regard, Demirel (2017) recommended that hidden curriculum activities should be tailored to meet the diverse needs of individuals and designed to reveal their creative potential. Additionally, the research strongly highlighted that teachers should be proactive, confident, and enthusiastic during the implementation of these activities, and they should motivate students to participate.

Below, some suggestions are offered based on the research results. These suggestions include: (i) increasing social-cultural activities such as exercises, courses, club activities, extracurricular trips, exhibitions, and competitions within the hidden curriculum in schools, along with encouraging student participation; (ii) providing physical resources for art classes to motivate students to engage in artistic creation; (iii) recognizing that activities within the hidden curriculum have multifaceted contributions to students, but also can have negative implicit consequences, so strategies should be developed to prevent these negative impacts and motivate students; and (iv) it is important for school administrators and teachers to organize activities that support students' aesthetic development and creativity to achieve positive hidden outcomes.

5. References

Abroampa, W. K. (2020). The hidden curriculum and the development of latent skills: The Praxis. *Journal of Curriculum and Teaching, 9*(2), 70-77. https://doi.org/10.5430/jct.v9n2p70

Al Şensoy & S., Saggöz, A. (2015). Öğrenci başarısının sınıfların fiziksel koşulları ile ilişkisi [Relation between Pupils Academic Achievement and Pyhsical Conditions of Classrooms]. *Ahi Evran University Journal of Kırsehir Education Faculty, 16*(3), pp. 87-104. https://dergipark.org.tr/tr/pub/kefad/issue/59449/854074

Arts Education Partnership (2019). *Visual arts matter: How visual arts education helps students learn, achieve and thrive.* https://eric.ed.gov/?id=ED596318

Ayaydın, A. (2009). Sanatsal çalışmaların sergilenmesi [Exhibition of artistic works]. In A. O. Alakuş & L. Mercin (Eds.), *Sanat eğitimi ve görsel sanatlar öğretimi [Art education and visual arts teaching]* (pp. 245-250). Pegem Akademi.

Başar, U., Akan, D., & Çankaya, İ. H. (2014). Örtük program çerçevesinde okul yöneticilerinin yönetsel uygulamalarının değerlendirilmesi [Administrative practices within the hidden curriculum evaluation of these school principals]. *Erzincan University Journal of Education Faculty, 16*(1), pp. 239-263. https://doi.org/10.17556/jef.75036

Beydoğan, H. Ö. (2012). Okullarda uygulanan sosyal ve kültürel etkinliklerin öğrencilerin değer edinimine etkisi [The effects of social-cultural activities applied in schools on the acquisition values]. *Gaziantep University Journal of Social Sciences, 11*(4), pp. 1172-1204. https://openaccess.ahievran.edu.tr/xmlui/bitstream/handle/20.500.12513/431/beydogan%2C%20ömer.pdf?sequence=1&isAllowed=y

Broome, J. L. (2013). A case study in classroom management and school involvement: designing an art room for effective learning. *Art Education, 66*(3), pp. 39-46. https://doi.org/10.1080/00043125.2013.11519222

Brücknerová, K., & Novotný, P. (2019). The influence of principals on the hidden curriculum of induction. *Educational Management Administration & Leadership, 47*(4), pp. 606-623. https://doi.org/10.1177/1741143217745878

Demirel, Ö. (2017). *Eğitimde Program Geliştirme Kuramdan Uygulamaya [Curriculum Development in Education: From Theory to Practice]*. Pegem Akademi.

Duek, C. and Tourn, G. (2016). Social media: Transformation of education, B. Çoban (Ed.). *Social media and social movements: The transformation of communication patterns* (pp. 229–246). Lanham, Maryland: Lexington Books

Gülüm, B. (2016). *Resim-İş eğitimi sürecinde sanat galerilerinin önemi ve kullanılabilirliğine yönelik öğretim elemanı görüşleri [Instructor views on the importance and usability of art galleries in the process of visual arts education]* [Unpublished master's thesis,]. Ondokuz Mayıs University. Thesis Center

Hardly, A. (2022, May 17). How to stage a student exhibition. In D. Xu (Ed.), *National Association for the Visual Arts.* https://visualarts.net.au/guides/2023/how-stage-student-exhibition/

Hatipoğlu, C. (2018). *Aksiyoloji ve örtük program: Ortaöğretim kurumları öğretmenlerin görüşleri [Axiology and hidden curriculum: Secondary school teachers' opinions]* [Unpublished master's thesis,] Bartın University.Thesis Center.

Hatipoğlu, C., & Semerci, N. (2019, June 19-22). Estetik ve örtük program: Ortaöğretim kurumları öğretmenlerin görüşleri [Aesteticihs And Hidden Curriculum: Secondary School Teachers' Opinions]. In *EJER Congress 2019 Proceedings Book* (pp. 249-262). Ankara. https://www.ejercongress.org/tam-metin-kitabi/

Ishiguro, C., Ishihara, T. & Morita, N. (2021). Extracurricular activity on music and visual art associates with children' academic achievement by transferring each subject score. *Research Square*, 1-12. https://doi.org/10.21203/rs.3.rs-620557/v1

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology*. Sage

Merriam, S. B. (2015). *Nitel araştırma: Desen ve uygulama için bir rehber [Qualitative research: A guide to design and implementation]* (Trn. Ed. S. Turan). Nobel Yayıncılık.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: A sourcebook of new methods*. Sage publications.

Millî Eğitim Bakanlığı (2018), *Görsel sanatlar dersi öğretim programı [Visual arts course curriculum]*. https://mufredat.meb.gov.tr/Dosyalar/2018121111026326-GORSEL%20SANATLAR.pdf

Moulyani, H., & Tanuatmodjo, H. (2021). Role of school leadership to improve school quality through hidden curriculum. *Jurnal Pendidikan Akuntansi Dan Keuangan, 9*(1), 53-63. https://doi.org/10.17509/jpak.v9i1.29245

Ressa,T.W., Daniels,D.E., & Wells-Jensen, S. (2021). Time as a hidden curriculum: Qualitative study of challenges faced by students with mobility, speech, and visual disabilities in P-12 settings. *International Journal of Educational Research Review*,6(3),pp. 250-263. https://dergipark.org.tr/en/download/article-file/1732298

Rossouw, N., & Frick, L. (2023). A conceptual framework for uncovering the hidden curriculum in private higher education. *Cogent Education, 10*(1). https://doi.org/10.1080/2331186X.2023.2191409

Saracaloğlu, A. S. & Küçükoğlu, A. (2022). *Öğretim İlke ve Yöntemleri [Teaching Principles and Methods]*. Pegem Akademi.

Specialist Schools and Academies Trust (2007). *Arts spaces in schools designing for excellence.* https://www.partnershipsforschools.org.uk/documents/Arts_brochure.pdf

Şad, S.N. & Demir, M. (2019). Öğretmen ve öğrencilerin sosyal medya üzerinden etkileşim kurma ve kurmama nedenlerinin örtük program açısından incelenmesi [Investigation of teachers' and students' reasons to ınteract and not to ınteract on socıal medıa ın terms of hıdden currıculum]. *Bolu Abant Izzet Baysal University Journal of Faculty of Education, 19*(1), pp. 346-360. https://doi.org/10.17240/aibuefd.2019.19.43815-456001

Şen, A. İ. (2019). Okul dışı öğrenme nedir? [What is out-of-school learning?]. In A. İ. Şen (Ed.), *Okul dışı öğrenme ortamları [Out-of-school learning environments]* (pp. 2-21). Pegem Akademi.

Tekin Kırışoglu, O. (2005). *Sanatta Eğitim [Education in the Arts].* Pegem A Yayıncılık.

Tekin Kırışoglu, O. (2009). *Sanat, Kültür, Yaratıcılık [Art, Culture, Creativity].* Pegem Akademi.

Tiryaki, A. (2024). *İmam hatip kız ortaokulu kademesinde örtük programın öğretmen görüşlerine göre değerlendirilmesi [An investigation of the implicit program in Imam Hatip girls' secondary school according to teachers' views]* [Unpublished master's thesis,]. Gaziantep University. Thesis Center

Tuncel, İ. (2008). *Duyuşsal özelliklerin gelişimi açısından örtük program [The hidden curriculum in terms of development of affective characteristics]* [Unpublished doctoral dissertation]. Hacettepe University. Thesis Center

Uysal, F. (2023). A Study on the Benefits of Extracurricular Activities for Prospective Teachers Using the Pairwise Comparison Approach. *Ahmet Kelesoglu Faculty of Education Journal, 5*(1), pp. 237-249. https://dergipark.org.tr/en/download/article-file/2853781

Veznedaroğlu, R. L. (2007*). Okulda ve sınıfta örtük program: Bir özel ilköğretim okulu örneği [The hidden curriculum in school and class (the case of a private primary school].* [Unpublished doctoral dissertation]. Ankara University. Thesis Center.

Yıldırım, A. & Şimşek, H. (2015). *Sosyal bilimlerde nitel araştırma yöntemleri [Qualitative Research Methods in Social Sciences].* Seçkin Yayıncılık.

Yüksel, S. (2002). Örtük program [Hidden curriculum]. *Education and Science, 27*(126), pp.31-37. https://egitimvebilim.ted.org.tr/index.php/EB/article/view/5140

Yüksel, S. (2007). Örtük programın öğretmen adaylarının öğretmenlik meslek derslerine yönelik düşüncelerindeki etkisi [Effect of hidden curriculum on prospective teachers' thoughts about teacher training courses]. *Educational Administration: Theory and Practice*, 57, pp.321-345. https://dergipark.org.tr/tr/pub/kuey/issue/10347/126738

Determination of ecological footprints of pre-service teachers (the case of Kırıkkale University)*

Figen Durkaya[1c] [iD], Berfin Ekin[1] [iD], and Kübra Ergüç[1] [iD]

[1] Kırıkkale University, Faculty of Education, Department of Mathematics and Science Education, Science Education Program, Turkey.
[c]**Correspondence Author:** Figen Durkaya, Kırıkkale University, Faculty of Education, Department of Mathematics and Science Education, Science Education Program, Turkey; +905052639078; figendurkaya@kku.edu.tr.
* This research was approved by the Kırıkkale University Ethics Committee's Social and Human Sciences Ethics Committee's decision, No. 174975, dated 14/06/2023.

Abstract

The ecological footprint is a noteworthy indicator when it is desired to ensure sustainability and make ecological assessments. The ecological footprint quantitatively reveals the relationship between human activities and the supply and demand for natural resources in the ecosystem. In particular, it is important to determine the behaviours of university students towards reducing their ecological footprint. Today, it is essential to raise awareness through sustainable practices so that university students are on a trend towards reducing their ecological footprint. For this purpose, the awareness levels of students studying in eight different departments in the faculty of education of a state university on ecological footprint were examined. The descriptive survey model was used in the study. The awareness levels of the students about ecological footprint were analysed according to variables such as gender, department, longest residence, economic income level, and parents' education level. The data were obtained with the "Ecological Footprint Awareness Scale" developed by Coşkun and Sarıkaya (2014). Data analysis was done with the SPSS 23 package program. According to the research findings, the awareness levels of the students were the highest in the "Energy" and "Water Consumption" sub-dimensions and the lowest in the "Food" sub-dimension. In addition, students' ecological footprint awareness levels show a significant difference according to gender, economic income level, and mother's education level. On the other hand, it was determined that the awareness levels of the students did not show a significant difference according to the department they studied and the place of residence where they lived for the longest time.

1. Introduction

The world consists of numerous ecosystems consisting of living (biotic) and non-living (abiotic) components that interact constantly. Various living species living in certain areas interact with each other and with the physical environment surrounding them. Thanks to the energy flow occurring in these areas, biotic structures are formed within the system, and a matter cycle is provided between living and non-living components. In this context, it is not possible for these components living in the ecosystem to maintain their continuity in isolation. Each component in the ecosystem must use natural resources to continue its life (Aydın Kocaeren, 2016; Hastürk, 2019; Odum & Barrett, 2008).

Today, natural resources are being rapidly depleted due to the economic mobility resulting from the uncontrolled human population, unplanned urbanization, and the increase in industrialization. In addition, the carrying capacity of the environment decreases, and environmental problems that concern humanity and all living things arise due to the excessive and irresponsible use of natural resources. The difference between the amount of natural resource production in the world and the ecological value required for nature to eliminate the wastes generated by human consumption of natural resources constitutes the ecological gap (Mızık & Yiğit Avdan, 2020). This ecological gap formed in the world corresponds to the pressure on nature, and this pressure is an indicator of environmental problems that can no longer be ignored. As a result of the growth of the ecological footprint in the world, ecological gaps, in other words, signs of global excess, such as climate change, a decrease in biodiversity, desertification, etc., are becoming increasingly evident. It is becoming crucial to increase awareness of environmental problems and measure the impact of the direct and indirect damage caused by humans. The ecological footprint calculation tool is for quantitatively measuring the damage caused by humans to nature. The concept of ecological footprint aims to explain the relationship between humans and nature. The ecological footprint consists of six components: agricultural land, grazing land, fishing land, forest land, construction land, and carbon land (Koç, 2023; Tosunoğlu, 2014). The largest of these components consists of the personal consumption of humans, including each component. When all countries in the world care about the six components of the ecological footprint, they can secure their future by using all the resources in the ecosystem more correctly. In other words, when humans control the natural resources they consume, the sustainable productivity of soil, air, water and mineral areas can be achieved.

The ecological footprint was first proposed by Canadian Ecological Economist Rees (1992) and developed by Wackernagel and Rees (1996) to explain the relationship between the ecological footprint and sustainable development. This concept is an analysis method that can measure sustainability and provide an assessment of environmental impacts. In other words, it is an accounting tool that measures the resource consumption of the human population or economy. Gottlieb et al. (2013) state that providing sustainability education, especially in schools, is essential for ensuring that future generations consider environmental, social, and economic issues as a whole. In this context, the ecological footprint has become a topic of interest and importance in political, economic, and educational circles to measure sustainability today.

In their study examining the attitudes and behaviours of individuals in Türkiye towards reducing their ecological footprints in the context of ecological sustainability, Ünal & Ünal (2022) determined that the ecological footprint size of Türkiye is above the world average in personal consumption. They pointed out that individuals tend to overuse packaged products. They emphasized that individuals have behavioural deficiencies towards reducing their ecological footprint, such as recycling, upcycling, composting, and not wasting water, food, and clothing. Appiah et al. (2023) examined the effect of environmental policy on reducing the ecological footprint. It was reported that environmental policy significantly reduces the ecological footprint among OECD countries. In addition, it is emphasized that the effectiveness of environmental policy depends on the excess bio-capacity and the level of industrialization. In particular, renewable energy has a positive effect on reducing the ecological footprint. In addition, population density and industrialization reduce and increase the ecological footprint, respectively. It shows that there is a bidirectional causality between the ecological footprint

and all variables except economic growth. Therefore, research on the ecological footprint is being conducted in different disciplinary fields.

There are studies in the literature conducted on ecological footprint calculations at the city or capital level in many countries such as China, Taiwan, Ghana, Spain, and Türkiye. Studies conducted in Beijing, China (Cui et al., 2004), Taipei, Taiwan (Lee & Peng, 2014), Accra, Ghana (Marquart-Pyatt, 2015), Barcelona, Spain (Freire Guerrero, Marrero & Martin, 2016) and Istanbul, Türkiye (Özbaş et al., 2019) reveal that ecological footprint applications are addressed in a wide geographical range. In addition, studies on the six components of the ecological footprint (carbon footprint, pasture area, agricultural land, fishing area, forest area, and residential area) are also noteworthy in the literature. These studies offer various evaluations regarding each of the components and show methodological diversity (Fang et al., 2014; Lee, 2015; Mancini et al., 2016; McAusland & Najjar, 2015; Pisleaga, Girbaciu & Girbaciu, 2015; Senthil Kumar & Janet Joshiba, 2019; Xu & Li, 2020). In addition, the concept of ecological footprint is considered an environmental assessment tool in education to create awareness and encourage sustainable behaviours in individuals. In this context, studies carried out for different age groups and education levels aim to contribute to increasing environmental awareness (Beccaceci & Paris, 2024; Bulut et al., 2022; Çetin et al., 2017; Doğan & Pektaş, 2019; Eraslan & Seçme, 2021; Gottlieb et al., 2013; Karakaş et al., 2016; Liu et al., 2024; Perez-Lopez et al., 2021; Uyanık, 2020). Excessive and unconscious use of natural resources has caused environmental problems to increase exponentially. The observed increase in environmental problems is an indication of an increasing threat to natural resources and ecosystem sustainability on Earth. Ecological destruction and environmental problems occur due to the disruption of the balance in the ecosystem. The aim is to leave a protected environment for the future with an ecological footprint. In this context, measuring the "ecological burden" of students studying at universities today and determining their contributions to sustainability is gaining importance. For this reason, it is thought that teachers have an effective role in effectively transforming individuals' awareness and sensitivity about ecological footprint into behavioural gains. Teachers who adopt sustainable life awareness and set an example can only truly guide students by reducing their ecological footprint. In this context, this research aims to determine the awareness levels of pre-service teachers who will raise sustainable generations in the future about the ecological footprint.

The awareness levels of participants studying in eight different departments of the Faculty of Education regarding the ecological footprint were examined in the study. The following questions were answered in line with the study's purpose.

- What are the awareness levels of pre-service teachers studying at the faculty of education according to the sub-dimensions of the ecological footprint?
- Do the awareness levels of pre-service teachers studying at the faculty of education about the ecological footprint differ according to gender?
- Do the awareness levels of pre-service teachers studying at the faculty of education about the ecological footprint differ according to departments?
- Do the awareness levels of pre-service teachers studying at the faculty of education about the ecological footprint differ according to the place of residence where they have lived the longest?
- Do the awareness levels of pre-service teachers studying at the faculty of education about the ecological footprint differ according to their economic income level?
- Do the awareness levels of pre-service teachers studying at the faculty of education about the ecological footprint differ according to the parents' education level?

2. Method

2.1. Research Design

This study is structured with a descriptive survey model. Survey research aims to describe the views and characteristics of large audiences. Survey research is generally conducted on large samples in which the views of the participants on a subject or event, or their characteristics such as interest, skill, talent, and attitude, are determined (Büyüköztürk, 2012). This research was planned as a survey study,

as it aims to describe the awareness levels of students studying at the Faculty of Education regarding their ecological footprint. The awareness levels of students studying at the Faculty of Education regarding their ecological footprint were examined about variables such as gender, department, place of residence, economic income level, and parents' educational level.

2.2. Participants

The universe of the study consists of pre-service teachers studying in the departments of Science Education, Turkish Language Education, Mathematics Education, Elementary School Education, Preschool Education, Social Studies Education, Special Education, Psychological Counselling and Guidance at a state university. A total of 447 pre-service teachers studying in their first year at the Faculty of Education were registered. The purposive sampling method was employed to gather in-depth information in line with the study's objectives (Büyüköztürk et al., 2012). The study group was selected through purposive sampling from 23 pre-service teachers studying in the first year of Science Education, 41 pre-service teachers in Turkish Language Education, 38 pre-service teachers in Mathematics Education, 44 pre-service teachers in Elementary School Education, 42 pre-service teachers in Preschool Education, 26 pre-service teachers in Social Studies Education, 35 pre-service teachers in Special Education and 56 pre-service teachers in the Department of Psychological Counselling and Guidance. This sampling method was preferred to examine the awareness levels of pre-service teachers who have just started at the Faculty of Education regarding the ecological footprint. 321 students participated in the study voluntarily, but 16 people were removed from the sample for various reasons (missing information, misdirection, double marking). Accordingly, the study was evaluated on 305 volunteers. The sample size constitutes 68% of the universe, and this rate is considered sufficient for the validity (Büyüköztürk, 2012). Table 1 shows detailed information about the participants.

Table 1. Frequency and percentage values of demographic data of pre-service teachers

		N	%
Gender	Female	239	78.4
	Male	66	21.6
Department	Science Education	23	7.5
	Turkish Language Education	41	13.4
	Mathematics Education	38	12.5
	Elementary School Education	44	14.4
	Preschool Education	42	13.8
	Social Studies Education	26	8.5
	Special Education	35	11.5
	Psychological Counselling and Guidance	56	18.4
Mother's Education Level	Primary School	121	39.7
	Secondary School	52	17.0
	High School	95	31.1
	University	37	12.1
Father's Education Level	Primary School	59	19.3
	Secondary School	73	23.9
	High School	98	32.1
	University	75	24.6
The Place of Residence	Home	64	21.0
	Dormitory-State-run	203	66.6
	Dormitory-Private	17	5.6
	Lodgings	21	6.9
Economic Income Level	0-5.000 TL	258	84.6
	5.000-10.000 TL	40	13.1
	10.000 TL+	7	2.3

2.3. Measures

The "Ecological Footprint Awareness Scale" developed by Coşkun and Sarıkaya (2014) was used in the study. The ecological footprint awareness scale has five sub-dimensions and consists of 46 items. These five sub-dimensions are food, transportation and housing, energy, waste and water consumption. The items in the scale are food (8 items), transportation and housing (10 items), energy (14 items), waste (9 items), and water consumption (5 items). The ecological footprint awareness scale is a five-point Likert-type scale with "Strongly Disagree", "Disagree", "Partially Agree", "Agree", and "Strongly Agree". In

addition, personal information about gender, department of education, place of residence, economic income level, and parents' education level were collected by the demographic information form prepared by the researcher.

The ecological footprint awareness scale was applied to pre-service teachers studying in eight different departments at the Faculty of Education of a state university, voluntarily. The data collection process was completed in approximately one month. During this process, the number of students studying in the first year in eight different departments and their course schedules were determined. The scale was applied to each department at the planned time and in the classroom. Ethics Committee Permission was obtained from the Social and Human Sciences Ethics Committee of the university where the study was conducted. Participants were informed about the Ethics Committee Permission received during the data collection phase.

2.4. Validity and Reliability of the Study

The internal consistency coefficient (Cronbach's Alpha) was examined for the reliability of the scale to determine the awareness levels of the students about the ecological footprint. The total Cronbach's Alpha coefficient for the overall scale was 0.911. Cronbach's Alpha coefficients were calculated separately for the five sub-dimensions in the study. The Cronbach's Alpha coefficient was 0.526 for the first sub-dimension, 0.782 for the second sub-dimension, 0.851 for the third sub-dimension, 0.783 for the fourth sub-dimension, and 0.697 for the fifth sub-dimension. Coşkun (2013) reported that Cronbach's Alpha coefficient for the sub-dimensions was 0.55 for food, 0.73 for transportation and housing, 0.87 for energy, 0.80 for waste, and 0.71 for water consumption. According to Pedersen and Lui (2003), the limit value for Cronbach's Alpha coefficient is accepted as 0.70. According to Kalaycı (2010), values above 0.80 are accepted as highly reliable. Cronbach's Alpha coefficients calculated in the scale are compatible with the literature.

