INNOVATIVE APPLICATIONS AND RESEARCH METHODS IN EDUCATION SCIENCES

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CONTENTS

CHAPTER 1

Exploring the Link Between Perceived Social Competence and Subjective Well-being in Pre-Service Language Teachers: Grit as a Mediating Factor

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Introduction

Learning a new language, whether as a second or foreign language (L2), is a multifaceted, demanding, and time-consuming process in which learners experience stress and considerable challenges (Zhang, 2019). This complex process involves a number of factors, including linguistic issues, sociocultural factors, and psychological characteristics (Derakhshan & Dewaele, et al., 2022; Derakhshan et al., 2022; Derakhshan et al., 2023; Dewaele et al., 2020; MacIntyre et al., 2012). Meanwhile, a plethora of research has underscored the vital role of these variables in L2 acquisition and predicting its achievement (Dewaele & MacIntyre, 2014; Gregersen et al., 2014; Solhi et al., 2023; Wang et al., 2022). As a result, both SLA and educational psychology research emphasize the pivotal role these variables play in predicting learning outcomes. These insights reinforce the view that fostering learners' psychological resources is key not only for facilitating L2 acquisition but also for improving achievement and well-being across educational contexts.

In recent years, second language acquisition (SLA) researchers have been keen to explore various psychological traits such as resilience, social well-being (SWB), social competence, and grit in predicting L2 success. Although this trend is particularly evident in the field of Second Language Acquisition, where constructs such as these are examined as facilitating L2 acquisition, similar patterns have been observed across educational domains, in which persistence, self-regulation, and academic success have been associated with these characteristics (Botes et al., 2023; Hiver, 2018; Huppert et al., 2013; Eskreis-Winkler et al., 2014; Karbakhsh et al., 2020; Wei, 2023; Von Culin et al., 2014). Recent findings in educational psychology have shown that learners' resilience and socio-emotional competence impact not just their academic success, but also their broader development (Credé, 2018; Duckworth et al., 2015; Potain et al., 2021). Developing learners' psychological resources is key not just for language education, but also for improving performance and well-being in broader education contexts. Essentially, cultivating learners' psychological resources is vital for enhancing both language learning and educational attainment. To fully appreciate the impact of psychological resources on educational outcomes, it is essential to consider how well-being is conceptualized in positive psychology—as a construct rooted in positive traits that support a fulfilling and engaged existence.

The concept of well-being as it pertains to positive psychology is not simply synonymous with the absence of negative feelings and conditions, but as it pertains to positive attributes that contribute to a full and meaningful existence (Dinner, 1984; Huppert et al., 2013; Seligman, 2011). A study of 1,741 Lithuanian adolescents identified six groups based on school attachment, teacher support, and classroom climate, finding that students with positive perceptions

reported the highest subjective and social well-being, while those with negative perceptions reported the lowest (Pilkauskaite-Valickiene et al., 2015). EFL teachers' SWB can be described as the overall quality and circumstances of persons' lives, including cognitive judgments and affective responses (Dinner, 1984; Cha, 2003). Furthermore, the concept of cognitive and affective well-being is distinct: cognitive well-being measures how you think about life, while affective well-being measures how you feel (Zhou et al., 2023; Pavot et al., 1997). As EFL teachers, who operate within diverse and often challenging contexts of language education, SWB is closely related to their ability to manage a variety of professional and emotional demands (Shin et al. 2021; Babic et al. 2023; Sulis et al., 2023). Meanwhile, A Finnish study using data from over 87,000 students across 458 schools found that only about 1% of general subjective well-being variation occurred at the educational environment, with most differences explained by individual-level factors (Konu et al., 2002).

Perceived social competence, which refers to an individual's confidence in managing social interactions successfully, has been recognized as a key contributor to subjective well-being, especially within educational settings (Eckert et al., 2025). Social competence, conceptualized as ‘a learner's self-evaluated capacity to function well in social interactions (Junge et al., 2020), is gaining acceptance as a building block for establishing a positive learning environment. Research shows that learners who self-identify with social competence are better suited to co-regulation and collaboration, which are key components of building resilient learning communities (Mystkowska-Wiertelak, 2022). This competence is extremely important because the language classroom is an inherently social place. Several recent studies demonstrate that socio-emotional competency training leads to downstream educational benefits. According to experimental/social-policy research, social-emotional skills training increases long-term educational attainment and school success (Sorrenti et al., 2024). The capacity to interact successfully engenders a sense of belonging and diminished feelings of isolation, which contributes directly to the emotional health of learners. As demonstrated by Botes et al. (2023), positive social dynamics are a main source of foreign language enjoyment, which is in turn a substantial component of subjective well-being in an L2 setting.

Furthermore, empirical evidence indicates that individuals with a strong sense of perceived social competence tend to report elevated levels of life satisfaction, greater emotional regulation, and enriched interpersonal relationships, underscoring their pivotal role in psycho-social well-being (Caprara et al., 2005; Rose-Krasnor, 1997). This is especially relevant in language learning environments, where social engagement and communicative confidence are central to both academic success and psychological resilience. According to Suldo et al. (2009), students with strong social skills report greater subjective well-being due to their enhanced capacity to form supportive relationships and

manage social stressors. Moreover, perceived social competence contributes to a sense of belonging and self-efficacy, which are foundational components of well-being in positive psychology frameworks (Diener et al., 2010; Seligman, 2011). In sum, fostering learners' social competence not only facilitates smoother interpersonal dynamics but also serves as a protective factor against emotional distress, thereby enriching their overall well-being.

Moreover, emerging research suggests that social-emotional competence is positively associated with grit, emphasizing its role in promoting resilience and sustained academic involvement (Eriksen & Bru, 2023; Zhang et al., 2022). Grit is a non-cognitive personality construct conceptualized as 'trait-level perseverance and passion for long-term goals' (Duckworth et al., 2009, p. 166). Introduced by Duckworth et al. (2007), this higher-order psychology trait comprises two sub-factors: perseverance of effort (PE) and consistency of interest (CI). PE refers to a person's tendency to sustain energy over an extended period of time, while CI signifies the durability of a person's passion towards a paramount objective in spite of hurdles, challenges, and setbacks. Over the past decade, extensive literature has demonstrated the role of grit in L2 settings. According to Teimouri et al. (2020), a positive correlation exists between grit and several learning outcomes, such as a learner's ability to communicate, grammar grades, laboratory grades, and speaking grades. On the other hand, the study indicated a negative association between components of grit with language anxiety and fixed mindset. Similar to the abovementioned study, L2 grit has been identified as a predictor of willingness to communicate, which is considered to be the most significant factor in foreign language achievement (Lee et al., 2020; Lee, 2020).

Additionally, a survey of Thai students revealed a positive correlation between grit and students' motivations, whereas a negative correlation regarding their language anxiety (Changlek et al., 2015). Also, Kramer et.al (2017) study of Japanese university students has shown a positive association between grit and students' vocabulary learning and reading habits. In addition to SLA, broad-ranging educational research has similarly demonstrated that grit predicts success across a variety of disciplines, including mathematics, science, and professional training (Eskreis-Winkler et al., 2014; Credé, 2018). Furthermore, the results of other studies have highlighted the positive link between L2 grit and academic engagement (Khajavy, 2021), L2 performance (Wei et al., 2019), and foreign language enjoyment. In addition, recent studies have mentioned PE as a paramount predictor of L2 motivation and persistence (Feng et al., 2020) as well as L2 success and language proficiency (Sudina et al., 2021).

Grit and perceived social competence are not isolated constructs, but rather coexist in a dynamic, reciprocal relationship that together fuels subjective well-being. This interplay is mediated well by positive emotions. For instance, the

persistence of hard-working learners enables them to overcome initial communicative difficulties, resulting in more successful social interactions. These successful interactions, in turn, increase perceived social competence and produce high levels of foreign language enjoyment (Li et al., 2023; Wei, 2023). This enjoyment then strengthens the learner's passion and commitment and so encourages more grit. This forms a virtuous cycle in which grit and social competence co-evolve through the mechanism of positive emotion. As highlighted by Derakhshan (2023), this cycle is key to sustainability, as it is useful against burnout. Furthermore, the role of the teacher is of primary importance in this ecosystem, with teacher support and engagement proven to be strong predictors of both foreign language enjoyment and grit, underscoring that the social environment cultivated by the educator can play a pivotal role in initiating and maintaining this positive feedback loop (Derakhshan, 2023; Wang et al., 2022).

The Present Study

Educational research has increasingly turned its attention to the interconnected roles of perceived social competence, grit, and subjective well-being, especially within the emotionally challenging settings of English as a Foreign Language (EFL) classroom. (Bozgün & Akın-Köstereliоğlu, 2021; Li, 2025; Tang & Zhu, 2024). As a psychological asset, perceived social competence empowers educators to navigate stress and sustain resilience, while grit enables teachers to maintain consistency, composure, and commitment despite setbacks, behavioral challenges, or fluctuating student engagement. Grasping how these constructs interrelate is fundamental to creating classroom environments that nurture emotional well-being while promoting effective teaching and learning. This study seeks to address this need by investigating the interrelationships among perceived social competence, grit, and subjective well-being in the context of EFL teaching and learning. In light of these explanations, the structural model of the research has been developed as follows:

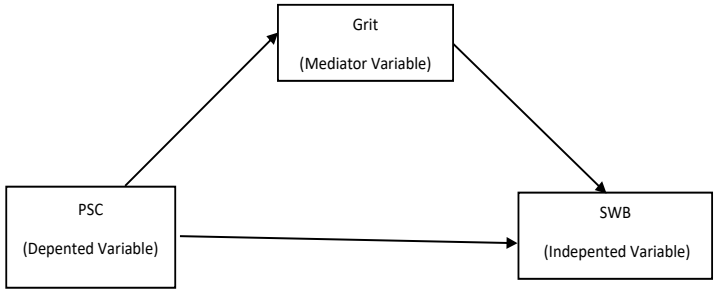

Figure 1. Proposal model for perceived social competence, grit, and subjective well-being.

Using data drawn from the Turkish educational landscape, the research aims to answer the following questions:

RQ1: What is the relationship between perceived social competence, grit, and subjective well-being?

RQ2: Do perceived social competence and grit predict subjective well-being?

RQ3: Does grit mediate the relationship between perceived social competence and subjective well-being?

Method

Research Design

This descriptive research study examines the relationship between perceived social competence, grit, and subjective well-being and investigates whether grit plays a mediating role in the relationship between perceived social competence and subjective well-being. The study employs the relational screening model, in which relations between two or more variables are determined, providing insights into cause-and-effect relationships (Büyüköztürk et al., 2018). This model aims to identify the presence of a co-variation between these variables, along with the direction and level of the variation (Karasar, 2003).

Study Group

In selecting the participants of the study, a convenience sampling method was utilized. This method was chosen to save time and reduce costs as well as to accelerate the data collection process (Büyüköztürk et al., 2018). In accordance with this, faculty members teaching at the university distributed the scale sets prepared via Google Forms to their students before classes started, and data were collected from those students who voluntarily participated in the study. Information regarding the study group is presented in Table 1.

Table 1. Sociodemographic characteristics of the participants (N=320)

	Groups	**N**	**%**	$\overline{X}$	**Min.**	**Max.**
Age				21.72	19	43
Gender	Female	266	83.1			
	Male	54	16.9			
Grade	Sophomore	131	40.9			
	Junior	134	41.9			
	Senior	55	17.2			

As seen in Table 1, the average age of university students who participated in the study is 21.72. With a percentage of 83.1, the majority of the participants are female. Most of the participants (%41.9) were junior.

Data Collection Instruments

The data collection instruments used during the research process are: Personal Information Form, Subjective Well-Being Scale, Short Grit Scale, and Perceived Social Competence Scale.

Personal Information Form

This form was developed by the researcher to determine the participants' age, gender, academic department, and year of study.

Subjective Well-Being Scale

Developed by Tuzgöl-Dost (2004), this scale aims to measure individuals' cognitive judgments of satisfaction with their lives and the frequency and intensity of the positive and negative feelings they experience. The scale consists of a single dimension with 46 items—26 positive and 20 negative. Each item is rated on a 5-point Likert scale ranging from (1) Not at all appropriate to (5) Completely appropriate. The minimum possible score is 46, and the maximum is 230. Higher scores indicate higher levels of subjective well-being. The Cronbach's alpha reliability coefficient was reported as .93 by Tuzgöl-Dost, and .94 in this study.

Perceived Social Competence Scale

The original version of this scale was developed by Anderson-Butcher et al. (2007) and adapted into Turkish by Sarıçam et al. (2013). Confirmatory factor analysis conducted to measure the construct validity of the scale revealed that the Turkish version, like the original, consists of six items loading onto a single factor (χ^2=7.34, df=7, RMSEA=.010, CFI=1.00, RFI=0.99, IFI=1.00, AGFI=.98, GFI=.99, NFI=.99, SRMR=.018). The factor loadings ranged from .57 to .80, and the internal consistency coefficient was .80. Corrected item-total correlations ranged between .52 and .66. The scale is a 5-point Likert-type with response options from (1) Strongly disagree to (5) Strongly agree. The scale didn't have any items subject to reverse scoring and higher scores indicated higher perceived social competence. In the current study, the internal consistency coefficient was found to be .85.

Short Grit Scale

Developed by Duckworth and Quinn (2009), the short grit scale is a self-report scale that measures trait-level perseverance and passion for long-term goals and uses of a 5-point Likert format. The scale comprises two sub-dimensions (Consistency of Interest and Perseverance of Effort) with a total of 8 items.

Cronbach's alpha values were reported as .70 for Perseverance of Effort, .77 for Consistency of Interest, and .82 for the full scale. The Turkish version of the scale used in this study was the work of Sarıçam et al. (2016) and it retains the two-factor structure of the original scale. Cronbach's alpha values turned out to be .83 for the full scale, .80 for the sub-dimension of Consistency of Interest, and .71 for the sub-dimension of Perseverance of Effort. In this study, the internal consistency coefficient for the full scale was found to be .69.

Data Collection Procedure

Prior to data collection, online versions of the scales were created via Google Forms. Participants were required to respond to all items, and settings were configured to prevent multiple submissions from the same participant. After the necessary adjustments, the online forms were published and shared with faculty members before their lectures. Faculty members then shared the Google Form link with their students, and data were collected from those who voluntarily provided informed consent. Data collection took place between February 7 and April 15, 2025.

Data Analysis

This study examined the mediating role of grit in the relationship between perceived social competence and subjective well-being among university students. Prior to mediation analysis, descriptive statistics (mean, standard deviation, skewness, and kurtosis) were evaluated. Based on skewness-kurtosis coefficients, histograms, and Q-Q plots, the data were assumed to be normally distributed. Pearson Product-Moment Correlation Coefficient Analysis was conducted to examine relationships between variables. Finally, analyses were performed to determine the direct or indirect mediating effect of grit. All data were analyzed using SPSS-26 and the PROCESS Macro (Hayes v4.0), with the significance level set at .05.

Results

This section presents the statistical analyses related to the research questions. As an initial step, normality values, descriptive statistics, and internal consistency coefficients for the scales were examined and presented in Table 2.

Table 2. Normality values, Descriptive Statistics, and Cronbach Alpha values for Scales

	Min.	Max.	Skew.	Kurt.	Cronbach Alpha
Grit	14.00	40.00	.037	.415	.695
Subjective Well-Being	83.00	226.00	-.144	-.350	.944
Perceived Social Competence	14.00	30.00	-.318	.385	.856

As can be seen in Table 2, the skewness and kurtosis coefficients for each scale indicate normal distribution. The closeness of mode and median values, along with visual inspection of histograms and Q-Q plots, supports this conclusion. Additionally, internal consistency coefficients were found to be high for the subjective well-being and perceived social competence scales, and moderate for the grit scale.

Following the descriptive statistics, correlation values between the scales were examined, and the results are shown in Table 3.

Table 3. Correlation among Scale Scores

Scale	1	2	3
Subjective Well-Being	1	.389*	.604*
Perceived Social Competence		1	.218*
Grit			1

As Table 3 shows, there is a moderate, positive, and statistically significant relationship between subjective well-being and perceived social competence (r = .389, p < .01), as well as between subjective well-being and grit (r = .604, p < .01). A low-level but significant positive relationship was also found between perceived social competence and grit (r = .218, p < .01).

Table 4. The Mediating Role of Grit in the Relationship Between Perceived Social Competence and Subjective Well-Being

Model		R	R^2	B	S.E.	β	t	p	Lower Boundary	Upper Boundary
1	Constant	.389	.151	88.229	10.162		8.682	.000	68.236	108.221
	Per. Soc. Comp.			3.082	.410	.389	3.984	.000	2.276	3.889
2	Constant	.659	.434	25.927	9.672		2.681	.008	6.897	44.956
	Per. Soc. Comp.			2.140	.343	.270	7.521	.000	1.464	2.815
	Grit			3.223	.256	.545	12.589	.000	2.720	3.727
Indirect Effect				.119	.031				.060	.180

As shown in Table 4, perceived social competence significantly predicts subjective well-being (β = .389, $p < .01$), explaining 15% of its variance. Accordingly, Hypothesis 1 is supported. In the second model, grit is found to be a significant predictor of subjective well-being (β = .545, $p < .01$), explaining 29% of its variance, thus supporting Hypothesis 2. Finally, when both perceived social competence and grit are included in the model, it is observed that they are a significant predictor of subjective well-being (β = .659, $p < .01$) and explain 43.4% of the variance. The coefficient of perceived social competence decreased from β = .389 to β = .270 after including grit in the model, indicating that grit partially mediates the relationship between perceived social competence and subjective well-being. A bootstrap analysis using 5,000 samples within the Hayes PROCESS model yielded similar results.

Discussion

The purpose of the following quantitative study was to explore the relation between grit, social competence, and subjective well-being among EFL Turkish university students. The findings of the study shed light on the interplay of these psychological factors and provide significant insights into the context of L2 learning.

Results of the correlation analysis showed a strong relationship between all three variables. According to previous research, there is a moderate relation between social competence and subjective well-being. A longitudinal study of children (Bornstein et al., 2010) has shown that low social competence at age 4 is a significant predictor of both externalizing and internalizing behavior at age

10 and 14. Furthermore, like several previous studies, the results indicated a significant correlation between social competence and grit. Researchers found that Chinese middle school students who have more grit have better peer interactions and more teacher-related social competence (Ma et al., 2020).

Research highlighted that individuals with highly developed social skills gain more social support, which plays an important role in buffering stress and bolstering perseverance. Studies carried out during the COVID-19 pandemic highlighted that socially competent individuals sustained greater grit because of receiving support from their peers and institutional settings (Casali et al., 2023; Schmahl et al., 2022). Third, regarding the significant association between grit and subjective well-being, an exponential body of literature confirmed the findings of our study. Jin and Kim's (2017) study of young adult learners indicated that grit shows a significant association with autonomy and competence needs, in which needs play the role of mediator between grit and subjective well-being.

Similarly, a meta-analysis of 83 studies revealed a strong correlation between overall grit and subjective well-being, followed by its two sub-factors, perseverance of effort and consistency of interest (Hou et al, 2022). According to a survey by Zhang et al., (2024) early Chinese adolescents revealed that within-person changes in grit were able to predict the within-person changes half a year later and vice versa. Moreover, the study of Jiang et al (2020 demonstrated a positive relation between grit and subjective well-being, while needs satisfaction took the role of mediator.

Conclusion

This study revealed that the concept of grit plays a partial mediating role in the relationship between perceived social competence and subjective well-being. The study identified both direct and indirect connections among these variables, providing empirical support for the idea that grit and subjective well-being are interconnected in higher education. These findings emphasize the importance of grit as a key factor in influencing students' self-competence in social settings. Furthermore, it serves a significant role in shaping their emotional and psychological experiences within academic settings. As a result, the results offer practical implications for crafting classroom experiences that aim to promote students' well-being. To strengthen the relevance and practical value of these findings, future research should integrate students' perspectives on classroom practices, which could help tailor interventions more effectively to the needs of learners in higher education settings.

References

Ampofo, J., Bentum-Micah, G., Xusheng, Q., Sun, B., & Mensah Asumang, R. (2025). Exploring the role of teacher empathy in student mental health outcomes: a comparative SEM approach to understanding the complexities of emotional support in educational settings. *Frontiers in psychology*, *16*, 1503258. https://doi.org/10.3389/fpsyg.2025.1503258

Anderson-Butcher, D., Iachini, A. L., & Amorose, A. J. (2007). Initial reliability and validity of Perceived Social Competence Scale. *Research on Social Work Practice, 18*(1), 47-54. https://doi.org/10.1177/1049731507304364

Babic, S., Tatalović Vorkapić, S., & Sliskovic, A. (2023). The role of emotional intelligence in sustaining subjective well-being among EFL teachers. *Teaching and Teacher Education*, *121*, 103945. https://doi.org/10.1016/j.tate.2022.103945

Bornstein, M. H., Hahn, C.-S., & Haynes, O. M. (2010). Social competence, externalizing, and internalizing behavioral adjustment from early childhood through early adolescence: Developmental cascades. *Development and Psychopathology, 22*(4), 717–735. https://doi.org/10.1017/S0954579410000416

Botes, E., Dewaele, J.-M., & Greiff, S. (2023). Taking stock: A meta-analysis of the effects of foreign language enjoyment. *Studies in Second Language Learning and Teaching, 13*(2), 205–232. https://doi.org/10.14746/ssllt.2022.12.2.3

Bozgün, K., & Akın-Köstereliođlu, M. (2021). The Roles of Social-Emotional Development, Academic Grit and Subjective Well-Being in Primary School Students' Reading-Writing Motivation. *Reading Psychology*, *42*(8), 836–857. https://doi.org/10.1080/02702711.2021.1955782

Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö.E., Karadeniz, Ş., & Demirel, F. (2018). *Eğitimde bilimsel araştırma yöntemleri*. Pegem Akademi Yayıncılık. https://doi.org/10.14527/9789944919289

Campbell, A. (1981). *The sense of well-being in America: Recent patterns and trends*. McGraw-Hill.

Caprara, G. V., Steca, P., Zelli, A., & Capanna, C. (2005). A New Scale for Measuring Adults' Prosocialness. *European Journal of Psychological Assessment, 21*(2), 77–89. https://doi.org/10.1027/1015-5759.21.2.77

Casali, N., Feraco, T., Ghisi, M., & Meneghetti, C. (2023). "Andrà tutto bene": Associations between character strengths, psychological distress and self-efficacy during Covid-19 lockdown. *Journal of Happiness Studies, 24*(2), 505–526. https://doi.org/10.1007/s10902-022-00611-5

Cha, K.-H. (2003). Subjective well-being among college students. *Social Indicators Research*, *62*(–63), 455–477. https://doi.org/10.1023/A:1022669906470

Changlek, A., & Palanukulwong, T. (2015). Motivation and grit: Predictors of language learning achievement. *Veridian E-Journal, Silpakorn University*, *8*(4), 23-36.

Credé, M. (2018). What shall we do about grit? A critical review of what we know and what we don't know. *Educational Researcher*, *47*(9), 606–611. https://doi.org/10.3102/0013189X18801322

Derakhshan, A. (2023). Revisiting research on positive psychology in second and foreign language education: Trends and directions. *Language Related Research*, *14*(5), 1–43. https://doi.org/10.52547/LRR.13.5.2

Derakhshan, A., Dewaele, J.-M., & Naddafi, M. (2022). To teach or not to teach? An exploration of FLE among EFL teachers. *Applied Linguistics Review*. Advance online publication. https://doi.org/10.1515/applirev-2022-0067

Derakhshan, A., Fathi, J., Pawlak, M., & Kruk, M. (2022). Classroom social climate, growth language mindset, and student engagement: the mediating role of boredom in learning English as a foreign language. *Journal of Multilingual and Multicultural Development*, *45*(8), 3415–3433. https://doi.org/10.1080/01434632.2022.2099407

Derakhshan, A., & Fathi, J. (2023). Grit and foreign language enjoyment as predictors of EFL learners' online engagement: The mediating role of positive emotions. *The Asia-Pacific Education Researcher*, *79,* 759-769. https://doi.org/10.1007/s40299-023-00745-x

Dewaele, J. M., & Li, C. (2020). Emotions in second language acquisition: A critical review and research agenda. *Foreign Language World, 196*(1), 34–49.