2.5. Data Analysis

The data analysis in the study was carried out with the SPSS 23 package program. While making descriptive statistics explanations of the data, expressions such as frequency (f), percentage (%), arithmetic mean ($\overline{X}$), and standard deviation (SD) were used. A normality test was performed to examine the distribution of the data. The Kolmogorov-Smirnov test results were examined according to the number of participants (n>30) to determine whether the data obtained from the responses of the participants to the "Ecological Footprint Awareness Scale" showed a normal distribution (Deniz, 2020). In addition to these test results, histogram graphs, normal Q-Q graphs, and box-plots graphs were also examined. The Kolmogorov-Smirnov Test analysis results show that the data of both females and males show a normal distribution (Females K-S=0.200; p>0.05, Males K-S=0.200; p>0.05). In addition, for female participants, the Skewness value was calculated as -0.256 (SE=0.157), Kurtosis (kurtosis) value as 0.352 (SE=0.314), and for male participants, the Skewness value was calculated as -0.382 (SE=0.295), Kurtosis (kurtosis) value as 0.557 (SE=0.582). In this context, according to the results, the awareness scores of the participants showed a normal distribution (p>0.05). Since the awareness scores in the scale showed a normal distribution, a t-test for independent groups was used for the gender variable from parametric techniques, descriptive statistics for the mean scores of the pre-service teachers, and Single Factor ANOVA tests were performed for the department, parents' education level, economic income level, and place of residence variables.

3. Results

3.1. Analysis of Awareness Level of Sub-Dimensions in Ecological Footprint Awareness Scale

The analysis results of the responses given by the pre-service teachers to the food, transportation, housing, energy, waste, and water consumption sub-dimensions in the ecological footprint awareness

scale are examined. Table 2 shows the frequency and percentage values of the responses for the five sub-dimensions.

Table 2. Frequency and percentage values of responses to items in the scale

Sub-dimensions	Items	Strongly Disagree		Disagree		Partially Agree		Agree		Strongly Agree		$\overline{X}$
		N	%	N	%	N	%	N	%	N	%	
Food	I do not consume foods produced out of season.	22	7.2	78	25.6	147	48,2	34	11.1	24	7.9	2.86
	I eat fruits and vegetables rather than animal products.	25	8.2	88	8.9	97	31.8	69	22.6	26	8.5	2.94
	I eat fast food or ready-made meals.	12	3.9	51	6.7	114	37.4	99	32.5	29	9.5	3.26
	I do not buy more food than I need when shopping.	20	6.6	58	19.0	88	28.9	89	29.2	50	16.4	3.29
	I use products made where I live or close to where I live.	14	4.6	74	24.3	96	31.5	97	31.8	24	7.9	3.14
	I do not prefer imported products when shopping for food.	33	10.8	129	42.3	82	26.9	38	12.5	23	7.5	2.63
	I do not buy processed foods in plastic bags or containers.	53	17.4	128	42.0	90	29.5	23	7.5	11	3.6	2.38
	I eat organic agricultural products.	15	4.9	53	17.4	145	47.5	70	23.0	22	7.2	3.10
Transportation and Housing	I travel with vehicles that use environmentally friendly fuel on intercity trips.	43	14.1	103	3.8	94	30.8	44	14.4	21	6.9	2.66
	Excessive speed is harmful to the environment as it increases fuel consumption.	10	3.3	24	7.9	52	17	100	32.8	119	39.0	3.96
	When purchasing a private vehicle, choosing one that runs on environmentally friendly fuel is beneficial for the environment.	12	3.9	20	6.6	40	13.1	103	33.8	130	42.6	4.04
	I drive my vehicle at a steady speed with little braking.	30	9.8	30	9.8	84	27.5	97	31.8	64	21.0	3.44
	I use bicycles because they do not cause pollution in transportation.	56	18.4	89	29.2	92	30.2	42	13.8	26	8.5	2.65
	Houses with large usable areas are harmful to the environment as they take up more space.	28	9.2	80	26.2	82	26.9	70	23.0	45	14.8	3.07
	I prefer materials that will cause the least harm to the ecological balance for home decoration.	23	7.5	43	14.1	100	32.8	86	28.2	53	17.4	3.33
	I design the spaces we live in to have fewer individual-use areas and more common-use areas.	18	5.9	59	19.3	88	28.9	97	31.8	43	14.1	3.28
	I think that living in detached houses is harmful to the environment because it creates excess usable space.	83	27.2	103	33.8	65	21,3	34	11.1	20	6.6	2.36
	I use the least environmentally damaging/cleanest energy sources for heating.	6	2.0	37	12.1	93	30.5	92	30.2	77	25.2	3.64
Energy	I close the windows when the air conditioner is on.	2	0.7	14	4.6	27	8.9	109	35.7	153	50.2	4.30
	I do not leave the windows open for long periods in the winter when the boiler is on.	2	0.7	4	1.3	29	9.5	91	29.8	179	58.7	4.44
	I do not leave the refrigerator door open for long periods.	2	0.7	9	3.0	20	6.6	91	29.8	183	60.0	4.45
	I use machines, refrigerators, heaters and light bulbs that consume less electricity at home.	3	1.0	19	6.2	74	24.3	86	28.2	123	40.3	4.00
	I prefer to use double-glazed windows for thermal insulation in buildings.	3	1.0	5	1.6	49	16.1	104	34.1	144	47.2	4.25
	I prefer to use compact fluorescent bulbs (CFLs) instead of traditional light bulbs to light my home.	7	2.3	24	7.9	59	19.3	109	35.7	106	34.8	3.92
	I do not leave technological devices such as televisions and computers on unnecessarily.	4	1.3	12	3.9	33	10.8	95	31.1	161	52.8	4.30
	I do not operate appliances such as dishwashers and washing machines unless fully loaded.	8	2.6	20	6.6	35	11.5	98	32.2	143	47.0	4.14
	I turn off the heaters when I am not home for a long time.	6	2.0	15	4.9	36	11.8	89	29.2	159	52.1	4.24
	I do not leave electrical devices such as phones and computers on charge for long periods.	12	3.9	23	7.5	62	20.3	84	27.5	124	40.7	3.93

	Building public buildings and homes, where solar energy (light and heat) can be used, is beneficial for the environment.	1 0.3	1 0.3	25 8.2	105 34.4	173 56.7	4.46
	I do not use chandeliers with lots of bulbs to illuminate my house.	8 2.6	19 6.2	66 21.6	111 36.4	101 33.1	3.91
	I prefer renewable energy sources (solar energy, geothermal energy, hydrogen, etc.).	5 1.6	16 5.2	69 22.6	106 34.8	109 35.7	3.97
	I do not keep electrical appliances such as computers, televisions, or music players in sleep mode when they are not in use, but turn them off.	21 6.9	39 12.8	65 21.3	77 25.2	103 33.8	3.66
	If possible, I recycle old/scrap electronic devices (electronic waste), batteries, etc.	5 1.6	15 4.9	59 19.3	112 36.7	114 37.4	4.03
	I prefer to pay my bills online as it saves paper.	9 3.0	13 4.3	47 15.4	94 30.8	141 46.2	4.19
	I separate recyclable household waste from garbage and recycle it if possible.	9 3.0	24 7.9	83 27.2	100 32.8	89 29.2	3.77
	I do not throw away leftover food.	8 2.6	26 8.5	80 26.2	89 29.2	102 33.4	3.82
	I cook according to need.	1 0.3	9 3.0	42 13.8	111 36.4	142 46.6	4.26
Waste	When shopping, I prefer reusable cloth bags, net bags or baskets instead of disposable plastic bags.	11 3.6	19 6.2	71 23.3	107 35.1	97 31.8	3.85
	I think it is more beneficial for the environment to reuse plastic-coated, decorated items in different ways instead of throwing away their packaging when shopping.	9 3.0	32 10.5	86 28.2	81 26.6	97 31.8	3.73
	When buying batteries, I prefer rechargeable ones.	18 5.9	29 9.5	103 33.8	78 25.6	77 25.2	3.54
	I try to collect packaging waste (glass, tin, plastic, paper) separately and recycle them.	9 3.0	17 5.6	72 23.6	96 31.5	111 36.4	3.93
	When cleaning the house, I prefer wiping rather than washing unless it is very necessary.	10 3.3	33 10.8	83 27.2	93 30.5	86 28.2	3.69
	I do not use cleaning materials more than necessary.	8 2.6	28 9.2	55 18.0	100 32.8	114 37.4	3.93
Water Consumption	In terms of water saving, I think that dual-structure toilet flushes should be used to distinguish between small and large bowel movements.	7 2.3	18 5.9	56 18.4	102 33.4	122 40.0	4.03
	I do not run the dishwasher or washing machine until they are full to prevent water waste.	7 2.3	8 2.6	48 15.7	82 26.9	160 52.5	4.24
	It saves water by limiting shower time, turning off the water while brushing teeth or shaving, not washing the car with a hose, and reducing carpet washing at home.	5 1.6	7 2.3	27 8.9	91 29.8	175 57.4	4.39

When the statements in the scale in Table 2 are examined according to their sub-dimensions, the highest mean ($\overline{X}$= 3.29) in the "Food" sub-dimension is "I do not buy more food than I need when shopping" and the lowest mean ($\overline{X}$= 2.38) is "I do not buy processed foods in plastic bags or containers". It was determined that the most preferred option for the awareness level in the "Food" sub-dimension regarding the ecological footprint is "I partially agree".

The highest mean ($\overline{X}$= 4.04) was found for the item "When purchasing a private vehicle, choosing one that runs on environmentally friendly fuel is beneficial for the environment", and the lowest mean ($\overline{X}$=2.36) was found for the item "I think that living in detached houses is harmful to the environment because it creates excess usable space" in the "Transportation and Housing" sub-dimension. In addition, it was determined that the averages of the responses given by the pre-service teachers regarding their awareness levels in the items "I travel with environmentally friendly fuel-based vehicles during intercity trips" and "I use bicycles because they do not cause pollution in transportation" were low in the "Transportation and Housing" sub-dimension aimed at reducing the ecological footprint. It was observed that the most preferred options for the awareness level regarding the "Transportation and Housing" sub-dimension of the ecological footprint were "I agree" and "I strongly agree".

According to the answers by the pre-service teachers regarding the "Energy" sub-dimension, the mean is high in all the items, stating their opinions as "strongly agree" and "agree". It shows that the pre-service teachers approach the issue of energy with more awareness. In addition, the fact that there are

too many visual stimuli on television and social media to reduce the ecological footprint in terms of energy may be another factor. The highest mean ($\overline{X}$=4.46) was determined for the item "Building public buildings and homes, where solar energy (light and heat) can be used, is beneficial for the environment" in the "Energy" sub-dimension. The high average of participation in this item is an indication that the participants have a high level of awareness about renewable energy sources.

The highest mean ($\overline{X}$=4.26) was determined for the item "I cook according to need" and the lowest mean ($\overline{X}$=3.54) was determined for the item "When buying batteries, I prefer rechargeable ones" in the "Waste" sub-dimension. The most preferred options for the awareness level regarding the waste sub-dimension of the ecological footprint are "agree" and "strongly agree".

According to the "Water Consumption" sub-dimension, the highest mean ($\overline{X}$=4.39) is the item "It saves water by limiting shower time, turning off the water while brushing teeth or shaving, not washing the car with a hose, and reducing carpet washing at home". It was determined that pre-service teachers preferred the item "When cleaning the house, I prefer wiping rather than washing unless it is very necessary." with the lowest mean ($\overline{X}$=3.69). The most preferred options for the awareness level regarding the "water consumption" sub-dimension are "agree" and "strongly agree". According to the findings, pre-service teachers prefer items that show that their awareness levels about the ecological footprint are particularly inclined to reduce water consumption.

3.2. Descriptive Statistics of Sub-Dimensions in the Ecological Footprint Awareness Scale

Table 3 shows descriptive statistics regarding the distribution of pre-service teachers' average scores on the ecological footprint awareness scale regarding its sub-dimensions.

Table 3. Descriptive statistics of overall average scores according to sub-dimensions

Sub- dimensions	N	Min	Max	$\overline{X}$	Ss
Food	305	1.63	4.88	2.95	0.49
Transportation and Housing	305	1.00	4.60	3.24	0.65
Energy	305	1.86	5.00	4.14	0.56
Waste	305	1.22	5.00	3.90	0.65
Water Consumption	305	1.80	5.00	4.05	0.67
Overall Scale	305	1.76	4.76	3.68	0.48

The awareness of pre-service teachers about ecological footprint is highest in the "Energy" sub-dimension with an average score of 4.14, and in the "Water Consumption" sub-dimension with an average score of 4.05 (Table 3). On the other hand, it is noteworthy that the awareness about ecological footprint is lowest in the "Food" sub-dimension with an average score of 2.95. The average score that pre-service teachers get from the overall scale of awareness about the ecological footprint is 3.68.

3.3. Analysis of Ecological Footprint Awareness Scale According to Some Variables

3.3.1. Ecological Footprint Awareness and Gender

An independent group t-test analysis was conducted to examine whether the awareness levels of all participants studying in different departments about the ecological footprint differ significantly according to gender. Table 4 shows the results.

Table 4. T-Test results of average awareness levels of participants according to gender

Gender	N	$\overline{X}$	Ss	Average difference	t	sd	p
Female	239	3.72	0.43	0.15	2.45	303	0.015[*]
Male	66	3.56	0.56				

According to Table 4, there is a significant difference between the average score of pre-service teachers' awareness levels about ecological footprint and the gender (t(303)= 2.45, p=0.015; p<0.05). Table 5 shows the results of the independent group t-test analysis conducted to determine whether the sub-dimensions of the ecological footprint awareness scale differ significantly according to gender.

According to the t-test results of the sub-dimensions of the ecological footprint awareness scale, the average awareness of the participants in the "Food", "Waste" and "Water Consumption" sub-

dimensions does not show a significant difference according to gender (t(303)= 0.95, p=0.34, p>0.05; t(303)= 1.26, p=0.207, p>0.05; t(303)= 1.90, p=0.057, p>0.05).

Table 5. T-Test results of average awareness levels of sub-dimensions according to gender

Sub dimensions	Gender	N	$\overline{x}$	Ss	Average difference	t	sd	p
Food	Female	239	2.96	0.46	0.06	0.95	303	0.34
	Male	66	2.90	0.58				
Transportation and Housing	Female	239	3.29	0.62	0.21	2.38	303	0.018[*]
	Male	66	3.07	0.76				
Energy	Female	239	4.18	0.51	0.18	2.41	303	0.016[*]
	Male	66	3.99	0.68				
Waste	Female	239	3.93	0.62	0.11	1.26	303	0.207
	Male	66	3.81	0.76				
Water Consumption	Female	239	4.09	0.65	0.17	1.90	303	0.057
	Male	66	3.91	0.72				
Overall Scale	Female	239	3,72	0,43	0,15	2,45	303	0,015[*]
	Male	66	3,56	0,56				

It can be said that the average awareness of pre-service teachers about the ecological footprint is independent of gender. Despite this, there is a significant difference between females and males in the sub-dimensions of "Transportation and Housing" and "Energy" regarding ecological footprint. The ecological footprint awareness of female participants is higher than the awareness of males in the sub-dimensions of "Transportation and Housing" and "Energy". The ecological footprint awareness of female participants is higher than that of male participants in the overall scale.

3.3.2. Ecological Footprint Awareness and the Department of Education

One-way analysis of variance (ANOVA) was conducted to examine whether the sub-dimensions of the ecological footprint awareness scale differed significantly according to the eight different disciplinary fields in which the participants studied. Table 6 shows the results.

According to Table 6, there is no significant difference between the sub-dimensions of pre-service teachers' ecological footprint awareness levels and the department they study in. The awareness of pre-service teachers about ecological footprint does not vary according to the undergraduate program they study in (p>.05).

Table 6. ANOVA results of sub-dimensions according to department of education

Sub-dimensions	Department	N	$\overline{x}$	Ss	F	p
Food	Science Education	23	2.84	0.45		
	Turkish Language Education	41	3.04	0.52		
	Mathematics Education	38	3.01	0.44		
	Elementary School Education	44	2.92	0.46		
	Preschool Education	42	2.93	0.51		
	Social Studies Education	26	3.09	0.60	1.84	0.078
	Special Education	35	3,06	0.49		
	Psychological Counselling and Guidance	56	2.79	0.49		
Transportation and Housing	Science Education	23	3.35	0.55		
	Turkish Language Education	41	3.41	0.53		
	Mathematics Education	38	3.21	0.75		
	Elementary School Education	44	3.30	0.53		
	Preschool Education	42	3.25	0.61		
	Social Studies Education	26	3.28	0.62	1.42	0.197
	Special Education	35	3.26	0.77		
	Psychological Counselling and Guidance	56	3.03	0.74		

Energy	Science Education	23	4.20	0.58	
	Turkish Language Education	41	4.21	0.52	
	Mathematics Education	38	4.21	0.53	
	Elementary School Education	44	4.13	0.54	
	Preschool Education	42	4.20	0.47	0.81 0.58
	Social Studies Education	26	4.16	0.55	
	Special Education	35	4.10	0.69	
	Psychological Counselling and Guidance	56	4.00	0.57	
Waste	Science Education	23	4.04	0.53	
	Turkish Language Education	41	3.89	0.75	
	Mathematics Education	38	3.82	0.64	
	Elementary School Education	44	4.00	0.58	
	Preschool Education	42	3.94	0.59	1.29 0.254
	Social Studies Education	26	4.11	0.64	
	Special Education	35	3.84	0.78	
	Psychological Counselling and Guidance	56	3.74	0.63	
Water Consumption	Science Education	23	4.14	0.52	
	Turkish Language Education	41	4.25	0.65	
	Mathematics Education	38	4.20	0.58	
	Elementary School Education	44	3.94	0.68	
	Preschool Education	42	4.06	0.63	1.65 0.12
	Social Studies Education	26	4.06	0.69	
	Special Education	35	3.81	0.75	
	Psychological Counselling and Guidance	56	4.01	0.73	

3.3.3. Ecological Footprint Awareness and The Place of Residence

One-way analysis of variance (ANOVA) was conducted to determine whether the ecological footprint awareness levels of participants studying in eight different departments of the faculty differed significantly according to the place of residence where they lived for the longest time. Table 7 shows the results.

Table 7. ANOVA results of the general average of the scale according to place of residence

The Place of Residence	N	$\bar{X}$	Ss	Variance Source	Sum of Squares	Sd	Squares Avg.	F	p
Home	64	3.69	0.54	Intergroup	1.25	3	0.419	1.94	0.122
Dormitory-State-run	203	3.71	0.43	Within groups	64.71	301	0.215		
Dormitory-Private	17	3.47	0.48						
Lodgings	21	3.56	0.49						
Total	305	3.68	0.46		65.96	304			

According to Table 7, there is no significant difference between the participants' awareness of the sub-dimensions of the ecological footprint scale according to the place of residence they have lived in for the longest time. The participants' awareness of the ecological footprint does not vary according to the place of residence (p>.05).

One-way analysis of variance (ANOVA) was conducted to determine whether the ecological footprint awareness of pre-service teachers differed according to the settlement unit in which they resided for the longest time. Table 8 shows the results.

According to Table 8, there is no significant difference in the sub-dimensions of "Food", "Transportation and Housing", "Energy", "Waste", and "Water Consumption" according to the variable of the longest place of residence.

Table 8. ANOVA results of sub-dimensions according to place of residence

Sub dimension	the Place of Residence	N	$\bar{X}$	Ss	F	p
Food	Home	64	2.96	0.47	0.95	0.415
Dormitory-State-run	Dormitory-State-run	203	2.97	0.49		
Dormitory-Private	Dormitory-Private	17	2.81	0.48		
Lodgings	Lodgings	21	2.83	0.57		
	Home	64	3.30	0.75	1.48	0.218
	Dormitory-State-run	203	3.26	0.63		
Transportation and Housing	Dormitory-Private	17	2.99	0.52		
	Lodgings	21	3.08	0.67		
Energy	Home	64	4.15	0.63	0.76	0.517
	Dormitory-State-run	203	4.16	0.53		

		N	$\overline{X}$	Ss						
	Dormitory-Private	17	3.99	0.63						
	Lodgings	21	4.03	0.52						
Waste	Home	64	3.84	0.75				2.12	0.097	
	Dormitory-State-run	203	3.96	0.59						
	Dormitory-Private	17	3.58	0.76						
	Lodgings	21	3.80	0.76						
Water Consumption	Home	64	4.09	0.68				1.27	0.285	
	Dormitory-State-run	203	4.08	0.67						
	Dormitory-Private	17	3.81	0.61						
	Lodgings	21	3.90	0.73						

3.3.4. Ecological Footprint Awareness and Economic Income Level

One-way analysis of variance (ANOVA) was conducted to determine whether there was a significant difference in the ecological footprint awareness of all participants studying at the faculty of education according to their economic income levels. Table 9 shows the results.

Table 9. ANOVA results of general average according to economic income level

Economic Income Level	N	$\overline{X}$	Ss	Variance Source	Sum of Squares	Sd	Squares Avg.	F	p
0-5.000 TL	258	3.73	0.43	Intergroup	4.01	2	2.009	9.79	0.000[*]
5.000-10.000 TL	40	3.39	0.55	Within groups	61.94	302	0.205		
10.000 TL+	7	3.74	0.34						
Total	305	3.68	0.46		65.96	304			

According to the results of one-way analysis of variance (ANOVA), the difference between the groups is statistically significant [$F_{(2,302)=}$ 9.79; $p<0.05$, $\eta2=0.06$] (Table 9). According to the post-Hoc Tukey test results, it was determined that the significant difference was between the income levels of 0-5,000TL and 5,000-10,000TL. The eta squared value shows that the effect size value is medium. It was found that the average ecological footprint awareness of those with an economic income level of 0-5,000TL ($\overline{X}$=3.73) was statistically significantly higher than the average ecological footprint awareness of those with an economic income level of 5,000-10,000TL ($\overline{X}$=3.39).

3.3.5. Ecological Footprint Awareness and Parents' Education Level

One-way analysis of variance (ANOVA) was conducted to examine whether the ecological footprint awareness of all participants studying at the faculty of education was significantly different according to the variable of parents' education level. Tables 10 and 11 show the results.

Table 10. ANOVA results of general average according to mother's education level

Mother's education level	N	$\overline{X}$	Ss	Variance Source	Sum of Squares	Sd	Squares Avg.	F	p
Primary School	121	3.78	0.44	Intergroup	3.08	3	1.029	4.92	0.002[*]
Secondary School	52	3.73	0.41	Within groups	62.87	301	0.209		
High School	95	3.60	0.46						
University	37	3.51	0.52						
Total	305	3.68	0.46		65.96	304			

According to the one-way analysis of variance (ANOVA), the difference between the groups is statistically significant [$F_{(3,301)=}$ 4.92; $p<0.05$, $\eta2=0.05$] (Table 10). According to the post-Hoc Tukey test results, it was determined that the significant difference was between the mother's education levels as Primary School-High School, Secondary School-University, High School-Secondary School, and University-Primary School. The eta-squared value shows that the effect size is low. It has been stated that the effect size is low if the eta-squared value is between 0.00 and 0.05 (Deniz, 2020).

Table 11. ANOVA results of general average according to father's education level

Father's education level	N	$\overline{X}$	Ss	Variance Source	Sum of Squares	Sd	Squares Avg.	F	p
Primary School	59	3.77	0.43	Intergroup	1.21	3	0.405	1.88	0.133
Secondary School	73	3.74	0.42	Within groups	64.74	301	0.215		
High School	98	3.62	0.53						
University	75	3.63	0.41						
Total	305	3.68	0.46		65.96	304			

According to the results of the one-way analysis of variance, there is no statistically significant difference between the groups (Table 11).

4. Discussion

The awareness levels of participants studying in eight different departments of the faculty of education regarding the ecological footprint were examined according to variables such as gender, department, parents' education level, and place of residence, according to the sub-dimensions of the scale in this study.