Dewaele, J. M., & MacIntyre, P. D. (2014). The two faces of Janus? Anxiety and enjoyment in the foreign language classroom. *Studies in Second Language Learning and Teaching,* *4*(2), 237–274. https://doi.org/10.14746/ssllt.2014.4.2.5

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, *95*(3), 542–575. https://doi.org/10.1037/0033-2909.95.3.542

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, *92*(6), 1087–1101. https://doi.org/10.1037/0022-3514.92.6.1087

Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the Short Grit Scale (Grit–S). *Journal of Personality Assessment*, *91*(2), 166–174. https://doi.org/10.1080/00223890802634290

Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters. *Educational Researcher*, *44*(4), 237–251. https://doi.org/10.3102/0013189x15584327

Eckert, H., Steinmayr, R. & Wirthwein, L. (2025). Socioemotional and sociodemographic determinants of subjective well-being in school during childhood and adolescence. *European Journal of Psychology of Education, 40*, 54. https://doi.org/10.1007/s10212-025-00955-5

Eriksen, E.V., & Bru E. (2023) Investigating the Links of Social-Emotional Competencies: Emotional Well-being and Academic Engagement among Adolescents, *Scandinavian Journal of Educational Research, 67*,3, 391-405. DOI: 10.1080/00313831.2021.2021441.

Eskreis-Winkler, L., Duckworth, A. L., Shulman, E. P., & Beal, S. (2014). The grit effect: Predicting retention in the military, the workplace, school and marriage. *Frontiers in Psychology, 5*, 36. https://doi.org/10.3389/fpsyg.2014.00036

Feng, L., & Papi, M. (2020). Persistence in language learning: The role of grit and future self-guides. *Learning and Individual Differences*, *81*, 101904. https://doi.org/10.1016/j.lindif.2020.101904

Gregersen, T., MacIntyre, P. D., & Meza, M. D. (2014). The motion of emotion: Idiodynamic case studies of learners' foreign language anxiety. *The Modern Language Journal, 98*(2), 574–588. https://doi.org/10.1111/modl.12084

Hiver, P. (2018). Teachstrong: The power of teacher resilience for L2 practitioners. In S. Mercer & A. Kostoulas (Eds.), *Language teacher psychology* (pp. 231–246). Multilingual Matters. https://doi.org/10.2307/jj.22730528.20

Hou, X., Becker, N., Hu, T., & Liu, Y. (2022). A meta-analysis of the correlation between grit and subjective well-being. *Frontiers in Psychology, 13*, 1023039. https://doi.org/10.3389/fpsyg.2022.1023039

Huppert, F. A., Marks, N., Clark, A., Siegrist, J., Stutzer, A., Vittersø, J., & Wahrendorf, M. (2013). Measuring well-being across Europe: Description of the ESS well-being module and preliminary findings. *Social Indicators Research, 91*(3), 301–315. https://doi.org/10.1007/s11205-011-9965-8

Jiang, W., Jiang, J., Du, X., Gu, D., Sun, Y., & Zhang, Y. (2020). Striving and happiness: Between- and within-person-level associations among grit, needs satisfaction and subjective well-being. *The Journal of Positive Psychology, 15*(4), 543–555. https://doi.org/10.1080/17439760.2020.1789695

Jin, B., & Kim, J. (2017). Grit, basic needs satisfaction, and subjective well-being. *Journal of Individual Differences, 38*(1), 29–35. https://doi.org/10.1027/1614-0001/a000219

Junge, K., Ohly, S., & Niessen, C. (2020). An agentic perspective: A new model for the assessment of social competence. *Current Psychology*, *39*, 2173–2185. https://doi.org/10.1007/s12144-018-9913-8

Karasar, N. (2003). *Bilimsel araştırma yöntemi, kavramlar-ilkeler-teknikler*. Nobel Yayın Dağıtım.

Karbakhsh, R., & Safa, M. A. (2020). Basic psychological needs satisfaction, goal orientation, willingness to communicate, self-efficacy, and learning achievement: A structural equation modeling approach. *Journal of Psycholinguistic Research, 49*(5), 803–822. https://doi.org/10.1007/s10936-020-09715-6

Khajavy, G. H. (2021). Modeling the relations between foreign language engagement, emotions, grit and achievement among Iranian EFL learners. *System*, *103*, 102681. https://doi.org/10.1016/j.system.2021.102681

Kramer, B., McLean, S., & Shepherd, J. (2017). Grit and self-control as predictors of first-year student success. *Studies in Self-Access Learning Journal*, *8*(3), 218-237. https://doi.org/10.37237/080303

Konu, A. I., Lintonen, T. P., & Autio, V. J. (2002). Evaluation of Well-Being in Schools ? A Multilevel analysis of general Subjective Well-Being. *School Effectiveness and School Improvement*, *13*(2), 187–200. https://doi.org/10.1076/sesi.13.2.187.3432

Lee, J. S. (2020). The role of grit and classroom enjoyment in EFL learners' willingness to communicate. *Journal of Multilingual and Multicultural Development*, 1–17. https://doi.org/10.1080/01434632.2020.1746319

Lee, J. S., & Lee, K. (2020). The role of grit and foreign language enjoyment as predictors of willingness to communicate in the context of foreign language learning. *TESOL Quarterly*, *54*(2), 511-543. https://doi.org/10.1002/tesq.557

Li, C., & Wei, L. (2023). Anxiety, enjoyment, and boredom in language learning amongst junior secondary students in rural China: How do they contribute to L2 achievement? *Studies in Second Language Acquisition*, *45*(1), 93–108. https://doi.org/10.1017/S0272263122000031

Li, G. (2025). Understanding the roles of grit and well-being in L2 achievement among Chinese university English learners. *BMC Psychol*, 13, 576. https://doi.org/10.1186/s40359-025-02933-4

MacIntyre, P. D., & Gregersen, T. (2012). Emotions that facilitate language learning: The positive-broadening power of the imagination. *Studies in Second Language Learning and Teaching, 2*(2), 193–213. https://doi.org/10.14746/ssllt.2012.2.2.4

Ma, Y., Ma, C., & Lan, X. (2020). Uncovering the moderating role of grit and gender in the association between teacher autonomy support and social competence among Chinese undergraduate students. *International Journal of Environmental Research and Public Health, 17*(17), 6398. https://doi.org/10.3390/ijerph17176398

Mystkowska-Wiertelak, A. (2022). *The dynamic nature of motivation in language learning: A classroom perspective*. Palgrave Macmillan.

Pavot, W., Diener, E., & Suh, E. (1997). The temporal satisfaction with life scale. *Journal of Personality Assessment*, *72*(2), 306–316. https://doi.org/10.1207/s15327752jpa7202_11

Pilkauskaite-Valickiene, R., & Gabrialaviciute, I. (2015). The role of School Context on Subjective Well-Being and Social Well-Being in Adolescence. *Procedia - Social and Behavioral Sciences*, *191*, 2588–2592. https://doi.org/10.1016/j.sbspro.2015.04.701

Putwain, D. W., & Wood, P. (2022). Anxiety in the mathematics classroom: reciprocal relations with control and value, and relations with subsequent achievement. *ZDM*, *55*(2), 285–298. https://doi.org/10.1007/s11858-022-01390-2

Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development, 6*(1), 111–135. https://doi.org/10.1111/j.1467-9507.1997.tb00097.x

Sarıçam, H., Akın, A., Akın, Ü., Çardak, M. (2013). Algılanan Sosyal Yetkinlik Ölçeğinin Türkçe'ye uyarlanması: Geçerlik ve güvenirlik çalışması. *JASSS (The Journal of Academic Social Science Studies), 6*(3), 591-600. http://dx.doi.org/10.9761/JASSS_714

Sarıçam, H., Çelik, İ., & Oğuz, A. (2016). Kısa Azim (Sebat) Ölçeğinin Türkçe'ye uyarlanması- geçerlik ve güvenirlik çalışması. Uluslararası Türkçe Edebiyat Kültür Eğitim Dergisi, 5(2), 927-935. http://dx.doi.org/10.7884/teke.622

Schmahl, F., & Nguyen, Q. (2022). *The role of social support for student grit, well-being, and school belonging during the COVID-19 pandemic*. PsyArXiv. https://doi.org/10.31234/osf.io/9g4ae

Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Free Press.

Shin, J., Taylor, M. S., & Seo, M.-G. (2021). Resources for change: The relationships of organizational inducements and psychological resilience to employees' attitudes and behaviors toward organizational change. *Academy of Management Journal*, *55*(5), 1217-1243. https://doi.org/10.5465/amj.2010.0325

Solhi, M., Derakhshan, A., & Ünsal, B. (2023). Associations between EFL students' L2 grit, boredom coping strategies, and emotion regulation strategies: a structural equation modeling approach. *Journal of Multilingual and Multicultural Development*, *46*(2), 224–243. https://doi.org/10.1080/01434632.2023.2175834

Sorrenti, G., Zölitz, U., Ribeaud, D., & Eisner, M. (2024). The causal impact of Socio-Emotional Skills Training on Educational Success. *The Review of Economic Studies*, *92*(1), 506–552. https://doi.org/10.1093/restud/rdae018

Sudina, E., & Plonsky, L. (2021). Academic perseverance in foreign language learning: An investigation of the language-specific grit scale. *Studies in Second Language Acquisition*, 1–28. https://doi.org/10.1111/modl.12738

Sulis, G., Mercer, S., & Mairitsch, A. (2023). *Language teacher wellbeing across the career span.* Multilingual Matters & Channel View Publications. https://doi.org/10.21832/9781800412811

Tang, L., & Zhu, X. (2024). Academic self-efficacy, grit, and teacher support as predictors of psychological well-being of Chinese EFL students. *Frontiers in psychology*, *14*, 1332909. https://doi.org/10.3389/fpsyg.2023.1332909

Teimouri, Y., Plonsky, L., & Tabandeh, F. (2020). L2 grit: Passion and perseverance for second-language learning. *Language Teaching Research*, *26*(5), 893-918. https://doi.org/10.1177/1362168820921895

Tuzgöl-Dost, M. (2004). Subjective well-being levels of university students. [Unpublished Doctoral Dissertation] Hacettepe University.

Von Culin, K. R., Tsukayama, E., & Duckworth, A. L. (2014). Unpacking grit: Motivational correlates of perseverance and passion for long-term goals. *The Journal of Positive Psychology, 9*(4), 306–312. https://doi.org/10.1080/17439760.2014.898320

Wang, Y., Derakhshan, A., & Pan, Z. (2022). Positioning an agenda on a loving pedagogy in second language acquisition: Conceptualization, practice, and research. *Frontiers in Psychology, 13*, 894190. https://doi.org/10.3389/fpsyg.2022.894190

Wei, H. (2023). The role of English as a foreign language teachers' and learners' emotions and language achievement and success. *Frontiers in Psychology, 14*, 1137003. https://doi.org/10.3389/fpsyg.2023.1137003

Wei, H. (2023). The relationship between Chinese EFL students' resilience and academic achievement: The chain mediating roles of foreign language anxiety and foreign language enjoyment. *Frontiers in Psychology*, *14*, 1126243. https://doi.org/10.3389/fpsyg.2023.1126243

Wei, H., Gao, K., & Wang, W. (2019). Understanding the relationship between grit and foreign language performance among middle school students: The roles of foreign language enjoyment and classroom environment. *Frontiers in Psychology*, *10*, 1508. https://doi.org/10.3389/fpsyg.2019.01508

Zhang, C., Mao, L., Li, N., & Gu, X. (2022). Chinese EFL students' social-emotional competence, grit, and academic engagement. *Frontiers in psychology*, *13*, 914759. https://doi.org/10.3389/fpsyg.2022.914759

Zhang, S., Shi, W., Luo, Y., & Liu, Z. (2024). The longitudinal and bidirectional relationship between grit and subjective well-being among Chinese early adolescents. *Journal of Happiness Studies, 25*(1-2), 2. https://doi.org/10.1007/s10902-023-00747-y

Zhang, X. (2019). Foreign language anxiety and foreign language performance: A meta-analysis. *The Modern Language Journal, 103*(4), 763–781. https://doi.org/10.1111/modl.12590

Zhou, L., Li, Z., & Li, Y. (2023). The structure and measurement of university teachers' eudaimonic well-being: Evidence from China. *Current Psychology*, *42*, 19457–19467. https://doi.org/10.1007/s12144-022-03076-0

CHAPTER 2

Generative Artificial Intelligence in Education

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Introduction

The 21st century has undergone a swift transformation in the educational landscape, primarily driven by technological advancements (Petersen, 2021) and innovative technologies. Thus, in this century, artificial intelligence (henceforth, AI) has become one of the most revolutionary movements among other technological advancements. AI has profoundly impacted every aspect of our lives, including business, communication, transportation, and education. With the introduction of AI into the educational environment, it has played a significant role in teachers' classrooms and students' learning processes.

AI was first sparked in 2022 by OpenAI, released as ChatGPT (OpenAI, 2024). ChatGPT drew upon a large language database to produce responses from text-based inputs entered by people (Sullivan, Kelly & McLaughlan, 2023). It has particularly attracted attention in educational contexts for its ability to simulate human-like interaction and support learning in varied subjects, especially language learning.

AI is a type of technology that focuses on creating and utilizing machines capable of performing tasks that typically require human intelligence (Feingold, 2023). AI has advanced significantly in a short period of time, transforming all aspects of schooling. Increasingly, people are utilizing AI to learn foreign and second languages, particularly in the 21st century. The use of AI as a tool for learning a second language has evolved over time, particularly in the 21st century. Previously, only teachers could administer quizzes on reading comprehension, grammar, and vocabulary. However, in our present day, most people are interested in online language learning programs, applications, and software that utilize machine learning and natural language processing via virtual platforms. These platforms often compete with or surpass traditional language teachers (Godwin-Jones, 2024), especially those who are not open to innovation and technology.

One of the recent developments in AI that has caused excitement around the world is Generative Artificial Intelligence (henceforth, GenAI). As reported by Chakraborty et al. (2024), significant evolution of AI over the years paved the way for a remarkable advancement, namely GenAI. These recent developments, progress, and expansion in machine learning have led to a more complex technology for producing digital content (Hu, 2023), utilizing chatbots, automated writing, drawing, and painting applications, as well as coding. That's to say, this newly generated digital content could be texts, images, music, videos, graphics, etc. (Abukmeil et al., 2021; Hu, 2022; Gui et al., 2021; Jovanović, 2022).

Generative Artificial Intelligence

GenAI, becoming an integral part of daily life and scientific research particularly with rapid advancements in technologies like Large Language Models (LLMs), is a deep learning program, which generates artificial models using statistics, algorithms, probabilities, etc. (Hu, 2023; Jovanović, 2022) and analyzes existing digital content, such as texts, audios, images/graphics, videos, etc. to create artificial creations easily (Baidoo-Anu & Owusu Ansah, 202; Yu & Guo, 2023). GenAI also offers significant promises in areas such as accelerating scientific discovery processes, enhancing research efficiency, supporting text generation in different languages, summarizing large information sets, and coding. This transformative power of GenAI opens new horizons for research and development activities. It is worth noting that GenAI has gained popularity thanks to ChatGPT. In other words, GenAI burst into public awareness in late 2022 with the launch of ChatGPT, which became the rapidly growing application in history (UNESCO, 2023). While AI is a computer program designed to imitate human intelligence and perform various tasks, GenAI can generate new content based on pretrained information loaded into a large language model drawn from algorithms and probability models (Jovanović, 2022). AI has had a prominent impact on how people learn and how schools and other organizations work (Bond et al., 2024). GenAI applications can automatically generate outputs such as text and images, combine speech and audio, create new video content, and develop datasets that require extensive training data and deep learning architectures (Jovanovic & Campbell, 2022; Nirala et al., 2022). These detailed models can potentially change people's interactions with technology, which will entail significant changes in multiple processes that people engage in daily. Since GenAI can create original outputs, it conceivably changes some known paradigms (Gozalo-Brizuela & Garrido-Merchán, 2023).

The progress in GenAI sparked much interest and speculation about how AI can be used in everyday life because applications like ChatGPT®, Dall-E®, MidJourney®, Claude®, Imagen®, Google Bard®, Gemini®, Google Whisk®, and CoPilot® became more popular among people all over the world, including educators, instructors, students, etc.

Generative Artificial Intelligence in Education

The use of GenAI in schools will have a significant effect on how teachers and students teach and learn. It will enable educators to create learning environments that adapt to each student, develop instructional content tailored to each student, and incorporate interactive and immersive experiences into standard teaching methods (Nzenwata et al., 2024). Over time, GenAI has made significant strides, as it can generate text, graphics, and even simulated conversations (Cao et al., 2023; Gozalo-Brizuela & Garrido-Merchan, 2023). GenAI in education is a new area of educational technology (Crompton & Burke, 2023; Zawacki-

Richter et al., 2019). In higher education, it can help students learn in a way that works best for them, practice their language skills (Bozkurt, 2023), make the learning process easier, help students with their academic work and assignments, and give them personalized feedback (Crawford et al., 2023). It has many educational uses, including learning management, intelligent tutoring systems, assessment and evaluation, and student performance prediction (Crompton & Burke, 2023). In fact, GenAI is a type of AI because it refers to technology that can be used to create new content based on large volumes of data that models have been trained on from different resources. For example, ChatGPT®, Microsoft Copilot®, and Google Gemini® are all GenAI applications, built on Large Language Models (LLMs), which are a category of foundation models trained on large amounts of data, enabling them to understand and generate human-like content. These LLMs enable ChatGPT to behave like a person, translate languages, summarize information, and assist students with their writing and learning tasks (Azaria, 2023; Orrù et al., 2023). It also helped EFL students practice speaking, receive instant grammar corrections, and write essay drafts (Amyatun & Kholis, 2023; Waziana et al., 2024).

GenAI changes how students learn English by making their writing, speaking, reading, and listening better. Numerous studies have thoroughly investigated the influence of GenAI and LLMs on EFL instruction and acquisition. Research indicated that GenAI applications markedly improved students' vocabulary, grammar, and writing competencies in English language courses (Al Mahmud, 2023; Song & Song, 2023). These applications can test students' general knowledge, their ideas about traditional ways of teaching and learning, and their creativity (Cooper, 2023; Kaplan-Rakowski et al., 2023). Research has shown that GenAI applications greatly impacted English language class students' vocabulary, grammar, and writing skills (Al Mahmud, 2023; Song & Song, 2023).

In a nutshell, GenAI can be used in many different educational settings, such as making new content, making personalized learning materials, and automating tests and feedback. For example, students use GenAI to help them with their homework, lessons, research, or to try out creative writing and art. Teachers can use these tools to design interesting lesson plans or provide students with personalized learning experiences. Schools apply GenAI to enhance their administrative and educational services. (https://www.intechopen.co m/chapters/11 81569#)

Applications and Merits of Generative Artificial Intelligence in Education

GenAI applications began to shift and enhance educational experiences worldwide, and their acceptance for every kind of academic institution became inevitable. GenAI applications offer a range of learning materials that adapt to

diverse learning preferences and needs, making education more inclusive and accessible to a broader spectrum of students. Educators and instructors, if they are interested in using GenAI in teaching and learning, should be aware of its possible advantages and merits in making personalized learning achievable, while also considering how the technology may support them in their teaching (Hammond, 2024). Instructional materials may be customized to meet the needs of each student, and students might engage with GenAI tutors and Chatbots to receive more automated feedback and grading (The role of AI, 2024). Here, some possible and current applications of GenAI in education have been discussed.

Personalized Learning

The introduction of GenAI in education signifies a prominent advancement. GenAI, in personalized learning, has the ability to create adaptive and human-like content, real-time support, and individualized learning paths. At the same time, personalized learning facilitates individualized learning experiences tailored to the needs of learners (Zhang et al., 2020). GenAI may examine how each student performs and what they like, then modify its content and resources according to their needs. For instance, a GenAI system can diagnose any problems of the learners and automatically teach them fundamental ideas about the topic before moving on, or it might engage students who are interested in and good at the topic. This flexibility provided by GenAI systems covers the needs of all students and makes learning more efficient and intriguing for them (Karpouzis et al., 2024).

Applications of Personalized Learning

1. **Adaptive Content Creation:** AI-generated learning materials (texts, quizzes, examples) adjusted to the learner's level (e.g., simplified or leveled materials, activities for low-level students, and challenging ones for high-level students)
2. **Dynamic Learning Paths:** Real-time curriculum adjustment regarding learners' performance and interests (e.g., interactive and synchronic activities, resources, etc.)
3. **Language and Accessibility Support:** Translated content, simplified language, and converted materials in different formats for inclusive education.
4. **AI Tutors & Chatbots:** Instant answers and interaction, practice problems, tailored explanations,
5. **Goal-Oriented Learning Plans:** Setting realistic goals, following progress over time, regarding the learners' purposes, expectations, and progress (Adaptive Learning Content: Education for the Digital Age).

Assessment and Feedback

Assessment feedback addresses the information given to students based on their performance. GenAI can enhance input by making it more immediate, personalized, and constructive, allowing learners to assess their progress. Thanks to the automated grading process, timely, instant, and synchronized feedback can be given to the learners (Evans et al., 2019).

Applications of Assessment Feedback

1. **Automated Grading and Analysis:** Evaluation and grading of objective (e.g., multiple choice) and subjective (e.g., essays, paragraphs) assessments.
2. **Personalized Feedback Generation:** Instant, detailed, explanatory, human-like feedback
3. **Error Recognition:** Detecting and checking recurring errors across multiple assignments (e.g., grammar mistakes, spelling problems, punctuation mistakes, etc.).
4. **Formative Assessment Applications:** Giving instant feedback and reflecting prompts
5. **Peer Review Assistance:** Providing students with the opportunity to review each other's homework (Deepshikha, 2025; Messer et al., 2023).

Content Generation: Generative AI models can provide dynamic and varied information that adapts to the learner's progress, making educational experiences more engaging and personalized (Chris et al., 2018). That is to say, it is possible to generate human-like content.

Applications of Content Generation

1. **Personalized learning materials**: Regarding the needs, expectations, and proficiency levels of the learners
2. **Multiple formats:** Written, oral, PDF, HTML, PPT, social media posts, website content, quizzes, classroom debates, etc.
3. **Cultural adaptability:** Ability to adapt, work, and communicate within various cultures (e.g., British, American, Turkish, etc.)
4. **Student Support and enhancement:** Providing students with every kind of support, e.g., interactive learning (quizzes, games, group discussions, etc.), enhanced learning (chatbots, STEM, writing assistants, etc.), skill development (ChatGPT, BingAI, etc.), etc. (Tu, Chen & Huang, 2025).

Applications of Student Support

1. Full-time tutoring: Limitless access to tutors, educators, mentors, etc., online
2. Multilingual assistance: Not only English, but also different languages
3. Adaptive learning paths: Clear objectives, established timeline, curated content, logical sequence

Administrative Tasks: A broad range of activities, materials, and facilities

Applications of Administrative Tasks

1. **Workflow automation:** Students' information system, learning management system, digital forms and workflow
2. **Documentation:** the process of creating and storing information digitally, Google Forms®, Google Docs®, and personal records
3. **Resource optimization:** Identifying, prioritizing, and utilizing resources as efficiently and effectively as possible (Al-momani & Al-refai,2021; Kumar & Bervel, 2022; Deepshikha, 2025).

So, GenAI can create educational resources, plan lessons and curricula, provide tailored feedback and revision activities, perform administrative tasks, and support personalised learning. It can potentially decrease the workload of educators and students and create free time for teachers, allowing them to concentrate on efficient teaching.

Some Effective AI/GenAI-Based Applications for Educators and Students

GenAI applications have the capacity to enrich the students' learning experiences. They are also essential in nurturing students' analytical and critical capabilities. Here are some examples of these applications:

1. Chatbots (ChatGPT, Claude, Meta AI, Zapier Agents, etc.)
2. Search engines (Perplexity, Google AI Overviews, Arc Search, etc.) thinking
3. Content creation (Jasper, Anyword, Writer, etc.)
4. Grammar checkers and paraphrasing applications (Grammarly, Quillbot, Wordtune, Prowriting GenAI, etc.)
5. Video creation and editing (Runaway, Descript, Wondershare Filmora, etc.)
6. Image generation (Midjourney, Ideogram, etc.)

7. Social media management (FeedHive, Visata Social, Buffer, etc.)
8. Voice and music generation (ElevenLabs, Suno, AIVA, etc.)
9. Knowledge management and AI grounding (Mem, Notion AI, Q&A, Personal AI, etc.)
10. Task and project management (Asana, Any.do, BeeDone, etc.)
11. Transcription and meeting assistants (Fireflies, Avoma, etc.)
12. Scheduling (Reclaim, Clockwise, Motion, etc.)
13. e-mail (Shortwave, Microsoft Copilot Pro for Outlook, Gemini for Gmail, etc.)
14. Slide decks and presentations (Tome, Beautiful.ai, Slidesgo, OpenAI, etc.)
15. Resume builders (Teal, Enhancy, Kickresume, etc.)
16. Automation (Zapier, etc.)

Conclusion

GenAI and its applications noticeably disrupted teaching and learning practices in the education environment. GenAI provides critical thinking, personalized courses, leveled activities, time flexibility, innovation, integration, etc. There are many distinct types of generative AI models, and each one has a particular use in generating instructional content. These AI models might make education more accessible, personalized, and efficient. They include text-based applications that make reading materials and quizzes, as well as picture, audio, and video-generating models that increase learning through multimedia. It is obvious that GenAI,

a. gives teachers the most up-to-date materials to make lessons better and change the classroom into an entertaining atmosphere,
b. has a powerful influence on how tests are used in schools,
c. provides automated grading systems for teachers, educators, etc.
d. technologies and applications help create free learning environments, create personalized learning facilities for everybody,
e. gives teachers chances to flourish in their jobs,
f. explains how lessons should be planned,
g. helps teachers work together to prepare more interactive, engaging, challenging and entertaining lessons,
h. helps teachers prepare and organize courses with more data,

i. provides instant, real-time feedback and suggestions for personalized learning,

j. makes learning more accessible for inclusive education,

k. opens up new ways of teaching that encourage active, participatory learning and critical thinking,

l. helps learners scrutinize the problems and propose alternative solutions.

GenAI offers extensive educational opportunities through personalized learning, automated content generation and assessment, virtual mentorship, language learning, enhanced creativity, automated grading, and instant feedback, among others. However, it must be pinpointed that GenAI, when used ethically and attentively, can be a highly beneficial aid for learners.

References

Abukmeil, M., Ferrari, S., Genovese, A., Piuri, V., & Scotti, F. (2021). A survey of unsupervised generative models for exploratory data analysis and representation learning. Acm Computing Surveys (csur), 54(5).

Adaptive Learning Content (2024). Education for the Digital Age. Retrieved from https:// Adaptive Learning Content: Education for the Digital Age.

Al Mahmud, A. (2023). Enhancing EFL writing skills through Generative AI applications. *Journal of Language Learning Technology, 15(2), 45–61.*

Al-Momani, M., & Al-Refai, A. (2021). *Digital forms and workflow automation in university administration: Enhancing efficiency and transparency*. *International Journal of Educational Technology, 18(3), 112–125.*

Amyatun, S., & Kholis, N. (2023). ChatGPT as a writing assistant in *EFL contexts. ELT Journal of Innovation, 12(1), 88–99.*

Azaria, A. (2023). Applications of large language models in education. *AI and Society, 38(1), 120–137.*

Baidoo-Anu, D.; Owusu Ansah, L. Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning. Available online: https://ssrn.com/abstract=4337484 (accessed on 28 June 2025).

Berente, N., Seidel, S., & Safadi, H. (2021). Data-driven transformation in the age of AI. *MIS Quarterly, 45(3), 1457–1476.*

Boffin Brains (2025). The future of GenAI: Trends to watch in 2025 and beyond. https://www.boffingrains.com/blog/the-future-of-genai-trends-to-watch-in2025-and-beyond

Bond, M., H. Khosravi, M. De Laat, N. Bergdahl, V. Negrea, E. Oxley, P. Pham, S. W. Chong, and G. Siemens. (2024). A Meta Systematic Review of Artificial Intelligence in Higher Education: A call for increased ethics, collaboration, and rigour. International Journal of Educational *Technology in Higher Education,* 21(1): 4. https://doi.org/10.1186/s41239-023-00436-z.

Bozkurt, A. (2023). Generative artificial intelligence (AI) powered conversational educational agents: The inevitable paradigm shift. *Asian Journal of Distance Education, 18(1), 198–204.* http:// www.asianjde.co m/ojs/inde x.php/AsianJDE/article/view/718

Cao, J., He, Y., & Tan, C. (2023). The emergence of Generative AI in Higher Education: Opportunities and risks. *International Journal of Educational Technology,* 30(4), 233–248.

Chakraborty, D., Kumar, A., Patre, S., & Gupta, S. (2024). Enhancing trust in online grocery shopping through generative AI chatbots. *Journal of Business Research*, 180.

Chandrasekera, T., Yoon, S.-Y., & Choi, M. (2024). AI in design education: Enhancing creativity and efficiency. *Design Studies*, 82, 10242.

Chris, E., John, M., & Mercy, G. (2018). Generative AI for educational content creation. (PDF) Generative AI for Educationlal Content Creation (Retrieved on August, 2025)

Cooper, G. (2023). Examining science education in ChatGPT: An exploratory study of generative artificial intelligence. *Journal of Science Education and Technology*, 32(3), 444–452. https:// doi. org/10.1007/s10956-023-10039-y

Crawford, J., Cowling, M., & Allen, K. (2023). Leadership is needed for ethical ChatGPT: Character, assessment, and learning using artificial intelligence (AI). *Journal of University Teaching & Learning Practice*, 20(3), 2. https://doi.org/10. 53761/1.20.3.02

Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. *International Journal of Educational Technology in Higher Education*, 20(1), 22. https:// doi.org/10.1186/s41239-023-00392-8

Deepshikha, D. (2025). A comprehensive review of AI-powered grading and tailored feedback in universities. *Discover Artificial Intelligence,* 5. 1-18. https://doi.org/10.1007/s44163-025-00517-0

Evans, R., White, E., Singh, D., & Starks, D. (2019). Using Artificial Intelligence as a teaching assistant in college courses: An exploratory study. *International Journal of Teaching and Learning in Higher Education,* 31(2), 243-253.

Feingold, D. (2023). Understanding Artificial Intelligence: A Human-Centric Approach. AI Horizons Press.

Fügener, A., Grahl, J., Gupta, A., & Ketter, W. (2021). AI in the real world: Industrial applications and organizational impact. *Business Information Systems*, 28(3), 267–280.

Godwin-Jones, R. (2024). AI and language learning: A new pedagogical paradigm? *Language Learning & Technology,* 28(1), 1–12.

Gozalo-Brizuela, R. & Garrido-Merchán, E. C. (2023). "ChatGPT is not all you need. A State of the Art Review of large Generative AI models". In: arXiv:2301.04655v1 [cs.LG] 11 Jan 2023. Available: https://arxiv.org/abs/2301.04655. Accessed 12 July 2024.

Gui, J., Sun, Z., Wen, Y., Tao, D., & Ye, J. (2021). A review on generative adversarial networks: Algorithms, theory, and applications. IEEE Transactions on Knowledge and Data Engineering. https//:doi/org.10.1109/TKDE.2021.3130191.

Hammond, K. (2024). Embracing AI for personalized learning. Center for advancing safety of machine intelligence. https://casmi.northwester n.edu/news/articles/20 24/embracing-ai-for- personalized- lea rning.html

He, Y., Cao, J., & Tan, C. (2025). Generative AI in Language Education: Innovation or Disruption? *Applied Linguistics and Technology*, 19(2). 101–119.

Hu, L. (2023). Generative AI and Future. Retrieved on January 23 from https://pub.towardsai.net/generative ai-and-future-c3b1695876f2.

Jovanović, M. (2023). Generative Artificial Intelligence: Trends https://www.computer.org/csdl/magazine/co/2022/10/09903869/1H0G 6xvtREk.0.1109/MC.2022. 3192720

Jovanovic, M., & Campbell, M. (2022). "Generative artificial intelligence: Trends and prospects". *Computer, 55*(10), 107–112.

Kaplan-Rakowski, R., Grotewold, K., Hartwick, P., & Papin, K. (2023). Generative AI and teachers' perspectives on its implementation in education. *Journal of Interactive Learning Research*, 34(2), 313–338.

Karpouzis, K*., Pantazatos, D., Taouki, J., & Meli, K. (2024). Tailoring Education with GenAI: A New Horizon in Lesson Planning. IEEE Global Engineering Education Conference (EDUCON),1(10).*

Kumar, J., & Bervell, B. (2022). *Learning management systems as administrative tools: A review of applications in higher education*. *Education and Information Technologies, 27*(5), 6231–6250.

Lim, S., Zhang, Y., & Liu, T. (2022). Generative Models and Their Applications. Journal of AI Research, 76, 1–29.

Messer, M., Brown, N. C. C., Kölling, M., & Shi, M. (2023). Automated grading and feedback tools for programming: A systematic review. [2306.11722] Automated Grading and Feedback Tools for Programming Education: A Systematic Review. https://doi.org/10.48550/arXiv.2306.11722

Nzenwata, U., Barn-Nzekwe, C., Odigie, O.,&Yisau, M. (2024). A systematic review of Generative AI in education. *Journal of Computer Sciences and Applications*, 12(1), 25-30. https://doi/org/10.12691/jcsa-12-1-4

Nirala, K. K., Singh, N.K., & Purani, V. S. (2022). A survey on providing customer and public administration-based services using AI: Chatbot. *Multimedia Applications and Applications*, 81 (16), 22215–22246. https://doi.org/10.1007/s11042-021-11458-y

OpenAI ChatGPT. Available online: https://chat.openai.com (accessed on 28 July 2024).

Orrù, G., Rossi, M., & D'Amico, A. (2023). ChatGPT and the Future of Learning Support. European Journal of Educational Research, 12(1), 31–49.

Petersen, J. (2021). Innovative assessment practices. Retrieved on 2 August 2024 from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved= 2ahU KEwjhzbGO38T5AhW2hIkEHXPNDdoQFnoECAkQAQ&url=https%3A%2F%2Ffreshgrade.co m%2Fwp content%2Fuploads%2F2020%2F07%2FFG-Innovative-Assessment-Whitepaper 1.pdf&usg=AOvVaw1fWCFBStSE4BqDTXT5_Voi.

Russell, S., & Norvig, P. (2016). Artificial Intelligence: A Modern Approach (3rd ed.). Pearson. Song, J., & Song, H. (2023). Generative AI in EFL Classrooms: Enhancing Learner Autonomy and Performance. TESOL Quarterly, 57(4), 985–1002.

Storey, V., Seidel, S., & Gregor, S. (2025). AI as a Transformational Force in Education and Work. *Technology and Society Review*, 20(1), 55–72.

Sullivan, M.; Kelly, A.; McLaughlan, P. ChatGPT in higher education: Considerations for academic integrity and student learning. *J. Appl. Learn. Teach.* 2023, *6*, 31–40. [Google Scholar] [CrossRef]

Tu, Y., Chen, J., & Huang, C. (2025). Empowering personalized learning with generative artificial intelligence: Mechanisms, challenges and pathways. Front. *Digit Education*, 2(2). 1–17. https://doi.org/10.1007/s44366-025-0056-9

Unesco (2023). Guidance for Genereative AI in education and research. https://unesdoc.unesco.org/ark:/48223/pf0000386693 (Retrieved on August, 2025).

Waziana, M., Putri, N., & Rahman, F. (2024). Generative AI for Grammar Instruction in EFL Contexts. *Journal of Applied Linguistics*, 17(3), 142–158.

Yu, H., & Guo, J. (2023). Generative AI: Foundations and Frontiers. *Machine Intelligence Review*, 8(1), 22–40.

Zhang, L., Basham, J. D., & Yang, S. (2020). Understanding the implementation of personalized learning: A research synthesis. *Educational Research Review*, 31, 100339.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education–Where are the educators? International Journal of Educational Technology in Higher Education, 16(1), 39. https://doi.org/10.1186/s41239-019-0171-0

CHAPTER 4

Corpus-Based Analysis of Grammatical Errors in Turkish EFL Learners' Argumentative Writing

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1. Introduction

Research on L2 writers in learner corpora has emerged as a primary methodology within the field of Applied Linguistics (Granger, 2015; Gilquin, 2020). The field of Error Analysis has deep roots in the literature, as Corder's (1967) seminal work has continued to influence it. Error Analysis addresses the direction of learner difficulties in a theoretically systematic fashion, shaped by the field's pedagogical concerns (James, 1998). Given the limited exposure to the target language in EFL contexts, pedagogical corpus-based error analysis is indeed a valuable window into learners' interlanguage in their classrooms.

The study focuses on an in-class corpus of argumentative essays produced by Turkish EFL learners. The prompt was "Advantages and disadvantages of studying abroad" because it asks students to provide and substantiate a claim, a counterclaim, and a rebuttal. This prompt also requires students to improve on the cohesion, coherence, and syntactic complexity and variety of their writing, which are representative features of academic prose. This prompt is also likely to reflect underlying grammatical problems among L2 writers, especially in contexts where students are learning to write at the level of sophisticated argumentative texts rather than basic paragraph writing.

Based on the literature, Turkish EFL learners struggle with the correct use of articles, tense-aspect distinctions, prepositions, and other aspects, which reflect typological differences between Turkish and English (Uzun, 2013; Gökmen, 2018; Sarıgül, 2020). The current study analyses the corpus of grammatical errors to contribute to and document the literature and provide teaching insights on the writing components of preparatory and undergraduate courses.

2. Literature Review

The attainment of grammatical accuracy in written English has been viewed as one of the most essential indicators of second language (L2) writing proficiency. As a result, the attainment of this proficiency is a primary concern in both the theory and practice of L2 writing. Within the field of applied linguistics, the rise of learner corpus methodologies has enhanced the ability of scholars to analyze and describe the patterns of grammatical difficulties encountered across different L1 (first language) backgrounds (Granger, 2015). With the increased availability of data from learner corpora, researchers have been able to study the frequencies and types of errors systematically, the order of errors in response to a stimulus, and the impact of the learner's L1 on second-language (L2) writing. The present study is contextualized with reference to four key areas of scholarship: (1) learner corpus linguistics and error analysis, (2) the influence of L1 (first language) on the grammatical accuracy of Turkish EFL (English as a Foreign Language) learners, (3) the most frequent types of grammatical inaccuracies in L2 (second language) writing, and (4) research on

the differences in writing accuracy among learners. These areas provide the conceptual and empirical foundation for the present study.

2.1. Learner Corpus Research and Error Analysis

The primary foundation in learner corpus research stems from initiatives in the 1990s, such as the International Corpus of Learner English (ICLE). This approach has taken off as a key method in the study of second language (L2) writing (Granger, Gilquin, & Meunier, 2015). Learner corpora allow for the study of various language patterns, as such patterns may not be visible in smaller qualitative studies (Gilquin, 2020). For example, through corpus-based error analyses, it becomes possible to quantify the distribution of specific grammatical errors, compare learners of differing interlanguage proficiency, and analyze specific errors that are persistent in a learner's interlanguage (Dagneaux, Denness, & Granger, 1998).

The paradigm shift that created modern learner corpus studies was the idea that errors are not random, as proposed by Corder (1967) and James (1998). Learner errors indicate that interlanguage systems are in place. They laid the foundation for a corpus study that argued that clause and grammatical accuracy are the results not only of an interlanguage system but also of universal developmental structures and an L1 language (Vyatkina, 2013). Ferris (2011) and other researchers developed corpus-based error tagging systems that focus on a particular framework to analyze pedagogical gaps from this taxonomy of treatable grammatical errors that includes articles, verbs, prepositions, and other constructs. These treatable errors are ideally suited to the context of a pedagogy.

Recent works such as Cangir's Turkish-English Learner Corpus (2023), Granger's ICLE corpus (2015), and Zaghouani et al. Qatari Corpus of Argumentative Writing (2024) have begun to appreciate the pedagogical implications of corpus studies. These corpus studies demonstrate specific error patterns influenced by a first language (L1) and can inform the design of grammar instruction and feedback. This study adopts the same approach and builds a small, classroom-based corpus to study the accuracy of learners' grammar in a particular Turkish EFL context.

2.2. L1 Transfer and Grammatical Development in Turkish EFL Learners

Several studies indicate that the characteristics of a learner's first language (L1) play a significant role in L2 grammatical accuracy, and this is considered to be one of the most widely accepted trends in the literature (e.g., Ellis and Barkhuizen, 2005). Turkish is also quite different from English in most of its morphosyntactic features, as it is an agglutinative, article-less, and SOV language. These features of Turkish cause much trouble for learners in mastering various aspects of English grammar.

In the absence of a scholarly writing system, the Turkish language demonstrates the complete omission of system articles, whereas the English language shows overgeneralization of system articles (Uzun, 2013; Sarıgül, 2020). Learners often use the system ungrammatically in English, such as the example of *at the abroad*, or they may leave out system articles that are required before singular count-nouns. In the same way, the system of tense and aspect in Turkish, which differs from English, results in errors of tense choice and the non-use of finite verb forms (Ayar, 2020). The English language also has a system of prepositions, whereas Turkish uses postpositions and case endings rather than free-standing prepositions. This allows students to interweave the Turkish language's logic of space into English to create statements like, *study in abroad*, or *go to the abroad*.

Recent corpus-based studies confirm that these error patterns persist across Turkish universities and proficiency levels (Demirel, 2017; Kadan, 2023; Gazioğlu, 2024). The consistency of these findings over decades suggests that L1 transfer remains a key factor explaining grammatical patterns in Turkish EFL learners' writing.

2.3. Common Types of Errors in an L2 Learner's Writing

Writers such as Ferris (2011) and Biber et al. (2011) have widely recognised and researched verb tense/form, prepositions, and pronouns as the most important and most frequent error types in L2 writing. Errors in these types are also the most critical for achieving basic proficiency in grammar because they relate to the control of relationships in the functioning of the sentence about its constituent parts: the noun, verb, and pronoun.

2.3.1. Articles and Determiners

Although articles are highly challenging for most L2 learners, especially problematic for speakers of languages with no articles, such as Turkish, Japanese, and Russian, studies show that Turkish EFL learners make articles the most frequent error (Sarıgül, 2020; Ayar, 2020; Kadan, 2023). Errors include overgeneralization (the abroad), omission (*I want to go _ abroad*), and misuse of abstract nouns.

2.3.2. Tense and Aspect of the Verb

Although the learners are primarily of Turkish background, the related research findings are used to analyse learners' writings. Turkish learners seem to tend to focus on the surface structures of verbs without delving into their uses. They also struggle with findings related to auxiliary verbs and the sequence of tenses (Uzun, 2013). It is these same issues that cause the corpus to have errors such as *'Studying abroad give...*'.

2.3.3. Preposition

Unlike verbs, prepositions are semantic distinctions that are mapped differently from Turkish postpositions. In the broadest context of postpositions of Turkish, the phrase 'in abroad' or at abroad' is common to learners of various generations (Kırmızı, 2017; Gazioğlu, 2024).

2.3.4. Pronouns and Cohesion

While it is neither incorrect nor intentional to avoid using a referential item, the discourse is disrupted to the extent that it is perceived. Research shows that learners may introduce pronouns without clear antecedents or create referential ambiguity, a pattern also observed in the present data (Keller, 2024).

All the mentioned errors are due to the data in the current corpus. These errors, articles, verb forms, prepositions and pronouns are not isolated to the present data. They have been surrounded by errors that have been observed in EFL academic writing research for years.

2.4. Variation in Accuracy & Complexity-Accuracy Trade-offs

Another area to consider is the differences in error density that have also been studied among learners. Complexity-Accuracy-Fluency (CAF) research shows that learners differ in their grammatical control, even with the same instructional background or proficiency (Biber et al., 2011). Some learners seem focused on control and produce a higher ratio of words to errors in their work, even in shorter, simpler constructions. Others seem to work toward a higher level of control and even work in a more complex structure syntactically, even if they tend to produce more errors overall.

The Turkish learner studies, including Kırmızı (2017) and Divsar & Heydari (2017), have shown similar patterns: accuracy is uneven, and an increase in control does not accompany an increase in complexity in the lexical or syntactic domain. The current corpus also shows this pattern of error density, with a range of 0-44.94 errors per 100 words, indicating high variability among learners.

These patterns also show the need for personalization in teaching, diagnostic data-driven methods, and corpus-informed iterative feedback methods focused on each learner’s grammatical profile (Cangır, 2024; Zaghouani et al., 2024).

2.5. Summary and Research Questions

The literature suggests that learner corpus analysis is an appropriate strategy for analyzing grammatical accuracy, diagnosing errors that become fixed, and determining the role of L1 on L2 writing. There is consensus on the difficulties Turkish EFL learners face: articles, verb tense/form, prepositions, and pronoun errors. The literature emphasises the variability in learners' grammatical accuracy and the utility of a small, local corpus for pedagogy and assessment. This study enriches the learner corpus literature by providing fine-grained, context-specific evidence on the grammatical error patterns of Turkish EFL learners, particularly

highlighting the systematic influence of L1 transfer. It also contributes pedagogically by demonstrating substantial individual variation in error density, underscoring the need for data-driven, targeted instructional and feedback practices in EFL writing classrooms.

Building on these insights, the present study seeks to address the following research questions:

1. What are the most common types of grammatical errors in Turkish EFL learners' argumentative writing?
2. How does the density of grammatical errors vary among individual learners, and to what degree does this variation indicate differences in writing proficiency among Turkish EFL students?
3. What learner-produced linguistic patterns (e.g., article overuse, tense omission, prepositional misselection) can be identified in the corpus?

3. Methodology

In order to study the patterns of grammatical accuracy in the argumentative writing of Turkish EFL learners in the in the context corpus linguistics, the present study utilized a corpus-based mixed methodologies approach. Corpus-based approaches leverage the development of interlanguage systems and patterns and systematically reveal the relational structures of learner language (Granger, 2015; Gilquin, 2020). In line with the best practices of learner corpus construction (Granger, Gilquin& Meunier, 2015), the present study's methodology involved a number of successive steps which include participant selection, design of the writing tasks, compilation and processing of the corpus, identification and classification of errors, determining inter-coder reliability, and subsequent analysis of the data, as well as the ethical considerations involved in undertaking the study.

3.1. Participants

The data set consisted of a corpus of writings from 32 undergraduate students attending a Writing Skills Course offered in the English Language and Literature Department at a Turkish state university, who were in the EFL context. The participants were at an intermediate level of English proficiency, as determined by the Department's Placement Tests. Since the assignments were part of the course assessments, no demographic data were collected (e.g., age and gender). The students were all taught paragraph and essay writing in a basic format prior to these assessments. The error analysis of the data set and the student proficiency level of the cohort is typical of small-scale learner corpus studies (Vyatkina, 2013).

3.2. Writing Task

Students were given a writing task in which they were asked to take a position on `*the benefits and drawbacks of going overseas to study*?`. The reason for this prompt was that argumentative writing is one of the genres that generate a high volume of intricate sentence construction and a wider range of grammatical forms that are suitable for capturing intricacies related to writing accuracy (Biber, Gray, and Poonpon, 2011). Students were given one class to write the task, and they could not use a dictionary, the internet, or get help from each other. Students finished the writing task by hand to promote authentic writing.

3.3. The Creation and Cleaning of the Corpus

After collecting the representative learner corpus, the researcher digitised all authentic handwritten scripts verbatim into plain text. To comply with the learner corpus research (Granger et al., 2015) principle of authenticity, the researcher retained all errors, including spelling, punctuation, and grammatical errors. The corpus was subjected to the following multi-phase cleaning process:

1. Anonymisation–Each of the students was assigned a sequential anonymity code (S01–S32).

2. Removal of Duplicates–Some of the scripts included the same sentences and/or the same paragraphs rewritten; only the distinct portions were kept.