Firstly, when the participants' awareness levels regarding the ecological footprint were examined, the general average score was $\overline{X}$=3.68. This result is consistent with the findings of other studies in the literature (Duman et al., 2022; Günal et al., 2018; Karakaş et al., 2016). It was determined that the participants had the highest awareness level in the "Energy" sub-dimension in the examination conducted according to the sub-dimensions of the ecological footprint awareness scale. This suggests that the high awareness of pre-service teachers regarding energy use is due to the financial impact on their budgets in their daily lives. In particular, it can be associated with the fact that environmental policies regarding energy have become more prominent on the agenda in recent years, and the increasing awareness of energy consumption in society. Similarly, the high awareness level regarding the energy sub-dimension (Coşkun, 2013; Çıkrık & Yel, 2019; Günal et al., 2018; Karakaş et al., 2016) is consistent with other findings in the literature. It shows that today, due to the high energy consumption, the trend towards renewable energy sources is on the agenda to meet the increasing energy demand. The high level of awareness about energy shows that the ecological footprint is shrinking in this sub-dimension.

The lowest level of awareness about the ecological footprint was in the "Food" sub-dimension. Similarly, the studies on ecological footprint in the literature (Coşkun, 2013; Çıkrık & Yel, 2019; Duman & Yiğit, 2022; Günal et al., 2018) have the lowest level of awareness in the "Food" sub-dimension. In their research, Karakaş and Keleş (2023) determined that the lowest ecological footprint awareness of science pre-service teachers was in the "Food" sub-dimension. The majority of the pre-service teachers emphasized the effect of having to consume packaged food and ready-made food due to living in places far from their homes. The similarity of these findings shows that the participants are not conscious in food consumption. On the other hand, when other studies in the literature are examined (Keleş, 2007; Özyürek et al., 2022), there are also findings showing that the level of ecological footprint awareness is the largest in the "Food" sub-dimension.

When the results of the overall scale were examined according to gender, there was a significant difference between the average score of the participants' awareness levels according to gender. It was determined that the female participants had higher awareness levels regarding the ecological footprint. When the sub-dimensions of the ecological footprint awareness scale were examined according to gender, there was a significant difference in favour of females in the "Transportation and Housing" and "Energy" sub-dimensions. As a matter of fact, the overall scale also shows that females' ecological footprint awareness is higher than males. These findings show that female pre-service teachers are more sensitive about environmental awareness and ecological footprint. Similar results are also presented in other studies, indicating that females' sensitivity to the environment is higher than males (Coşkun & Sarıkaya, 2014; Günal et al., 2018; Keleş et al., 2008; Küçükbaş Duman & Atabek Yiğit, 2022). It reveals that females feel more responsibility regarding sustainability and are more sensitive to environmental problems. In addition, females' higher awareness of their ecological footprint is considered an essential indicator in the context of environmental education policies and gender equality in society. Females' higher sensitivity to the environment shows that females can be more conscious and more effective role models in terms of environmental responsibilities in society.

The awareness levels of the participants according to the ecological footprint sub-dimensions did not differ significantly according to the department they studied. It reveals that the department of the participants did not have a significant effect on ecological footprint awareness. Some studies in the literature are usually conducted in two or three different departments, and there is a significant

difference between the departments (Günal et al., 2018; Özyürek et al., 2022). Since the participants were exposed to similar content within the scope of environmental education throughout their education life, there was no difference according to the department variable they studied at the university. The ecological footprint awareness levels are shaped by the department they studied and by the socio-cultural environments and personal experiences.

The awareness levels of the students did not show a significant difference according to the place of residence. It may be due to the students reaching cultural change and similar environmental awareness levels through digital media. The study conducted by Karakaş and Keleş (2023) found no significant difference between the awareness levels of science pre-service teachers in the dimensions of food, transportation, and housing, energy, and water consumption according to the place of residence. It shows that the environmental awareness of pre-service teachers is at similar levels regardless of their place of residence. The study shows that the students' ecological footprint awareness levels had a statistically significant difference according to the economic income level groups. As the economic income level increased, the awareness of ecological footprints also increased significantly. These findings show that the economic income level can affect ecological footprint awareness, but this effect can vary according to different disciplines and sample groups. While Sivrikaya (2018) found that as the economic income level increased, ecological footprint awareness also increased, Günal et al. (2018) stated that the differences between the disciplines and universities in which the students studied eliminated the effect of the economic income level on awareness. It reveals that ecological footprint awareness can be shaped by the economic income level and by educational and socio-cultural factors, the discipline studied, and the content of the environmental education of the students.

Finally, according to the study, there was a statistically significant difference between the mother's education levels and the students' ecological footprint awareness levels, while there was no statistically significant difference between the fathers' education levels and the students ' ecological footprint awareness levels. In his study, Coşkun (2013) found no significant difference in the ecological footprint awareness levels of elementary school pre-service teachers according to the father's education level, while it was concluded that the average scores of university graduates in the waste, energy and water consumption sub-dimensions according to the mother's education level were higher than in the other sub-dimensions. The reason for this difference in the ecological footprint awareness levels according to the mother's and father's education level may be because mothers have a great influence on their children while raising them.

4.1. Implications for Theory and Practice

This study provides important data on how sustainability awareness is shaped at the individual level by revealing the ecological footprint awareness levels of university students studying at the faculty of education. The findings show that students' awareness levels are high, especially in the areas of energy and water consumption, while this awareness is relatively low in the field of nutrition. These results are in line with similar studies in the literature and reveal that university students' sustainable consumption habits are more developed in certain areas, but there is still a need for awareness raising in some areas. The fact that socio-demographic variables such as gender, economic income level, and mother's education level have significant effects on awareness levels shows that individual and environmental factors should be taken into consideration in sustainability education.

4.2. Limitations and Directions for Future Research

This study is limited to first-year students studying in Science Education, Turkish Language Education, Mathematics Education, Primary School Education, Preschool Education, Social Science Education, Special Education, and Guidance and Psychological Counselling departments of Kırıkkale University, Faculty of Education. Although the validity and reliability of the Ecological Footprint Awareness Scale used in the study is taken into consideration, the accuracy of the answers is limited to their statements since the data is based on the subjective evaluations. In addition, the topic is limited to the awareness levels of pre-service teachers about the ecological footprint.

Considering that environmental education courses are not given in every department to increase awareness about the ecological footprint, it can be suggested to organize seminars or various activities in nature about the ecological footprint. In addition, by comparing the awareness levels of female and male students studying in different disciplines at all universities about the ecological footprint, the reasons for this difference can be analysed in more detail. In particular, the factors affecting the awareness levels of female participants about the ecological footprint can be examined in depth. Educational programs on ecological footprint awareness are of great importance in terms of strengthening environmental education and increasing environmental awareness in all segments of society. Future research can evaluate the effects of environmental education provided at school on students' awareness of their ecological footprint. Awareness raising about the ecological footprint and its sub-dimensions should be done in a way that will allow individuals to achieve concrete gains through various methods. Considering that reducing the ecological footprint in our country will provide concrete contributions to the economy and sustainability, it can be considered as an essential issue that needs to be addressed carefully.

5. Conclusion

According to this study, the participants' awareness levels about ecological footprint were high in the "Energy" and "Water Consumption" sub-dimensions. In contrast, they were at the lowest level in the "Food" sub-dimension. According to the results, the ecological footprint awareness levels showed a significant difference according to gender, and the awareness levels of female pre-service teachers were higher than those of males. In addition, significant differences were found in favour of females in the "Transportation and Housing" and "Energy" sub-dimensions. On the other hand, the students' ecological footprint awareness levels did not show a significant difference according to the department they studied. It was found in the study that the students' awareness levels according to the ecological footprint sub-dimensions did not show a significant difference according to the place of residence, but showed a statistically significant difference according to the economic income levels. The study shows that there was a statistically significant difference between the students' ecological footprint awareness levels and the mother's education level. However, there was no significant difference between the father's education level.

6. References

Appiah, M., Li, M., Naeem, M. A., & Karim, S. (2023). Greening the globe: Uncovering the impact of environmental policy, renewable energy, and innovation on ecological footprint. *Technological Forecasting and Social Change*, *192*, 122561. https://doi.org/10.1016/j.techfore.2023.122561

Aydın Kocaeren, A. (Ed.). (2016). *Çevre ve enerji* [*Environment and Energy*]. Nobel.

Beccaceci, A., & Paris, E. (2024). "How much Earth is on my plate?" A challenge game about food ecological footprint. *Rendiconti Online Della Società Geologica Italiana*, 62, 65-70. https://doi.org/10.3301/ROL.2024.14

Bulut, S., Şahin, G., Kiraz, H. K., Tatlısu, S., & Coşkun, G. (2022). Identification of ecological footprint awareness of prospective teachers. *Bartın University Journal of Educational Research*, *6*(2), 135-151. https://dergipark.org.tr/tr/pub/bujer/issue/74975/1065832

Büyüköztürk, Ş. (2012). *Sosyal bilimler için veri analizi el kitabı [Data analysis handbook for the social sciences]* Pegem.

Büyüköztürk, Ş., Akgün, Ö. E., Demirel, F., Karadeniz, Ş., & Çakmak, E. K. (2012). *Bilimsel araştırma yöntemleri [Scientific research methods]*. Pegem.

Çetin, F. A., Güven Yıldırım, E., & Aydoğdu, M. (2017). The impact of ecological footprint education on attitudes and behaviors toward environmental issues in relation to sustainable living. *Journal of Theoretical Educational Science*, *10*(1), 68-86. http://dx.doi.org/10.5578/keg.20985

Çıkrık, S., & Yel, M. (2019). Biyoloji öğretmen adaylarının ekolojik ayak izi farkındalık düzeylerinin belirlenmesi [Determining the level of awareness of ecological footprints among biology teacher candidates]. *Turkish Studies-Social Sciences*, 14(6), 2999-3008. http://dx.doi.org/10.29228/TurkishStudies.39703

Coşkun, Ç. I., & Sarıkaya, R. (2014). Sınıf öğretmeni adaylarının ekolojik ayak izi farkındalık düzeylerinin belirlenmesi [Determining the level of awareness of ecological footprints among prospective classroom teachers]. *Turkish Studies*, *9* (5), 1761-1787. http://dx.doi.org/10.7827/TurkishStudies.6598

Coşkun, I. (2013). *Determining the ecological footprint awareness levels of prospective classroom teachers* [[Unpublished master's thesis, Gazi University].] YÖK Tez Merkezi. https://Tez.yok.gov.tr

Cui, Y. J., Luc, H., Zhu, Y. G., & Zhao, J. Z. (2004). Ecological footprint of shandong, China. *Journal of Environmental Sciences*, *16*(1), 167-172. https://doi.org/10.0000/1001-0742.20040135

Deniz, K. Z. (2020). *Herkes için istatistikolay-renkli anlatım [Statistics made easy for everyone—colorful presentation]*. Nobel Akademik Yayıncılık.

Doğan, Y., & Pektaş, M. (2019). Investigation of ecological footprint of academicians according to different variables. *International Electronic Journal of Environmental Education*, *9*(2), 174-189. https://dergipark.org.tr/en/pub/iejeegreen/issue/45317/557964

Eraslan, Ş., & Seçme, D. (2021). Mimarlık fakültesi öğrencilerinin ekolojik ayak izi farkındalık düzeyi [Architecture students' level of awareness of ecological footprint]. *Süleyman Demirel University Journal of Natural and Applied Sciences*, *25*(3), 481-491. https://doi.org/10.19113/sdufenbed.801151

Fang, K., Heijungs, R., & de Snoo, G. R. (2014). Theoretical exploration for the combination of the ecological, energy, carbon, and water footprints: Overview of a footprint family. *Ecological Indicators*, *36*, 508-518. https://doi.org/10.1016/j.ecolind.2013.08.017

Freire Guerrero, A., Marrero, M., & Muoz Martin, J. (2016). The incorporation of carbon footprint and ecological footprint into construction cost databases: A case study of a development project in Ecija, Spain. *Revista Habitat Sustentable*, *6*(1), 7-17. https://revistas.ubiobio.cl/index.php/RHS/article/view/2316

Gottlieb, D., Vigoda-Gadot, E., & Haim, A. (2013). Encouraging ecological behaviors among students by using the ecological footprint as an educational tool: a quasi-experimental design in a public high school in the city of Haifa. *Environmental Education Research*, *19*(6), 844-863. https://doi.org/10.1080/13504622.2013.768602

Günal, N., Yücel Işıldar, G., & Atik, A. D. (2018). Üniversite öğrencilerinin ekolojik ayak izi azaltılması konusundaki eğilimlerinin incelenmesi [Examining university students' attitudes toward reducing their ecological footprint]. *TÜBAV Bilim Dergisi*, *11*(4), 34-46. https://dergipark.org.tr/pub/tubav/issue/42160/507066

Hastürk, H. G. (Ed.). (2019). *Çevre eğitimi [Environmental education]*. Anı Yayıncılık.

Kalaycı, Ş. (2010). *SPSS uygulamalı çok değişkenli istatistik teknikleri [SPSS applied multivariate statistical techniques]*. Asil Yayın Dağıtım.

Karakaş, H., Doğan, A., & Sarıkaya, R. (2016). Etkinlik temelli eğitimin üstün yetenekli öğrencilerin ekolojik ayak izi farkındalığı [Activity-based education for gifted students' ecological footprint awareness]. *Journal of Turkish Studies*, *11*(3). http://dx.doi.org/10.7827/TurkishStudies.8960

Karakaş, T., & Keleş, Ö. (2023). Fen bilgisi öğretmen adaylarının ekolojik ayak izi farkındalık düzeylerinin belirlenmesi [Determining the level of awareness of science teacher candidates regarding their ecological footprint]. *Anadolu Öğretmen Dergisi*, 7(2), 116-134. https://doi.org/10.35346/aod.1380479

Keleş, Ö. (2007). *Sürdürülebilir yaşama yönelik çevre eğitimi aracı olarak ekolojik ayak izinin uygulanması ve değerlendirilmesi [Implementation and evaluation of ecological footprint as an environmental education tool for sustainable living]* [Unpublished doctoral dissertation, Gazi University]. YÖK Tez Merkezi. https://Tez.yok.gov.tr

Keleş, Ö., Uzun, N., & Özsoy, S. (2008). Öğretmen adaylarının ekolojik ayak izlerinin hesaplanması ve değerlendirilmesi [Calculation and evaluation of teacher candidates' ecological footprints]. *Ege Journal of Education*, 9(2), 1-15. https://dergipark.org.tr/tr/pub/egeefd/issue/4911/67248

Koç, K. (2023). *Çevresel vergiler ve ekolojiik ayak izi [Environmental taxes and ecological footprint]*. Gazi Kitabevi.

Küçükbaş Duman, F., & Atabek-Yiğit, E. (2022). Spor bilimleri fakültesi öğrencilerinin ekolojik ayak izi farkındalıkları [Ecological footprint awareness among students of the Faculty of Sports Sciences]. *Gazi Journal of Physical Education and Sport Sciences*, *27*(4), 265-280. https://doi.org/10.53434/gbesbd.1114228

Lee, Y. J. (2015). Land, carbon and water footprints in Taiwan. *Environmental Impact Assessment Review*, *54*, 1-8. https://doi.org/10.1016/j.eiar.2015.04.004

Lee, Y. J., & Peng, L. P. (2014). Taiwan's ecological footprint (1994–2011). *Sustainability*, *6*(9), 6170-6187. https://doi.org/10.3390/su6096170

Liu, J., Wang, H., & Zhao, Z. (2024). Improvement and application of the ecological footprint calculation Method—A case study of a Chinese university. *Journal of Cleaner Production*, *450*, 141893. https://doi.org/10.1016/j.jclepro.2024.141893

Mancini, M. S., Galli, A., Niccolucci, V., Lin, D., Bastianoni, S., Wackernagel, M., & Marchettini, N. (2016). Ecological footprint: refining the carbon footprint calculation. *Ecological Indicators*, *61*, 390-403. https://doi.org/10.1016/j.ecolind.2015.09.040

Marquart-Pyatt, S. T. (2015). Environmental sustainability: the ecological footprint in West Africa. *Human Ecology Review*, *22*(1), 73-92. https://www.jstor.org/stable/24875149

McAusland, C., & Najjar, N. (2015). Carbon footprint taxes. *Environmental and Resource Economics*, *61*, 37-70, http://hdl.handle.net/10.1007/s10640-013-9749-5

Mızık, E. T., & Yiğit Avdan, Z. (2020). Sürdürülebilirliğin temel taşı: Ekolojik ayak izi [The cornerstone of sustainability: Ecological footprint]. *Journal of Natural Hazards and Environment*, *6*(2), 451-467. https://doi.org/10.21324/dacd.630825

Odum, P. E., & Barrett, W. G. (2008). *Ekolojinin temel ilkeleri [Fundamentals of ecology]* (K. Işık, Trans. Ed.). Palme.

Özbaş, E. E., Hunce, S. Y., Özcan, H. K., & Öngen, A. (2019). Ecological footprint calculation. In: Balkaya, N., Guneysu, S. (eds) *Recycling and Reuse Approaches for Better Sustainability*, 179-186. https://doi.org/10.1007/978-3-319-95888-0_15

Özyürek, C., Demirci, F., Sarıgöl, J., Tepe, B., & Güler, H. (2022). Öğretmen adaylarının bireysel ekolojik ayak izinin bazı değişkenlere göre değerlendirilmesi [Evaluation of prospective teachers' individual ecological footprints according to certain variables]. *Kahramanmaraş Sütçü İmam University Social Sciences Journal*, 19(1), 390-402. https://doi.org/10.33437/ksusbd.407082

Pedersen, S., & Lui, M. (2003). Teachers' beliefs about issues in the implementation of a student centered learning environment. *Educational Technology Research and Development*, *51* (2). 57-76.

Perez-Lopez, J. B., Orro, A., & Novales, M. (2021). Environmental impact of mobility in higher-education institutions: The case of the ecological footprint at the University of a Coruña (Spain). *Sustainability*, *13*(11), 6190. https://doi.org/10.3390/su13116190

Pisleaga, M., Girbaciu, A., & Girbaciu, C. (2015). Water footprint, carbon footprint, energy footprint general aspects and their influence on society. In *15th International Multidisciplinary Scientific GeoConference SGEM 2015* (pp. 1039-1046). SGEM. https://doi.org/10.5593/SGEM2015/B51/S20.138

Rees, W. E. (1992). Ecological footprints and appropriated carrying capacity: what urban economics leaves out. *Environment and Urbanization*, *4*(2), 121-130. https://doi.org/10.1177/095624789200400212

Senthil Kumar, P., & Janet Joshiba, G. (2019). Energy footprints of textile products. *Energy Footprints of the Food and Textile Sectors*, 45-61. https://doi.org/10.1007/978-981-13-2956-2_3

Sivrikaya, Ş. (2018). *Fen bilgisi ve Türkçe öğretmen adaylarının ekolojik ayak izi farkındalık düzeylerinin belirlenmesi [Determining the level of awareness of science and Turkish language teacher candidates regarding their ecological footprint]*. [Unpublished master's thesis, Akdeniz University], YÖK Tez Merkezi.

Tosunoğlu, B. (2014). Sürdürülebilir küresel refah göstergesi olarak ekolojik ayak izi [Ecological footprint as an indicator of sustainable global prosperity]. *Hak İş Uluslararası Emek ve Toplum Dergisi*, *3* (5), 132-149. https://dergipark.org.tr/tr/pub/hakisderg/issue/7577/99504

Ünal, M., & Ünal, F. (2022). Ecological footprint reduction behaviors of individuals in Turkey in the context of ecological sustainability. *Sustainability*, *15*(1), 63. https://doi.org/10.3390/su15010063

Uyanık, G. (2020). Investigation of the ecological footprint awareness levels of classroom teacher candidates. *International Electronic Journal of Environmental Education*, *10*(1), 32-43. https://www.scopus.com/authid/detail.uri?authorId=57208033113

Wackernagel, M. & Rees, B. (1996). *Our ecological footprint: Reducing human impact on the Earth.* New Society Publishers.

Xu, M., & Li, C. (2020). The concepts of virtual water and water footprint. *Application of the Water Footprint: Water Stress Analysis and Allocation*, 9-16. https://doi.org/10.1007/978-981-15-0234-7_2

REVIEW ARTICLE   **OPEN ACCESS**

Exploring language teachers' assessment identity: a comparative review of teacher beliefs on L2 writing assessment in China and Iran

Humyra Anjum Maliha[1c] iD, **Mo Yuanfa**[1] iD, **Xiao Yuhan**[1] iD, **Wang Ying**[1] iD, and **Wang Yun**[1] iD

[1] Faculty of Educational Studies, Universiti Putra Malaysia (UPM), Malaysia.
[c] **Correspondence Author(s):** Faculty of Educational Studies, Universiti Putra Malaysia (UPM), Malaysia; maliha2072000@gmail.com

Abstract

This review paper explores how language teachers in China and Iran understand and carry out the assessment of second language (L2) writing. It focuses on their beliefs, values, and assessment identities, shaped by cultural and institutional factors. The study reviews a total of six articles published between 2019 and 2024 and applies Borg's (2003) teacher cognition framework and Pajares' (1992) belief-behaviour theory to examine how teacher beliefs influence assessment practices and professional identity. These theories help explain the gap between what teachers value and what they implement in classrooms. The findings show that while many teachers in both countries believe in formative assessment, they often rely on summative methods due to high-stakes exams, large class sizes, and fixed curricula. In China, exam systems challenge teachers' belief in innovative teaching, while in Iran, limited training and strong cultural expectations also affect practice. The review highlights that teacher beliefs are complex and shaped by both professional goals and local contexts. It suggests that better training, policy support, and resources are needed to align teacher beliefs with actual assessment practices.

262

1. Introduction

Assessment identity refers to the beliefs, values, and self-perceptions teachers have about their role as assessors. It includes their understanding of assessment methods, emotional involvement in the process, and professional responsibility to support student learning. Moreover, this identity is shaped by various factors such as professional training, personal and cultural experiences as well as the policies and expectations of schools or institutions. Over time, teachers' assessment identities evolve as they gain experience and adjust to their personal beliefs and external factors (Gan & Lam, 2023). Ultimately, a strong assessment identity empowers teachers to make smart and fair decisions that directly impact the learning outcomes. Therefore, understanding the development of this identity is crucial for designing effective professional development programs.

Among the key influences on assessment identity, teachers' beliefs play a significant role in shaping their assessment identity, particularly in the context of second language (L2 hereafter) writing. Here, teachers' beliefs refer to the deeply held understandings, values and assumptions that influence how they interpret, plan and carry out instructional and assessment practices in the classroom. These beliefs also guide their perception of their assessment role and their selection of evaluation methods. For instance, teachers who view assessment as a tool to support learning, known as Assessment for Learning (AfL hereafter), are more likely to use formative approaches to offer feedback that guides students toward improvement. Conversely, those who emphasize institutional requirements may prioritize Assessment of Learning (AoL hereafter), which often involves summative tests that limit creativity and critical thinking in L2 writing (Zheng & Xu, 2023). Hence, these beliefs not only affect classroom practices but also influence how students perceive their abilities and progress. When teachers' beliefs about assessment support their teaching methods, writing lessons can become more structured and encouraging.