3. Handling of the Fragments–Partial documents were included in the corpus with the indication that they were to be considered incomplete so that their incomplete status would not be overlooked when the corpus was analyzed.

4. Tokenisation–Python scripts were used to divide the corpus into a collection of sentences and words.

This resulted in a corpus consisting of 3,783 words and 468 sentences. This volume is commensurate with the volume found in small learner corpora in the EFL field (e.g., Lee, 2020).

3.4 Error Identification Procedure

In concordance with Ferris's (2011) taxonomy of treatable grammatical errors involving rules of articles, prepositions, verb forms, subject–verb agreement, and pronouns, this study analysed errors in two prongs:

3.4.1 Automated Pre-Tagging

Python implemented regex-based scripts targeting possible errors, such as:

Patterns of article misuse, repeated lexical items, problematic verb forms, preposition anomalies, and missing auxiliaries.

Due to their ability to detect areas of a corpus containing a high density of errors (error 'hotspots'), such tools have found broad applications in corpus-based error analysis (Dagneaux, Denness and Granger, 1998).

3.4.2 Manual Verification and Coding

Researchers had to manually verify each flagged item without automation to address automated error detection that resulted in false positives. Manual coding of each error followed standard procedures outlined in the error-analysis literature (Corder, 1967; James, 1998) and involved a tagging system for each error, denoting the error type, the specific location in the sentence, and the student ID. The only errors included were grammatical; mechanical and spelling errors were excluded unless the incorrect mechanics had a bearing on the overall grammatical structure.

3.5. Reliability Procedures

In the interest of analytical reliability, the following were done:

• Double coding 20% of the corpus: A second trained rater was assigned a randomly selected section of the text corpus to analyse independently.

•Inter-rater reliability: Agreement was above 87%, which, for studies of a similar nature, is high (Ellis & Barkhuizen, 2005).

Coding inconsistencies \textit{were} collaboratively discussed and resolved**.**

3.6 Data Analysis

Error counts were combined to determine the total number of errors (n = 280), the frequency per error category, the error density per 100 words, and script-level variation.

Quantitative analyses were conducted in Excel, while qualitative examination of concordance patterns was conducted in AntConc 3.5.9. This triangulation of tools follows best practices in learner corpus methodology (Granger, 2015; Vyatkina, 2013).

3.7 Ethical Considerations

All data were collected in accordance with institutional ethical standards. Students' identities were anonymized, no personal information was stored, and participation took place in a typical course setting without added risks. Since the data were part of routine coursework, formal ethics board approval was not necessary, in line with guidelines for classroom-based corpus research (Gilquin, 2020).

4. Analysis & Findings

Table 1. Overall Distribution of Grammatical Errors in the Corpus (N = 32 Scripts)

Error Category	Frequency (n)	Percentage (%)	Errors per 100 Words
Article/Determiner	92	32.9	2.43
Verb Tense/Form	88	31.4	2.33
Preposition	48	17.1	1.27
Pronoun	39	13.9	1.03
Word Choice	9	3.2	0.24
Subject–Verb Agreement	4	1.4	0.11
Other Categories	0	0.0	0.00
Total	**280**	**100**	**7.40**

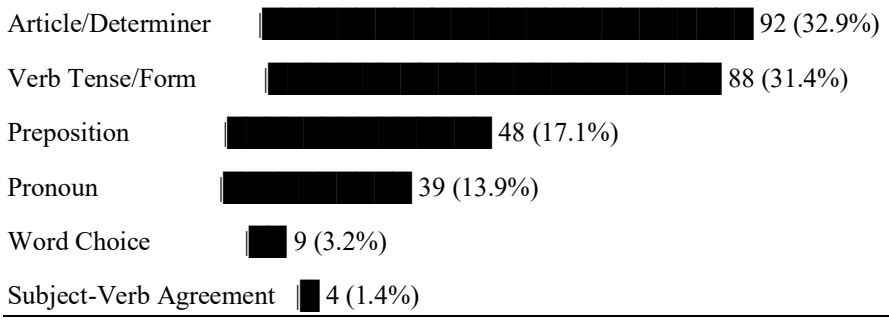
The data within Table 1 represent the spread of grammatical mistakes from the learner corpus. Within the entire dataset, there were 280 correctable grammatical mistakes. The table indicates that the predominant errors in their samples were Article/Determiner (n = 92, 32.9%) and Verb Tense/Form (n = 88, 31.4%). These were followed by errors in Prepositions (n = 48, 17.1%) and errors in Pronouns (n = 39, 13.9%). Even rarer were mistakes in the Word Choice (n = 9, 3.2%) and Subject Verb Agreement (n = 4, 1.4%) categories. Within the Other Categories group, there were no examples. Ignoring the corpus size, the total errors were 7.40 per 100 words, with the different categories ranging from 2.43 errors per 100 words (Articles/Determiners) to 0.11 on Subject Verb Agreement.

Table 2. Descriptive Statistics for Error Density and Script Length (N = 32)

Variable	M	SD	Min	Max	Range
Total Words per Script	118.22	28.41	61	169	108
Total Sentences per Script	14.63	4.72	7	23	16
Total Errors per Script	8.75	11.02	0	40	40
Errors per 100 Words	7.40	9.81	0.00	44.94	44.94

Table 2 shows the summarized figures regarding the word count and other characteristics of the various written scripts of the learners' performances. On average, every written script was 118.22 words long. Out of the total of 108 words, the range of scripts was between 61 and 169 words long. The average number of sentences per script was 14.63, ranging from 7 to 23. The total number of grammatical errors per script varied from 0 to 40, averaging 8.75, with no errors in the minimum and the maximum. The error density of each script also differed, averaging 7.40, with minimum and maximum values of 0.00 and 44.94 errors per 100 words, respectively. This was calculated as the total number of errors for every 100 words in each script. In sum, the descriptive statistics of the various written scripts show enormous variation in the number of words, the length of errors, and the number of sentences in each case.

Figure 1. Frequency of Grammatical Error Categories (n = 280)



Descriptive statistics regarding the distribution of grammatical errors among the 280 documents in the corpus are detailed in Figure 1. The figure shows that the most frequent errors occur in the Article/Determiner category (92 cases, 32.9%) and the Verb Tense/Form category (88 cases, 31.4%). Other common errors include prepositions (48 cases, 17.1%) and Pronoun errors (39 cases, 13.9%). Other grammatical errors are less common, such as Word Choice errors (9 chapters, 3.2%) and Subject–Verb Agreement errors (4 chapters, 1.4%). No other grammatical errors were recorded in the corpus.

5. Discussion

This learner corpus analysis indicates that Turkish EFL learners tend to underperform with a limited number of grammatical features, with the most problematic areas being articles, verb tense/form, and preposition usage. This has been reflected in previous studies examining the interlanguage systems of Turkish learners, focusing on the influence of the Turkish-English language pair (Sarıgül, 2020; Uzun, 2013). This 32.9% error rate in articles/determiners is mainly due to the lack of articles in Turkish. For instance, study participants are likely to overgeneralize the use of the articles as in the examples of *Studying at the abroad is very important* and *When you go to the abroad, you are not only improve your English*. Similar instances have been observed in previous corpus studies (Ayar, 2020; Demirel, 2017), which supports the idea that such errors are not incidental.

Another frequent error documented is the use of verb tense and verb form (31.4%). This error aligns with the hypothesis that Turkish learners have ongoing difficulties with tense, aspect, and agreement. This is visible in the corpus with instances of *Studying abroad give many opportunities* and *this exam looks hard this program is very important* that demonstrate a lack of control with respect to English finite verb morphology. The observed difficulties are a continuation of previous observations in SLA as described by Kadan (2023) and Gazioğlu (2024).

Another common deficiency for Turkish learners is preposition mistakes (17.1%). Examples include, ...*study in abroad*...and, ..*go to the abroad*... to which learners would inconsistently use prepositions or could use omitted L1 logic settings. Such tendencies support the idea proposed by Kırmızı (2017) that the understanding and use of prepositions requires a highly developed understanding of the particular language in question and thus a conceptual grappling that spans differences in language as to the understanding of prepositions and logic as they pertain to the formation of translational thought.

Further errors involving pronouns (13.9%) add to evidence suggestive of difficulty in client reference persistance (or reference maintenance) in extended discourse. Statements including, ...*they are succeed*...and, ...*can develop my self confidence*...demonstrate the incapacity of learners to develop a wide referential chain, and cohesively maintain it over the course of extended discourse. This phenomenon aligns with a growing body of literature that points to a reference maintenance problem in the spontaneous writing of advanced EFL learners (Keller, 2024).

Errors in word choice and the use of subject/verb agreement for instance, T*his situation may be more harder day by day* and *these experience remains in them till grave* though noticeable, were of less frequency than the errors provided in the previous passages as observed in EFL learners (Demirel, 2017) thus lending

to, and evident in, a skewed perception of the overall clarity and coherence of the work.

The heterogeneity of error density among students—where learners produce as few as 0 and as many as 44.94 errors in 100 words—mirrors the results of complexity–accuracy–fluency studies (Biber et al., 2011), which show that the ability of an individual to produce syntactically risky compositions tends to be lower. This study encompasses some error-dense texts with complex and unstable sequences. Examples of texts include the following: *We can effect our perceptif; this is a good chance*, and *We can progress and develop just for that reason changes*… This illustrates the case for personalised data-informed instruction in the teaching of writing (Cangır, 2024; Zaghouani et al., 2024).

6. Conclusion

An analysis of argumentative writing to determine grammatical accuracy among 32 Turkish EFL learners was conducted using a corpus of 3,783 words. The results showed that a majority of the errors fell under a few categories namely: articles/determiners, verb tense/form, prepositions, and pronouns. As widely reported, these categories represent perennial problem areas for Turkish learners (Ayar, 2020; Sarıgül, 2020; Kadan, 2023). The learner corpus includes examples such as: *Studying at the abroad is very important* and *Studying abroad give many opportunities* which exemplifies both issues of article overgeneralization and difficulties with verb forms as a result of the lingering effects of L1 transfer.

The immense variability in error concentration, from 0 to 44.94 errors per 100 words, indicates that learners experience different levels of accuracy. Between learners, accuracy levels also varied widely, with some producing accurate, albeit simple, structures, while others attempted complex structures but with a high level of inaccuracy. These findings align with previous research on the lack of correlation between accuracy and complexity (Biber, et al., 2011; Keller, 2024).

This particular investigation demonstrates how even the most basic and specific context learner corpora can provide pertinent diagnostic information for writing pedagogy. The evidencing grammatical patterns elucidate the pertinence and importance of teaching articles, verb morphology, and the use of prepositions, and advocate for an emphasis on teaching. Further exploration of this topic should incorporate larger corpora, longitudinal frameworks, and corpus-informed feedback. Recent literature indicates that sustained, targeted feedback can lead to noticeable improvements in the use of grammar in argumentative writing (Alnefaie, 2023; Zohrevandi, 2024).

7. Recommendations and Implications

Given that Turkish is the learners' first language, the findings of this study suggest multiple revisions to EFL writing instruction. Since most of the errors are predominantly located in the areas of articles, verb tense/form, prepositions, and pronouns, the instruction within the classroom is actively focused on these areas, and these are the sole areas that are the focus of instructional practices within a classroom based on targeted and systematic practices within a lesson. The mistakes such as *Studying at the abroad is very important* and *Studying abroad give many opportunities* are an example of the type of errors that will be the focus of instruction within the classroom, as these grammatical features require instruction that is systematic, cohesive, and most importantly, explicit in nature.

7.1. Implications for Grammar Instruction

First, the prevalence of errors involving articles and determiners suggests that writing instructors should employ contrastive teaching with an emphasis on the noun phrase structures of Turkish and English. A study focused on the article usage in generalizations as a wavelength of awareness in learners *go to the abroad* is preventing the overt patterns that are within this structure. For Turkish learners, explicit instruction that is contextualized, based on articles, and focused on repetition is an important contribution to the findings.

Second, the instruction-related improvements of verb tense/form errors demonstrate the requirement of teaching communicative functions of the tense-aspect structures, rather than the teaching of rules in isolation.

The activity that incorporates student writing such as "Studying abroad give..." might help improve student awareness of necessary finite markings.

7.2. The Teaching of Missing Prepositions and Pronouns

As this situation calls for explanation, not memorization, one should avoid rule explanations and use visuals that correlate with the situation. Concordance should present real uses of in, at, and to, and help overcome the "study in abroad" errors.

Errors with pronouns involve reference chains and cohesion, so these students should do more discourse-level writing practice. They could maintain and use reference worksheets to guide them in identifying antecedents and restructuring for unclear references or pronouns used ambiguously in their own sentences.

7.3. The Use of Findings in the Classroom to Assess and Provide Feedback

Given the broad variation in the number of errors, it cannot be assumed that temporal order is consistent, even for students with the same instructional history. Therefore, writing assessment should be more formative and personalized. Teachers may want to save learners' portfolios to document their progress across

multiple tasks. Feedback studies indicate that progress is more likely with a combination of written corrective feedback and opportunities for revision.

Also, with a highly predictive but high-error corpus, targeted feedback codes could be used for the most error-prone student groups.

Instances of pattern misuse and inconsistencies of diction in the written text were communicated to the student, and they suggested that a learner may have adopted a strategy of self-correction, rather than depending entirely on the teacher to resolve the issue. \\

7.4. Implications for Curriculum Development \\

This study also provides evidence that small learner corpora can be used as a diagnostic tool for program-level decision-making. It would be reasonable for departments to begin collecting anonymised samples of student writing to detect local patterns of error and adjust teaching accordingly. This is in keeping with the direction corpus-informed pedagogy is currently taking, which focuses on aligning teaching to the specific needs of students, rather than the generalisations that have been common in teaching. \\

Curriculum developers can also include data-driven learning (DDL) tasks with concordancers such as AntConc, where students can examine their writing and the patterns of authentic English texts. These activities encourage students to take more control of their own learning, and such activities have been shown to influence the students' use of grammar over time positively. \\

7.5. Implications for Future Teacher Training

Finally, these outcomes point to the pressing need for pre-service and in-service teachers to acquire skills in learner corpus analysis. Teacher training programs should include specific modules on common L1 influence error patterns, corpus-based diagnostic approaches, and coherent, written corrective feedback.

This training would allow teachers to understand statements like "This situation may be more harder day by day" as not merely single, disjointed instances of error, but as symptomatic of more complex, overarching lexical and morphological difficulties.

8. References

Alnefaie, M. (2023). The impact of lecturer's feedback on EFL students' essays. *International Education Studies, 16*(2), 193–205.

Ayar, Z. (2020). Error analysis of Turkish learners' English paragraphs. *ELT Research Journal, 9*(2), 123–134.

Biber, D., Gray, B., & Poonpon, K. (2011). Should we use characteristics of conversation to measure grammatical complexity in L2 writing development? *TESOL Quarterly, 45*(1), 5–35.

Cangır, H. (2024). TELC (Turkish-English Learner Corpus) and its web interface. *Dil Araştırmaları Dergisi*.

Corder, S. P. (1967). The significance of learners' errors. *International Review of Applied Linguistics, 5*(1–4), 161–170.

Dagneaux, E., Denness, S., & Granger, S. (1998). Computer-aided error analysis. *System, 26*(2), 163–174.

Demirel, E. T. (2017). Detection of common errors in Turkish EFL students' writing. *English Language Teaching, 10*(10), 159–173.

Divsar, H., & Heydari, P. (2017). A complexity, accuracy, and fluency analysis of Iranian EFL learners' essays. *Journal of Language Teaching and Research, 8*(2), 242–251.

Ellis, R., & Barkhuizen, G. (2005). *Analysing learner language*. Oxford University Press.

Ferris, D. (2011). *Treatment of error in second language student writing* (2nd ed.). University of Michigan Press.

Gazioğlu, M. (2024). Identifying grammatical errors via a written learner corpus in a foreign language context. *Journal of Language Research*.

Gilquin, G. (2020). *Corpora and language learning: Past, present and future*. Bloomsbury.

Granger, S. (2015). The contribution of learner corpora to L2 writing research and pedagogy. *Learner Corpus Research, 1*(2), 7–37.

Granger, S., Gilquin, G., & Meunier, F. (Eds.). (2015). *The Cambridge handbook of learner corpus research*. Cambridge University Press.

James, C. (1998). *Errors in language learning and use: Exploring error analysis*. Longman.

Kadan, Ö. F. (2023). An analysis of Turkish EFL students' writing errors. *ELT Research Journal, 12*(1), 1–20.

Keller, S. D. (2024). What analytic ratings tell us about EFL writing skills at different CEFR levels. *System, 121*, 103176.

Kırmızı, Ö. (2017). An investigation of Turkish higher education EFL learners' linguistic and lexical errors. *International Journal of Progressive Education, 13*(3), 95–110.

Sarıgül, U. (2020). Article and preposition errors in Turkish EFL learners' writing. *ELT Research Journal, 9*(1), 55–70.

Uzun, N. (2013). Turkish L1 influence on English L2 grammar. *Procedia – Social and Behavioral Sciences, 70*, 1225–1231.

Vyatkina, N. (2013). Learner corpora in L2 teaching and learning. *Language Learning & Technology, 17*(3), 73–92.

Zaghouani, W., Bouamor, H., Obeid, O., Habash, N., Al-Khalifa, H., & Alnajjar, K. (2024). Building a Qatari corpus of student argumentative writing. In *Proceedings of LREC-COLING 2024* (pp. 10558–10568).

Zohrevandi, K. (2024). Improving EFL learners' writing accuracy and fluency in argumentative essays. *[Journal article]*.

CHAPTER 5

Don't Say They Can't Be Anything: The Critical Role of Teachers in Vocational High Schools

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INTRODUCTION

Imagine a school where each morning students arrive with eagerness, a place that views learning as an experience filled with joy, curiosity, secure learning environments, and a sense of worth. In this environment, knowledge is not just shared but created; students are not only prepared for tests but also equipped with vital life skills. After all, because the underlying purpose of education is to facilitate the personal and professional development of individuals in order for them to realize their potential, then the meaning of this ideal is all the more apparent.

The actualisation of such a goal-oriented educational environment meets structural and contextual challenges, however. These challenges have the most pronounced impact on vocational high schools, where teacher attitudes, student motivation, and the alignment between school curricula and labor market demands play a decisive role in shaping students' educational experiences and future trajectories. The knowledge of these relationships is therefore fundamental to the quality of vocational education as well as its contribution to personal development and broader socio-economic progress.

According to the Turkish Language Association, a profession is 'a set of rules-based work that requires systematic knowledge and skills acquired through specific education, aimed at producing useful goods, providing services, and earning money in return' (Turkish Language Association, n.d.). One of the places where this knowledge and skills are imparted is in vocational high schools. Vocational high schools prepare individuals for specific professions and industries by equipping them with technical skills while also enhancing their entrepreneurial competencies and problem-solving, decision-making, and opportunity recognition abilities (Patel & Oghazi, 2024).

The importance and objectives of vocational education

Vocational education and training intend to provide individuals with the knowledge, skills and attitudes for either a particular profession or, more generally, the labor market. Industry-based vocational work not only benefits the industry, but it is also important for economic and social welfare of societies (Schönfelder, 2024). Vocational education is crucial for increasing employability among young people, particularly in low-income areas. In that regard, the quality of education and collaboration with the private sector should be improved to make this effective (Srivastava et al., 2025).

Education in the vocational field can lead to employment of women, reduce informal employment, and enhance the confidence and motivation of women (Au Yong Lyn, 2022). Nevertheless, absenteeism, economic difficulties, gang involvement, and drug use were found to adversely impact the productivity of vocational education programs (Mamutse et al., 2024). For low-income families

in particular, vocational education plays an essential role in promoting economic and social development (Gupta & Datta, 2023).

Challenges of vocational education

Offering young people in vocational education the opportunity to receive detailed job placement guidance can increase the productivity of these programs, enhance employability, and lower the skills mismatch among them (Chakravorty et al., 2024). Yet there are also basic problems faced in vocational education such as students' reluctance to pursue their chosen professions, the lack of physical and technical infrastructure in schools, insufficient teacher qualifications, and ineffective internship practices (Ergün, 2018). Further, the families of students in vocational education are frequently struggling economically and have limited access to job market and educational resources (The World Bank, UNESCO, & ILO, 2023).

However, these problems are not limited only to the level of awareness of the students, the qualifications of the teachers involved in the education process also directly affect the effectiveness of vocational education. Teachers in vocational education often lack pedagogical skills, and those without industry experience struggle to convey practical skills. Their motivation is low due to poor working conditions and low professional prestige (The World Bank, UNESCO, & ILO, 2023). The problems of vocational high schools include student discipline issues, problems related to transitioning to school, low student achievement goals and expectations, family and social environment pressure, adolescence and peer pressures (Toytok & Yıldırım, 2018).

The relationship between vocational education and development

Studies about the ties between vocational education and development have identified the following significant patterns: (1) the studies that discuss skills development, (2) the supply-side (cost-effectiveness) vs. demand-side (labor market needs) approaches, (3) the constructivist approach that looks at how skills are demanded and utilized by individuals, (4) the political economy view that focuses on the role of rules and history in skill development, and (5) the post-political economy approach that brings together the political economy tradition and theoretical sources of knowledge, including critical realism and political ecology (McGrath & Yamada, 2023).

Digitalization and green transformation in vocational education

For vocational education's success, digital learning approaches must be employed and educators should be equipped with digital skills (Magagula & Awodiji, 2024). Furthermore, three issues—climate change, social inequality, and digital transformation—are now playing a significant role in the future of TVET systems. TVET systems should adapt to these changes by providing sustainable, inclusive, and innovative solutions (UNESCO, 2021).

Employment and skill development in vocational education

Vocational education gives significant advantages in terms of income in the labor market, especially over the long term (Wongmonta, 2023). But vocational education in most low-income and middle-income countries has yet to provide those who graduated with the skills they need in the job market. Vocational education, on the other hand, is generally of lower quality and not closely associated with the labor market (The World Bank, UNESCO, & ILO, 2023). The mismatch between institutions and the market is also visible in vocational colleges offering associate degree programs (Feyzi, 2020).

The mismatch between education and employment is directly related to whether individuals possess the skills needed in the job market. The level of proficiency in basic knowledge and skills is crucial for employability. Vocational education, internships, and certification processes (Özgüler, 2018) play a major role in integrating young people into the labor market. Skills demanded that an employer expect include emotional intelligence, flexibility, multitasking ability, computer literacy, digital skills, information literacy, data analytics, foreign language proficiency, critical thinking, positive politics, work ethics and professionalism, time management, awareness of personal presentation, communication skills, and commercial awareness (Gupta, Datta, & Kothe, 2023; Iqbal et al., 2023). Since there is a mismatch between the expectations of the job market and the competencies acquired from vocational education, teaching processes need to be revised in line with labor market needs.

In order to achieve vocational success, the educational approach in education should be tailored to gender differences and a customized design can work as recommended by Zhou, Chen, & Gong (Zhou, Chen, & Gong, 2025). Moreover, one of the major difficulties of vocational education is neglecting the ability of the young generation to prepare individuals with the essential skills required in the market to earn a living (Wilson-Clark & Saha, 2019). Vocational education is a crucial tool for integrating individuals into the labor market and contributing to economic development. But there are also numerous challenges for vocational high schools. These challenges may increase or decrease depending on the teacher's strategies. In this research, the challenges experienced by vocational high school students in education were analyzed with reference to their teachers' teaching strategies employed in this area and how they would address these issues. Vocational high schools have problems faced. Improving relationships between teachers and students is essential for solving these. When these relationships are strengthened, they help students develop the job market skills they need. Besides strengthening teacher-student relationships, students can increase their vocational competencies and enable teachers to carry out more effective guidance roles.