In L2 writing, assessments often aim to balance linguistic accuracy, creativity and communicative effectiveness. However, in exam-focused systems such as those in China and Iran, teachers' beliefs are frequently shaped by rigid formats aligned with AoL practices. As a result, this focus on accuracy may overshadow the originality and reduce student engagement. Furthermore, these systemic pressures can create internal conflicts within teachers' assessment identities, especially when they value AfL but are required to implement standardized evaluations (Babaii et al., 2020). As a result, this tension often causes a mismatch between instructional goals and assessment practices.

1.1. A Contextual Overview

On the one hand, in China, the education system is highly centralized and the Ministry of Education manages all levels of schooling. English as a Foreign Language (EFL hereafter) plays an important role in the curriculum, especially in middle school, high school and university education. The National English Curriculum Standards provide general guidelines for teaching and assessing EFL writing in schools. However, cities like Shanghai also have their own curriculum guides, which include more detailed writing performance standards (Wang et al., 2020). These national and local guidelines aim to promote consistency and quality in EFL writing instruction across different regions. In theory, they are designed to ensure that students develop communicative competence and critical thinking through writing. They also outline expectations for integrating modern pedagogical approaches, such as process writing and formative assessment (Zhang et al., 2022). However, despite these ambitions, the actual implementation of the curriculum often falls short in daily classroom practice.

Even with these guidelines, there is a clear gap between the official curriculum and its classroom application. Factors like teachers' beliefs, teaching materials, and the exam-focused culture in China contribute to this difference (Wang et al., 2020; Zhang et al., 2022). High-stakes exams like the Zhongkao and Gaokao heavily influence how teachers teach and assess writing. This often shifts the focus from building well-rounded writing skills to preparing students for exams (Wang et al., 2020; Liu, 2024). To address this issue, more attention is being given to professional development for teachers, especially in improving their skills in assessing writing. Regular training and the use of formative assessment strategies

are being suggested to better align classroom practices with curriculum goals (Liu, 2024). Some educators are also trying to combine process-based approaches with traditional teaching methods to help students develop stronger writing skills in a more balanced way (Zhang et al., 2022).

On the other hand, the education system of Iran is highly centralized. The Ministry of Education manages primary and secondary schools, while the Ministry of Science, Research and Technology oversees universities and other higher education institutions. Within this system, there is a strong emphasis on teaching EFL, particularly in enhancing students' writing skills. Research into writing assessment literacy (WAL hereafter) among Iranian EFL teachers reveals a recurring challenge. Although many teachers express positive attitudes toward writing instruction, their classroom practices often do not reflect these beliefs. For example, Bozorgian et al. (2024) found that despite teachers' favorable views, less than 3% of class time was dedicated to writing activities, showing a significant disconnect between belief and practice. This suggests that systemic issues, such as rigid curricula or lack of institutional support, may also limit teachers' ability to implement their instructional intentions.

This disconnect is closely tied to teachers' limited training in writing assessment, which in turn influences their reliance on traditional, summative assessment methods. Teachers' beliefs are pivotal in shaping their assessment strategies, but without proper training, they struggle to implement more effective, formative approaches. Research by Soltanpour and Valizadeh (2019) indicates that a majority of Iranian EFL teachers had not received adequate instruction in writing assessment techniques, leading to the underuse of formative assessment tools. These findings point to an urgent need for improved teacher education programs that emphasize writing assessment literacy, aiming to align classroom practices more closely with teachers' instructional goals and beliefs. Ensuring such programs could empower teachers to bridge the gap between their professional beliefs and the realities of classroom instruction.

1.2. Purpose and Scope

This study seeks to examine how language teachers in China and Iran perceive their roles in assessing L2 writing, with a particular focus on their beliefs, practices and the impact of cultural and institutional factors. By comparing these perspectives, the research investigates how both personal and external influences shape teachers' assessment identities across different educational contexts. The ultimate goal is to contribute to the improvement of teacher education and promote a deeper cross-cultural understanding of L2 writing assessment, directly addressing how beliefs and contexts interact as outlined in the research questions.

1.3. Research Questions

1. What are the beliefs of language teachers in China and Iran about L2 writing assessment?
2. How do cultural and institutional contexts influence these beliefs?

That being said, this study is significant as it examines an area that has not been explored extensively: how language teachers' assessment identities are influenced by their differing beliefs across cultures, especially in the context of L2 writing. Most research to date has focused on individual countries, such as China or Iran, without comparing how broader cultural, institutional, and systemic factors influence teachers' beliefs. By comparing China and Iran, two exam-driven systems with strong central control but distinct cultural backgrounds, this study demonstrates how local contexts shape teachers' assessment identities. The findings will support teacher education by highlighting the tensions between AfL and AoL, as well as the limitations that teachers face within their institutions. This can help policymakers develop more effective and culturally sensitive training programs. Overall, the comparative approach fosters a more profound understanding between cultures and promotes fairer, more effective writing assessment practices across various educational settings.

2. Method

This study follows a systematic literature review to explore teacher beliefs and assessment identity related to L2 writing. The review was based on research papers selected from ERIC and Scopus, focusing on peer-reviewed articles published between 2019 and 2024 to ensure the inclusion of high-quality, up-to-date, and academically rigorous sources that are widely recognized for their credibility and relevance in the field of education. To do so, keywords were used such as "L2 writing assessment" and "teacher beliefs." Studies were included if they (1) examined assessment identity and teacher beliefs in China or Iran, (2) provided empirical data, and (3) linked beliefs to L2 writing. Non-English publications were excluded due to translation constraints. Ultimately, six studies met these criteria, highlighting a significant research gap in the area of L2 writing assessment in these national contexts.

Two researchers independently coded the studies using a thematic analysis approach, achieving 85% inter-coder agreement. Any disagreements were resolved through discussion. The analysis identified recurring themes such as assessment purposes, teacher autonomy and systemic constraints, with special attention to how institutional and cultural contexts shaped belief-practice alignment. This process ensured a comprehensive understanding of the factors influencing teachers' assessment beliefs and practices.

The study mainly uses Borg's (2003) teacher cognition framework, which links beliefs to professional identity, and Pajares' (1992) theory, which explains how beliefs shape behavior in assessment. However, these models do not fully address the impact of institutional power and socio-political contexts. To fill this gap, the study also involves critical discourse analysis to explore how institutional forces, such as national exam policies, influence teachers' assessment decisions. Furthermore, the concept of neoliberal subjectivity (Artino, 2012) is used to show how teacher identities adapt under systemic pressure. By combining these theoretical lenses, the research addresses gaps in earlier models and offers a more comprehensive understanding of how beliefs and contextual factors shape L2 writing assessment. This multi-theoretical approach also highlights the importance of viewing teachers as active agents navigating complex educational systems.

3. Results

The findings of this study are organized to highlight key insights from the reviewed literature. Table 1 provides a simple summary of the main ideas, theories, and findings from the reviewed studies. It allows for an easy comparison of key points across different sources.

Table 1. Summary of Key Studies on Teachers' Beliefs About L2 Writing in China and Iran

Context	Author	Objective	Methodology	Theories	Key Findings
China	Wang et. al. (2020)	To investigate Chinese university EFL teachers' beliefs and practices regarding classroom writing assessment and identify potential discrepancies between them.	A sequential explanatory mixed-method design was followed by a survey of 136 Chinese university EFL writing teachers, followed by interviews with 10 participants. Data were analyzed using SPSS for quantitative and thematic coding for qualitative insights.	The study explores formative (AfL) and summative (AoL) assessment theories, emphasizing AfL's five strategies (Black & Wiliam, 2009) and its connection to student autonomy via metacognition. It also examines the interplay of teachers' beliefs, practices, and contexts, drawing on Borg (2003), Phipps & Borg (2009), and Fulmer et al. (2015).	Teachers value Assessment for Learning (AfL) for its benefits, like deeper learning and autonomy, but face challenges such as systemic constraints, time pressures, and misalignment between beliefs and practices, necessitating targeted training, institutional support, and reforms to integrate AfL strategies effectively into teaching environments.

Zhang et. al (2022)	To investigate EFL teachers' attitudes toward and self-efficacy beliefs for implementing self-assessment of writing in tertiary education settings in China.	This qualitative study, based on constructivist theory, involved five female EFL writing teachers from two universities in Northern China. Semi-structured Mandarin interviews were thematically analyzed using Braun and Clarke's method with validation through member checking.	The study followed constructivist theory and focused on understanding how teachers construct their attitudes, self-efficacy beliefs, and practices of self-assessment of writing based on their experiences and sociocultural context.	While teachers recognize the benefits of self-assessment in fostering student accountability and reflection, challenges such as exam-driven systems, limited teacher training, and student inexperience hinder its implementation, highlighting the need for professional development, structured rubrics, and curriculum adjustments to promote effective use of self-assessment.
Liu (2024)	To explore an EFL teacher's beliefs and practices regarding formative writing assessment in a public secondary school, focusing on how it promotes students' L2 writing engagement and outcomes.	This single case study focuses on "Nelly," a Grade 7 teacher in a key public secondary school in mainland China. Data were collected through semi-structured interviews, voice memos, artifacts, and documents, and analyzed using Braun and Clarke's reflective thematic analysis, guided by Borg's (2015) Language Teacher Cognition framework.	The study is based on Borg's Language Teacher Cognition framework (2015), which examines how teachers' beliefs, knowledge, and context influence their classroom practices, particularly in formative writing assessment.	Teacher Nelly effectively implemented formative writing assessment in an exam-driven culture, improving student confidence through scaffolding and feedback, but faced challenges like limited English proficiency, workload, and gaps in L2 writing pedagogy.
Soltanpour and Valizadeh (2019)	To examine Iranian EFL teachers' beliefs about writing assessment literacy (WAL), their training needs, and how their academic majors (TEFL vs. Non-TEFL) influence these beliefs and needs.	This survey studied 146 Iranian EFL teachers, split into TEFL and non-TEFL groups by degree. A questionnaire on WAL beliefs and training needs was used, with statistical analyses identifying key differences.	The study builds on the concept of Writing Assessment Literacy (WAL) and explores how academic backgrounds (TEFL vs. Non-TEFL) shape teachers' beliefs and self-perceived training requirements in writing assessment.	TEFL teachers were significantly better trained than non-TEFL teachers, highlighting the need for accessible WAL training, integration of modern assessment methods, technology use, and reforms in teacher recruitment, supervision, and in-service programs.
Iran Ataie-Tabar et. al. (2019)	To explore the socio-cultural conception of writing assessment literacy among Iranian EFL teachers and students and assess whether teachers' writing assessment skills align with socio-cultural constructs.	This mixed-methods study involved 105 Iranian EFL students for the quantitative phase and three EFL teachers for the qualitative phase. Data were collected through student questionnaires and teacher interviews, analyzed using a framework based on five key writing assessment principles from Lee's and Coombs's sociocultural models, with findings integrated to evaluate alignment with sociocultural constructs.	The study applies a socio-cultural theoretical framework to assess how cultural and contextual factors shape writing assessment literacy among teachers and students.	In the Iranian EFL context, writing assessment literacy (AL) is valued but hindered by time constraints, curriculum rigidity, and limited training, with recommendations focusing on collaborative goal-setting, process writing, balanced feedback, self-/peer-assessment, formative feedback, and institutional support.

Sohrabi et. al (2022)	To investigate Iranian EFL writing teachers' knowledge, beliefs, and practices regarding writing assessment and fill the gap in the literature on a countrywide level.	The study surveyed 118 experienced Iranian EFL writing teachers using the WAL questionnaire (Crusan et al., 2016). Data were analyzed with SPSS (Version 22.0) to explore teachers' knowledge, beliefs, and practices.	Grounded in assessment literacy theory and the interrelation of teacher knowledge, beliefs, and practices (Richardson, 1995; Crusan et al., 2016), the study highlights the importance of understanding teachers' beliefs in shaping assessment and teaching practices.	While most teachers value writing assessment and receive some training, challenges like limited practical training, inconsistent rubric use, lack of formative feedback, and inadequate technology integration highlight the need for improved, experiential training and contextualized assessment tools.

Note. This table summarizes selected studies focusing on L2 writing assessment beliefs among teachers in China and Iran.

3.1. Context of China

a. Teacher Beliefs on Writing Assessment Practices

Chinese EFL teachers generally support AfL methods because they promote student autonomy and critical thinking. However, their preference for AoL is mainly influenced by cultural and institutional factors. For instance, Wang et al. (2020) found that although teachers value AfL strategies, such as setting clear learning goals and promoting independent learning, these approaches are seldom put into practice. Many teachers feel limited by rigid exam-based systems that focus more on memorization than on true understanding. In addition, pressure from school administration and parents makes them rely even more on AoL. This shows that even when teachers believe in better ways to help students' learning, they often cannot implement these methods because the education system pushes them to prepare students mainly for exams.

Similarly, Liu (2024) noted that although teachers used scaffolding techniques and promoted student independence, they found it difficult to apply these strategies effectively because of the strong emphasis on exams and limited time. As a result, they often had to skip formative activities to ensure students were ready for standardized tests. Consequently, while teachers may support AfL in theory, their actual classroom practices focus on AoL. This disconnect between beliefs and actions shows how challenging it is to balance ideal teaching approaches with real-world limitations.

b. Challenges in Implementing Innovative Assessments

Implementing innovative assessments, such as self-assessment, is difficult in Chinese EFL classrooms. Although Zhang et al. (2022) found that teachers had favorable opinions of self-assessment, they mostly used it as an additional tool rather than a main evaluation method. This is because many teachers questioned whether students had the ability and maturity to assess themselves accurately. Additionally, the focus on achieving concrete test outcomes also led teachers to hesitate when considering alternative assessment techniques. A key factor behind this hesitation is limited teacher confidence, which derives from inadequate training and a lack of assessment knowledge. Since many teachers had little expertise in assessment literacy, they found it difficult to create effective self-assessment tasks. There were also concerns that using such methods might not meet the expectations of school leaders and parents.

Similarly, Liu (2024) observed that low student proficiency and insufficient teacher preparation made student-led feedback methods difficult to apply. In many cases, students did not have standard language skills to participate meaningfully in self- or peer-assessment. Furthermore, teachers felt that experimenting with new assessment methods was risky in China's high-pressure education system, where exam results are crucial. These challenges suggest that targeted teacher training programs are necessary to help educators develop the skills and confidence needed to use innovative assessments effectively, especially in exam-driven educational environments.

c. Institutional and Cultural Constraints

In China, cultural and institutional factors play a major role in shaping teachers' assessment methods. As Wang et al. (2020) noted, exam-focused policies tend to favor AoL, restricting opportunities for formative feedback and student-centered approaches. Since exam success is considered essential for future career and life prospects, both teachers and students concentrate heavily on test preparation, which leads to experimental or student-led assessments being seen as unnecessary disruptions rather than useful tools. On top of this, when classes are too large and syllabi are overloaded, using methods like self-assessment becomes very difficult to implement effectively (Zhang et al., 2022). Additionally, teachers struggle with practical issues, such as providing personalized feedback in large classes, which pushes them toward more efficient summative assessments.

Liu's (2024) study found that the emphasis on major exams leads teachers to concentrate more on correcting mistakes instead of using learner-centered methods. They worry that poor test results will increase reliance on traditional evaluation methods. Because of this, new assessment techniques are often delayed until after important exams or may not be used at all. To overcome these challenges, reforms like simplifying the curriculum, offering institutional support, and including AfL principles in national policies are necessary. Ultimately, addressing these issues requires a systemic shift to balance exam preparation with meaningful learning experiences.

3.2. Context of Iran

a. Teacher Beliefs on Writing Assessment Practices

Iranian EFL teachers, especially those with TEFL training, typically prefer modern assessment methods like scoring rubrics, portfolios and self-evaluations (Soltanpour & Valizadeh, 2019). Research shows a striking difference in training, while 90% of TEFL-certified teachers had learned about WAL, only 51.2% of untrained teachers received similar instruction. However, there appears to be a significant implementation gap, as Sohrabi et al. (2022) discovered, although most teachers acknowledged the value of WAL and process-focused assessments, merely 15% developed their own rubrics in practice. This inconsistency between teachers' knowledge and classroom application often comes from practical constraints like time limitations.

Furthermore, studies show that even when teachers appreciate process-based evaluation systems, inflexible curriculum requirements frequently push them back toward traditional product-based methods (Ataie-Tabar et al., 2019). These results highlight the constant challenges educators experience when trying to match their assessment principles with actual classroom realities. Although many teachers acknowledge that modern methods can promote student participation and learning, institutional pressures and limited resources often prevent them from continuing to use traditional, exam-centered approaches.

b. Challenges in Implementing Innovative Assessments

Multiple obstacles in the Iranian educational system limit the implementation of modern assessment methods, including time constraints, inadequate resources and insufficient teacher training (Ataie-Tabar et al., 2019). Although technology could potentially simplify assessments, a study by Sohrabi et al. (2022) found that many educators lack the digital skills required to use it effectively. This technological skill gap creates another barrier to adopting innovative approaches like digital portfolios and online self-evaluations. As a result, traditional assessment practices continue to dominate classrooms, slowing progress toward a more learner-centered evaluation approach.

Moreover, teachers without TEFL qualifications often have limited knowledge of self- and peer-assessment techniques, causing very limited classroom application (Soltanpour & Valizadeh, 2019). These non-specialist educators typically prefer traditional assessment formats because they connect better with their training and experience. To address these issues, comprehensive professional development programs are essential because such training would help to build teachers' competence and confidence

in using alternative assessment methods, particularly self-assessment and peer-review systems, which could significantly improve classroom evaluation practices.

c. Institutional and Cultural Constraints

Assessment practices are also significantly influenced by both institutional structures and cultural expectations. Research by Soltanpour and Valizadeh (2019) reveals that private language institutes tend to prioritize general English skills over pedagogical training, resulting in many teachers being inadequately trained to utilize contemporary assessment approaches. This emphasis on language proficiency rather than teaching skills may unintentionally limit teachers' assessment of literacy development. Moreover, as Ataie-Tabar et al. (2019) found, rigid supervision systems and overly theoretical teacher training programs further hinder effective assessment practices. The constant pressure from supervisory evaluations often discourages teachers from experimenting with innovative assessment techniques.

Additionally, cultural traditions in education heavily favor summative testing over formative approaches, such as portfolio assessments or peer feedback (Sohrabi et al., 2022). The strong cultural emphasis on final exams as the primary measure of achievement leaves little room for regular formative evaluation. To address these challenges, we must reform teacher training, recruitment and oversight systems, while also changing attitudes to appreciate formative assessment. Such changes could facilitate a transition from exam-focused evaluation to a more balanced approach that prioritizes continuous learning and student growth.

4. Discussion

Research Question 1: What are the beliefs of language teachers in China and Iran about L2 writing assessment?

Language teachers in China and Iran have complex and sometimes conflicting beliefs about how to assess L2 writing. In China, many teachers support the idea of AfL, which focuses on helping students become more independent, think critically and improve gradually (Wang et al., 2020; Liu, 2024). These beliefs match global trends that favor student-centered learning. However, in practice, these ideas are often hard to follow because schools and education systems focus more on AoL, especially through big exams like the Gaokao. As a result, teachers often use more traditional, exam-focused assessments, not because they reject AfL, but because they must meet system demands. In some areas like Shanghai, teachers receive training and support that helps them to use AfL more effectively (Wang, 2021). But in less developed regions, large class sizes and a lack of resources make it difficult to apply these ideas.

In Iran, teachers show similar tensions. Teachers with training in teaching English as a foreign language (TEFL), especially in cities, are more likely to use modern writing assessment methods like rubrics, peer feedback and writing portfolios (Soltanpour & Valizadeh, 2019; Sohrabi et al., 2022). These teachers are influenced by global education trends and want to follow international standards. However, teachers without TEFL training, particularly in rural or religious schools, often use traditional exams that focus on grammar. Their beliefs come not only from less training but also from cultural values. Islamic traditions emphasize teacher authority and collaborative learning, which can offer a strong foundation for community-based assessment practices, even if they differ from some modern individual-focused approaches."

Overall, both contexts show that teacher beliefs are influenced not just by their professional knowledge but also by their roles within larger cultural values and institutional systems. While testing systems restrict teachers' professional freedom, cultural and historical views of education also shape what they can do in classrooms.

Research Question 2: How do cultural and institutional contexts influence these beliefs?

Cultural and institutional contexts strongly affect how teachers in China and Iran think about L2 writing assessment, even though the reasons behind these beliefs are different in each country. In China, teachers often say they support AfL but in practice, they rely more on AoL, especially for high-stakes

exams like the Gaokao (Zhang et al., 2022; Liu, 2024). These exams are not just academic tools, they are part of the culture, shaped by Confucian ideas about merit and social progress. Many teachers believe that standardized tests are fair and necessary for giving everyone equal chances. However, in places like Shanghai, local education policies give teachers more freedom to use AfL strategies. This shows that supportive institutions can help to change beliefs by giving teachers room to act.

In Iran, national rules, limited resources and tight control over the curriculum reduce teacher freedom, pushing them to use traditional exams (Ataie-Tabar et al., 2019). Still, cultural values also play a major role. In public schools, exams are seen as fair and serious, especially by parents and school leaders. Private schools, however, may mix modern methods like rubrics with traditional ones to meet both global standards and local expectations. Faith-based schools go further, seeing writing as a way to build moral values. These schools use assessment not just to test knowledge but to shape character and social responsibility. Moreover, in urban centers, access to international training programs and online resources allows some teachers to adopt more flexible, learner-centered assessment practices. However, this often leads to differences between urban and rural teachers, with rural teachers sometimes having fewer opportunities or resources to apply alternative assessment methods confidently.

In both countries, teacher beliefs do not come from one source. Instead, they are shaped by global trends, national systems, and local culture. This makes teachers' beliefs a mix of different influences rather than traditional or modern.

Overall Synthesis

Language teachers in China and Iran strongly believe in the value of innovative writing assessment methods, mainly Assessment for Learning. They view AfL as a helpful tool for building student autonomy, critical thinking, and writing skills. In China, many teachers support AfL because it matches the idea of student-centered learning. However, their actual classroom practices often follow AoL, which focuses on exams like the Gaokao (Wang et al., 2020; Liu, 2024). These exams have great importance in society, affecting students' futures and opportunities. As a result, teachers often use traditional assessment methods not because they reject AfL, but because they believe that following the exam system is necessary. Their belief in AoL is a practical response to institutional pressure rather than a lack of interest in innovation.

Teachers' beliefs in China also depend on where they work. In cities like Shanghai, education reforms support AfL by offering teacher training and encouraging formative assessment methods, such as student portfolios and peer feedback (Wang, 2021). Teachers in these regions are more confident using modern strategies because they feel supported. In contrast, teachers in less-resourced areas face difficulties such as large classes, fixed curricula, and limited support. These challenges make it hard to fully apply AfL, even when teachers believe in its value. This shows that teachers' beliefs vary across the country and are shaped by local policies and resources.

In Iran, TEFL-trained teachers, especially in urban schools, support global principles of writing assessment like using rubrics and writing portfolios (Soltanpour & Valizadeh, 2019; Sohrabi et al., 2022). International teaching methods influence these teachers and want to help students become better writers. On the other hand, many non-TEFL teachers in rural or religious schools focus more on grammar and teacher-led correction. Their assessment style is shaped by Islamic values, which highlight moral education, respect for authority, and shared learning. These cultural beliefs lead them to see assessment not only as measuring skills but also as guiding students' character and community values. Urban-rural divides also influence access to modern training, creating gaps in teachers' confidence and use of new methods.

Overall, teachers in both countries try to balance new ideas with local expectations. They do not simply copy Western models but instead mix AfL with traditional approaches to fit their unique school environments. For example, some Iranian teachers combine peer feedback with grammar tests, while Chinese teachers slowly introduce AfL in exam-focused systems. These actions show that teachers are thoughtful and creative, working within their limits to improve assessment. To support them, policies

should recognize their role as decision-makers and offer tools that match both global goals and local values.

5. Conclusion

To sum up, this study highlights how teachers' beliefs about L2 writing assessment in China and Iran are shaped and often limited by institutional demands and cultural traditions. Many teachers genuinely value formative approaches, such as AfL, to understand their potential for improving student writing and promoting independent learning. However, these beliefs frequently remain unrealized in practice due to exam-driven systems, limited professional development and contextual constraints. Bridging the gap between belief and practice requires policies that not only promote AfL but also empower teachers through targeted training and culturally sensitive support. When teachers are given the tools and freedom to act on their beliefs, they can become key agents of change in advancing more meaningful and effective L2 writing assessment.

However, this study has some limitations as it mainly uses existing research and does not deeply explore how teacher beliefs differ across regions and institutions in China and Iran. Future research should focus on context-specific, qualitative case studies to understand how teachers' beliefs are formed and how they influence assessment in real classrooms. For example, differences between urban and rural schools or public and private institutions may affect not only resources but also what teachers believe is possible or valuable. It is also important to include students' views to see how teachers' beliefs about formative assessment match students' experiences. Using mixed-method research, such as interviews, classroom observations and policy analysis, can give a better picture of how beliefs and practices interact. Future studies could also look at how digital tools shape teachers' assessment beliefs. Finally, research should guide policymakers in understanding how national reforms affect teachers' daily decisions and belief systems in practice.

WY is also pursuing a Master's degree in Education (TESL) at the same university. He works as English teachers and is dedicated to researching effective methods in TESL. His goal is to improve how English is taught and learned, aiming to make language education more impactful and accessible for students.

6. References

Artino A. R., Jr. (2012). Academic self-efficacy: From educational theory to instructional practice. Perspectives on medical education, 1(2), 76–85. https://doi.org/10.1007/s40037-012-0012-5

Ataie-Tabar, M., Zareian, G., Amirian, S. M. R., & et al. (2019). A study of socio-cultural conception of writing assessment literacy: Iranian EFL teachers' and students' perspectives. English Teaching & Learning, 43(4), 389–409. https://doi.org/10.1007/s42321-019-00035-0

Babaii, E., Molana, K., & Nazari, M. (2020). Contributions of assessment-related critical incidents to language teacher identity development. Innovation in Language Learning and Teaching, 15(5), 442-457. https://doi.org/10.1080/17501229.2020.1824234

Borg, S. (2005). Teacher Cognition in Language Teaching. In: Johnson, K. (eds) Expertise in Second Language Learning and Teaching. Palgrave Macmillan, London. https://doi.org/10.1057/9780230523470_10

Bozorgian, H., Nemati, N., Shamsi, E., & Yaqubi, B. (2024). What English language in-service teachers think, know, and do about writing instruction: Iranian teachers' stated attitudes vs. actual practice. TESOL Journal, 15(1), https://doi.org/10.1002/tesj.756.

Gan, L., & Lam, R. (2023). A tale of two teachers: Construction of novice university English teachers' assessment identity. Chinese Journal of Applied Linguistics, 46(2), 219-236. https://doi.org/10.1515/CJAL-2023-0205

Gholaminejad, R., & Raeisi-Vanani, A. (2021). English language teaching in Iranian mainstream schools: Pedagogical, societal and government policy environments. Issues in Educational Research, 31(1), 111–130.

Liu, X. (2024). Formative writing assessment: An EFL teacher's beliefs and practices. Changing English, 31(2), 200–210. https://doi.org/10.1080/1358684X.2024.2328163

Soltanpour, F., & Valizadeh, M. (2019). Iranian EFL teachers' writing assessment beliefs, literacy, and training needs: Do majors matter? Journal on English Language Teaching, 9(2), 26–41. https://doi.org/10.26634/jelt.9.2.15381

Sohrabi, Z., Ghanbari, N., & Abbasi, A. (2022). Iranian EFL teachers' perceptions of writing assessment literacy: A countrywide study. Language Testing in Asia, 12(1), 23. https://doi.org/10.1186/s40468-022-00172-7

Wang, L., Lee, I., & Park, M. (2020). Chinese university EFL teachers' beliefs and practices of classroom writing assessment. Studies in Educational Evaluation, 66, 100890. https://doi.org/10.1016/j.stueduc.2020.100890

Zhang, X. S., Zhang, L. J., Parr, J. M., & Biebricher, C. (2022). Exploring teachers' attitudes and self-efficacy beliefs for implementing student self-assessment of English as a foreign language writing. Frontiers in Psychology, 13, 956160. https://doi.org/10.3389/fpsyg.2022.956160

Zheng, Y., & Xu, J. (2023). Unpacking the impact of teacher assessment approaches on student writing engagement: A survey of university learners across different languages. Assessment & Evaluation in Higher Education, 48(8), 1240-1253. https://doi.org/10.1080/02602938.2023.2219431

REVIEW   **OPEN ACCESS**

Phubbing in the digital age: Understanding and mitigating the impact on social interactions and relationships

Thseen Nazir[1c] iD

[1] Ibn Haldun University, Faculty of Education, Department of Guidance and Counseling, Türkiye.
[c]**Correspondence Author:** Ibn Haldun University, Faculty of Education, Department of Guidance and Counseling, Türkiye. thseen.nazir@ihu.edu.tr

Abstract

 Phubbing, the act of ignoring someone in favor of engaging with a smartphone, has become a significant issue in contemporary society, affecting communication and relationships across various social contexts. This article comprehensively explores phubbing, beginning with its historical evolution and early definitions. It examines the different types of phubbing, including its occurrence in romantic relationships, workplaces, and family settings. The review systematically synthesizes a decade of literature (2014–2024) sourced from databases such as Web of Science, Scopus, TR Dizin, and thesis repositories. Approximately 145 relevant studies were reviewed, emphasizing key subtypes of phubbing and their impact on interpersonal communication. Psychological and social predictors such as personality traits and social media addiction are analyzed, alongside major theories including Social Exchange Theory and Technological Determinism. Strategies for mitigating phubbing are also proposed, aiming to foster healthier relationships with technology and enhance face-to-face interaction.

273

1. Introduction

Over the past decade, smartphone technology has advanced unprecedentedly, eclipsing computers and laptops by integrating personal computer functionalities into a compact, touch-based device. With faster internet speeds, smartphones have seamlessly adapted to various aspects of daily life, including shopping, banking, traveling, reading, and socializing. They have effectively consolidated diverse tools—wristwatches, calculators, maps, measurement instruments, health monitors, and even letter-writing utilities—into an indispensable device. This convenience has made smartphone disengagement nearly impossible, rendering them essential in modern life (Hitcham et al., 2023). By 2023, it was estimated that 86.11% of the global population, or approximately 6.92 billion people, owned a smartphone (Statista, 2023).

As smartphones become increasingly integrated into our daily lives, they offer numerous conveniences but also present serious challenges to both physical and mental health (Elhai et al., 2019; Thomée, 2018; Wilmer et al., 2017). These challenges extend beyond individual well-being and significantly affect our social dynamics. In particular, the overuse of smartphones has begun to erode the quality of face-to-face communication, giving rise to new forms of social disengagement. One such emerging concern is the phenomenon of phubbing—snubbing others in favor of one's phone—which exemplifies the growing disruption in interpersonal relationships caused by digital distractions (Büttner et al., 2022).

Phubbing, a global phenomenon, was first identified in Australia. In May 2012, McCann Melbourne, an Australian advertising agency, launched a campaign to name the behaviour of ignoring others in favor of smartphone use. Experts, including lexicologists and authors, coined the term by blending "phone" and "snubbing." This term gained widespread recognition through the "Stop Phubbing" campaign, which used media and a short film to highlight the social disconnection caused by smartphone overuse (Vanden Abeele et al., 2016; Zavalii & Zhalinska, 2023). Reaching over 300 million people globally, the campaign sparked discussions about the impact of technology on human interaction and boosted awareness of smartphone etiquette. By coining "phubbing," the initiative not only named this behaviour but also encouraged reflection on its implications, influencing how society navigates the balance between technology and meaningful social engagement.

2. Method

The research for this article entailed a rigorous literature review of the phubbing phenomenon, spanning a decade from 2014 to 2024. Sources included academic databases such as Web of Science (407 out of which 358 were only research articles), Scopus (355 out of which 173 were only research articles), TR Dizin (35 out of which only 11 were research articles), and 30 thesis dissertations retrieved from national thesis databases. This database (n= 542) was further cleared terms included "phubbing," "smartphone use," "partner phubbing," "parent phubbing," "academic phubbing," and related combinations. Inclusion criteria required that studies:

- Directly investigate phubbing or one of its specific subtypes.
- Examine the impact of phubbing on communication and interpersonal relationships.
- Be peer-reviewed journal articles or academic theses.

Studies were excluded if they focused solely on general technology use without referencing phubbing explicitly. After screening, 145 articles and 12 theses were retained for synthesis. The findings were organized thematically to reflect the evolution of the topic, major patterns, conceptual debates, and gaps in the literature.

The research questions that guided this paper are as follows

Q1. Understand the phubbing phenomenon and critically analyze the definitions of phubbing?

Q2. The basic criteria for classifying phubbing into various types?

Q3. What are the key predictors of Phubbing?

Q4. What is the theoretical explanations of phubbing?

Q5. What are the interventions which can mitigate phubbing behaviour?

3. Defining Phubbing

Over the years, scholars have proposed a range of definitions and interpretations of phubbing, reflecting the evolving understanding of the phenomenon as it has gained prominence. The literature between 2014 and 2024 showcases a variety of definitions, each highlighting different dimensions of phubbing and revealing significant variation in how the concept is explained. The following definitions illustrate the progression and shifting perspectives on phubbing over the past decade:

- *Phubbing is an act of snubbing someone in a social environment by looking at their phone instead of paying attention to the person* (Wolf, 2014).
- *Phubbing can be described as an individual looking at his or her phone during a conversation with other individuals, dealing with the mobile phone, and escaping from interpersonal communication* (Karadağ, Tosuntaş, et al., 2015).
- *Phubbing is the action of ignoring someone or multiple people's events and using smartphones to check or use Facebook, WhatsApp, or other social media applications* (Nazir & Piskin, 2016).
- *Phubbing is a kind of social exclusion and interpersonal neglect and is used to indicate the interruptions in social relationships by mobile phone usage* (David, & Roberts, 2017).
- *Phubbing is the act of snubbing someone in a social setting by looking at your smartphone instead of paying attention* (Chotpitayasunondh & Douglas, 2018).
- *Phubbing is the act of checking your smartphone in the middle of a real-life conversation with someone else and escaping from interpersonal communication* (Balta et al., 2020).
- *Phubbing is when one suddenly turns their gaze downwards and 'disappears' into their smartphone in the middle of social interaction* (Aagaard, 2020).
- *Phubbing means ignoring communication partners in co-present interactions by focusing on one's mobile phone* (Schneider & Hitzfeld, 2021).
- *Phubbing is the fleeting engagement with the smartphone during a face-to-face conversation with someone* (Al-Saggaf, 2021).

While these definitions offer valuable insights into the phenomenon, they also reveal notable limitations and criticisms. A recurring theme across these definitions is their emphasis on smartphone use during face-to-face interactions, often leading to social exclusion or neglect. However, many of these definitions can be criticized for focusing predominantly on observable behaviours without delving deeper into the psychological and social factors that drive phubbing.

For instance, while Karadağ, et al. (2015) and Chotpitayasunondh & Douglas (2018) emphasize escaping from interpersonal communication, they fail to address the motivations or compulsions underlying this behaviour. Similarly, definitions by Wolf, 2014, Nazir and Piskin (2016) and Roberts and David (2017) concentrate on the disruption of social relationships but may oversimplify the complex interplay between digital addiction and societal norms. On the other hand, Aagaard's (2020) and Schneider & Hitzfeld's (2021) definitions provide a more nuanced perspective but lack sufficient focus on the broader psychological and social consequences of phubbing, including its effects on mental health and social well-being. Overall, these definitions provide a foundational understanding of the manifestations of phubbing. However, they could benefit from a more holistic approach that integrates both behavioural and psychological dimensions. To address these gaps, this paper proposes a new definition of phubbing:

"Phubbing refers to conscious and unconscious behaviours exhibited by individuals who ignore others in social settings by persistently using or looking at their smartphones, resulting in social disconnection."

This proposed definition introduces a significant advancement by recognizing deliberate and habitual behaviours. Acknowledging that phubbing can be intentional or automatic, it moves beyond merely describing the act to incorporating its underlying cognitive and psychological processes. It also emphasizes the habitual nature of the behaviour and its disruptive impact on social bonds, distinguishing it from isolated instances of smartphone use. This broader perspective offers a more nuanced and

comprehensive understanding of phubbing, highlighting its role in fostering social disconnection and reshaping interpersonal dynamics.

4. Typologies of Phubbing

Phubbing, a pervasive phenomenon in the digital age, manifests in various forms, each intricately linked to the specific dynamics of the relationships involved. Researchers have thoroughly investigated the multifaceted nature of phubbing, employing a nuanced approach to categorize it based on the distinct interactions between the phubber (the individual engaging in phubbing) and the phubbee (the individual being ignored).

The classification of phubbing hinges on examining diverse relationship dynamics, each giving rise to distinct manifestations of this digital-age affliction. Based on the reviewed literature, five prominent subtypes of phubbing have emerged:

4.1. Parental Phubbing

Parental phubbing, a specific form of phubbing, occurs when parents prioritize their smartphones over their children, neglecting their emotional and psychological needs. This behaviour has become increasingly prevalent in the digital age, where smartphones dominate daily routines and interactions. Research highlights that parental phubbing involves parents inadvertently snubbing or ignoring their children due to excessive focus on their devices, often without realizing the long-term effects this has on their children (Liu et al., 2024; Wang et al., 2022).

Studies reveal that activities such as browsing the internet, scrolling through social media, or watching short-form video content, like reels, are common distractions for parents (Ding, 2022; Xie & Xie, 2020). These seemingly harmless pastimes interfere with meaningful parent-child interactions, reducing the quality of emotional connection. For example, Liu et al. (2024) found that parental phubbing contributes to feelings of rejection and insecurity among children, which may impair their emotional development. Similarly, Wang et al., (2022) demonstrated that this behaviour often disrupts attachment bonds, leaving children feeling emotionally neglected.

Parents may attempt to compensate for their lack of engagement by providing their children with toys or gadgets, such as smartphones or tablets, to occupy them. However, these substitutes fail to address the deeper needs of children, who require active engagement, affection, and quality time with their caregivers to thrive. Xie & Xie (2020) emphasized that children benefit most from shared activities, meaningful conversations, and genuine interaction, which cannot be replaced by mere physical presence. Parental phubbing, if left unchecked, risks fostering feelings of neglect and disconnection in children, potentially leading to long-term consequences on their emotional and psychological well-being.

4.2. Partner Phubbing

The Partner phubbing, where one partner prioritizes their smartphone over the other, disrupts communication and erodes relationship quality. It fosters feelings of exclusion, as the phubbed partner feels ignored and sidelined during interactions. Studies highlight that repeated phubbing can heighten feelings of exclusion, leaving the neglected partner invisible, negatively affecting emotional connection and satisfaction (Gonzales & Wu, 2016; McDaniel & Wesselmann, 2021). The frequency of such behaviour amplifies these feelings, leading to disengagement in communication (Beukeboom & Pollmann, 2021; Knausenberger et al., 2022).

Partner phubbing also undermines perceived intimacy in relationships. The emotional and cognitive benefits of sharing meaningful conversations are diminished when one partner is distracted by their phone (Fincham & Beach, 2010). Intimacy is reduced, and emotional satisfaction decreases as the phone interrupts emotional sharing (Abeele, 2020). This disruption leads to relational dissatisfaction, as partners feel emotionally distant (Clark & Reis, 1988; Farooqi, 2014).

Moreover, phubbing frequently leads to conflicts. It is not the phone itself but the emotional neglect it signifies that causes misunderstandings and tensions (Mahmud et al., 2024). Arguments about phone usage often arise, revealing deeper issues related to attention, validation, and emotional intimacy

(Thomas et al., 2022). Such conflicts can spill over into other areas of the relationship, leading to heightened dissatisfaction and mistrust. Feelings of jealousy also emerge when one partner perceives their significant other's phone use as threatening the relationship. If phone use is perceived as prioritizing others, especially on social media, it can evoke jealousy and insecurity, exacerbating relational tension (Baumeister & Leary, 2017; Muise et al., 2009). As jealousy increases, relationship satisfaction declines, leading to emotional distancing and a communication breakdown (Elphinston & Noller, 2011).

4.3. Friend Phubbing

Friend phubbing, using smartphones during in-person interactions with friends, is becoming increasingly prevalent in modern social dynamics. While friendships provide emotional support and opportunities for personal growth (Demir et al., 2015), phubbing can undermine these relationships. Friendships thrive on trust, empathy, and active participation during interactions (Clark & Ayers, 1993). However, when individuals prioritize their phones over face-to-face engagement, it signals disinterest and can create feelings of neglect and frustration (Al-Saggaf et al., 2019). The constant presence of smartphones often leads to diminished attention and communication quality, undermining relational satisfaction (Krasnova et al., 2016).

Research shows that people are more likely to phub their friends than other relationships, possibly because friendships are perceived as more forgiving and stable (Al-Saggaf et al., 2019). However, frequent phubbing erodes the quality of these connections, potentially leading to resentment and emotional distancing. Even the mere presence of a smartphone during a conversation has been shown to reduce the perceived quality of the interaction (Przybylski & Weinstein, 2013). Over time, this behaviour can disrupt the reciprocity in friendships, leading to one-sided emotional labor (Roberts & David, 2016).

Friend phubbing is also linked to feelings of loneliness, especially for individuals with certain personality traits like shyness. Research indicates that individuals who feel socially uncomfortable may turn to smartphones as a form of social compensation, inadvertently phubbing their friends during in-person interactions (Valkenburg & Peter, 2007; Yaseen et al., 2021). While online interactions can provide comfort, they lack the emotional depth of face-to-face communication, exacerbating feelings of disconnection.

As friend phubbing becomes more frequent, relational intimacy may suffer. Phubbing in intimate friendships is often seen as less harmful due to assumed emotional closeness, but this can backfire. Studies suggest that even in long-term friendships, the repeated use of smartphones during key moments erodes trust and satisfaction (Sun & Wong, 2024). This shift can lead to feelings of exclusion and jealousy, further deteriorating the relationship (Krasnova et al., 2016). Ultimately, phubbing diminishes relational evaluation, signaling to friends that they are less valued than the phone, causing feelings of ostracism (Hales et al., 2018).

4.4. Boss Phubbing

Boss phubbing (B-Phubbing) refers to a supervisor prioritizing their smartphone over direct, face-to-face communication with their employees. This behaviour disrupts interactions between supervisors and their subordinates, leading to a breakdown in communication, trust, and emotional connection (Yousaf et al., 2020). In an increasingly digital world, smartphones have become integral to daily professional interactions, yet their misuse during work-related conversations can harm employee morale and organizational dynamics (Sha et al., 2019).

Research by Nakamura (2015) highlights that smartphone use during conversations significantly undermines the emotional bonds between employees and supervisors. Frequent smartphone usage, particularly in the presence of others, leads to reduced eye contact—a critical non-verbal cue that fosters emotional connection (Shellenbarger, 2013). When a supervisor is distracted by their phone during a conversation, it signals to the employee that they are not a priority. This perceived neglect diminishes feelings of value and respect, which are vital for maintaining strong interpersonal relationships. This disruption of emotional connection is especially damaging in professional environments, where trust and

communication are foundational. Shellenbarger (2013) suggests eye contact is essential to building trust and fostering positive relationships. When supervisors engage in smartphone use rather than fully attending to the employee in front of them, they inadvertently create a barrier that hinders trust and collaboration. In turn, employees may begin to feel devalued, which can lead to decreased motivation and engagement.

The impact of boss phubbing extends beyond emotional connection, directly undermining trust between supervisors and employees. Trust is crucial for a positive work environment, as it is linked to job satisfaction and organizational commitment (MacKenzie et al., 2001; Mulki et al., 2006). According to Cameron & Webster (2011), maintaining eye contact and full attention during interactions is essential for building trust in professional relationships. When supervisors engage in phubbing, they signal to employees that their input is not valued, eroding the trust fundamental to a healthy workplace dynamic. A study by Vanden Abeele et al. (2016) underscores that smartphone use during work-related interactions is perceived as socially inappropriate and rude. This behaviour diminishes the emotional connection between supervisors and employees and weakens the trust employees place in their leadership. In one real-world example, an employee may meet with their supervisor for feedback on a critical project, only to be ignored as the supervisor scrolls through their phone. This behaviour can lead to a breakdown in trust, as the employee may feel their contributions are unimportant, resulting in a loss of respect for the supervisor and a decline in overall engagement.

The consequences of boss phubbing extend beyond emotional disconnection to affect the broader organizational culture negatively. A supervisor's disengagement through smartphone use sends a message to employees that this behaviour is acceptable, potentially leading to a ripple effect throughout the organization. As employees witness this behaviour, they may adopt similar practices, creating a work environment characterized by disengagement and diminished collaboration (Yousaf et al., 2020). Moreover, the lack of trust and emotional connection resulting from boss phubbing can significantly impact employee engagement. When employees feel ignored or undervalued, their motivation to invest in their work diminishes, leading to reduced productivity and job satisfaction (Abdi et al., 2021). This disengagement affects individual performance and has broader implications for organizational efficiency and morale. Therefore, supervisors using smartphones rather than attending to employees during interactions inadvertently create an emotional disconnect, reducing employees' sense of value and trust in their leadership. This leads to diminished job satisfaction, decreased organizational commitment, and ultimately, decreased overall workplace productivity.

4.5. Academic Phubbing

Academic phubbing refers to students, lecturers, supervisors, or teachers disengaging from face-to-face academic interactions by focusing their attention on smartphones or other digital devices, intentionally or unintentionally, during academic activities. This practice disrupts communication, hinders engagement, and ultimately weakens the academic relationship between students and educators (Koc & Caliskan, 2023). In academic settings, academic phubbing can manifest in two primary forms: student phubbing (S-phubbing) and teacher phubbing (T-phubbing). Both forms negatively impact the quality of academic relationships, leading to reduced trust, motivation, and overall academic performance (Koc & Caliskan, 2023).

Despite its growing prevalence in educational environments, the issue of academic phubbing has been under-researched. Few studies have examined its impact on student-teacher relationships and the broader academic atmosphere. However, a survey conducted by Nazir (2020) in Turkey highlights the adverse effects of student phubbing on the motivation and performance of lecturers. The study found that younger lecturers (aged 30–40) were particularly affected by student phubbing, experiencing emotional distress, negative self-assessment, and decreased motivation to prepare for classes. In some cases, this even led to hostility towards students. Conversely, older lecturers (aged 40 and above) viewed the behaviour as a generational issue, responding more passively, which resulted in less emotional distress and a reduced impact on their teaching strategies.