School climate in vocational education

School climate refers to an environment that is not seen but felt. It is a holistic construct that reflects how valued and respected students, parents, and teachers feel within the school; the extent to which the institution prioritizes the dreams and goals of these individuals; and the level of attachment they have developed towards the school. The school climate is a powerful force, largely shaped by the vision and practices of the school principal, which directly influences the perceptions, values, and attitudes of students and teachers towards their school and profession. Therefore, school climate is not merely about physical conditions but is a complex phenomenon that encompasses the quality of relationships, modes of communication, and the overall level of motivation within the institution (Rapti, 2013).

The establishment of a positive school climate is, as emphasized by Dernowska (2017), a fundamental prerequisite for effective teaching and learning processes. Such a climate creates an environment where all individuals feel safe, supported, and willing to contribute to the school's development. In this setting, the necessary foundation is laid for individuals to be satisfied with their achievements and to utilize their potential to the fullest extent. Ultimately, a healthy school climate stands out as one of the most critical elements that nurture not only academic success but also social and emotional development.

In this context, the importance of school climate acquires a more specific significance for vocational high schools, which are tasked with the mission of preparing students directly for professional life and specific career fields. In these institutions, a positive climate shapes not only a general sense of belonging but also the professional discipline, work ethic, and sectoral identity within workshop and laboratory settings. At this educational stage, where the foundations of students' attitudes towards their future professions and their professional competencies are laid, a supportive, safe, and motivating atmosphere plays a vital role in their development as qualified professionals and their successful transition into the business world.

Student Motivation in Vocational High Schools

Academic motivation is a fundamental psychological factor that determines students' engagement, effort, and goal-oriented persistence in the learning process. This concept occupies a significant place in individuals' cognitive, emotional, and social functioning and therefore directly influences the effectiveness of educational processes. According to the self-determination theory proposed by Ryan and Deci (2000), individuals who are intrinsically motivated tend to display greater interest, curiosity, and persistence compared to those whose behaviors are driven by external factors. The study conducted by Güçlü (2020) with vocational high school students supports this perspective. The findings indicated a significant positive relationship between families' economic status and students' academic motivation, while the educational levels of parents

were also found to enhance motivation. Conversely, as students' grade levels increased, their motivation levels tended to decrease. Similarly, the research by Hong, Zhang, and Ye (2021) revealed that students with high academic self-efficacy were more actively engaged in learning, whereas those with lower levels of self-efficacy participated less in school activities.

These findings suggest that the academic motivation of vocational high school students is too complex to be explained by a single factor. Socioeconomic conditions, family support, and perceptions of self-efficacy play a decisive role in shaping students' attitudes and behaviors toward learning. Therefore, in vocational high schools, adopting teaching approaches that strengthen students' intrinsic motivation, enhancing communication with families, and creating learning environments that support the development of self-efficacy can significantly contribute to both academic achievement and vocational competence.

Gaps in the literature

While there are many studies dedicated to the area of vocational education that yield valuable perspectives, existing literature is limited. First, more research is needed on the role of teachers in vocational education and on the effect of teacher–student relationships and vocational success. Such study on the guidance roles of teachers in vocational high schools, the development of students' vocational competencies, and challenges encountered in this process are relatively scarce. Also, further research is needed to strengthen the connection between education and the labor market in vocational high schools. While it is known that there is a mismatch between employers' expectations and the skills provided by vocational education, comprehensive models to bridge this gap have not been developed.

In addition, there is a lack of effective strategies for solving student disciplinary problems, motivational deficiencies and dropout rates in vocational high schools in a composite fashion through holistic intervention. While previous studies mostly examined single factor analysis, the role of teachers, family support and the school environment on students' outcomes and success have not been well explored academically.

One could even logically argue about how relevant an international researcher reading the article about vocational high schools in Turkey is. This doubt is understandable, even if the geographical specificity seems rather local. But the core premise of this research is that, at its heart, these problems—issues in student-teacher relationships, widespread motivation problems, inadequate pragmatism, and the significant misalignment between curriculum and the labor market that exists throughout most vocational education and training (VET) systems around the world—all speak to the root of the issues. Drawing on Turkish insights, such as how the individual attention that teachers offer and constructive

feedback re-energize student engagement, how practical practice helps build skills, and how critical strong cooperation between schools and industrial partners (factories/companies) is, we draw on transferable lessons and inspiration for many nations suffering from similar social and economic disadvantages. Therefore, with respect to the field of education policy, and even those who focus on economic development or workforce alignment, the findings and the discussions presented herein can be viewed as a useful comparative framework. Through understanding analogous challenges in various national contexts, this framework helps identify contextually relevant solutions.

METHODS

Research design

This study employs a qualitative case study design to investigate experiences of vocational high school students' difficulties and teachers' attempts to mitigate these challenges in the education process. The case study method is a suitable approach for in-depth exploration of participants' experiences and the problems they encounter during their education (Yin, 2018).

To ensure linguistic accuracy, the text of this study was reviewed by artificial intelligence for grammatical, spelling, punctuation, and stylistic correctness. The English translation of this study was performed with artificial intelligence.

Participants

Data collection The study participants were selected from purposive sampling of vocational high school graduates. Purposive sampling guarantees individuals that can offer the most insights about the study (Patton, 2002). There were 22 identified participants, including 8 females and 14 males vocational high school graduates. The participants' ages ranged from 19 to 26 years. Six of the participants hold jobs connected with their area of study, while just two have pursued a bachelor's degree at a university. One participant is currently pursuing an associate degree.uygun olması gerekmektedir. Konsantrasyon, içerik vb. birimlerin yazılışında kg/ha yerine kg ha^{-1} şeklinde bir kullanım tercih edilmelidir.

Table 1 Demographic information of vocational high school graduates

Participant Codename	Sex	Age	Field of study in school	Current job
P1	Male	22	Electrical/electronics	Electrician
P2	Female	21	Child development	Sales consultant
P3	Male	24	Machine technology	Call center employee
P4	Male	26	Information technology	IT support specialist
P5	Female	19	Clothing production technology	Textile workshop employee
P6	Male	25	Motor vehicle technology	Auto mechanic
P7	Female	23	Graphics and photography	Restaurant waiter
P8	Male	20	Metal technology	Welder
P9	Female	22	Food and beverage services	Office worker
P10	Male	26	Electrical/electronics	Electronics engineer
P11	Male	24	Accounting and finance	Gym receptionist
P12	Male	21	Construction technology	Courier at a delivery company
P13	Male	19	Information technology	Teacher
P14	Female	25	Health services	Cosmetics store employee
P15	Male	20	Electrical/electronics	Hotel receptionist

Participant Codename	Sex	Age	Field of study in school	Current job
P16	Female	22	Child development	Secretary at an insurance company
P17	Male	23	Machine technology	E-commerce warehouse employee
P18	Female	24	Clothing production technology	Call center operator
P19	Male	26	Motor vehicle technology	Supermarket cashier
P20	Female	21	Graphics and photography	Customer representative
P21	Male	22	Metal technology	Sales consultant at a furniture store
P22	Female	19	Food and beverage services	Call center employee

Data collection methods

Participants were referred to the research through one-on-one contact with each individual at the beginning of the study and detailed objectives were explained to them. Once the data that participation data would be strictly scientific data collection was agreed, the demographic data of the participants was collected before the trial. Participants were told that they could discontinue from the study at any time, so the demographic data of the three participants who decided to withdraw were not included in Table 1.

To ensure participants' confidence, no personal information was collected in the electronic data collection form. Participants were also agreed to complete the electronic form when they felt ready and comfortable. The researcher also gave a phone number to participants to address any research questions, and answered their questions.

Data analysis

Data were analyzed through the three-stage data analysis based on Miles and Huberman (1994):

1. Data reduction: the interview data were coded and grouped into themes, and prominent findings were emphasized.

2. Data display: the coded data were tabularized and explained.

3. Conclusion drawing and verification: cross-checking had been performed to enhance the robustness of the study, and academic experts reviewed the findings.

Initial coding was carried out using the in vivo coding method, in which participants' own words or short phrases served as codes (Miles et al., 2014). In the subsequent phase, participant responses were repeatedly reviewed, and the codes were renamed in relation to existing concepts in the literature. Related codes were grouped as subthemes and themes.

A list consisting of themes and codes was created, and the suitability of the codes for each theme was evaluated. New codes related to the themes were subsequently explored for the later coding cycle, and existing codes were recoded for conceptual consistency. Using thematic coding, it is possible to identify the difficulties encountered by vocational high school students in the context of their teachers' approaches.

Reliability and validity

To ensure the validity of the research, the participants were initially allowed to answer questions independently to prevent influence from the researcher's views. After all the interviews were completed, the results were shared with the participants to evaluate any misunderstandings or omissions. The participants provided positive feedback. Second, the findings were evaluated by an independent expert to confirm validity (Guba & Lincoln, 1982; Creswell, 2003).

In qualitative research, especially in documentary analysis, the classical criteria of validity and reliability are not directly applicable in the same way as in quantitative research. Instead, this was ensured by employing a range of strategies as delineated by Guba (1981):

1. Credibility

Data were collected through individual interviews with volunteer participants, and responses were reviewed by one participant and two vocational high school teachers (one technical and one cultural) working at the vocational high school. This ensured data accuracy.

2. Transferability

Characteristics of the participants, stages of data collection, selection of the sample, and analysis process are elaborated upon. Researchers with an interest in conducting similar studies in social or educational contexts in the future can then assess criteria under which the findings are applicable.

3. Reliability

Although the research was carried out by a single researcher, to increase reliability, the themes coded for the analysis process were provided to a teaching staff member not involved in the research but with field experience, and feedback on the resulting theme-code structure was collected. Based on the advice of the experts, the recommended changes were made (Miles & Huberman, 1994).

4. Verifiability

Identifying themes arose through cross-checking between two vocational high school teachers, one from a technical, and one from a cultural. This process guarantees verifiability and reliability (Yin, 2018; Işık & Semerci, 2019).Çalışma metni

FINDINGS

Teacher attitudes and behaviors

Individual attention and support

Many comments showed that when teachers dedicated time to students one-on-one, both academic performance and motivation went up. For instance: "When a student asked a question about a topic they didn't understand in the motor vehicles class and received a detailed response" was said that the teacher's response not just helped the student but also allowed other students to comprehend the subject matter a bit better resulting in a positive feeling in class. Also, statements about "…when I didn't understand something or was struggling with a topic, my teacher would patiently work with me and take the time to explain it again" and "When my teacher Mehmet noticed that I didn't understand something in class, he would call me during break time and explain it to me privately" demonstrate how much one person's attention can make a difference to students.

Constructive and negative criticism:

Criticism in the classroom demotivates the students and hinders their effort. In contrast, statements like: " …a more appropriate approach would have been for the teacher to speak with Elif individually and explain the areas perceived as lacking in a constructive manner.", statements saying 'This part is very well done, and we can further improve these points' rather than being negative would have not only reinforced my connection to the course but would also have allowed me to develop," " A more constructive approach would have encouraged me as well as helped me understand my mistakes.", " My teacher Hüseyin would provide feedback in a constructive and motivating way, which enabled me to correct my shortcomings." demonstrates some of the power of positive feedback.

Student motivation

Competition and incentive elements

Activities such as: “An event such as a competition at the end of the semester creates an environment that is both motivating and competitive.” were frequently mentioned as increasing students’ interest and effort in the course. Some students noted: “The idea of a competition creates a more engaging and competitive atmosphere”, “In particular, an incentive such as a reward may encourage students to put in greater effort and enhance their commitment to the course”, and “Our school organized a ‘Best Technical Drawing’ competition. This competition greatly contributed to the development of my technical skills”, indicating that such activities motivated the students to put more effort into their work.

Reactions to praise and criticism

Not constructive criticism was found to have adverse effects, as expressed in statements like, “Harsh warnings would have a counterproductive effect on a student like me. I would feel completely excluded and become increasingly inclined to withdraw”. Conversely, supportive feedback, such as: “Observing that my teacher showed greater attention in the subjects I found challenging would increase my effort and motivate me to study more”, and “group work and creative activities not only enhance my interest in the courses but also provide opportunities to spend time with my peer” was noted to foster courage and commitment to the lessons.

Learning in a professional context

Practical lessons and hands-on activities

Responses suggest that vocational pursuits and applications make course content more meaningful. The statement ‘Connecting an abstract concept such as mathematics to a vocational one like carpentry would help me understand how the knowledge I acquire is applied in real life’ demonstrates the effect of this method. Furthermore, the phrases like ‘Especially in courses such as motor vehicles or electricity, participating in competitions with the projects we carried out enabled me to put what I learned into practice. Such competitions were highly beneficial not only in terms of knowledge but also for developing skills,’ ‘For instance, I came to understand that mathematics or physics is not only theoretical but also a tool of practical application to my career,’ and ‘An abstract detail like mathematics’ further highlight the importance of applied courses.

Projects and group work

”Teamwork and working with friends towards a goal can be much more effective and enjoyable,” and “Working with my friends really made the lessons more interesting and educational,” and “I think this type of activity is a great way to increase interest in vocational courses and support students' professional

development.” It is stated that such activities contribute to both individual development and solidarity within the group.

School climate

Supportive and positive environment

A positive school climate was often discussed as impacting the students’ overall attitudes and achievement positively. Statements, such as: “So, since we generally enter school without grades, teachers' criticism is generally harsh and hurtful.” “You can understand this from their attitude of ‘nothing will come of you anyway’ and from the performance and attitude of those who are mobile.” "If teachers behave in a way that increases interest in the lessons, the general atmosphere of the class will also be positive. This kind of approach motivates me more and makes my other friends more eager too.“ and ”Most teachers would take a harsher and more exclusionary attitude towards me because I failed, rather than taking an interest in me. However, my teacher Hüseyin would try to understand me and make an effort to solve the problem."

Teacher–student interaction

Positive teacher-student relationships were identified to drive interest in subjects by the statements “Ahmet's detailed response to the question and his explanation of the topic again for the whole class indicate that his teacher values his students and cares about their learning.” This type of activity encourages student engagement and fosters them to inquire about matters of which they have no explicit knowledge,” ”Implementing a more personal and caring response to a student’s distraction would ensure that the student does not feel disconnected or targeted.” “I know that we get distracted by some of these in-class conversations even if there are not great lessons. Is there anything we can do that I can assist?” Like this makes the student feel less defensive and reengages them with the lesson.” “I saw little of that when I was a student myself,” she said. And that’s why as a teacher now I try to portray this type of interest to my students”.

Table 2 Theme, subtheme, and codes

Theme	Subtheme	Codes
1. Teacher attitudes	1.1. Individual attention	Patient approach, individual attention
	1.2. Constructive criticism	Positive reinforcement, constructive criticism, discipline style
2. Student motivation	2.1. Competition and incentives	Increased motivation, confidence building, team spirit
	2.2. Reactions to feedback	Reactive behavior, passive participation, withdrawal, desire to learn
3. Professional learning	3.1. Practical lessons	Practical focus, professional connection, curriculum alignment
	3.2. Group projects	Classroom dynamics, teamwork, creative activities
4. School climate	4.1. Supportive environment	Prejudices, inequality
	4.2. Teacher–student interaction	Teacher–student relationship, teacher motivation, empathetic language

This investigation demonstrates that when coupled with practical lessons, constructive feedback, and a sense of solidarity among school pupils, a high student-centred school environment significantly improves students' educational success and motivation. Most particularly, it is the widespread application of practical classes, the offering of personal feedback in a constructive fashion, and in-school collaboration that contribute so much to the improvement in the education quality.

DISCUSSION

This research sought to understand the challenges encountered by vocational high school learners on the aspect of teacher approaches while experiencing their learning process. The results demonstrate that teacher attitudes, practical training, and the climate of the school serve as significant contributing factors to learners'

motivation and vocational skills development. This section provides an interpretation in comparison to the literature, contradictions and consistencies are addressed, and policy recommendations and future research directions are provided.

The impact of teacher attitudes on student motivation

Studies show that instructors who offer personalized instruction and feedback improve students' academic successes and motivation drastically. For instance, student comments such as: "Teacher Hüseyin would kindly explain my shortcomings" are consistent with Gupta & Datta (2023) who stress boosting students' self-confidence and motivation among the disadvantaged group. But, in contrast to these results, Ergün (2018) insists that inadequacies of teachers' teaching ability in the vocational domain can lead to demotivation. This contradiction may be due to differences in teachers' pedagogical capabilities across institutions. Chakravorty et al. (2024) experimentally verified that informative feedback works, and reinforced the significance of teachers' guidance roles in teaching. In this light, training initiatives for teachers focusing on constructive communication and mentorship skills may help mitigate motivational challenges faced by vocational education.

Contribution of practical training to vocational skill development

If students say "statements that show that they understand the subject better in practical lessons", it shows that practical experience is really useful in reinforcing theory. UNESCO (2021) emphasized digitalization and sustainability in vocational training and Magagula & Awodiji (2024) stressed the increased need for skill in practical, active learning resulting from the Fourth Industrial Revolution. But, as observed from (Iqbal et al. (2023), owing to the mismatch between curricula and the demands of industries, there is still a gap between graduates' skills and their employers' expectations. Active learning technologies can be effective in fostering career motivation among vocational high school students (Bochkareva et al., 2020). At the same time, Özgüler (2018) says that internship and certification processes bridge the gap of vocational and occupational education; however, our research data also touches on the importance of practical training in business life. Thus, rethinking the curriculum jointly with the private sector and establishing mandatory internship programs might augment the impact of vocational training. Furthermore, as shown by these data, many of our graduates end up working in things that are not related to their vocational education, and for that reason, there is a potential mismatch between education and what the job market needs.

The roles of school climate and social interaction

The positive impact of a supportive school environment on student success can be seen in the following statements: "A classroom environment where peers

help one another." According to the World Bank, UNESCO, and ILO (2023), the school climate in low-income regions is directly linked to socioeconomic development. Along with this, responsibility, attitude, teamwork, and communication skills hold an important place in vocational competence (Wagiran et al., 2023). But according to Toytok and Yıldırım (2018), the school climate may suffer from other forces: disciplinary problems and those of adolescence. Zhou, Chen, and Gong (2025) examined the effects of gender-related approaches on school climate and stated that inclusive policies are needed. In this sense, improving guidance systems in schools and implementing activities that help students develop social skills can improve students' commitment to school.

Limitations and future research

This study was based on student perspectives. However, teacher or administrator perspectives were not obtained. Looking at what teachers, school principal, and students think can give us a full and deep view (Patton, 2002; Creswell, 2003). Also, if we look at it from a political economy view, we can see more about the big issues in learning job skills (McGrath & Yamada, 2023).

Conclusion and policy recommendations

• Teacher training: in-service training programs should be created based on constructive feedback and mentorship skills.

• Curriculum integration: the digital tools and industrial needs need to be aligned with practical courses.

• School–industry collaboration: compulsory internships and certification processes should be established to make graduates more employable.

• Inclusive policies: programs targeted to gender and socioeconomic inequalities might contribute to improving the school climate.

Such recommendations would enhance the contribution of vocational education in shaping character and the future at an individual and social level. Quantitative data and multistakeholder analyses could further extend these results in future investigations.

In contrast, students' career decision-making self-efficacy and vocational outcome expectations of vocational education have a direct impact upon their professional identity formation. According to Baglama and Uzunboylu (2017), with the above-mentioned relationships in mind, increasing confidence in making career choices positively reinforces vocational expectations of students. Likewise, a study on digital electronics competitions in Taiwan (Liao et al., 2018) revealed that these competitions were vital to improve students' performance by developing indicators of competence, including domain-specific knowledge, practical skills, and self-management.

Considering these results, the implementation of the following practices in vocational high schools in Türkiye will increase students' professional adaptation and reduce the problem of "skill-employment mismatch" in the transition from school to work:

- Programs that increase career self-efficacy,
- Systematic participation in national and international skills competitions,
- Assessment models that determine students' industrial competencies.

Ethics declarations

Participants were clearly informed that they had the right to decline participation in the study or to withdraw at any stage. Since the data were collected through an electronic form, participants were able to discontinue their involvement or choose not to participate at all. Accordingly, it is accepted that those who took part in the study provided voluntary consent. The author appropriately informed the participants about the purpose of the study and the use of their data in the research. The author has no direct or indirect financial or non-financial interests in the conduct or publication of this study.

Reference

Au Yong, L. A. (2022). Vocational training and employment outcomes of domestic violence survivors: Evidence from Chihuahua City. International Journal of Educational Development, 89, 102542. https://doi.org/10.1016/j.ijedudev.2021.102542

Baglama, B., & Uzunboylu, H. (2017). The relationship between career decision-making self-efficacy and vocational outcome expectations of preservice special education teachers. South African Journal of Education, 37(4), 1–11. https://doi.org/10.15700/saje.v37n4a1520

Bochkareva, T. N., Akhmetshin, E. M., Zekiy, A. O., Moiseev, A. V., Belomestnova, M. E., Savelyeva, I. A., & Aleynikova, O. S. (2020). The analysis of using active learning technology in institutions of secondary vocational education. International Journal of Instruction, 13(3), 371–386. https://doi.org/10.29333/iji.2020.13326a

Chakravorty, B., Arulampalam, W., Bhatiya, A. Y., Imbert, C., & Rathelot, R. (2024). Can information about jobs improve the effectiveness of vocational training? Experimental evidence from India. Journal of Development Economics, 169, 103273. https://doi.org/10.1016/j.jdeveco.2024.103273

Creswell, J. W. (2003). Research design: Qualitative, quantitative and mixed methods approaches. Sage Publications.

Dernowska, U. (2017). Teacher and student perceptions of school climate: Some conclusions from school culture and climate research. Journal of Modern Science, 32(1), 63–82.

Ergün, H. (2018). Problems of vocational education according to school principals and employers. MAMAS Sosyal Araştırmalar Dergisi, 7(3), 191–205.

Feyzi, K. (2020). Mesleki eğitimin değerlendirilmesi: Meslek yüksekokulları boyutu. Bolu Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 20(2), 975–991.

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. ECTJ, 29, 75–91. https://doi.org/10.1007/BF02766777

Guba, E. G., & Lincoln, Y. S. (1982). Epistemological and methodological bases of naturalistic inquiry. Educational Communication and Technology Journal, 30(4), 233–252.

Gupta, P., & Datta, A. (2023). The role of accurate identification of vulnerable youth in vocational education and training systems for improved employability. Data in Brief, 48, 109258. https://doi.org/10.1016/j.dib.2023.109258

Gupta, P., Datta, A., & Kothe, S. (2023). Developing employability skills in vulnerable youth. World Development Sustainability, 2, 100045. https://doi.org/10.1016/j.wds.2023.100045

Güçlü, M. (2020). An investigation of academic motivation resources of vocational high school students. International Journal of Education Technology and Scientific Researches, 5(11), 353–383.

Hong, J.-C., Zhang, H.-L., Ye, J.-H., & Ye, J.-N. (2021). The effects of academic self-efficacy on vocational students' behavioral engagement at school and at firm internships: A model of engagement-value of achievement motivation. Education Sciences, 11(8), 387. https://doi.org/10.3390/educsci11080387

Iqbal, J., Shaikh, A. A., Jamal, W. N., Akhtar, K., Rahim, R., & Kousar, S. (2023). Exploring the generic skills required for the employability and professional wellbeing of Pakistani millennials. Frontiers in Psychology, 13, 1070267. https://doi.org/10.3389/fpsyg.2022.1070267

Işık, E., & Semerci, Ç. (2019). Nitel araştırmalarda veri üçgenlemesi. Turkish Journal of Educational Studies, 6(3), 53–66. https://doi.org/10.33907/turkjes.607997

Liao, C.-W., Chang, T.-C., Lin, H.-I., & Cheng, P.-W. (2018). Construction and verification of digital electronics contestants' indicators. South African Journal of Education, 38(3), 1–10. https://doi.org/10.15700/saje.v38n3a1478

Magagula, M. M., & Awodiji, O. A. (2024). The implications of the fourth industrial revolution. Social Sciences & Humanities Open, 10, 100896. https://doi.org/10.1016/j.ssaho.2024.100896

Mamutse, S., Holland, N., Laurenzi, C. A., Bantjes, J., Tomlinson, M., Rotheram-Borus, M. J., & Hunt, X. (2024). Nuancing null results. Mental Health & Prevention, 33, 200311. https://doi.org/10.1016/j.mhp.2023.200311

McGrath, S., & Yamada, S. (2023). Skills for development and vocational education. International Journal of Educational Development, 102, 102853. https://doi.org/10.1016/j.ijedudev.2023.102853

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

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). Qualitative data analysis: A methods sourcebook (3rd ed.). Sage Publications.