Teacher-initiated phubbing is another equally significant issue. When educators divert their attention to smartphones during meaningful academic consultations, such as meetings regarding assignments or thesis work, it mirrors the negative impact of student phubbing. Research by Koc, T., & Caliskan, K. (2023) reveals that teachers' phubbing erodes trust between students and supervisors. Trust is a fundamental element of the student-teacher relationship, influencing satisfaction, motivation, and academic progress. When students feel neglected during critical interactions, such as discussions about their educational development, they may experience feelings of being undervalued, leading to diminished trust in their mentors.

The emotional disconnection caused by academic phubbing, whether initiated by students or teachers, has far-reaching consequences for academic relationships. It can leave students feeling demotivated, unheard, and alienated. These feelings can negatively affect students' confidence in their supervisors' abilities and reduce the quality of the feedback and support they receive. Moreover, persistent academic phubbing can erode the sense of academic community and mentorship, weakening the overall educational experience.

In summary, the classification of phubbing types can vary depending on the nature of the dyadic relationship. While existing studies have primarily focused on specific types of relationships, such as those mentioned above, phubbing should not be limited to these contexts. It can be further categorized based on any form of human face-to-face interaction within dyadic settings.

5. Predictors of Phubbing

The literature identifies multiple predictors of phubbing behavior. Smartphone addiction, Personality types, Fear of missing out, and Boredom were found as strong factors that can predict phubbing behaviour (Al-Saggaf, MacCulloch, & Wiener, 2019). These predictors suggest that phubbing is both an individual psychological response and a broader social phenomenon shaped by digital culture.

5.1. Smartphone Addiction

Smartphone addiction has led to compulsive phone use that significantly impacts social interactions, often resulting in phubbing. This addiction is characterized by constant phone checking and anxiety when the phone is unavailable (Safaria et al., 2024). Research consistently identifies smartphone addiction as a major predictor of phubbing, mainly through social media usage, gaming, and internet browsing. Studies show strong correlations between smartphone addiction and phubbing (Al-Saggaf et al., 2019; Davey et al., 2020; Karadağ et al., 2015).

Social media platforms, particularly Instagram, exacerbate phubbing behaviour due to their immersive and engaging nature. Instagram's continuous feed of personalized content and notifications makes it difficult for users to disengage, leading them to prioritize their phones over real-life interactions (Balta et al., 2020). For example, someone checking Instagram during a conversation may be scrolling for longer, effectively phubbing those around them.

Factors like internet addiction and a lack of self-control further contribute to phubbing. Individuals with internet addiction feel compelled to stay online, even at the expense of real-world interactions. At the same time, those lacking self-control struggle to resist checking their phones in inappropriate situations (Chotpitayasunondh & Douglas, 2016). This behaviour creates a cycle where addiction reinforces phubbing, further distancing individuals from meaningful face-to-face interactions, ultimately eroding the quality of their social relationships.

5.2. Personality Types

Personality traits significantly influence phubbing behaviour, with individuals high in openness to experience less likely to engage in phubbing, as they prefer face-to-face interactions and value intellectual stimulation (Erzen et al., 2021). Conversely, those with lower openness may turn to their phones when social situations lack engagement, increasing phubbing tendencies. Negative emotionality, a component of neuroticism, drives phubbing as individuals use smartphones to escape negative emotions like anxiety or stress, often through excessive Instagram use, leading them to neglect real-life

interactions (Balta et al., 2020). In contrast, highly conscientious and agreeable individuals are less prone to phubbing due to their self-discipline and consideration for others. Conscientious individuals manage their social media use effectively, while agreeable people avoid phone distractions in social settings out of respect for those around them (Balta et al., 2020). These personality traits are key in shaping phubbing behaviour and impacting social interactions. Furthermore, narcissistic characteristics—such as an inflated sense of self-importance, need for admiration, and lack of empathy—are linked to low agreeableness, which correlates with problematic smartphone use, including social media addiction (Kircaburun & Griffiths, 2018; Miller et al., 2010; Zhou et al., 2017).

Narcissistic individuals often seek validation through social media, driving them to excessively use platforms like Facebook and Instagram (Davey et al., 2018; Pearson & Hussain, 2015). This self-centered nature and preoccupation with online gratification make them more prone to phubbing, as they prioritize their need for admiration over in-person social interactions (Li et al., 2024). Narcissism, combined with smartphone addiction, further predicts increased phubbing, as individuals with narcissistic tendencies focus on their self-promotion rather than engaging with those around them, thereby neglecting social etiquette (T'ng et al., 2018). Thus, narcissistic traits contribute significantly to phubbing behaviour, driven by the desire for constant validation and social media engagement.

5.3. Deliberately Ignoring and Boredom

Phubbing can be influenced by deliberate ignoring and boredom, which are significant predictors of this behaviour. Deliberately ignoring others through smartphone use is a subtle form of avoidance, signaling disinterest or unavailability (Al-Saggaf, 2021). While avoiding eye contact can be seen as rude in many cultures, using smartphones to convey busyness or deliberate ignorance has become increasingly normalized in social interactions. Individuals can sidestep eye contact and prevent conversations by focusing on their devices, signaling that they are preoccupied and not open to social engagement. This phenomenon has become a socially accepted way of indicating disinterest, with research by Roberts & David (2016) showing that phubbing is often used to express a lack of availability subtly. Further supporting this, Dwyer et al. (2018) found that smartphones are frequently used to avoid social interactions, making phubbing a standard means of communicating a desire to disengage from others. In specific social contexts, phubbing is now considered a norm, reinforcing the behaviour in everyday interactions (Leuppert & Geber, 2020).

In addition to deliberate ignoring, boredom is another significant driver of phubbing (Al-Saggaf et al., 2019). Individuals who are bored in one-on-one conversations, office meetings, or family gatherings often turn to their smartphones as a distraction. Smartphones and their constantly engaging applications provide a tempting escape from the monotony of these environments. Kushlev et al. (2017) highlighted boredom as a significant factor behind smartphone use in social settings, noting that people frequently check their phones to alleviate feelings of disengagement. The design of smartphones and apps is intended to capture and retain attention, exacerbating this behaviour. As individuals seek stimulation and entertainment from their devices, they reinforce using smartphones as a default response to boredom, disrupting social interactions and further entrenching phubbing as a behavioural norm. Thus, deliberate ignoring and boredom contribute significantly to phubbing, with individuals using smartphones to avoid interactions and alleviate boredom in unengaging situations.

5.4. Fear of Missing Out (FOMO)

The fear of missing out (FOMO) is a psychological phenomenon where individuals constantly need to connect to others' activities, driven by the belief that others have more rewarding experiences in their absence (Przybylski & Weinstein, 2013). This fear, particularly on social media, often leads individuals to remain engaged with their smartphones to avoid missing important updates or events. FOMO has been linked to excessive smartphone use, which can lead to phubbing, as individuals prioritize online interactions over face-to-face conversations. Hong et al. (2012) found that the anxiety associated with missing out on social interactions or updates contributes to smartphone overuse, subsequently increasing the likelihood of phubbing. Franchina et al. (2018) confirmed this relationship, showing that

adolescents with high levels of FOMO are more likely to engage in phubbing to stay connected with their online networks, often at the expense of real-world engagement. The study highlighted that this behaviour is particularly prevalent in adolescents, who are more susceptible to social influences and peer validation.

Additional research by Balta et al. (2020) and Chotpitayasunondh & Douglas (2016) further supports the link between FOMO and phubbing, indicating that individuals with high FOMO tendencies are prone to excessive smartphone use, leading to more frequent instances of phubbing. Furthermore, Davey et al. (2018) found that FOMO significantly contributes to phubbing, with individuals diverting their attention to their smartphones during social interactions, neglecting those around them, and reinforcing the cycle of smartphone dependency. Overall, empirical studies consistently demonstrate that FOMO is a significant predictor of phubbing, as individuals with high FOMO overuse their smartphones to stay connected, prioritizing virtual interactions over in-person ones. Addressing FOMO and its impact on smartphone use is essential for reducing phubbing and fostering healthier social interactions.

5.5. Neurological and Psychological Dimensions

Phubbing is a behaviour shaped by both neurological and psychological factors. Neurologically, it is driven by the brain's reward system, particularly dopamine, released during smartphone use. When notifications are received, they trigger the mesolimbic pathway, reinforcing phone-checking behaviours (Berridge & Kringelbach, 2015; Ikemoto, 2010). However, other neurotransmitters, such as serotonin and oxytocin, also contribute. Imbalances in serotonin can lead to smartphone use to manage negative emotions (Banskota et al., 2019). Low oxytocin levels may encourage virtual interactions over face-to-face communication (Stevens et al., 2013). Additionally, dysfunction in the prefrontal cortex, which regulates impulse control, can increase susceptibility to phubbing, especially in younger individuals (Veissière & Stendel, 2018).

Psychologically, phubbing is linked to mental health conditions like ADHD, OCD (obsessive-compulsive disorder), and depression, which affect impulse control and social interactions. Individuals with ADHD, for example, often struggle to maintain focus and may check their phones frequently (Cibrian et al., 2022), while OCD can lead to compulsive phone-checking due to anxiety about missing updates (Figee et al., 2016). Social anxiety also contributes, as individuals avoid face-to-face interactions, using phones to reduce discomfort (Bitar et al., 2023). Depression may drive individuals to use smartphones for distraction, worsening their feelings of loneliness and isolation (Liu et al., 2021). Emotional regulation plays a crucial role, as individuals with poor emotional control may turn to smartphones to escape stress or discomfort (Billieux et al., 2015). Phubbing, therefore, acts as a maladaptive coping mechanism, masking deeper emotional issues. While it shares traits with addictive behaviours, phubbing exists on a spectrum, from habitual use to more compulsive behaviours, often tied to mental health conditions. Addressing these factors is key to understanding and mitigating phubbing.

6. Theoretical Explanations of Phubbing

Several theories have been applied to understand the mechanisms underlying phubbing and are as follows

6.1. The Theory of Interpersonal Behaviour

The Theory of Interpersonal Behaviour (TIB), developed by Triandis (1977), provides a framework for understanding phubbing—engaging with smartphones at the expense of face-to-face interactions. According to TIB, behavioural intention, habits, and facilitating conditions are key to explaining phubbing. Behavioural intention is a conscious decision influenced by attitudes, social factors, and emotional states. Individuals may have different attitudes towards phubbing; some see smartphone use during conversations as enhancing productivity, while others perceive it as disruptive to social interactions. Social norms and self-concept also shape behavioural intentions. For example, individuals in social groups with common phubbing may view it as acceptable. Habits are another significant factor

in TIB, as phubbing can become a repetitive, automatic behaviour over time. Once individuals regularly check their phones during conversations, it becomes difficult to control them consciously, even if they recognize their negative impact on relationships. Finally, facilitating conditions, such as the availability of smartphones and constant notifications, contribute to phubbing. These conditions make it challenging for individuals to avoid phubbing, even when they intend to refrain from it.

However, TIB has several shortcomings in explaining phubbing. It overemphasizes individual factors, such as personal attitudes and habits, while neglecting the influence of broader social and cultural contexts. Social and group norms are crucial in determining whether phubbing is acceptable, but TIB does not fully address these external factors. Additionally, TIB does not account for the compulsive nature of smartphone use, which can go beyond habitual behaviour. Phubbing often becomes compulsive, driven by an overwhelming urge to check notifications, which overrides intentional actions and conscious decision-making. TIB does not sufficiently explain this compulsive aspect of smartphone use.

6.2. Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour (TPB), developed by Ajzen (1985), offers valuable insights into the cognitive processes of phubbing using smartphones during face-to-face interactions. TPB identifies three key components influencing behaviour: attitudes, subjective norms, and perceived behavioural control. In the case of phubbing, an individual's attitude toward the behaviour plays a central role. For instance, some individuals may view smartphone use as necessary for staying informed or multitasking, leading to a positive attitude toward phubbing. This attitude varies depending on the context—phubbing might be acceptable in casual settings but disrespectful in romantic relationships or academic environments. Subjective norms, or social pressures to conform to group behaviours, also shape phubbing. In groups where phone-checking is prevalent, individuals are more likely to adopt this behaviour, perceiving it as socially acceptable. This is particularly evident in romantic relationships and professional or academic settings, where established norms influence individuals' phone use. Perceived behavioural control, which reflects the individual's belief in their ability to perform a behaviour, further influences phubbing. When individuals feel that notifications or addictive tendencies hinder their ability to control smartphone use, they are more likely to engage in phubbing despite their intentions.

According to TPB, attitudes, subjective norms, and perceived behavioural control shape intentions, which drive behaviour. Thus, a person's intention to engage in phubbing depends on their evaluation of the behaviour, the social pressures they experience, and the control they perceive over their actions. For example, students may be more likely to phub during class if they have a positive attitude, perceive that their peers are also phubbing, and feel they have limited control over their phone use. However, while TPB provides valuable insights, it has limitations. One of the significant shortcomings is the assumption that individuals engage in rational decision-making. TPB overestimates the extent to which individuals consciously deliberate over their behaviour.

In contrast, phubbing often involves automatic responses to smartphone notifications with little conscious thought. Additionally, TPB does not fully account for the compulsive nature of smartphone use. People may engage in phubbing due to addictive tendencies, where conscious control over the behaviour is diminished. Finally, TPB underestimates the role of habitual behaviours, such as reflexively checking phones, which occur without intentional thought, which the theory does not adequately address.

6.3. Social Norms Theory (SNT)

Social Norms Theory (SNT), developed by Perkins & Berkowitz (1986), explains how societal expectations influence individual behaviour, distinguishing between descriptive norms (what most people do) and injunctive norms (what people believe should be done). These norms significantly shape phubbing, as individuals' actions are often guided by perceptions of what is socially acceptable. Descriptive norms, for example, play a significant role in phubbing by shaping perceptions of how common or acceptable the behaviour is. If people observe that others regularly check their phones during face-to-face interactions, they are more likely to view this behaviour as acceptable and adopt it

themselves. This aligns with the Expectancy Violation Theory (EVT), which suggests that repeated exposure to phubbing leads to its normalization within a group (Leuppert & Geber, 2020). In settings where phone use is frequent, individuals may follow suit, believing that phubbing is typical and socially permissible.

Injunctive norms refer to social approval or disapproval of certain behaviours, and these norms can either encourage or discourage phubbing. In professional settings, where attentiveness and focus are valued, phubbing may be viewed negatively, with potential social repercussions. However, in more casual environments, injunctive norms may be more lenient, allowing for occasional phone checking without significant negative consequences. Cultural variations also play a role in phubbing norms. In cultures that value digital engagement and multitasking, such as in parts of East Asia, phubbing may be more socially acceptable, altering both descriptive and injunctive norms (Nazir & Piskin, 2016). In contrast, cultures that prioritize face-to-face interaction may view phubbing more negatively. Research on academic phubbing in Turkey by Koç et al. (2022) illustrates how, even in professional environments, phubbing can become normalized due to habitual smartphone use, with students often perceiving supervisor phubbing as acceptable.

While Social Norms Theory provides valuable insights into the social forces shaping phubbing, it has limitations. One significant shortcoming is its overemphasis on social awareness, assuming that individuals are always consciously aware of and responsive to social norms. However, phubbing often occurs impulsively or habitually without actively considering social expectations. The theory also neglects internal factors such as emotional states, cognitive overload, or addiction, which can drive individuals to engage in phubbing even when they are aware that it is socially disapproved. Moreover, SNT does not adequately address the role of smartphone addiction, where the desire to engage with digital devices may override social expectations, even in settings where phubbing is deemed unacceptable. This limitation calls for a more nuanced understanding of phubbing that accounts for habitual and compulsive behaviours.

6.4. Expectancy Violation Theory (EVT)

Expectancy Violation Theory (EVT), proposed by Burgoon, (1993), explains how individuals react to unexpected behaviours in social interactions, mainly nonverbal communication. EVT suggests people develop expectations about others' behaviours based on social context, appearance, and past experiences. When these expectations are violated, it leads to cognitive arousal and uncertainty, prompting an evaluation of the behaviour as positive or negative. Minor violations can lead to positive outcomes, especially in meaningful relationships, by fostering openness and flexibility. Still, significant violations often result in negative evaluations, prompting the violator to justify or repair their actions. In the case of phubbing—ignoring someone in favor of using a smartphone—EVT highlights how this behaviour disrupts expectations of attention and engagement in social interactions, leading to feelings of disrespect. The theory uses three components to explain this: expectancies (anticipated behaviours in a social context), violation valence (the perceived positivity or negativity of the violation), and communicator reward valence (how the value of the communicator influences how the behaviour is interpreted). Phubbing is typically perceived as a harmful violation, but its impact can vary depending on the relationship and context. However, EVT has limitations in explaining phubbing, such as its lack of insight into the motivations behind the behaviour and its focus on the emotional reactions of the person being phubbed rather than the compulsive or habitual nature of smartphone use, which contributes significantly to phubbing behaviour. Furthermore, EVT does not consider how technology is designed to capture attention and shape these behaviours.

6.5. Social Learning Theory

Albert Bandura's (1971) Social Learning Theory offers valuable insights into the spread of phubbing in modern society by explaining how behaviours are learned through observation, imitation, and modeling.

According to the theory, individuals observe the behaviours of others, internalize them, and then imitate these actions, especially when they see positive outcomes. Phubbing, or ignoring someone in favor of using a smartphone, is a socially learned behaviour that fits well within this framework. For phubbing to be learned, individuals must first pay attention to it. In social settings where smartphones are ubiquitous—such as at a family dinner or a workplace meeting—people observe others frequently using their phones, even in situations where direct conversation should be the focus. This attention captures individuals' awareness, signaling that phubbing is acceptable in such settings. Once individuals pay attention to phubbing, they retain this behaviour in memory. Repeated exposure to phubbing solidifies it as a learned behaviour later reproduced in future social interactions. For instance, students who regularly see their parents using their phones at family dinners may begin doing the same with their friends. Phubbing's ease of reproduction, as it simply requires diverting attention from the person in front of a phone, contributes to its rapid spread across groups. Motivation also plays a key role in sustaining phubbing. The immediate rewards of checking social media or receiving notifications reinforce the behaviour, making it more likely to be repeated.

Additionally, the lack of immediate consequences in many social settings, such as family gatherings, makes phubbing habitual. In contrast, potential negative consequences, such as in professional environments, can discourage it. Furthermore, media portrayals of phubbing in television shows, movies, and advertisements further normalize the behaviour, demonstrating how media indirectly contributes to its social learning process by continuously exposing individuals to this behaviour in various contexts. This combination of attention, retention, reproduction, and reinforcement, along with the influence of media, explains how phubbing has become a widespread and accepted behaviour in modern society.

6.6. Psychological Theories: Addiction and Self-Control

Phubbing, the act of ignoring someone in favor of using a smartphone, can be analyzed through psychological theories of addiction and self-control, providing insights into the internal mechanisms driving this behaviour. Addiction theory suggests that phubbing is akin to compulsive behaviour, driven by the immediate satisfaction derived from social media notifications, likes, or online validation, which creates a feedback loop that reinforces the behaviour (West & Brown, 2013). Dopamine surges from these digital interactions make it difficult to disengage, even at the cost of social relationships (Burke, 2019). However, addiction theory risks over-pathologizing phubbing by framing it as an addiction in all cases. Not all instances reflect compulsive behaviour—some may be driven by social norms, multitasking, or boredom (Billieux et al., 2015). Therefore, phubbing should be viewed as existing on a spectrum, with habitual behaviours coexisting with compulsive ones.

On the other hand, self-control theory posits that individuals with lower self-control are more prone to engaging in immediate gratification behaviours like phubbing (Baumeister et al., 2007). This theory helps explain why some individuals find it more challenging to resist the temptation to check their phones, even at the expense of their social interactions. However, self-control theory is limited as it focuses solely on individual traits, overlooking the influence of external factors, such as professional environments where constant connectivity is expected or academic settings requiring frequent phone checks for updates (Panek, 2014). Both addiction and self-control theories offer valuable insights but fail to fully address the broader social, technological, and environmental factors that shape phubbing. External influences such as social norms and the design of smartphone technologies, which intentionally capture attention, also significantly encourage phubbing, regardless of individual self-control levels (Kuss & Griffiths, 2017). Additionally, phubbing may be a coping mechanism for cognitive overload rather than a result of addiction or lack of self-control, as managing multiple tasks and competing demands for attention can lead to phubbing (Wilmer et al., 2017). Thus, a more comprehensive understanding of phubbing requires consideration of both internal psychological processes and external situational factors.

6.7. Digital Displacement Theory (DDT)

Digital Displacement Theory (DDT) provides a more holistic explanation for phubbing by emphasizing how digital engagement gradually replaces real-world interactions. Unlike existing theories, such as Social Learning Theory or the Theory of Planned Behaviour, which focus on specific aspects like imitation, behavioural intentions, or social norms, DDT highlights the profound impact of technology on human behaviour. DDT asserts that smartphones, by offering instant gratification and emotional regulation (Shi et al., 2023), shift individuals' focus away from in-person communication. The theory identifies three key dimensions of displacement: emotional displacement, where individuals turn to their phones to manage emotions like boredom or social anxiety instead of engaging with others (Hoffner & Lee, 2015); cognitive displacement, where attention is diverted from cognitively demanding tasks, such as meaningful conversations, to more immediately gratifying digital content (Karadağ et al., 2016; Schimming, 2022); and social displacement, where individuals withdraw from face-to-face interactions to engage in digital communication (Verduyn et al., 2021). These processes result in phubbing becoming habitual and, in some cases, compulsive as digital engagement increasingly replaces social, emotional, and cognitive connections in the real world, reinforcing the behaviour over time (Greenfield, 2021).

7. Phubbing Interventions

Phubbing has become a significant issue affecting relationships and social interactions across different contexts. A key aspect of addressing phubbing is recognizing its presence and understanding the severe impact it can have on individuals. Studies have demonstrated that phubbing leads to feelings of social exclusion, reduced self-esteem, and increased stress levels among those being ignored (Liu et al., 2021; Zhang et al., 2024). Additionally, it can erode trust and communication in romantic relationships, resulting in greater relationship dissatisfaction and emotional disconnection (Mahmud et al., 2024). The implications of phubbing extend beyond romantic or personal relationships, affecting professional environments as well, where it has been linked to decreased work engagement and lower productivity (Yuda & Suyono, 2024).

To address phubbing, it is essential to implement interventions that recognize its existence and provide strategies to mitigate its harmful effects. One effective intervention is promoting the balance between online presence and real-life engagement. In today's digital age, smartphones and constant notifications create an ongoing distraction that undermines face-to-face interactions. Strategies such as setting boundaries on phone use, including designated "tech-free zones" or specific times during which notifications are silenced, can help restore the quality of personal interactions (Przybylski & Weinstein, 2013). Research supports this approach, highlighting that phone-free environments lead to more meaningful and productive conversations (Misra et al., 2016).

In addition to setting boundaries, developing a culture of 'phone etiquette' in various settings—such as at home, in workplaces, schools, and social gatherings—can significantly reduce the occurrence of phubbing. Creating rules such as limiting phone use during family meals, meetings, or study sessions can encourage individuals to engage more fully with one another, improving the quality of both personal and professional interactions. For example, some families encourage phone-free meals by having a designated basket for phones. At the same time, workplaces can introduce policies restricting phone use during meetings to foster more focused and productive discussions (Roberts & David, 2016).