Özgüler, V. C. (2018). İşgücü piyasalarında gençler ve mesleki yeterlilikler sistemi. Verimlilik Dergisi, 2, 115–132.

Patel, P. C., & Oghazi, P. (2024). Vocational training innovative institutions and self-employment earnings gaps. Journal of Innovation & Knowledge, 9, 100554. https://doi.org/10.1016/j.jik.2024.100554

Patton, M. Q. (2002). Qualitative research & evaluation methods (3rd ed.). SAGE Publications.

Rapti, D. (2013). School climate as an important component in school effectiveness. Academicus International Scientific Journal, 7, 110–125. https://doi.org/10.7336/academicus.2013.08.06

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist, 55(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Schönfelder, C. (2024). Vocational training related ENEN activities. Nuclear Engineering and Design, 420, 113017. https://doi.org/10.1016/j.nucengdes.2024.113017

Şimşek, H., & Yıldırım, A. (2011). Sosyal bilimlerde nitel araştırma yöntemleri. Seçkin Yayıncılık.

Srivastava, A. K., Logar, B., Sanghvi, S., Vaghela, A., & Adwani, M. (2025). Vocational training and employability. Evaluation and Program Planning, 110, 102554. https://doi.org/10.1016/j.evalprogplan.2025.102554

The World Bank, UNESCO, & International Labour Organization. (2023). Building better formal TVET systems. The World Bank. https://doi.org/10.54675/RVDM3811

Toytok, E. H., & Yıldırım, M. B. (2018). Meslek liselerinde disiplin sorunları. Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 18(3), 1759–1778.

Turkish Language Association. (n.d.). Güncel Türkçe Sözlük. https://sozluk.gov.tr

UNESCO. (2021). Final evaluation of UNESCO's technical and vocational education and training strategy (2016–2021). https://unevoc.unesco.org/pub/final_evaluation_of_unesco_tvet_strategy_2016-2021.pdf

Wagiran, Pardjono, Triyono, M. B., Pratama, G. N. I. P., & Köhler, T. (2023). The future of vocational competence: Perspective of vocational teachers, industries, and educational experts. International Journal of Instruction, 16(4), 543–560. https://doi.org/10.29333/iji.2023.16431a

Wilson-Clark, G., & Saha, S. (2019). Transitions from school to work: UNICEF technical note. https://www.unicef.org/media/60366/file/Transitions-from-school-to-work-2019.pdf

Wongmonta, S. (2023). Wage effects of vocational education. International Journal of Educational Development, 103, 102886. https://doi.org/10.1016/j.ijedudev.2023.102886

Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). SAGE Publications.

Zhou, J., Chen, S., & Gong, Y. (2025). Gender differences in vocational education and training. Acta Psychologica, 254, 104743. https://doi.org/10.1016/j.actpsy.2025.104743

CHAPTER 6

Digitalization in Educational Administration

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1. Introduction

Developments in digital technology have led to profound transformations within education systems. This shift has impacted not only teaching processes but also the overall approach to educational administration. With the advent of digitalization, school administrators have begun to be positioned not merely as individuals managing organizational processes, but also as digital school administrators who develop a digital vision, guide technological transformation, and adhere to digital ethical principles (Anderson & Dexter, 2005; Sheninger, 2014). In this regard, the concept of digital school administration has become increasingly significant, particularly with the integration of artificial intelligence technologies into educational institutions.

Artificial intelligence applications have begun to be utilized in numerous areas of education, including personalized learning, tracking academic performance, and evaluating teacher effectiveness (Holmes, Bialik & Fadel, 2019). Although these systems offer school administrators substantial opportunities for data-driven decision-making, they also introduce new responsibilities from ethical, strategic, and managerial standpoints (Selwyn, 2019). Indeed, the explainability of decisions, data security, digital inequalities, and the potential for biased outcomes generated by AI systems necessitate that school digital school administrators act not only with technical competence but also in adherence to ethical principles (Williamson, 2017; Ribble, 2011).

In this context, digital school administration is evolving into a multidimensional digital school administratorship approach that goes beyond the management of technological tools; it requires understanding the dimensions of organizational transformation, involving teachers in change processes, and establishing trust-based relationships with stakeholders (Fullan, 2019; Spillane, 2006). During this process of technological transformation, it is of great importance for school administrators to support teachers' digital competencies, evaluate data-driven practices within the framework of ethical principles, and ensure the participation of all stakeholders in the process.

This chapter aims to reexamine the phenomenon of digitalization in educational administration where artificial intelligence technologies are rapidly expanding. Digitalization in the field of educational administration not only involves the use of technological tools but also brings about a structural transformation that fundamentally alters school administrators' ethical decision-making processes, strategic planning approaches, and organizational management practices. In this context, the primary aim of the chapter is to present various dimensions of the new roles undertaken by school administrators within the scope of digital school administration, based on the existing national and international literature.

In the second section of the chapter, the concept of digital school administration is addressed within its theoretical framework; subsequently, the impacts of artificial intelligence applications on school management processes, the transformation of decision-making mechanisms, and the ethical and legal responsibilities faced by administrators in this process are examined. In the final section, practical recommendations for school administrators, policymakers, and researchers are offered in line with the prominent criteria, trends, and discussions in the literature. Accordingly, the chapter seeks to provide a comprehensive perspective on how school management is being reshaped in the digital age.

2. The Concept of Digital School Administration: A Conceptual Framework

Digital transformation in education is reshaping not only instructional methods but also the understanding of digital school administration to align with the demands of the modern era. In the literature, there are various definitions of digital school administration, each addressing its role in education from different perspectives. Anderson and Dexter (2005) describe digital school administration as a multidimensional leadership approach in which school administrators strategically utilize digital technologies to sustain learning, teaching, and administrative processes in accordance with contemporary needs.

Sheninger (2014) defines digital leadership as a vision that goes beyond mere use of technology and aims to transform the culture of learning. This vision also includes making the school institution an integral part of this transformation.Digital school administration is also closely associated with data-driven decision-making and fostering a culture of continuous learning (Wayman, Jimerson, & Cho, 2012).

In this sense, digital school administration is not merely a technical competence, but rather an innovative leadership approach that drives transformation in education. While traditional leadership is typically characterized by authority and hierarchy, digital leadership and digital school administration are built on principles of collaboration and innovation (Spillane, 2006). Whereas the traditional leader usually acts as a decision-maker and directive figure, the digital school administrator forms learning communities, establishes a vision and shares it with others, and promotes participatory processes (Northouse, 2018).

Moreover, while technology is often regarded as a supportive tool in traditional leadership, in digital school administration it is considered a strategic element of significant importance. This model has introduced new and diverse responsibilities, such as fostering a digital culture within schools, ensuring online safety, and managing data-driven decision-making processes (Dexter, 2011; Ribble, 2011).

Indeed, digital school administration is not only about being proficient in technology but also about the ability to apply this proficiency effectively and efficiently within pedagogical, administrative, and ethical contexts. Accordingly, the core competencies a digital school administrator should possess include creating a digital vision, ensuring technology integration, supporting teacher development, making data-informed decisions, safeguarding digital security, and applying ethical principles.

One of the most critical roles of the digital school administrator is the ability to develop a digital vision at the institutional level. Anderson and Dexter (2005) emphasize that school administrators should perceive technology not merely as a tool, but as a source of transformation-oriented strategy. A digital school administrator should define the organization's digital objectives and formulate strategic plans to achieve these goals.

In addition, digital school administrators must also play a guiding role in the integration of technology. They are particularly expected to provide the necessary support and guidance for teachers to use digital tools effectively and in alignment with pedagogical principles. Ertmer and Ottenbreit-Leftwich (2010) emphasize that teachers need school administration support to implement technology effectively and pedagogically within classroom settings.

Digital school administration is also distinguished by its role in supporting professional development. These school administrators should offer training opportunities aimed at enhancing teachers' digital competencies and connect them with resources that help them adapt to the evolving digital landscape (Bebell & Kay, 2010).

Another crucial dimension of digital school administration is the ability to make data-informed decisions. Digital school administrators should analyze data gathered from digital environments to develop strategies that improve student achievement and enhance educational processes (Wayman et al., 2012). In doing so, the decision-making process becomes more objective and measurable.

Finally, digital school administrators are also expected to raise awareness regarding ethical and security issues. This includes protecting student data, upholding the principles of digital citizenship, and promoting the implementation of cybersecurity practices (Ribble, 2011).

In summary, considering all these skills and competencies, the digital school administrator is not merely an administrative figure, but a multifaceted professional who manages learning communities, transforms school culture, and integrates digitalization into the school environment. The digital school administrator also strengthens data-driven decision-making processes, shaping the strategic direction of the school. By supporting teachers' professional development, they ensure the sustainability of innovative practices. Moreover,

they act as a change agent who rapidly adapts to evolving technological conditions and continuously enhances the school's digital capacity.

3. The Transforming Role of the School Administrator in the Age of Artificial Intelligence

In today's modern era, where artificial intelligence technologies are rapidly advancing, education systems are significantly affected by this transformation. In particular, the role of school administrators now involves not only ensuring organizational functioning but also developing technology-based strategies and defining the ethical boundaries of digitalization. In this context, leadership in the age of artificial intelligence requires a holistic approach that combines technical knowledge with pedagogical expertise, ethical awareness, and strategic decision-making skills (Luckin, Holmes, Griffiths, & Forcier, 2016; Selwyn, 2019).

AI-based systems serve as important tools for school administrators in areas such as monitoring student achievement, evaluating teacher performance, and creating individualized learning processes. These systems allow for the identification of students' needs, more accurate analysis of teachers' professional development areas, and increased predictability in school-level decision-making processes (Holmes et al., 2019; Zawacki-Richter, Marín, Bond, & Gouverneur, 2019).

With the advent of the AI era, significant changes have emerged in the decision-making processes digital school administrator. While traditional leadership largely relied on the experience and intuition of the school administrator, decision-making in the age of artificial intelligence has become increasingly data-driven. School administrators are now expected to utilize student data, performance analyses, and information related to learning outcomes—obtained through digital methods—to engage in strategic planning (Williamson & Eynon, 2020).

In this regard, school administrators are not only responsible for analyzing data but also for preparing teachers for this transformation, providing guidance on the use of digital tools in the classroom, and supporting professional development. Digital school administration is not merely a domain of administrative competence; it also involves the ability to build a learning school organization, prioritize collective growth, and create educational environments that maintain a balance between technology and human interaction (Fullan, 2019).

In summary, an effective school administrator in the age of artificial intelligence should possess strategic thinking skills, act in accordance with ethical principles, demonstrate strong digital data literacy, and be a leader who not only manages change but actively engages in it.

4. Ethical, Strategic, and Managerial Dimensions of Artificial Intelligence Transformation

With the increasing prevalence of AI-based technologies in the field of education, the forms of leadership that school administrators are expected to adopt in line with the demands of the modern era are also evolving. This transformation, which now extends far beyond simply supporting pedagogical processes, has significantly influenced administrators' decision-making styles and ethical responsibilities. In this new era, school administration is no longer limited to technological proficiency; it necessitates an approach that manages, evaluates, and develops the pedagogical, organizational, and strategic impacts of technology (Selwyn, 2019).

The capabilities of artificial intelligence systems—such as predicting student behavior, identifying potentially risky situations early, analyzing teacher performance, or providing personalized learning recommendations—make their use essential in school administration (Holmes et al., 2019). However, alongside the convenience these technologies offer, they also bring ethical responsibilities. Practices such as collecting and analyzing student data and incorporating it into decision-making processes have raised critical discussions around core values such as data privacy, transparency, accountability, and equal opportunity. At this point, the role of the school administrator transforms from simply using these systems appropriately to also safeguarding the ethical boundaries of their use and ensuring data security (Williamson, 2017).

One of the most fundamental ethical issues regarding the use of AI in education is the often limited transparency surrounding how these systems function. The decision-making processes of algorithms are frequently complex, which may undermine the perceived reliability of these systems for both students and teachers. When utilizing AI-based systems, school administrators should provide clear and accessible information to stakeholders and emphasize that decisions are not left solely to algorithms, but are overseen and guided by human judgment. Otherwise, a perception of a "cold and rigid" decision-making mechanism may develop within the school environment, diminishing the overall quality of the learning experience (Selwyn, 2019).

From a strategic perspective, artificial intelligence is not merely a tool that accelerates existing processes; it has evolved into a factor that redesigns the functioning of educational institutions, enhances decision-making processes, and renders organizational structures more dynamic. School administrators must take this factor into account in their strategic planning and shape their digital vision accordingly (Fullan, 2019).

However, this transformation process involves more than technological adaptation; it also requires strong stakeholder management and the capacity to overcome resistance to change. In particular, teachers may experience hesitation

and uncertainty regarding the contribution of technological systems to assessment, evaluation, and classroom guidance. Over time, such concerns may lead to reactions such as resistance, distrust, and decreased motivation. In this context, the school administrator's responsibility is to analyze the roots of this resistance, approach it with empathy, and foster a climate of trust through open communication. Administrators must not be seen merely as top-down decision-makers but rather as leaders who involve all school stakeholders in the process, who learn and grow together, and who collaboratively build digital transformation (Holmes et al., 2019; Fullan, 2019).

In conclusion, the type of leadership expected from school administrators in the age of artificial intelligence goes far beyond a set of technical skills. It encompasses a multidimensional set of competencies such as fostering ethical sensitivity, developing strategic foresight, establishing open channels of communication, and adopting an inclusive and participatory approach to digital school administration. In this context, digital school administration can be redefined as the art of managing not only technology but also human-centered processes of change and development.

5. Conclusions

Within the scope of this chapter, the transforming role of school administrators in the age of artificial intelligence was examined through the lens of digital school administration in a multidimensional manner, and the ethical, strategic, and managerial implications of this transformation were addressed in a holistic framework. The findings indicate that in today's modern era, digital school administration is shifting away from traditional management models and evolving into a more participatory, data-driven, and technology-integrated structure. In this context, digital school administration emerges as a form of leadership that is not limited to technological competence; rather, it transforms learning processes, reconstructs school culture, and prioritizes change in collaboration with stakeholders (Sheninger, 2014; Anderson & Dexter, 2005).

In traditional leadership, decision-making processes are typically guided by intuition, experience, and past practices, whereas in digital school administration, decisions are increasingly shaped by data and algorithmic systems (Williamson, 2017). This transformation requires school administrators to consider not only student achievement in their strategic planning, but also teacher performance, school culture, and digital learning conditions. However, data-driven decision-making is not solely a matter of technical progress; it also constitutes a domain of ethical responsibility. The involvement of artificial intelligence systems as decision-makers in educational environments has made principles such as data privacy, accountability, and transparency more debatable (Selwyn, 2019; Holmes et al., 2019). When AI systems analyze student data and contribute to decision-making processes, it becomes essential to clearly define who can access this data

and for what purposes it may be used. The risk that AI systems may operate with embedded biases necessitates careful scrutiny of such applications in terms of fairness and equity. In this context, the explainability and auditability of decision-making processes are of critical importance. All these ethical responsibilities require school administrators to develop a leadership approach that is not only digitally literate but also ethically sensitive, embraces the principles of digital citizenship, and is grounded in human rights (Ribble, 2011).

From a strategic standpoint, AI systems not only support individual learning but also contribute to enhancing institutional capacity. Preparing school development plans based on data, customizing digital content to meet the specific needs of the institution, and carrying out teacher development through individualized data are key indicators of this transformation. However, at this point, the direction of digital school administration should not be structured solely as a top-down process, but rather as a culture of transformation developed collaboratively with stakeholders (Fullan, 2019).

At the organizational level, technological transformation does not simply involve the introduction of new tools. It also creates a new context in which internal roles are redefined, business processes are digitized, learning environments transcend physical boundaries, and teacher-student relationships evolve. Within this new context, managing stakeholders and overcoming resistance to change have become critical areas of responsibility for school administrators. In particular, teachers may show resistance to this transformation due to concerns over how AI systems affect classroom dynamics, the algorithmic nature of assessment processes, and the neglect of emotional needs. At this point, school administrators must adopt a leadership approach that is explanatory, supportive, and collaborative—one that actively involves teachers in the transformation process (Bebell & Kay, 2010).

All of these findings indicate that digital school administration should be addressed not only from an individual perspective but also from institutional and systemic standpoints. Effective digital school administration requires investment not merely in technology, but in human capital, ethical awareness, and cultural transformation. Therefore, digital school administrators should adopt a leadership style characterized by a multidimensional perspective, a commitment to critical thinking, and a strong emphasis on justice in education.

In conclusion, digital school administration in the age of artificial intelligence is becoming a complex yet transformative form of administration that encompasses not only technical proficiency but also strategic foresight, ethical sensitivity. In this context, it is crucial for school administrators to re-evaluate their roles, for training programs to be updated to incorporate these new competencies, and for digital transformation processes to be implemented through a human-centered approach. In this way, a productive, inclusive, and

ethically grounded model of digital school administration can be achieved within increasingly digitalized education systems.

REFERENCES

Anderson, R. E., & Dexter, S. (2005). School technology leadership: An empirical investigation of prevalence and effect. *Educational Administration Quarterly, 41*(1), 49–82.

Bebell, D., & Kay, R. (2010). One to one computing: A summary of the quantitative results from the Berkshire Wireless Learning Initiative. *Journal of Technology, Learning and Assessment, 9*(2), 1–60.

Dexter, S. (2011). School technology leadership: Artifacts in systems of practice. *Journal of Research on Technology in Education, 44(*2), 166–189.

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education, 42*(3), 255–284.

Fullan, M. (2019). *Leading in a culture of change.* New York, NY: Teachers College Press.

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning.* Boston, MA: Center for Curriculum Redesign.

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education.* London, UK: Pearson Education.

Northouse, P. G. (2018). *Leadership: Theory and practice* (8th ed.). Thousand Oaks, CA: Sage.

Ribble, M. (2011). *Digital citizenship in schools: Nine elements all students should know* (2nd ed.). Eugene, OR: ISTE.

Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education.* Cambridge, UK: Polity Press.

Sheninger, E. (2014). *Digital leadership: Changing paradigms for changing times.* Thousand Oaks, CA: Corwin Press.

Spillane, J. P. (2006). *Distributed leadership.* San Francisco, CA: Jossey-Bass.

Wayman, J., Jimerson, J., & Cho, V. (2012). Organizational considerations in establishing the data-informed district. *School Effectiveness and School Improvement, 23*(1), 159–178.

Williamson, B. (2017). *Big data in education: The digital future of learning, policy and practice.* London, UK: Sage.

Williamson, B., & Eynon, R. (2020). Historical threads, missing links, and future directions in AI in education. *Learning, Media and Technology*, *45*(3), 223–235.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education—Where are the educators? *International Journal of Educational Technology in Higher Education, 16*(1), 1–27.

CHAPTER 7

Softening the Claim: A Corpus-Based Exploration of Hedging and Stance in Turkish EFL Student Writing

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1. Introduction

Expressing one's opinion and making claims with moderation is crucial in academic writing, where authors must find the right combination of arguing and caution in order to construct a well-balanced argumentative piece. This moderation is primarily achieved through hedging, which allows authors to express polite uncertainty, mitigate face threats, and show epistemic distance (Hyland, 1998; Hinkel, 2022). Hedging, as Hyland (2019) identifies, is a means through which the author softens a claim, and also facilitates the consolidation of academic identity through the demonstration of a critical perspective and a counterposition. Consequently, hedging is more than a grammatical choice as it functions as a socio-pragmatic device that indicates the academic disposition and the stance of a writer in a given field.

However, in EFL context the use of hedging encounters problems as a result of a lack of extensive vocabulary, inadequate exposure to academic discourse, and the influence of the learners' first language (L1). Recent studies indicate that a relevant number of learners tend to completely shy away from hedging or overuse a very limited set of "safe" hedges (e.g. I think and maybe) which ultimately undermines the level of assertion in their arguments (Morales, 2023; Keller, 2024). Such limited use, as stated by Biber et al (2023), is an early phase in the development of stance taking, which is characterized with limited pragmatic awareness and excessive dependence on subjective viewpoint.

This phenomenon is particularly salient in circumstances where the emphasis on standardised elements of writing instruction focuses on speci?c types of grammatical accuracy, rather than on encountering the rhetorical aspects of writing, yielding texts that may be structurally accurate, but are rhetorically impoverished (Zaghouani et al., 2024).

The Turkish EFL context provides an opportunity to examine the phenomenon of hedging, particularly because Turkish does not possess an article system, and expresses modality in a structurally different way than English, suggesting an L1 transfer may take place (Uzun, 2013; Gökmen, 2018). While there is quite a robust set of studies that examine the patterns of grammatical errors in Turkish students? writing (e.g., Kadan, 2023; Gazioğlu, 2024), the discourse-level competence of hedging has received limited attention. Although emerging works, particularly learner corpora, such as the TELC project (Cangır, 2024), have begun to describe the use of language in these writings in increasingly broad terms, the use and frequency of hedging, accuracy, and pragmatic appropriateness of hedging, in writing by students of English as a foreign language remain largely unstudied. Such a gap in the literature, however, is telling, in that hedging competence has increasingly been seen as a predictor of maturity and greater command of the language in a less hyphenated sense than in other genres. (Hyland, 2019; Hinkel, 2022). At this stage, it should be noted that learners with

a limited range of hedging markers and alternatives may come across as unreasonably assertive or insufficiently critical, which would, in turn, impair the desired effect of an academic argument (Morales, 2023).

Within this context, then, this study is concerned with the use of hedging strategies in a classroom-based learner corpus of argument essays produced by Turkish EFL students.

The goal is to discover not only which hedging devices have been employed but also to consider how well they accomplish the intended rhetorical goals in academic prose. The research is designed around three major research questions.

1. *What kinds of hedging expressions do Turkish EFL learners use in argumentative writing?*
2. *To what extent are these hedging strategies used accurately and appropriately in context?*
3. *What do hedging patterns indicate about learners' epistemic stance and their L2 proficiency?*

By addressing these questions, the study aims to contribute to ongoing discussions in learner corpus research and to offer pedagogically relevant insights for creating teaching materials that foster rhetorical competence alongside grammatical accuracy. Ultimately, the findings seek to emphasize the importance of incorporating stance-awareness training into EFL writing instruction to support learners' development of academic identity and argumentation skills.

2. Literature Review

2.1. Hedging as a Core Feature of Academic Writing

A measured approach regarding the interplay between certainty and caution is vital in demonstrating and sustaining credibility in the academic sphere of writing. This nuanced approach is accomplished through hedging as a linguistic technique whereby the user avoids claiming absolute knowledge and instead expresses certitude as a function of psychological distance to the knowledge (Hyland, 1998). In Hyland's works (2005, 2019), the author states there are specific academic disciplines in which the hedging phenomenon is commonplace and consequently reflects on the respective academic identity. In this sense, hedging is dual-faceted with respect to the propositional and interactional, in the sense that the writer is safeguarded from overgeneralization while the reader is assumed to be a partner in the collaborative process of meaning construction.

Recent evidence supports this bifurcated perspective. Hinkel (2022) views hedging as a sophisticated communicative moderation potentially crucial to argumentation writing where assertions need to be made with a conservative and diplomatic approach. This is further expanded and integrated into the argument

of academic identity construction by Morales (2023), who argues that students with restricted hedging use may be overly impertinent and/or inadequately critical. In fact, Keller (2024) recognized that the variety and fittingness of hedging devices used are reliable indicators of writing ability, particularly within CEFR B1–C2 levels. This underscores the need to conceptualize hedging as more than a peripheral grammatical feature, and to emphasize it as a crucial component of academic voice.