Another critical factor driving phubbing is the role of social media in increasing digital dependence. Social media-induced phubbing, where individuals prioritize online engagement over real-life interactions, is pervasive in personal and professional settings. Studies have shown that taking breaks from social media, also known as digital detoxes, can improve mental well-being and reduce feelings of anxiety, depression, and FOMO (Brailovskaia et al., 2023; Lambert et al., 2022). Incorporating regular social media detoxes and limiting digital engagement can significantly reduce the tendency to engage in phubbing, allowing individuals to reconnect with their surroundings and foster more substantial, meaningful relationships.

In romantic relationships, phubbing can be particularly harmful. Implementing specific strategies like establishing phone-free times during meals, dates, and bedtimes, as well as using techniques like the Imago Dialogue to enhance communication, can help mitigate the adverse effects of phubbing. Studies suggest that practicing mindfulness and engaging in regular digital detoxes can strengthen emotional bonds and reduce the impulse to check smartphones during crucial moments (Karremans et al., 2020; Wilmer et al., 2017). In cases where phubbing has caused significant distress, couples therapy may be necessary to address the underlying issues and improve communication (McDaniel & Coyne, 2016).

Finally, raising awareness about the impact of phubbing through public campaigns and institutional interventions can help change societal norms around smartphone use. Simple strategies, such as placing signs in restaurants or workplaces to remind people of the importance of phone-free moments, can help cultivate a culture that values face-to-face interactions. Institutions, including schools and workplaces, can also benefit from promoting 'phone etiquette,' encouraging people to disconnect from their phones during key social and academic moments (Hendrix, 2007). In this way, spreading awareness and establishing clear guidelines can shift societal behaviour and promote healthier relationships with technology, ultimately reducing phubbing behaviours.

For individuals struggling with digital addiction or behaviours like FOMO, seeking psychological support is critical. Addiction to smartphones and social media can severely impair relationships and contribute to phubbing, as evidenced by studies on social media and internet addiction (Andreassen et al., 2016; Kuss & Griffiths, 2017). Professional support can help individuals manage these behaviours and develop healthier habits, ultimately reducing the prevalence of phubbing and strengthening interpersonal relationships. By addressing the root causes of phubbing through awareness, boundary-setting, mindfulness, and professional support, individuals and communities can foster healthier relationships and more meaningful social interactions in the digital age.

8. Conclusion

Phubbing, the act of ignoring someone in favor of engaging with a smartphone, has emerged as a multifaceted and socially normalized behavior with significant consequences for interpersonal relationships, mental health, and communication dynamics. This study revealed that phubbing manifests in distinct forms parental, partner, friend, academic, and boss phubbing each with unique psychological, emotional, and relational impacts. For instance, partner and parental phubbing were associated with emotional disengagement and developmental issues in children, while boss and academic phubbing disrupted trust and engagement in professional and educational environments. The research also identified key predictors of phubbing, including smartphone addiction, personality traits (e.g., neuroticism, narcissism), social anxiety, boredom, and Fear of Missing Out (FOMO). These predictors underscore that phubbing is not merely a social faux pas, but a behavior deeply rooted in digital dependency and emotional regulation. Furthermore, the theoretical integration particularly the Social Norms Theory, Digital Displacement Theory, and Expectancy Violation Theory demonstrated that phubbing is both a habitual and socially reinforced behavior. Its normalization across cultures and settings has contributed to a subtle yet pervasive erosion of meaningful face-to-face interactions. Addressing phubbing requires a holistic and multi-layered intervention strategy. Strategies such as setting boundaries, cultivating 'phone etiquette,' promoting digital detox practices, and engaging in psychological support are critical in mitigating its effects. Equally important is public awareness and institutional policy-making that reinforce the value of uninterrupted human connection. In conclusion, phubbing is not a trivial byproduct of smartphone use but a behavior with far-reaching social, psychological, and relational consequences. By understanding its typologies, predictors, and theoretical underpinnings, this study provides a framework for developing targeted interventions and fostering healthier technology use in the digital age.

6. References

Aagaard, J. (2020). Digital akrasia: A qualitative study of phubbing. *AI & Society*, *35*(1), 237–244. https://doi.org/10.1007/s00146-019-00876-0

Abdi, F., Jahangiri, M., Kamalinia, M., Cousins, R., & Mokarami, H. (2021). Presenteeism and work ability: Development of the Persian version of the Stanford Presenteeism Scale (P-SPS-6) and measurement of its psychometric properties. *BMC Psychology*, *9*(1), 120. https://doi.org/10.1186/s40359-021-00617-3

Abeele, M. (2020). The social consequences of phubbing. In Rich Ling, Leopoldina Fortunati, Gerard Goggin, Sun Sun Lim, & Yuling Li (Eds.), *The Oxford handbook of mobile communication and society*. Oxford University Press.

Ajzen, I. (1985). From Intentions to Actions: A theory of planned behavior. In Julius Kuhl & Jürgen Beckmann (Eds.), *Action control* (pp. 11–39). Springer. https://doi.org/10.1007/978-3-642-69746-3_2

Al-Saggaf, Y. (2021). Phubbing, Fear of Missing out, and Boredom. *Journal of Technology in Behavioral Science, 6*(2), 352–357. https://doi.org/10.1007/s41347-020-00148-5

Al-Saggaf, Y., MacCulloch, R., & Wiener, K. (2019). Trait boredom is a predictor of phubbing frequency. *Journal of Technology in Behavioral Science*, *4*(3), 245–252. https://doi.org/10.1007/s41347-018-0080-4

Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors*, *30*(2), 252–262. https://doi.org/10.1037/adb0000160

Balta, S., Emirtekin, E., Kircaburun, K., & Griffiths, M. D. (2020). Neuroticism, trait fear of missing out, and phubbing: The mediating role of state fear of missing out and problematic Instagram use. *International Journal of Mental Health and Addiction*, *18*(3), 628–639. https://doi.org/10.1007/s11469-018-9959-8

Bandura, A., & Barab, P. G. (1971). Conditions governing nonreinforced imitation. *Developmental Psychology, 5*(2), 244–255. https://doi.org/10.1037/h0031499

Banskota, S., Ghia, J.-E., & Khan, W. I. (2019). Serotonin in the gut: Blessing or a curse. Biochimie, 161, 56–64. https://doi.org/10.1016/j.biochi.2018.06.008

Baumeister, R. F., & Leary, M. R. (2017). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. In M. R. Leary & J. P. Tangney (Eds.), Handbook of self and identity (pp. 57–89). The Guilford Press.

Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The Strength Model of Self-Control. *Current Directions in Psychological Science*, *16*(6), 351–355. https://doi.org/10.1111/j.1467-8721.2007.00534.x

Berridge, K. C., & Kringelbach, M. L. (2015). Pleasure Systems in the Brain. *Neuron, 86*(3), 646–664. https://doi.org/10.1016/j.neuron.2015.02.018

Beukeboom, C. J., & Pollmann, M. (2021). Partner phubbing: Why using your phone during interactions with your partner can be detrimental for your relationship. *Computers in Human Behavior*, 124, 106932. https://doi.org/10.1016/j.chb.2021.106932

Billieux, J., Maurage, P., Lopez-Fernandez, O., Kuss, D. J., & Griffiths, M. D. (2015). Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research. *Current Addiction Reports, 2*(2), 156–162. https://doi.org/10.1007/s40429-015-0054-y

Bitar, Z., Akel, M., Salameh, P., Obeid, S., & Hallit, S. (2023). Phubbing among Lebanese young adults: Scale validation and association with mental health (depression, anxiety, and stress). *Current Psychology*, *42*(23), 19709–19720. https://doi.org/10.1007/s12144-022-03104-z

Brailovskaia, J., Delveaux, J., John, J., Wicker, V., Noveski, A., Kim, S., Schillack, H., & Margraf, J. (2023). Finding the "sweet spot" of smartphone use: Reduction or abstinence to increase well-being and healthy lifestyle?! An experimental intervention study. *Journal of Experimental Psychology: Applied*, *29*(1), 149–161. https://doi.org/10.1037/xap0000430

Burgoon, K. (1993). Interpersonal expectations, expectancy violations, and emotional communication. *Journal of Language and Social Psychology*, *12*(1–2), 30–48. https://doi.org/10.1177/0261927X93121003

Burke, H. (2019). The phone addiction workbook: How to identify smartphone dependency, stop compulsive behavior and develop a healthy relationship with your devices. Simon & Schuster.

Büttner, C. M., Gloster, A. T., & Greifeneder, R. (2022). Your phone ruins our lunch: Attitudes, norms, and valuing the interaction predict phone use and phubbing in dyadic social interactions. *Mobile Media & Communication*, *10*(3), 387–405. https://doi.org/10.1177/20501579211059914

Cameron, A.-F., & Webster, J. (2011). Relational Outcomes of Multicommunicating: Integrating Incivility and Social Exchange Perspectives. *Organization Science*, *22*(3), 754–771. https://doi.org/10.1287/orsc.1100.0540

Chotpitayasunondh, V., & Douglas, K. M. (2016). How "phubbing" becomes the norm: The antecedents and consequences of snubbing via smartphone. *Computers in Human Behavior*, 63, 9–18. https://doi.org/10.1016/j.chb.2016.05.018

Chotpitayasunondh, V., & Douglas, K. M. (2018). The effects of "phubbing" on social interaction. *Journal of Applied Social Psychology*, *48*(6), 304–316. https://doi.org/10.1111/jasp.12506

Cibrian, F. L., Lakes, K. D., Schuck, S. E. B., & Hayes, G. R. (2022). The potential for emerging technologies to support self-regulation in children with ADHD: A literature review. *International Journal of Child-Computer Interaction*, 31, 100421. https://doi.org/10.1016/j.ijcci.2021.100421

Clark, M. L., & Ayers, M. (1993). Friendship expectations and friendship evaluations. *Youth & Society*, *24*(3), 299–313. https://doi.org/10.1177/0044118X93024003003

Clark, M. S., & Reis, H. T. (1988). Interpersonal processes in close relationships. *Annual Review of Psychology*, *39*(1), 609–672. https://doi.org/10.1146/annurev.ps.39.020188.003141

Davey, A., Nasser, K., & Davey, S. (2020). Gender differential for smart phone addiction and its predictors among adolescents: assessing relationship with self control via sem approach. *Journal of Indian Association for Child and Adolescent Mental Health*, *16*(3), 80–101. https://doi.org/10.1177/0973134220200305

Davey, S., Davey, A., Raghav, S., Singh, J., Singh, N., Blachnio, A., & Przepiórkaa, A. (2018). Predictors and consequences of "Phubbing" among adolescents and youth in India: An impact evaluation study. *Journal of Family and Community Medicine*, *25*(1), 35. https://doi.org/10.4103/jfcm.JFCM_71_17

David, M., & Roberts, J. (2017). Phubbed and alone: Phone snubbing, social exclusion, and attachment to social media. *Journal of the Association for Consumer Research*, *2*(2), 155–163. https://doi.org/10.1086/690940

Demir, M., Orthel-Clark, H., Özdemir, M., & Bayram Özdemir, S. (2015). Friendship and Happiness Among Young Adults. In Friendship and Happiness (pp. 117–135). Springer Netherlands. https://doi.org/10.1007/978-94-017-9603-3_7

Ding, Q., L., H., & Z., Y. (2022). Interparental conflict affects adolescent mobile phone addiction: Based on the spillover hypothesis and emotional security theory [In Chinese]. Chinese Journal of Clinical Psychology, 30(3), 653–657. https://doi.org/10.16128/j.cnki.1005-3611.2022.03.031

Dwyer, R. J., Kushlev, K., & Dunn, E. W. (2018). Smartphone use undermines enjoyment of face-to-face social interactions. *Journal of Experimental Social Psychology*, 78, 233–239. https://doi.org/10.1016/j.jesp.2017.10.007

Elhai, J. D., Levine, J. C., & Hall, B. J. (2019). The relationship between anxiety symptom severity and problematic smartphone use: A review of the literature and conceptual frameworks. *Journal of Anxiety Disorders*, 62, 45–52. https://doi.org/10.1016/j.janxdis.2018.11.005

Elphinston, R. A., & Noller, P. (2011). Time to Face It! Facebook intrusion and the implications for romantic jealousy and relationship satisfaction. *Cyberpsychology, Behavior, and Social Networking*, *14*(11), 631–635. https://doi.org/10.1089/cyber.2010.0318

Erzen, E., Odaci, H., & Yeniçeri, İ. (2021). Phubbing: Which personality traits are prone to phubbing? *Social Science Computer Review*, *39*(1), 56–69. https://doi.org/10.1177/0894439319847415

Farooqi, S. R. (2014). The construct of relationship quality. *Journal of Relationships Research*, 5, e2. https://doi.org/10.1017/jrr.2014.2

Figee, M., Pattij, T., Willuhn, I., Luigjes, J., van den Brink, W., Goudriaan, A., Potenza, M. N., Robbins, T. W., & Denys, D. (2016). Compulsivity in obsessive–compulsive disorder and addictions. *European Neuropsychopharmacology*, *26*(5), 856–868. https://doi.org/10.1016/j.euroneuro.2015.12.003

Fincham, F. D., & Beach, S. R. H. (2010). Of memes and marriage: Toward a positive relationship science. *Journal of Family Theory & Review, 2*(1), 4–24. https://doi.org/10.1111/j.1756-2589.2010.00033.x

Franchina, V., Abeele, M., Van Rooij, A., Lo Coco, G., & De Marez, L. (2018). Fear of missing out as a predictor of problematic social media use and phubbing behavior among flemish adolescents. *International Journal of Environmental Research and Public Health, 15*(10), 2319. https://doi.org/10.3390/ijerph15102319

Gonzales, A. L., & Wu, Y. (2016). Public cellphone use does not activate negative responses in others...unless they hate cellphones. *Journal of Computer-Mediated Communication, 21*(5), 384–398. https://doi.org/10.1111/jcc4.12174

Greenfield, D. N. (2021). Digital distraction: What makes the internet and smartphone so addictive? In Human capacity in the attention economy. (pp. 27–47). American Psychological Association. https://doi.org/10.1037/0000208-003

Hales, A. H., Dvir, M., Wesselmann, E. D., Kruger, D. J., & Finkenauer, C. (2018). Cell phone-induced ostracism threatens fundamental needs. *The Journal of Social Psychology, 158*(4), 460–473. https://doi.org/10.1080/00224545.2018.1439877

Hendrix, H. (2007). *Getting the love you want: a guide for couples*. St. Martin's Press.

Hitcham, L., Jackson, H., & J.E. James, R. (2023). The relationship between smartphone use and smartphone addiction: An examination of logged and self-reported behavior in a pre-registered, two-wave sample. Computers in Human Behavior, 146, 107822. https://doi.org/10.1016/j.chb.2023.107822

Hoffner, C. A., & Lee, S. (2015). Mobile Phone Use, Emotion Regulation, and Well-Being. *Cyberpsychology, Behavior, and Social Networking, 18*(7), 411–416. https://doi.org/10.1089/cyber.2014.0487

Hong, F.-Y., Chiu, S.-I., & Huang, D.-H. (2012). A model of the relationship between psychological characteristics, mobile phone addiction and use of mobile phones by Taiwanese university female students. *Computers in Human Behavior, 28*(6), 2152–2159. https://doi.org/10.1016/j.chb.2012.06.020

Ikemoto, S. (2010). Brain reward circuitry beyond the mesolimbic dopamine system: A neurobiological theory. Neuroscience & Biobehavioral Reviews, *35*(2), 129–150. https://doi.org/10.1016/j.neubiorev.2010.02.001

Karadağ, E., Tosuntas, B., Erzen, E., Duru, P., Bostan, N., Şahin, M., Çulha, İ., & Babadağ, B. (2015). Determinants of phubbing, which is the sum of many virtual addictions: A structural equation model. *Journal of Behavioral Addictions, 4*(2), 60–74. https://doi.org/10.1556/2006.4.2015.005

Karadağ, E., Tosuntaş, Ş. B., Erzen, E., Duru, P., Bostan, N., Mızrak Şahin, B., Çulha, İ., & Babadağ, B. (2016). The Virtual World's Current Addiction: Phubbing. Addicta: *The Turkish Journal on Addictions, 3*(2). https://doi.org/10.15805/addicta.2016.3.0013

Karremans, J. C., Kappen, G., Schellekens, M., & Schoebi, D. (2020). Comparing the effects of a mindfulness versus relaxation intervention on romantic relationship wellbeing. *Scientific Reports, 10*(1), 21696. https://doi.org/10.1038/s41598-020-78919-6

Kircaburun, K., & Griffiths, M. D. (2018). Instagram addiction and the Big Five of personality: The mediating role of self-liking. *Journal of Behavioral Addictions, 7*(1), 158–170. https://doi.org/10.1556/2006.7.2018.15

Knausenberger, J., Giesen-Leuchter, A., & Echterhoff, G. (2022). Feeling Ostracized by Others' Smartphone Use: The Effect of Phubbing on Fundamental Needs, Mood, and Trust. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.883901

Koc, T., & Caliskan, K. (2023). Phubbing phenomenon in educational environments: examining the impact of supervisor phubbing on student outcomes. *Journal of Further and Higher Education, 47*(1), 15–30. https://doi.org/10.1080/0309877X.2022.2088270

Koç, T., Katanalp, B., & Akbıyık, A. (2022). Workforce Analysis from an Accounting Perspective: What Do the Determinants Really Demand? Istanbul Business Research, 51(1), 69-93. https://doi.org/10.26650/ibr.2022.51.972067

Krasnova, H., Abramova, O., Notter, I., & Baumann, A. (2016). Why phubbing is toxic for your relationship: Understanding the role of smartphone jealousy among "Generation Y" users. In Proceedings of the 24th European Conference on Information Systems (ECIS) (Paper 109). AIS Electronic Library. http://aisel.aisnet.org/ecis2016_rp/109

Kushlev, K., Proulx, J. D. E., & Dunn, E. W. (2017). Digitally connected, socially disconnected: The effects of relying on technology rather than other people. Computers in Human Behavior, 76, 68–74. https://doi.org/10.1016/j.chb.2017.07.001

Kuss, D., & Griffiths, M. (2017). Social Networking Sites and Addiction: Ten Lessons Learned. *International Journal of Environmental Research and Public Health, 14*(3), 311. https://doi.org/10.3390/ijerph14030311

Lambert, J., Barnstable, G., Minter, E., Cooper, J., & McEwan, D. (2022). Taking a One-Week Break from Social Media Improves Well-Being, Depression, and Anxiety: A Randomized Controlled Trial. Cyberpsychology, Behavior, and Social Networking, 25(5), 287–293. https://doi.org/10.1089/cyber.2021.0324

Leuppert, R., & Geber, S. (2020). Commonly done but not socially accepted? Phubbing and social norms in dyadic and small group settings. *Communication Research Reports*, *37*(3), 55–64. https://doi.org/10.1080/08824096.2020.1756767

Li, W., Bizumic, B., Sivanathan, D., & Chen, J. (2024). Vulnerable and grandiose narcissism differentially predict phubbing via social anxiety and problematic social media use. *Behaviour & Information Technology*, *43*(12), 2930–2944. https://doi.org/10.1080/0144929X.2023.2262608

Liu, J., Wang, W., Hu, Q., Wang, P., Lei, L., & Jiang, S. (2021). The relationship between phubbing and the depression of primary and secondary school teachers: A moderated mediation model of rumination and job burnout. Journal of Affective Disorders, 295, 498–504. https://doi.org/10.1016/j.jad.2021.08.070

Liu, J., Xie, T., & Mao, Y. (2024). Parental Phubbing Behavior and Adolescents' Online Gaming Time: The Mediating Role of Electronic Health Literacy. Behavioral Sciences, 14(10). https://doi.org/10.3390/bs14100925

MacKenzie, S. B., Podsakoff, P. M., & Rich, G. A. (2001). Transformational and Transactional Leadership and Salesperson Performance. *Journal of the Academy of Marketing Science*, *29*(2), 115–134. https://doi.org/10.1177/03079459994506

Mahmud, I., Supramaniam, K., Jahan, N., Begum, A., & Masud, A. (2024). Dark side of mobile phone technology: Assessing the impact of self-phubbing and partner-phubbing on life satisfaction. Interdisciplinary Journal of Information, Knowledge, and Management, 18, 893–914. https://doi.org/10.28945/5241

McDaniel, B. T., & Coyne, S. M. (2016). "Technoference": The interference of technology in couple relationships and implications for women's personal and relational well-being. *Psychology of Popular Media Culture*, *5*(1), 85–98. https://doi.org/10.1037/ppm0000065

McDaniel, T., & Wesselmann, E. (2021). "You phubbed me for that?" Reason given for phubbing and perceptions of interactional quality and exclusion. *Human Behavior and Emerging Technologies*, *3*(3), 413–422. https://doi.org/10.1002/hbe2.255

Miller, J. D., Dir, A., Gentile, B., Wilson, L., Pryor, L. R., & Campbell, W. K. (2010). Searching for a Vulnerable Dark Triad: Comparing Factor 2 Psychopathy, Vulnerable Narcissism, and Borderline Personality Disorder. *Journal of Personality*, *78*(5), 1529–1564. https://doi.org/10.1111/j.1467-6494.2010.00660.x

Misra, S., Cheng, L., Genevie, J., & Yuan, M. (2016). The iphone effect. *Environment and Behavior*, *48*(2), 275–298. https://doi.org/10.1177/0013916514539755

Muise, A., Christofides, E., & Desmarais, S. (2009). More Information than You Ever Wanted: Does Facebook Bring Out the Green-Eyed Monster of Jealousy? *CyberPsychology & Behavior*, *12*(4), 441–444. https://doi.org/10.1089/cpb.2008.0263

Mulki, J. P., Jaramillo, F., & Locander, W. B. (2006). Emotional exhaustion and organizational deviance: Can the right job and a leader's style make a difference? *Journal of Business Research*, *59*(12), 1222–1230. https://doi.org/10.1016/j.jbusres.2006.09.001

Nakamura, T. (2015). The action of looking at a mobile phone display as nonverbal behavior/communication: A theoretical perspective. Computers in Human Behavior, 43, 68–75. https://doi.org/10.1016/j.chb.2014.10.042

Nazir, T. (2020). Impact of classroom phubbing on teachers who face phubbing during lectures. *Psychology Research on Education and Social Sciences*, *1*(1), 41–47. https://dergipark.org.tr/en/download/article-file/1116609

Nazir, T., & Piskin, M. (2016). Phubbing: A technological invasion which connected the world but disconnected humans. *International Journal of Indian Psychology*, *3*(4), 68–76. https://pdfs.semanticscholar.org/02cf/4be51f199e9834c9d329a5cb60e58c71a98a.pdf

Panek, E. (2014). Left to Their Own Devices. Communication Research, 41(4), 561–577. https://doi.org/10.1177/0093650213499657

Pearson, C., & Hussain, Z. (2015). Smartphone Use, Addiction, Narcissism, and Personality. *International Journal of Cyber Behavior, Psychology and Learning*, *5*(1), 17–32. https://doi.org/10.4018/ijcbpl.2015010102

Perkins, W., & Berkowitz, D. (1986). Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. *International Journal of the Addictions*, *21*(9-10), 961–976. https://doi.org/10.3109/10826088609077249