2.2. EFL Writing and the Trouble and Patterns of Development of Hedges

Studies have shown that there is a tendency for EFL students to have a worrying over-reliance on a relatively small range of hedges. It has been seen that hedges such as I think, maybe, or can, are heavily employed, and this can have a negative effect on their rhetorical sophistication (Biber et al., 2023). Such an over-reliance can be seen as a form of lexical narrowness, which is what Vyatkina (2013) refers to as a developmental plateau in stance. This is where a writer is able to give an opinion but struggles on the level of academic discourse in being able to present an opinion in an articulate manner. Many of these learners also seem to confuse the act of hedging as a rhetorical act which is a way of managing an interpersonal stance, with hedging as an indication of loss of certainty or ambiguity, or as a personal belief (Hyland, 2019). In such cases students present a construction such as I think it is obviously true; this presents a pragmatic contradiction which has been noted in the literature on writing that has been done in the Arab, East Asian and Slavic worlds (Morales, 2023; Zaghouani et al., 2024).

It is more than a lexical problem. Keller (2024) also explains that the hedging of overgeneral and even contradictory statements occurs as a result of the more extreme. This is where the hedges that are used, are combined with boosters, which is in euphemisms such as maybe it is definitely true. These types of errors obviously show issues with their grasp of language and their level of discourse, which contributes to the problem. The level of rhetorical purpose that is associated with such constructions is the reason that accuracy in hedging is more than a problem of language alone; it also has to do with the learners understanding of the issues that surround the subject of the discourse.

2.3. Hedging in Turkish EFL Learners: The Gap in the Literature

Hedging, as it concerns Turkish EFL learners, is influenced by the unique relationship between Turkish and English. Turkish functions without an article system and uses a different modality structure, and as a result, English hedging is often not aligned (Uzun, 2013; Gökmen, 2018). Recent studies taking a corpus-based approach (e.g., Kadan, 2023; Gazioğlu, 2024) offer the most up-to-date assessment of the error patterns of Turkish learners in writing, but, as to contact zone, the stances taken or the hedging employed is focused on insufficiently or not at all. In the same way, TELC as a corpus (Cangır, 2024) while most certainly,

and with great strides, compiling the databases on learners of the Turkish language, and as a corpus, still lacks the discourse-level tagging of hedging as a marker.

Even with the obvious pedagogical consequence, the research is scarce. Having the ability to hedge is, among other things, a marker of academic competence, as opposed to simply linguistic competence (Hyland, 2019). Turkish EFL remains a curriculum field that is mostly generated without hedges in areas of stance, modality, or metadiscourse (Sarıgül, 2020). This leads to the scenario that students are writing the types of essays that are not, in fact, weak in the sense of grammar, but in the sense of rhetoric, and as a result are not strong.

2.4. Research Gap and Rationale for the Present Study

Prospective Turkish EFL students and students note the importance of hedging strategies to academic writing no research demonstrates an understanding of the proficiency and rhetorical competence that comes with an academic identity. The Turkish EFL realm, however, has a glaring gap. Few studies explicitly examine hedging, corpus-based classroom studies are limited, and there are limited discourse-level teaching materials for hedging.

Therefore, this study aims to address this gap by analyzing hedging within a classroom-based Turkish learner corpus using Hyland's (1998, 2005) taxonomy as a framework. The study seeks to examine not only which hedging devices students use but also how effectively they are applied in relation to the context and the quality of argumentation.

4. Methodology

A corpus-based descriptive research design was used in this research in order to examine how Turkish EFL learners utilize hedging in their argumentative writings. The researchers collected data from 32 undergraduate ELT students in a Turkish state university. The students had to write an essay by hand based on the prompt: 'What are the advantages and disadvantages of studying abroad?' which was chosen because it is supposed to invite contrastive reasoning and argumentation which are both naturally hedged (Hyland, 2019). The participants were guaranteed confidentiality and anonymity and to comply with classroom research ethics (Morales, 2023), students were asked to sign a document of consent.

After the essays were collected, the researchers digitized them and to ensure the students' confidentiality were the only ones with their essays, the researchers gave the essays random identifying codes. The researchers deleted all short sentences, sentences that were mere repetitions of the ones before, and sentences that were underdeveloped. Nevertheless, the researchers chose to keep the spelling mistakes to ensure the essays retained their authenticity, though the researchers standardized the punctuation. The corpus was subsequently processed

as a sample of 3,800 words and prepared to undergo a variety of linguistic analyses that required tokenization in order to apply the regex functionality of tagging.

The foundational classification lists for hedge expressions were first established using Hyland's (1998, 2005) studies in which hedges were classified either as lexical (e.g., seem, appear) or modal (e.g., might, could) verbs, stance adverbs (e.g., possibly, maybe), frequency adverbs (e.g., sometimes, usually) or are expressed from a first-person perspective (e.g., I think, I believe), which is known as a personal stance.

To distinguish between structurally inappropriate instances (e.g., "Maybe it is certain that…") as opposed to correctly contextualized instances (e.g., "Sometimes students may feel anxious in a foreign country."), The automated extractions done in the previous step were followed by a more labor-intensive manual verification step. As cited by Keller (2024) and Hinkel (2022), the unit of analysis was the sentence, allowing evaluators to assess the hedges in question along with their surrounding syntactic and pragmatic components.

To better balance the workloads of the two annotators, a split of the dataset was created for each of the two individuals and the annotations were matched later to assess a measure of coding reliability as reported in the literature. According to the Cohen's Kappa result of 0.87 obtained in the exercise of inter-rater reliability, the annotators demonstrated high concordance. In accordance with the procedures reported in Vyatkina (2013) in the context of learner corpus analysis, the disagreements were resolved through discussion. The most frequently identified hedges were labeled, according to their function, as belonging to one of the five categories: hedges that function as markers of possibility, hedges that are personal stance markers, frequency hedges, hedges in the form of modal adverbs, and hedges that are classified as verbs of a higher epistemic nature. Based on the implementation of the coding scheme, the present study was intended to answer in the most systematic way possible the three research questions related to the frequency of the hedges, the contexts in which they are most appropriate, and the role they play in academic discourse stance.

Sentences produced by learners, such as "I think studying abroad can change your life in a good way," and "Sometimes it might be difficult for students to adapt," were treated as qualitative evidence on which to base the quantitative findings.

The methodological framework used in this case, alongside the previous studies, such as Cangir (2024) and Gazioğlu (2024), demonstrates the relevance of small classroom-based corpora in exploring stance-taking in EFL writing, and the accurate integration of qualitative data and computational techniques, which enables precisely assessing the rhetorical strategies learners deploy in hedge use

to shape their academic identity and actively participate in hedging to build their academic identity.

Analysis and Findings

Table 1. Frequency of Hedging Types in the Learner

Corpus Hedge Type	Frequency (n)	Percentage (%)
Personal stance	46	47.4%
Possibility modals	28	28.9%
Frequency markers	11	11.3%
Modal adverbs	8	8.2%
Epistemic verbs	4	4.1%

Note. Percentages were calculated based on the total number of hedges identified in the corpus. Coding was based on Hyland's (1998, 2005) taxonomy of hedging strategies.

Table 1 shows the distribution of hedging types. The most frequent one was personal stance markers, 46 of them, representing 47.4 \% of the hedging expressions. This shows that almost half of the hedging involved the use of first-person constructions like I think, I believe, etc. The other second most frequent type of hedging was the possibility modals, 28 of which are 28.9 \% of the hedging. This type of hedging includes modals, {may, might, can, etc.}, which convey uncertainty or probability.

Adverb of frequency markers are less frequent type of hedging. This was 11 of them which is 11.3 \% of hedging, with of less frequent use. These usually used I habitual. A modal hedge adverb is also less frequent with 8 of them which results to 8.2 of the \% hedging done. This is hedging done using adverb of varying degree of doubt. This is also lesser with a total of 4 of it which is 4.1 of the total hedging. This type hedging includes use of verbs that signify a inferential or interpretive judgment like, seem, appear.

Table 2. Most Frequent Hedging Forms and Representative Learner Examples

Hedge Form	Frequency (n)	Example From Corpus
I think	29	"I think studying abroad can change your life in a good way."
can/may	22	"It can be difficult to adapt to a new culture."
maybe	7	"Maybe students will feel lonely at first."
sometimes	5	"Sometimes you need to be brave in a foreign country."
seem	2	"It seems like a good opportunity for young people."

Note. These examples illustrate appropriate rhetorical uses of hedging; however, lexical variation remained highly limited across the corpus.

Table 2 tries to show the different levels of sophistication of the Hedging expressions in the learner corpus. The distribution across hedging expressions suggested that the majority of hedging items belong to the 1 to 1000 levels which are the high frequency words. This makes up 75 \% of all the hedge instances. These are therefore common words that are used in everyday conversations which are also is the words that are learned in early stages of a language.

The 1001 to 3000 level frequency band encompasses 18% of hedging discourse, embodying mid-level complexity and a marked absence of use within general discourse. Within this frequency band, members of the Academic Word List were located, representing 6% of total discourse hedges and confirming the presence of an academic genre. The smallest category included low frequency vocabulary items (3000+ level), which constituted only 1% of the hedging tokens found in the corpus.

Notably, the entries in Table 2 show how hedging discourse for learners was based mostly around high frequency vocabulary, while mid frequency, academic and low frequency discourse were in very limited use.

Table 3. Pragmatic Misuse and Hedging–Booster Conflicts in the Corpus

Student Sentence (from Learner Corpus)	Problem Identified	Type of Issue
"I think it is obviously true."	Hedge + booster contradiction	Pragmatic conflict
"Maybe it is certain that students must go."	Redundant modality	Modal redundancy
"It can be must for students to join Erasmus."	Modal + lexical inconsistency	Grammatical misuse
"I believe it is always right to study abroad."	Lack of hedging despite meta discourse	Over-assertiveness

Note. These cases reflect developmental gaps in rhetorical stance awareness, supporting previous observations by Morales (2023) and Keller (2024).

Table 3 shows examples of pragmatic misuse and conflicts between hedge and booster use found in the learner corpus. Several sentences used hedges and boosters at the same time, creating contradictions. For instance, the sentence "I think it is obviously true" combines a hedging device with a certainty marker, leading to a pragmatic conflict.

Other researchers have noted the unnecessary repetition of modality of which the following is an example: "Maybe it is certain that students must go." In this sentence, the unnecessary repetition of probability and/or certainty within the same clause is unwarranted. Furthermore, other modal-lexical inconsistencies were noted, including the following example: "It can be must for students to join Erasmus." In this example, the modal and the lexical portion of the construction were combined to form an element that was of lower status than the other two. This comment, "I believe it is always right to study abroad," demonstrates over-claiming because it includes a stance marker and is followed by an over-arching statement that is otherwise a closed statement without a hedge.

Finally, the pragmatic conflicts present, and the redundant modality combined with imprecise use of the modal, suggest the construction of a hedge noted by students in Table 3.

Table 4. Frequency Band Distribution of Hedging Expressions *(APA 7 Format)*

Frequency Band	Example	Count	CEFR Level
1–1000 (high)	maybe, can, sometimes, I think	75%	A2–B1
1001–3000 (mid)	likely, unless, instead	18%	B1–B2
Academic Word List	suggest, indicate	6%	B2
3000+ (low-frequency)	arguably, plausibly	1%	C1–C2

Note. CEFR levels were aligned with standard lexical frequency bands. Data suggest high reliance on basic modal forms, with limited academic stance markers.

Table 4 displays the distribution of hedging expressions across different lexical frequency bands. Most hedging items come from the 1–1000 high-frequency band, making up 75% of all occurrences. These include common words like maybe, can, sometimes, and I think, which are usually linked to A2–B1 proficiency levels.

Hedging expressions from the 1001–3000 mid-frequency band made up 18% of the corpus, including moderately frequent lexical items like likely, unless, and instead. A smaller portion of hedges came from the Academic Word List (AWL), accounting for 6% of the tokens and reflecting B2-level vocabulary such as suggest and indicate. The smallest category consisted of low-frequency lexical items (3000+), representing 1% of all hedges, including advanced expressions like arguably and plausibly, which are typically associated with C1–C2 proficiency levels.

Overall, Table 4 shows that hedging expressions mainly appear in high-frequency vocabulary ranges, with only a limited presence of academic or low-frequency lexical items.

Students' Hedge Usage in Context (Qualitative Evidence)

A close examination of student writing showed that hedges were often used legitimately to soften claims:

- *"I think people can improve themselves by going abroad."*
- *"Sometimes students may feel shy when they meet new cultures."*
- *However, several cases exhibited inappropriate or contradictory hedging:*
- *"Maybe it is definitely important to study abroad."*
- *"I think it is always true."*

These patterns suggest that learners possess partial awareness of hedging but lack understanding of academic stance—as noted in earlier studies of EFL learners (Hinkel, 2022; Keller, 2024).

The analysis showed that, in their hedging, Turkish EFL learners focused on a narrower range of devices, particularly expressions of personal stance and modal verbs. While some of the hedging terms made sense contextually, in that they overshadowed the argument, in most cases, their contextual use showed a small range of understanding of academic stance. The three most significant patterns include: 1) The tendency to use first-person stance markers (I think, I believe), 2) The tendency to use modal verbs (may, can) excessively, and 3) The infrequent use of epistemic verbs (seem, appear).

The following tables illustrate the range, frequency, and relative accuracy of the hedging devices used in the corpus.

6. Discussion

The study has concluded that Turkish EFL learners primarily utilize personal stance expressions and basic modal verbs that, combined, constitute the majority of the hedging strategies used in their argumentative writing. This fits with the established observations in the literature that developing writers use more of the lower end, high-frequency hedging forms such as I think, maybe, and can with greater frequency (Biber et al., 2023; Keller, 2024). As Hyland (1998, 2005, 2019) points out, these hedges are indicative of a more preliminary stage in the construction of the academic voice. This is mostly the case in the expression of the tentativeness through one's personal opinion rather than the more sophisticated and desirable forms of epistemic distancing.

The dominance of the personal stance markers (47.4%) in the corpus is consistent with Morales's (2023) findings, where the lower range EFL writers are said to associate hedging more with personal opinion than with the rhetorical act of positioning. Sentences such as, "I think studying abroad can change your life" in the corpus showcase the awareness of uncertainty but rest primarily on self-referential subjectivity as opposed to more academic stance markers (e.g., it seems; it appears; it is plausible that). This argued for Hyland (2019) insightful observations that EFL learners often do not receive adequate pedagogical training on the linguistic features that would facilitate the development of an academic voice.

The pattern of using possibility modals serves the function that Keller (2024) suggests perhaps should be seen as overuse as a developmental plateau. This is because learners probably have the basic modals of may and can and have even over utilized these forms, but have not learned other markers of stance. Indeed, some use of possibility modals contribute sigma alpha epsilon rhetoric modals, being used here to fill a gap created by the limited use of other epistemic

resources. This is also seen in the very low use of epistemic verbs (4.1%), which has also been documented in previous studies of EFL writing (Hinkel, 2022; Uzun, 2013). This probably reflects a gap in discourse level thinking in the use of an argument that learners in this research may have, and that these verbs indicate a more complex level of lexical knowledge.

One additional significant discovery derives from the frequency band analysis (Table 4), which shows that 75% of all hedges belong to the 1–1000 high-frequency band. This dependence on general-purpose vocabulary is consistent with the assumption that lexical sophistication is a marker of academic achievement (Hyland & Jiang, 2021; Keller, 2024). The very small amount of Academic Word List (AWL) items (6%) and the virtually absent low-frequency epistemic markers (1%) point to a lack of lexical access, which resonates with the notion that an academic stance requires not only an understanding of textual structures, but also a breadth of vocabulary (Biber et al., 2023; Cangır, 2024). This is also supported by the CEFR-based classification, which suggests the majority of hedges are located in the A2–B1 bands.

The qualitative data found in Table 3 are equally important, as they provide insight into primary pragmatic misuses. Misuses such as “I think it is obviously true” and “Maybe it is certain that students must go” highlight the ubiquitous hedge–booster conflicts found in literature on EFL stance-taking (Morales, 2023; Hinkel, 2022). This phenomenon describes the tendency for learners to merge conflicting signals: some linguistic markers convey uncertainty, while others convey certainty, leading to contradictory utterances. Such utterances betray the learners’ nascent understanding and grappling with the rhetorical functions that hedges perform in sophisticated academic arguments. As Hyland (2005) rightly points out, hedges cannot be viewed solely as a grammatical phenomenon; learners must also view them as a pragmatic phenomenon, since this perspective helps explain why learners might arrive at a syntactically accurate statement yet produce an unsubstantiated claim.

L1 transfer, as discussed in the introduction and literature review (Uzun, 2013; Gökmen, 2018), is pervasive out in the open. Turkish lacks direct equivalents for many hedging constructs in English, and the scope of modality differs, which may lead learners to overgeneralize modal verbs and expressions of personal stance. The tendency to use simpler modal constructions in Turkish EFL writing has been noted in several Turkish learner corpora (Sarıgül, 2020; Kadan, 2023; Gazioğlu, 2024), and these findings support such observations by demonstrating how structural gaps can affect rhetorical performance.

Overall, the corpus shows that although learners are aware of the need for hedging, their rhetorical and lexical repertoires remain limited. They can hedge, but their hedging is simple, incomplete, and sometimes inappropriate, reflecting typical developmental patterns described in recent literature (Hyland, 2019;

Morales, 2023; Keller, 2024). This indicates that hedging competence involves not just linguistic knowledge but also the broader skill of constructing academic arguments and engaging in disciplinary discourse—a skill that students are only beginning to develop.

7. Conclusion

By utilizing classroom learner corpora, this study examined the use of hedging strategies in argumentative writing by Turkish EFL students. The results demonstrate that learners predominantly use high-frequency, general-hedging expressions, especially in relation to personal stances and fundamental modal verbs. More sophisticated hedging forms, including epistemic verbs, modal adverbs, and lexical academese, are employed far less frequently. Additionally, some learners demonstrate pragmatic issues, such as the hedging-boosting conflicts and modal redundancies, indicating a lack of a certain level of discourse competence.

These results are consistent with a significant number of previous studies, including Hyland, 1998, 2005, 2019 and Hinkel 2022, which have highlighted, among other things, that hedging contributes to the academic voice and epistemic stance, topics anthropologized in EFL studies by learners lacking academic literacy, such as the Turkish context, but to a further extent, with regards to L1 transfer and restricted repertoire as emphasized by Uzun 2013, Gökmen 2018, and Sarıgül 2020.

Additionally, the study clarifies that hedging, as a rhetorical device, is not something learners acquire incidentally; instead, it underscores the need to teach hedging explicitly. Future studies could focus on corpus expansion, genre comparisons, and automated tagging systems, but the current study sufficiently illustrates the importance of corpus methods.

Finally, the study contributes to the existing body of work by demonstrating that there is much to be said about learners' academic maturity, as hedging extends beyond the level of linguistic features. Targeted instruction on hedging can further assist Turkish EFL students in shifting their approaches to writing from opinion-centred to argument-oriented scholarship as they advance into world scholarship.

8. Suggestions and Consequences

The results from this research strongly support the argument that Turkish EFL students would benefit from more direct and structured instructional approaches to hedging and stance modifications. Given that research finds students make heavy use of limited personal stance markers and elementary-level modal usage, writing instruction must include more than mere grammar-related approaches. It must focus on purposeful instructional design that brings to students' consciousness the various types of hedging and their rhetorical purposes.

Teaching with corpora, both learner and expert, helps students understand the functions of hedging in real academic writing and use a broader range of lexical and epistemic hedging. Teaching with the Academic Word List can also assist students' lexical development, particularly in academic settings that use verb forms with high epistemic modality and sophisticated level modals. Training of instructors, along with curriculum changes, must consider hedging as a central and necessary instructional element in academic literacy, not just a matter of style. That stance-taking must be included in curriculum design that follows the CEFR guidelines for writing courses. In addition, we encourage the use of rubrics that provide guidelines for effective hedging to focus on and stimulate their use, thereby enhancing their writing.

Lastly, one possible avenue for future research could examine how hedging evolves across varying levels of proficiency, genres, and first language backgrounds. Such research would shed more light on the phenomenon of stance-taking in EFL writing and refine the design of more effective pedagogical interventions.

9. References

Ayar, Z. (2022). Exploring discourse-level challenges in Turkish EFL students' academic essays. *ELT Research Journal, 10*(1), 52–68.

Biber, D., Conrad, S., & Reppen, R. (2023). *Corpus linguistics and second language writing*. Routledge. https://doi.org/10.4324/9781003223915

Cangır, H. (2024). Developing the TELC (Turkish-English Learner Corpus): Implications for EFL research. *Dil Araştırmaları Dergisi, 14*(1), 45–62.

Divsar, H., & Heydari, P. (2017). A complexity, accuracy, and fluency analysis of Iranian EFL learners' essays. *Journal of Language Teaching and Research, 8*(2), 242–251.* https://doi.org/10.17507/jltr.0802.10

Gazioğlu, M. (2024). Identifying grammatical errors via a written learner corpus in a Turkish EFL context. *Journal of Language Research, 12*(2), 110–128.*

Gökmen, A. (2018). L1 interference in Turkish EFL learners' written production. *International Journal of Applied Linguistics, 29*(3), 211–225.

Hinkel, E. (2022). *Teaching academic ESL writing: Practical techniques in vocabulary and grammar*. Routledge. https://doi.org/10.4324/9781003262778

Hyland, K. (1998). Hedging in scientific research articles. *Applied Linguistics, 19*(1), 1–22.* https://doi.org/10.1093/applin/19.1.1

Hyland, K. (2005). *Metadiscourse: Exploring interaction in writing*. Continuum.

Hyland, K. (2019). Second language writing and academic identity. *Journal of English for Academic Purposes, 38*, 52–65.* https://doi.org/10.1016/j.jeap.2019.01.004

Hyland, K., & Jiang, F. (2021). Academic positioning: Stance strategies across disciplines. *Discourse Studies, 23*(3), 305–325.* https://doi.org/10.1177/1461445620973533

Kadan, Ö. F. (2023). A corpus-based analysis of linguistic errors in Turkish undergraduate EFL writing. *ELT Research Journal, 12*(1), 1–20.*

Keller, S. D. (2024). What analytic ratings reveal about stance-taking across CEFR levels in EFL writing. *System, 121*, 103176.* https://doi.org/10.1016/j.system.2024.103176

Morales, V. (2023). Stance, identity, and academic voice in EFL writing: A corpus-based study. *Journal of Second Language Writing, 62*, 101016.* https://doi.org/10.1016/j.jslw.2023.101016

Sarıgül, U. (2020). Hedging and modality problems in Turkish EFL academic writing. *ELT Research Journal, 9*(1), 55–70.

Uzun, N. (2013). The influence of Turkish L1 on English L2 grammar and modality. *Procedia – Social and Behavioral Sciences, 70*, 1225–1231.* https://doi.org/10.1016/j.sbspro.2013.01.179

Vyatkina, N. (2013). Learner corpora in L2 teaching and assessment. *Language Learning & Technology, 17*(3), 73–92.*

CHAPTER 8

From Settlement to Statehood: Missionaries, Migration and Colonial Enterprise in James A. Michener's *Hawaii*

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Introduction

During the early period of President Donald Trump's first administration in 2017, one of the executive orders issued aimed to reduce the threat of terrorism by temporarily halting the entry of refugees from several countries with predominantly Muslim populations into the United States. This policy faced legal challenges, including a Temporary Restraining Order issued by a Hawaiian Federal Judge Derrick Watson Kahale that blocked the nationwide enforcement of the revised Executive Order 13780. In response, U.S. Attorney General Jeff Sessions criticized the decision, stating, "I really am amazed that a judge sitting on an island in the Pacific can issue an order that stops the president of the United States from what appears to be clearly his statutory and constitutional power" (Shear, 2017). Sessions later justified his comment as merely a factual geographic statement, acknowledging that Hawaii is located in the Pacific Ocean. Nevertheless, as writer Doug Mack observes, Sessions appeared anchored in a pre-1959 era when Hawaii was not a state and reflected a mindset that seemingly disregards the political and cultural realities of modern America. Mack (2017) criticizes Sessions for his rhetoric, arguing that "by overtly portraying our fiftieth state as a distant region rather than part of his own homeland, Sessions said: This place is foreign, not really part of us". Of course, the ironic part is that only a few months earlier—before the Trump administration—the country had been governed for eight years by President Barack Obama who was born in the state of Hawaii. Although he was not ethnically Hawaiian, he lived in the state until he went to university. Thus, Sessions's stance represents a political and administrative process that, in a sense, denies itself.