Przybylski, A. K., & Weinstein, N. (2013). Can you connect with me now? How the presence of mobile communication technology influences face-to-face conversation quality. *Journal of Social and Personal Relationships*, *30*(3), 237–246. https://doi.org/10.1177/0265407512453827

Roberts J., & David, M. (2016). My life has become a major distraction from my cell phone: Partner phubbing and relationship satisfaction among romantic partners. *Computers in Human Behavior*, *54*, 134–141. https://doi.org/10.1016/j.chb.2015.07.058

Roberts, J., & David, M. (2017). Put down your phone and listen to me: How boss phubbing undermines the psychological conditions necessary for employee engagement. Computers in Human Behavior, 75, 206–217. https://doi.org/10.1016/j.chb.2017.05.021

Safaria, T., Probowati, Y., & Rahaju, S. (2024). "Oh my phone, I can't live without you": a phenomenological study of nomophobia among college students. Qualitative Research Journal. https://doi.org/10.1108/QRJ-06-2023-0092

Schimming, C. (2022). Cognitive overload: When processing information becomes a problem. Speaking of Health. https://www.mayoclinichealthsystem.org/hometown-health/speaking-of-health/cognitive-overload

Schneider, F. M., & Hitzfeld, S. (2021). I ought to put down that phone but I phub nevertheless: Examining the predictors of phubbing behavior. *Social Science Computer Review, 39*(6), 1075–1088. https://doi.org/10.1177/0894439319882365

Sha, P., Sariyska, R., Riedl, R., Lachmann, B., & Montag, C. (2019). Linking Internet Communication and Smartphone Use Disorder by taking a closer look at the Facebook and WhatsApp applications. Addictive Behaviors Reports, 9, 100148. https://doi.org/10.1016/j.abrep.2018.100148

Shellenbarger, S. (2013, May 1). Just look me in the eye already. The Wall Street Journal. https://www.wsj.com/articles/SB10001424127887324582004578460860364457958

Shi, Y., Koval, P., Kostakos, V., Goncalves, J., & Wadley, G. (2023). "Instant Happiness": Smartphones as tools for everyday emotion regulation. *International Journal of Human-Computer Studies*, 170, 102958. https://doi.org/10.1016/j.ijhcs.2022.102958

Statista. (2023). Mobile network subscriptions worldwide 2028. https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/

Stevens, F. L., Wiesman, O., Feldman, R., Hurley, R. A., & Taber, K. H. (2013). Oxytocin and Behavior: Evidence for Effects in the Brain. *The Journal of Neuropsychiatry and Clinical Neurosciences, 25*(2), 96–102. https://doi.org/10.1176/appi.neuropsych.13030061

Sun, J., & Wong, N. (2024). "i Can't Believe i Phubbed Up Our Friendship!": Examining Relationships between Loneliness, Problematic Smartphone Use, Friend Phubbing, and Life Satisfaction. Human Behavior and Emerging Technologies, 2024. https://doi.org/10.1155/2024/5558587

Thomas, T. T., Carnelley, K. B., & Hart, C. M. (2022). Phubbing in romantic relationships and retaliation: A daily diary study. Computers in Human Behavior, 137, 107398. https://doi.org/10.1016/j.chb.2022.107398

Thomée, S. (2018). Mobile Phone Use and Mental Health. A Review of the Research That Takes a Psychological Perspective on Exposure. *International Journal of Environmental Research and Public Health, 15*(12), 2692. https://doi.org/10.3390/ijerph15122692

T'ng, S. T., Ho, K. H., & Low, S. K. (2018). Are you "phubbing" me? The Determinants of Phubbing Behavior and Assessment of Measurement Invariance across Sex Differences. *International and Multidisciplinary Journal of Social Sciences, 7*(2), 159. https://doi.org/10.17583/rimcis.2018.3318

Triandis, H. C. (1977). Interpersonal Behavior. Brooks/Cole.

Valkenburg, P. M., & Peter, J. (2007). Online Communication and Adolescent Well-Being: Testing the Stimulation Versus the Displacement Hypothesis. *Journal of Computer-Mediated Communication, 12*(4), 1169–1182. https://doi.org/10.1111/j.1083-6101.2007.00368.x

Vanden Abeele, Mariek M.P, Antheunis, Marjolijn L, Schouten, & Alexander P. (2016). The effect of mobile messaging during a conversation on impression formation and interaction quality. Computers in Human Behavior, 62, 562–569. https://doi.org/10.1016/j.chb.2016.04.005

Veissière, S. P. L., & Stendel, M. (2018). Hypernatural Monitoring: A Social Rehearsal Account of Smartphone Addiction. Frontiers in Psychology, 9. https://doi.org/10.3389/fpsyg.2018.00141

Verduyn, P., Schulte-Strathaus, J. C. C., Kross, E., & Hülsheger, U. R. (2021). When do smartphones displace face-to-face interactions and what to do about it? Computers in Human Behavior, 114, 106550. https://doi.org/10.1016/j.chb.2020.106550

Wang, P., Mao, N., Liu, C., Geng, J., Wei, X., Wang, W., Zeng, P., & Li, B. (2022). Gender differences in the relationships between parental phubbing and adolescents' depressive symptoms: The mediating role of parent-adolescent communication. *Journal of Affective Disorders*, 302, 194–203. https://doi.org/10.1016/j.jad.2021.12.073

Wang, X., Qiao, Y., Li, W., & Lei, L. (2022). Parental Phubbing and Children's Social Withdrawal and Aggression: A Moderated Mediation Model of Parenting Behaviors and Parents' Gender. *Journal of Interpersonal Violence, 37*(21–22), NP19395–NP19419. https://doi.org/10.1177/08862605211042807

West, R., & Brown, J. (2013). *Theory of addiction*. John Wiley & Sons.

Wilmer, H. H., Sherman, L. E., & Chein, J. M. (2017). Smartphones and Cognition: A Review of Research Exploring the Links between Mobile Technology Habits and Cognitive Functioning. Frontiers in Psychology, 8. https://doi.org/10.3389/fpsyg.2017.00605

Wolf, T. (2014). What the Phub? Gettysburg College Cupola: Surge. https://cupola.gettysburg.edu/surge/27

Xie, X., & Xie, J. (2020). Parental phubbing accelerates depression in late childhood and adolescence: A two-path model. *Journal of Adolescence, 78*(1), 43–52. https://doi.org/10.1016/j.adolescence.2019.12.004

Yaseen, B., Zia, S., Fahd, S., & Kanwal, F. (2021). Impact of loneliness and fear of missing out on phubbing behavior among millennials. *Psychology and Education, 58*(4), 4096–4100.

Yousaf, S., Rasheed, M. I., Hameed, Z., & Luqman, A. (2020). Occupational stress and its outcomes: the role of work-social support in the hospitality industry. *Personnel Review, 49*(3), 755–773. https://doi.org/10.1108/PR-11-2018-0478

Yuda, H., & Suyono, J. (2024). Systematic Literature Review of Boss Phubbing From 2013 – 2023. *Jurnal Syntax Transformation, 5*(2), 406–415. https://doi.org/10.46799/jst.v5i2.913

Zavalii, T., & Zhalinska, I. (2023). Phubbing phenomenon: contemporary discourse in the digital world and social responsibility of marketing. Studia Universitatis Moldaviae (Seria Ştiinţe economice și ale comunicării), 2(11), 3-15. https://doi.org/10.59295/sum2(11)2023_01

Zhang, H., Hu, Q., & Mao, Y. (2024). Parental burnout and adolescents' phubbing: Understanding the role of parental phubbing and adolescents' psychological distress. *School Psychology International, 45*(2), 172–187. https://doi.org/10.1177/01430343231201863

Zhou, Y., Li, D., Li, X., Wang, Y., & Zhao, L. (2017). Big five personality and adolescent Internet addiction: The mediating role of coping style. *Addictive Behaviors, 64*, 42–48. https://doi.org/10.1016/j.addbeh.2016.08.009

The practice of English as a medium of instruction (EMI) around the world

Carol Griffiths (Editor)

Citation of the original book	Griffiths, C. (Ed.). (2023). *The practice of English as a medium of instruction (EMI) around the world*. Springer. https://doi.org/10.1007/978-3-031-30613-6
Cite:	Altın Kaya, H. E., & Yaman, İ. (2025). [Book Review: *The Practice of English as a Medium of Instruction (EMI) Around the World*, Carol Griffiths (Ed.)]. *Anadolu University Journal of Education Faculty, 9*(3), 293-296.

293

Book Reviewers: Handan Erem Altın Kaya [ID][1], and İsmail Yaman [ID][1]

[1] Ondokuz Mayıs University, Faculty of Education, Department of English Language Teaching, Türkiye
[c]**Correspondence Author:** Handan Erem Altın Kaya, Körfez Mahallesi Kurupelit Kampüsü Ondokuz Mayıs Üniversitesi Eğitim Fakültesi, 55105, Samsun, Türkiye, **e-mail:** h.eremaltn@gmail.com

1. Review

English as a Medium of Instruction (EMI) can be described as a phenomenon used to teach the English language for academic purposes in countries where English is not the native language of the society. It is known that the course in which the EMI approach is used must be taught in English. The proficiency levels of the students are usually considered sufficient, and tertiary-level education is applied. For native-speaking countries such as the UK, USA, or Australia, it is easy to understand why EMI is a preferred term for their courses.

EMI has an essential position in non-native or post-colonial regions such as India, Hong Kong, etc., because they have strong bonds to the British model education system. The EMI method provides not only an opportunity to expose students to the English language but also fosters intercultural competence. While it has some benefits for both students and teachers, EMI also has some challenges and struggles for them to cope with.

The Practice of English as a Medium of Instruction (EMI) Around the World is a recent book that investigates the use of EMI in some parts of the world and examines similarities and differences. The book's target readership consists of students, teachers, researchers, and practitioners. The book was edited by Carol Griffiths and published in 2023 by Springer in Cham, Switzerland. It is 244 pages long and was written by 28 ELT researchers. This book is not designed chapter by chapter. It consists of studies that are conducted by different researchers all around the world. There are 11 studies that have used the same methods and instruments. Every study of the book presents an overview of the EMI in different parts of the world. Each of them belongs to one specific part of the world, and they focus on the attitudes toward English and the various practices of the EMI by investigating geographical, historical, and ideological factors. Therefore, this allows readers to make comparisons between sections easily. It can be clearly seen that the implications of the studies are discussed by the researchers of the studies, and they offer suggestions for further research and practice.

The book starts with an introduction and overview part to introduce the EMI and the organization of the book. This section was written by the editor of the book. The terminology and challenges of EMI have been expressed to the readers, and the aim of the book is also noted in this section.

There is a study belonging to the Sub-Saharan Africa part and another study that is conducted in North Africa. It can be clearly seen that the major factors in these areas are the lack of vocabulary knowledge, teacher training, and proficiency. In these regions, an EMI method is not based on its theory and successful pedagogical practice. Additionally, there is a need for evaluation of EMI programs to design appropriate and efficient frameworks that may help learners' academic achievements and performances. These studies also show the implications and suggestions for future research to adapt transformative and collaborative approaches.

In addition to Africa, there are other studies focused on some parts of Asia, such as Central Asia, East Asia, South Asia, and South East Asia. EMI has an essential approach for the parts of Asia. Students are interested in the EMI courses to improve their language skills. It can be inferred from the studies that the awareness of language education is increasing day by day, and the students in these regions have a high opinion of intercultural communication and employability. There is a government policy to increase international education standards and to gain proficiency. Although positive circumstances can be seen in these studies, there are some challenges and barriers to adapting the EMI. Teachers who apply the EMI do not have a chance to decide on the method because it is a mandatory system that they are not able to interfere or complain. Apart from that, cultural differences can be considered as a difficulty for both students and teachers.

In Europe, there are some studies related to EMI. In Western and Southern Europe, countries like Greece, Spain, and Italy are willing to adapt the EMI approach to their education system in order to attract international students and boost institutional reputation. In the other part of Europe, the Western-Southern side has emphasized the challenges of introducing EMI. Like the studies in Africa, it is possible to see both advantages and disadvantages of EMI in the European area. One of the main efforts is to enhance internationalization to make educational quality better. EMI offers not only educational benefits but also economic growth. The other focus of the region is increasing global competitiveness and accessing information more easily. Besides Western-Southern Europe, countries like Poland, Hungary, and the Czech Republic, located in Eastern and Central Europe, have highlighted the importance of peer interaction while applying the EMI methods. Awareness and emotional development are other essential points to practice this approach. On the other hand, these studies show some disadvantages, such as lack of guidelines, cognitive overload, and financial resources. Despite these challenges, EMI has a crucial place in Europe to make a contribution to both academic excellence and social cohesion.

The combination of political, economic, and educational objectives affects the attitudes and adaptations to using the EMI approach in the Middle East. The studies in this part of the world are conducted in countries like Türkiye, Egypt, Saudi Arabia, and the United Arab Emirates. Like in Europe, governments have some national policies to promote the EMI for internationalizing higher education.

Many universities in the region have collaborations or partnerships with Western institutes to develop EMI programs. However, English proficiency among students can be considered a significant challenge to apply the EMI. In addition to this, English language dominancy raises concerns about the erosion of local languages and cultural identities.

The other study belongs to Nordic and Baltic countries, including Denmark, Finland, Estonia, Latvia, and Sweden, and concentrates on the effective integration of EMI into the language teaching process. One of the most essential implementations is that English is introduced at an early stage in the education system. As a result of this, the proficiency levels of the students are highly strong and acceptable. The active promotion of the government enhances global competitiveness, and their educational policies emphasize multilingualism. Like in the Middle East, the erosion of local language can be considered a challenge of the EMI. Apart from that, there is a need for continued investment in language support and curriculum to improve EMI programs in the region. It is crucial to make a balance between fulfilling the needs and sustaining success.

Last but not least, Latin American countries such as Brazil, Chile, Colombia, and Mexico have introduced EMI programs in prestigious public and private universities. Particularly in fields like business, engineering, and technology, perceive English as a valuable asset for international careers. Like in other studies, it can be clearly seen that the governments of these regions offer language policies based on the EMI to increase proficiency levels and employment rates. The major focus of the EMI method has a lot of advantages, but it also has some barriers and challenges to applying for this program. Socio-economic inequalities may cause a gap between students who can afford access to EMI education and those who cannot. Apart from that, cultural identities are affected by the increasing use of English in many fields. To maximize the benefits of EMI, Latin American countries must invest in language support and teacher training, and they offer equal opportunities for each student.

In the last part of the book, there is a meta-view section to compound the previous studies that have been included in the book. It can be considered a summary section to reflect the analysis and the understanding of the EMI programs and the different attitudes in multiple regions across the world. According to this book section, teachers' motivation can be considered a key figure in applying the EMI method properly. Additionally, government policies are crucial in utilizing this technique to increase intercultural awareness and facilitate collaboration. The section consists of the implications and suggestions for further research.

2. Conclusion

The Practice of English as a Medium of Instruction (EMI) Around the World apparently turns out to be a valuable resource for both ELT teachers and researchers. Firstly, it provides detailed data to analyze EMI programs in various parts of the world. It offers to make comparisons between countries to identify their policies and practices. Therefore, readers can clearly observe the advantages and disadvantages of the EMI. The book also enables readers to see practical studies that directly address the way EMI programs are practiced and their results. Alongside the rich study contents of the book, this prominent resource has one noticeable weak point: the practical and context-specific solutions to the challenges are limited. The book provides theoretical discussions and empirical studies on EMI. Still, it offers fewer actionable strategies and solutions that suggest overcoming challenges and barriers, such as teacher preparedness, student support, and linguistic equality. Additionally, it does not fully address the socio-economic inequalities that affect access to EMI, which may be of vital importance to policymakers and educators seeking more practical guidance on EMI.

Notwithstanding this justifiable weakness, the book presents strong aspects of the EMI, and it can be accepted as a valuable and helpful resource for ELT educators and researchers. To conclude, this worthy scientific work can undoubtedly be considered a handbook in the realm of language education.

Author Biographies

Handan Erem Altın Kaya is an MA student in the English Language Teaching Programme at Ondokuz Mayıs University. Born and raised in Ankara, she completed her primary and secondary education in the same city. She graduated from the Department of English Language and Literature at Karadeniz Technical University. Currently pursuing her MA, which she began in 2024, her research interests focus on language skills, pronunciation, mindfulness in ELT, and language anxiety, among other topics.

İsmail Yaman is an Assist. Prof. Dr. in the English Language Teaching Programme at Ondokuz Mayıs University. Born and raised in Samsun, the author received primary and secondary education in the same city; and then he graduated from the Department of Translation and Interpreting at Hacettepe University. He holds an MA degree from the ELT Programme at Ondokuz Mayıs University and a PhD degree from the ELT Programme at Gazi University. His research interests cover teaching language skills, the use of technology in the language classroom, and changing trends in language education.

3. References

Griffiths, C. (Ed.). (2023). *The Practice of English as a Medium of Instruction (EMI) Around the World*. Springer.

BOOK REVIEW   **OPEN ACCESS**

The drivers: Transforming learning for students, schools, and systems*

Michael Fullan and Joanne Quinn

Citation of the original book	Fullan, M. & Quinn, J. (2024). *The drivers: Transforming learning for students, schools, and systems*. (1st edt). Corwin Press
Cite:	Kirişçi-Sarıkaya. A. (2025). [Book Review: *The drivers: Transforming learning for students, schools, and systems*, Michael Fullan & Joanne Quinn]. *Anadolu University Journal of Education Faculty, 9*(3), 297-299.

Book Reviewer: Aylin Kirişçi-Sarıkaya[1c] iD

[1] İzmir Democracy University, Faculty of Education, Department of Educational Sciences, Türkiye.
[c] **Corresponding Author:** İzmir Democracy University, Faculty of Education, Department of Educational Sciences, Izmir-Turkiye aylin.kiriscil@idu.edu.tr

1. Review

Contemporary social, technological, and environmental changes have a profound influence on education and educational institutions. The systems approach highlights the complexity of this situation, while also suggesting that transformation and development cannot be achieved through disconnected or independent actions (Clayton & Radcliffe, 2018; Fiksel, 2006). In their book *The Drivers: Transforming Learning for Students, Schools, and Systems*, Fullan and Quinn respond to this need by presenting a comprehensive and integrated framework for educational reform. In this direction, the authors propose the humanity paradigm as a new paradigm, which centers on "the ability to learn how to learn, know oneself, and care about the other, and the environment, and to do all of this in concert with others" (p. 2). And at the heart of their approach is a new systemic model of action built around four interrelated "drivers", which include "Well-Being and Learning", "Social and Machine Intelligence", "Equity-Equality Investments", and "Systemness".

The book is written in a fluid and engaging style, so that it appeals to a diverse range of readers such as education administrators, policymakers, practitioners, academics, and graduate students in the field of education. It uses images and figures, as well as text boxes that offer supplementary insights and interview excerpts to support the meaning. Structured across six chapters, the book maintains a consistent format throughout. Chapter 1 serves as an introduction, and the next four chapters each explore one of the four proposed drivers in depth. The final chapter, Chapter 6, concludes the book with a reflective synthesis of the key themes and a reinforcement of its central message. This structure of the book facilitates a comprehensive exploration of the model and ensures that readers can engage with the material in a meaningful way.

The Drivers: Transforming Learning for Students, Schools, and Systems builds upon the authors' previous works such as *Coherence: The Right Drivers in Action for Schools, Districts, and Systems* (2016), *Deep Learning: Engage The World Change The World* (2018) co-authored with McEachen, and *Spirit Work and The Science of Collaboration* (2021) written by Fullan and Edward, and takes them one step further, while also making significant contributions to developing fields such as systematic educational change, systems thinking, well-being, human-centered approach, and innovation. In this respect, the book presents a comprehensive and interdisciplinary perspective on social and technological changes and transformations, including climate change, artificial intelligence (AI), and educational transformation. For example, the driver "Social and Machine Intelligence" acknowledges both the risks and opportunities of AI in learning environments. This perspective is rarely addressed in traditional school development literature. Furthermore, the driver "Systemness" emphasizes the growing recognition that educational change must be driven through coordinated action across all levels of the system (Azorín & Fullan, 2022; Wang et al., 2020).

A detailed examination of the chapters reveals how authors build and share their approach through the four drivers. Following the introductory first chapter, Chapter 2 delves into the first driver, "Well-Being and Learning". The authors emphasize that well-being and learning are interdependent and mutual processes. Accordingly, these two dimensions could be conceptualized as a "double helix". Chapter 3 tackles the urgent issue of technology's role in education. This chapter unpacks and details the second driver, "Social and Machine Intelligence". In Chapter 4, the third driver, "Equity-Equality Investments", critiques the limitations of isolated equity initiatives. Accordingly, the chapter argues for systemic investments and touch upon the structural barriers to fair opportunity and outcomes. In Chapter 5, the fourth driver, "Systemness", emphasizes the importance of cultivating coherence across levels of governance and ensures that reforms are sustainable and adaptable. The final chapter, Chapter 6, highlights that the four drivers are only meaningful when woven into deep learning environments. Across all chapters, the authors incorporate international case studies, vignettes, and reflective questions to enhance the readers' engagement.

Although the scope of the book is broad and encompasses many topics, it has some limitations. It can sometimes fall short in detailed information and diverse cases. For example, when discussing the "Social and Machine Intelligence" driver, the authors touch on the importance of AI in education. However, their treatment of the topic remains relatively general. Besides, the ethics, competencies, or inequalities in accessing AI tools are not fully explored. Western bias could also be seen in vignettes. While the authors acknowledge this limitation (p. 18) and include some non-Western examples, such as Uruguay's digital strategy, most of the vignettes are from Anglophone contexts. However, it should be emphasized that although *The Drivers: Transforming Learning for Students, Schools, and Systems* has a few shortcomings, it is a very valuable and timely contribution to the educational change literature.

2. Conclusion

In conclusion, *The Drivers: Transforming Learning for Students, Schools, and Systems* offers a well-structured and practical framework that addresses the challenges of our time. The book's integration of the four drivers makes it particularly useful for leaders and practitioners. The conceptual clarity, practical examples, and reflective guidance could also be seen as a well-suited action model for professional

development settings, policy planning, and graduate education programs. All in all, *The Drivers: Transforming Learning for Students, Schools, and Systems* represents an important step forward by providing both a critique of the status quo and a constructive and humanistic vision for education systems.

6. References

Azorín, C., & Fullan, M. (2022). Leading new, deeper forms of collaborative cultures: Questions and pathways. *Journal of Educational Change*, *23*(1), 131-143. https://doi.org/10.1007/s10833-021-09448-w

Clayton, T., & Radcliffe, N. (2018). *Sustainability: a systems approach*. Routledge.

Fiksel, J. (2006). Sustainability and resilience: toward a systems approach. *Sustainability: Science, Practice and Policy*, *2*(2), 14-21. https://doi.org/10.1080/15487733.2006.11907980

Fullan, M., & Quinn, J. (2016). *Coherence: The right drivers in action for schools, districts, and systems*. Corwin

Fullan, M., Quinn, J., & McEachen, J. (2018). *Deep learning: Engage the world change the world*. Corwin

Fullan, M. & Edwards, M. (2021). *Spirit work and the science of collaboration.* Corwin

Wang, T., Olivier, D. F., & Chen, P. (2020). Creating individual and organizational readiness for change: conceptualization of system readiness for change in school education. *International Journal of Leadership in Education*, *26*(6), 1037–1061. https://doi.org/10.1080/13603124.2020.1818131