As can be seen, although these developments have occurred within a political framework, Hawaii's political, social, cultural and historical perception has always differed from that of mainland America due to its geographical position as an island in the middle of the ocean. The state of Hawaii is an archipelago composed of eight major islands, with Hawaii itself being the largest among them. The region's encounter with the United States began in 1820 with the arrival of Protestant missionaries under the American Board of Commissioners for Foreign Missions (ABCFM) then followed by American businessmen who established sugar plantations. The area was annexed by the United States in 1898 and formally admitted as the fiftieth state in 1959. Today, the stereotypes and representations associated with Hawaii in American culture mostly derive from its transformation into a tropical tourist and vacation destination. This transformation has produced an exoticized and romanticized image of paradise that often conceals the islands' colonial past and socio-historical realities. However, in recent years, the islands have at times reemerged as a site of colonial trauma. This dynamic reflects not only the broader history of American imperialism but also the deeper processes that began with the arrival of white explorers. For instance, the white obelisk tower erected in honor of the British

navigator James Cook, who "discovered" the islands and was later killed by Native Hawaiians, has served as a site of commemoration but has occasionally become a target of vandalism and protest (Hasslinger, 2022). Yet, from a historical perspective, it is difficult to argue that the Native Hawaiian population has consistently maintained a conscious stance of resistance against colonial discourse or imperial domination. One of the main reasons for this is that the islands' demographic and cultural transformation was shaped less by direct American cultural imperialism and more by waves of migration from various parts of Asia, which significantly altered the population structure. Nevertheless, it may be observed that the coexistence of diverse ethnic communities in Hawaii has been, in relative terms, more successful than on the American mainland.

James Michener's *Hawaii*, as a historical novel, not only recounts the history of a single island but critically examines American imperial expansion, economic dominance and settler ideology alongside their cultural representations. The novel simultaneously aligns with and diverges from official historical records, revealing the complex interaction between fact and fiction. By moving between historical realities and mythological narratives, Michener demonstrates literature's role in constructing national identity and exposes the contradictions within American culture. His richly developed characters, pastoral and topographical descriptions, and intertwining of historical events and narrative plotlines make *Hawaii* a considerable resource for study. Within American literature, James Albert Michener does not have a prominent place in the literary canon, largely because his works are often not recognized for their literary or aesthetic qualities. Michener is not typically regarded as a highly critical author who challenges American imperial discourse. However, his novels were immensely popular, selling millions of copies worldwide as they were translated into many languages and widely read. This widespread readership demonstrates the significant influence he could exert on many people through the subjects he chose to write about. Among his works, the 1947 novel *Tales of the South Pacific* depicts the lives of American soldiers and other personnel in the South Pacific during World War II, as well as their interactions with the indigenous populations. The novel won the Pulitzer Prize for Fiction in 1948 and was later adapted into both a film and a Broadway musical which made a significant place in popular culture. According to John P. Hayes (1984), Michener "filled a gigantic void for readers who wanted to know more about history, art, science, technology, geology, and the peoples of the world. Thus, Michener's career coincided with the awakening of a nation. Unlike his predecessors who created an era, Michener was created by an era" (p.6). In other words, unlike Fitzgerald, Hemingway, Dos Passos, Lewis, Faulkner, or Steinbeck, Michener did not define a literary period; he emerged from the post-World War II era, a time marked by rising prosperity and a broadly conformist social ethos, which shaped both his writing and readership. In the context of history and novel, Michener claimes that

a typical historical novelist carefully researches facts, aware that misrepresenting them carries risks; for instance, before beginning any project, Polish writer Henryk Sienkiewicz—later a Nobel laureate for works like *Quo Vadis* and *The Teutonic Knights*—conducted such extensive research in historical documents that his knowledge often surpassed that of the average scholar (Michener 1982).

Analysis of the Novel *Hawaii*

James A. Michener's novel *Hawaii* was published in October 1959, just a few months after Hawaii was admitted as the fiftieth state of the United States. With a length of roughly one thousand pages, *Hawaii* is a wide novel that presents the island's historical and social development from its origins to the mid-1950s through different stories and generations. Comprising six sections, the novel begins with "From the Boundless Deep" which offers a geological narrative describing the formation of the Hawaiian Islands as a result of volcanic activity in the depths of the Pacific Ocean. The second section, "From the Sun-Swept Lagoon" intertwines a narrative of nature and the ecosystem with the story of Polynesian navigators who were driven by political unrest and resource scarcity in the South Pacific's Bora Bora islands. As they arrived in Hawaii in search of new land, they represented the first human migration to the islands and eventually became its indigenous population.

The third section, "From the Farm of Bitterness" is one of the most important parts of the novel and forms a central focus of this study. It deals with the arrival of American missionaries from New England to Hawaii, their activities and their interactions with the indigenous people. The fourth section, "From the Starving Village" which will be analyzed in detail in this study, presents both American and Protestant expansionism and the stories of the third major group to arrive on the islands, the Chinese, within its narrative structure. In "From the Inland Sea" the narrative focuses on Japanese immigrants and explores the multicultural life that began to develop on the islands in the first half of the twentieth century. The final section, "The Golden Men" reflects Michener's optimistic vision and depicts the people of Hawaii as having integrated East and West within their identity, transforming into "Golden Men."

In the first section of *Hawaii*, there is no human presence or plot structure, instead Michener emphasizes nature by depicting the islands' emergence over millions of years through volcanic eruptions, climate changes, ocean movements and the repeated extinction and revival of life. He presents the islands as alive, yet awaiting the arrival of humans. Through these vivid portrayals, the narrative moves from nature toward culture:

> How terrible this passage of life and death! How meaningless that an island that had been born of such force and violence, that had been so fair upon the bosom of the great ocean, so loved of birds, so rich in trees, so willing to entertain man, should he ever arrive . . . how wasteful it was that this island

> should have grown in agony and died in equal agony before ever a human eye had seen its majesty (Michener, 1959, p.9).

Michener suggests that the islands which have endured millions of years of painful formation, are now ready for human habitation and the magnificence of their natural history is "wasted" if it goes unseen by humans. This perspective reveals an anthropocentric view: nature's significance is framed in relation to human observation. In other words, the islands exist fully only when witnessed by humans which reflects an early example of anthropocentric and colonial perspective.

At the end of the section, Michener (1959) uses a striking metaphor to suggest that the islands are now ready for human settlement:

> "These beautiful islands, waiting in the sun and storm, how much they seemed like beautiful women waiting for their men to come home at dusk, waiting with open arms and warm bodies and consolation. All that would be accomplished in these islands, as in these women, would be generated solely by the will and puissance of some man." (p.15)

Here, the Hawaiian Islands are gendered, romanticized and depicted as women awaiting their men. This metaphor frames the future colonization of the land in explicitly colonial and patriarchal terms. The islands, like the women described, are presented as objects ready to be claimed and controlled, dependent on the "will and puissance" of men, namely the settlers and colonizers. Nature and the land are feminized and their potential is imagined as something to be realized through male action.

In the second section of the novel, Michener provides glimpses into the lives of Polynesians living on the Bora Bora islands. Following internal conflicts and struggles for power, King Tamatoa and his brother Teroro are forced to flee their homeland and arrived in Hawaii as the first settlers after a long sea voyage. Prior to their departure, during a festive gathering, Michener's (1959) narrative presents a depiction of hula dance that reflects a notorious stereotype persisting into modern times:

> …Teroro's men would begin dancing with a dark Havaiki girl, and they too would go into the shadows accompanied by ribald advice from the lusty old women, for an island hula was meaningless unless at its climactic moment a man and woman so desired each other that they were propelled explosively into fulfillment. (p.45)

The use of terms such as "dark Havaiki girls" and "lusty old women" transforms the hula ritual into an eroticized and exoticized spectacle through a Western eye. These Polynesians would later carry these cultural practices and traditions with them when they settled in Hawaii. Michener presents the Polynesians' arrival and settlement in Hawaii with an epic narrative that blends historical probability with myth and legend. One central question is what the new

land should be called. Although the king, his brother and the warriors object, the priest Tupuna insists that the island can only be named "Havaiki." Tupuna represents cultural memory and holds spiritual authority. He justifies his claim through an ancient story that also links their homeland to the same name:

> In ancient times, when great Tane lay with a goddess, the people of the swift canoes were born. They lived then in Havaiki, but it was not the Havaiki we know. It was Havaiki-on-the-Great-Land, and from there King Tamatoa's father's father's father, back to forty generations, led his people in a canoe, and they went to Havaiki-Where-the-Animal-Is-Like-a-Man, and there they lived for many generations, until King Tamatoa's father's father's father, back to thirty generations, led his people in canoes to Havaiki-of-the-Green-Lagoon… .(Michener, 1959, p.105)

Through this narrative, Tupuna not only emphasizes the sacredness of Havaiki in Polynesian mythology but also reinforces King Tamatoa's authority and asserts that rulership in the new land should continue as it did in the past. Divine power is essential for life and to channel it to the people, a temple must first be constructed: "When the consecration of the temple was completed, and when mana had again begun to flow from the gods into King Tamatoa…" (Michener, 1959, p.101). This establishment of spiritual and social order enables the settlers to live in harmony with the land, cultivating it and sustaining their lives at a subsistence level, a practice that endures until the arrival of the white settlers.

From Missionary Zeal to Sugar Plantation Enterprise

The third section of the novel, "From the Farm of Bitterness" moves approximately a thousand years forward from the arrival of Hawaii's first settlers to the early nineteenth century, focusing on the growing interest of American missionaries in the islands and their subsequent journeys to settle there. This section is the most extended in the book and presents the central themes underlying America's emerging dominance over the islands. The narrative begins in New England at Yale College, where a young Hawaiian orator, Keoki Kanakoa delivers a speech that deeply impresses figures such as Abner Hale and John Whipple. Having Hawaiian origin and educated in the United States Kanakoa makes the following striking appeal:

> "Young men of God!" he pleaded. "In my father's islands immortal souls go every night to ever- lasting hell because of you! You are to blame! You have not taken the word of Jesus Christ to my islands. We hunger for the word. We are thirsty for the word. We die for the word. Are you, in your indifference, going to keep the word from us forever? Is there no man here tonight who will rise up and say to me, 'Keoki Kanakoa, I will go with you to Owhyhee and save three hundred thousand souls for Jesus Christ'?"… "Will no one go with me to save the souls of my people?" (Michener, 1959, p.124).

Kanakoa's speech dramatizes the emotional and moral legitimacy of the Christian missionary ideology. Presenting his own people as "sinners to be saved"

may appear paradoxical, yet within the context of the novel, it highlights how such appeals could persuade and inspire the audience. On one hand, it reflects the alienation of Kanakoa from his own culture through the missionary worldview. On the other hand, it frames the decision of young missionaries like Hale to travel to Hawaii as both a divine duty and a moral imperative to save souls and suggested that failure to act would leave them with a profound sense of guilt.

In 1810, the American Board of Commissioners for Foreign Missions (ABCFM) was established in Massachusetts and committed itself not only to teaching the doctrines of Christianity but also to spreading the Gospel using all necessary means, considering it a mission to bring these teachings to "heathen lands." The Pacific Ocean, including the Hawaiian Islands was among their designated mission fields. In fact, even before the institutional establishment of the Board, the region (then known as the Sandwich Islands) had already been visited by missionaries and traders. With the Board formally established, it was deemed time to send missionaries for settlement. Abner Hale was appointed as a minister and John Whipple as a missionary doctor to Hawaii. A remarkable aspect of this period is reflected in Michener's (1959) observation: "In these years of the early 1820s, there were many young ministers destined for Hawaii who, absorbed in study, found no time to make the acquaintance of marriageable young women and who were unexpectedly faced with the positive necessity of getting married" (p.140). In response, Whipple married his cousin, and Hale married the niece of the Board president before departure. Women in this context were assigned specific roles: "that women were the civilizing agents, the visual harbingers of Christian life. The A.B.C.F.M., therefore, required females not only to keep the young missionaries in line, but also because a devoted young wife was herself a missionary of the most persuasive kind" (Michener, 1959, p.140). Clearly, women were positioned as carriers of civilization and protectors of morality. The local population in the mission areas was depicted as an "immoral danger" and "savages to be civilized," while white Christian women were symbolically represented as embodiments of civilization and virtue.

Perhaps one of the most striking scenes in this section occurs when the missionaries, after a long and arduous sea voyage, finally arrive in Hawaii and are greeted by the indigenous people:

> The actual landing of the missionaries was a confused affair, for when the Thetis drew into the famous wintering port of Lahaina, there was great commotion on shore, and the missionaries saw with horror that many handsome young women were throwing off their clothes and beginning to swim eagerly toward the little brig, which apparently they knew favorably from the past, but the attention of the ministers was quickly diverted from the swimmers to a fine canoe which, even though it started late, soon overtook the naked swimmers and drew up alongside the Thetis. It contained a man, a completely nude woman and four attractive girls, equally nude. (Michener, 1959, p.206)

In Michener's depiction, nudity represents the most visible boundary between two worlds, marking the moral and cultural divide. For the missionaries, nakedness symbolizes "savagery" and the "sinful nature" that must be redeemed; their reaction reflects not only shock but also the imposition of Western moral authority over the body. For the indigenous population, however, nudity is a natural social and cultural norm—an ordinary part of life rather than a source of shame. Michener (1959) presents this contrast with a subtle irony: "Aboard the Thetis, Abner Hale, who had never before seen a naked woman, said dazedly to his brothers, 'There's going to be a lot of work to do in Lahaina'" (p.207). Hale's remark that there will be much work to handle canbe interpreted as the beginning of their "civilizing mission," a divine mandate to suppress and transform local culture. Thus, the scene of nudity exposes the moral and cultural assumptions underpinning the West's claims to "civilization" and its asserted superiority. In the novel, Abner Hale, the leading missionary figure, is portrayed as a deeply devout yet rigid New Englander. While he establishes missionary schools, he also believes that forming close relationships with the native population poses moral and spiritual danger. As Michener (1959) writes, "there was inherent danger from too close relationships with the Hawaiian savages, and it was under the impetus of this fear that he built a high wall around his entire establishment… Within the wall not a word of Hawaiian was spoken" (p.292). Hale's decision to isolate his home behind walls reflects his emotional and cultural detachment from both the Hawaiians and even his fellow missionaries. This isolation defines his life and ultimately his death: "He died alone, caring for the graves, but no one cared for him" (Michener, 1959, p.447).

One of the earliest deaths among the missionaries in Hawaii is depicted with a dramatic scene. When Abraham Hewlett's wife faced a premature and dangerous childbirth, she refused assistance from the native Hawaiians: "Had the Hewletts relied on them, they would have produced a clean birth and a healthy baby; but for the Hewletts to have accepted their aid would have meant admitting that a heathen, brown-skinned Hawaiian knew how to deliver a Christian white baby, and such an idea was unthinkable" (Michener, 1959, p.245). In their attempt to preserve Christian "purity," they effectively invited death—though the baby survived, the mother did not. This scene exposes how moral and religious superiority, along with racial prejudice, transforms the so-called civilizing mission into an act of human blindness. Although Hale continues to discourage close contact with the natives, other characters defy such boundaries. Captain Rafer Hoxworth marries Noelani, a Hawaiian woman which symbolizes a new stage of life on the islands. Even missionary Hewlett, who had earlier rejected local help, later marries a native woman. Hale's reaction to Hewlett is harsh upon learning the news, he exclaims, "A Christian minister marrying a heathen. Gone a whoring after the heathen!" (Michener, 1959, p.283). Yet Dr. Whipple responds with reason and empathy: "He wasn't whoring after heathens, Brother Abner . . .

Do you mind if I quit this brother calling? Abner, this man Abraham Hewlett was left alone at Hana with a baby boy and not a damned thing to guide him in the care of that child" (Michener, 1959, p.284). This conversation shows the moral rigidity and ethnocentric worldview of Abner Hale, whose sense of Christian duty is inseparable from a belief in racial and cultural superiority. His condemnation of Hewlett's marriage as "whoring after the heathen" shows how missionary ideology associated religious purity with whiteness and rendered any cross-cultural union as a form of moral degradation. In contrast, Dr. Whipple's defense of Hewlett exposes a more humane and rational understanding of human need and criticizes implicitly missionary's dehumanizing rigidity in this context. In the novel Dr. Whipple represents a rational and pragmatic counterpoint to the moral strictness of the other missionaries. Unlike Hale, he is guided more by science and human empathy than by dogma as he evolved from an idealistic missionary into a realist who understands the social and economic conditions of Hawaii. His proficiency as a medical doctor, in addition to his missionary role, makes him more visible and allows greater interaction with the natives. Though motivated by practical reform, his actions still show the ambiguities of benevolent colonialism, especially after his departure from missionary work and his subsequent involvement in mercantile enterprises alongside Captain Janders. As a part of the developing and expanding economy, Dr. Whipple became one of the first individuals to bring Chinese laborers to work on his land. His diary entries reveal his belief that the arrival of the Chinese and their integration with the local population would contribute to the creation of a healthier and more vigorous generation in Hawaii's future:

> It was on the island of Oahu in 1824 that I first saw measles sweep through a Hawaiian village, leaving eighty per cent of the people dead, and it was soon after that I began considering what we could do to infuse new life into this lovable race which I had grown to cherish so dearly. I foresaw that only the introduction of some vital new blood could pre- vent the annihilation of these fine people. Erroneously, I thought that stronger Polynesians from the south might accomplish the reversal, but we imported such Polynesians and nothing happened. Later, I trusted that Javanese might suffice, and perhaps they would have, but we were unable to acquire them. And now the Chinese have arrived and they have served exactly as I long ago predicted they would… The best thing I ever did for Hawaii was to import Chinese. (Michener, 1959, p.441)

Whipple's decision to bring Chinese laborers to Hawaii in the name of "reviving" the native population reflects a form of benevolent colonialism and even eugenic implication which were disguised as kind of science and humanitarianism. His compassion for the Hawaiians, whom he calls a "lovable race," hides a paternalistic attitude that views them not as independent people but as subjects in need of Western guidance and improvement.

By the end of the nineteenth century, the children of the missionaries and ship captains who had first arrived on the islands had expanded their fathers' lands

and enterprises and institutionalized economic exploitation in Hawaii through family alliances and strategic marriages: “One of the unmarried Janders girls smelled him out, checked the land records to be sure he owned the land he said he did, and married him. Thus his thousand acres was brought safely back into the grand alliance of Hoxworth–Whipple–Hale–Janders–Hewlett” (Michener, 1959, p.537). The return of Overpeck’s land to the “Hoxworth–Whipple–Hale–Janders–Hewlett alliance” shows how power is circulated among a few white families on the islands with marriage functioning as an instrument of economic consolidation. All the names within this grand alliance belong to the descendants of the missionaries and ship captains who had originally come to the islands to bring civilization and divine order. For example, Captain Hoxworth’s grandson, “Wild” Whip Hoxworth, was deliberately raised by his grandfather to be bold and enterprising. As an adult, he became deeply involved in sugar plantations, trade, and politics. The author presents Whip’s multilingual ability, his capacity to communicate with Chinese, Japanese, Portuguese, and Native laborers, as part of his constructed “superior white” identity. The multinational labor force on his sugar plantations reveals how U.S. capital accelerated the demographic transformation of the islands. Moreover, the U.S. policy that allowed duty-free sugar imports from Hawaii granted significant privileges to American businessmen in the region. Whip’s nickname “Wild” reflects not only his personal temperament but also the unrestrained and morally unchecked nature of capitalist expansion itself. Indeed, one of Whip’s main ambitions was to make Hawaii part of the United States (Michener, 1959, p.550).

From Hawaiian Monarchy to U.S. Annextation and Statehood

In 1891, after the death of her brother King Kalākaua, Queen Liliʻuokalani ascended the throne. Politically, she sought to abolish the “Bayonet Constitution” that had been forcibly imposed on her brother. This constitution had stripped Native Hawaiians and Asian immigrants of their voting rights, placing political power largely in the hands of American plantation owners. The Queen aimed to reverse this situation. As Coffman (2019) notes, “she was besieged by petitions from the native people seeking a new constitution to strengthen indigenous rule through her, the queen, as their traditional ruler, and through a reassertion of influence in the Kingdom's Legislature proportionate to their numbers. The queen's desire to proclaim a new constitution in response to the native petitions became known, and the white annexationists in the port town of Honolulu set out to crush her” (p.8). Queen Liliʻuokalani’s attempt to restore the constitutional and political rights of Native Hawaiians showed both her progressive vision and the limits imposed upon her by colonial interests. While Michener portrays her as a well-intentioned but ultimately powerless monarch, historical evidence suggests that she was, in fact, a politically smart and modern leader confronting an imperial system which is already rooted in Hawaiʻi’s economy and governance. Her advocacy for education, women’s empowerment, and the welfare of children

revealed a deep commitment to her people's future rather than a mere defense of royal privilege (Picayo, 2024). However, the annexation of Hawaii by the United States in 1893 was driven less by the removal of the monarchy and more by developments affecting American citizens, who made up only two to five percent of the island's population, particularly businessmen. This followed the 1890 McKinley Tariff, which eliminated the duty-free status for Hawaiian sugar. Michener (1959) conveys this situation through the voice of Wild Whip: "Since the McKinley Tariff every damned sugar man in Louisiana and Colorado has been getting a subsidy of two cents a pound, whereas sugar imported from Hawaii has been penalized. What's it all mean? During the first twelve months of this McKinley abortion our profits have dropped five million dollars" (p.552). The problem could only be resolved if Hawaii became part of the United States, restoring the duty-free status and eliminating additional taxes or fees. Consequently, American businessmen pressured the U.S. Congress and annexation supporters while simultaneously criticizing Queen Lili'uokalani's administration and the monarchy. Missionary families also joined in, as Michener (1959) notes: "Missionary families came out boldly against the corruption, absolutism and paganism of the monarchy, but many who cried loudest in public against these evils also owned businesses that would prosper under American rule" (p.556). Ultimately, with the backing of American businessmen and missionaries and the presence of U.S. naval forces, so-called to protect Americans and their property, the monarchy was overthrown in 1893, Queen Lili'uokalani was arrested and in 1898 Hawaii was officially annexed as U.S. territory.

From the perspective of the U.S. government, the period between 1893 and 1898 is particularly interesting because the overthrow of the monarchy was not directly orchestrated by Washington. Likewise, no formal plan existed for the establishment of a new government following the coup. When President Grover Cleveland opposed the annexation of Hawaii, powerful and wealthy figures descended from the first missionaries, such as Sanford B. Dole and Lorrin A. Thurston, established a provisional government that became the Republic of Hawaii. The U.S. war with Spain in Cuba in 1898 provided an excuse for the United States to occupy another Spanish colony in the Far East, the Philippines, which in turn determined Hawaii's fate. Under President McKinley, the U.S. sought a new frontier in the Pacific and Far East, annexing territories such as Hawaii, Samoa, Wake Island, and Guam to create strategic stops for merchants and missionaries across the ocean. Following Hawaii's official annexation, the Organic Act of 1900 established the structure of post-annexation governance, including a president, legislature, and elections. However, citizenship was granted only to Native Hawaiians, Americans, and those born on the islands, while foreign-born residents from Asia were excluded and denied voting rights (Yasutake, 2020, p.34). Notably, women were also excluded from suffrage, meaning that nearly half of the island's population could not participate in

governance. This recalls the earlier metaphor of Hawaii as a home where a woman waits for her husband, highlighting the persistent gendered limitations in political power. Even under the monarchy, however, women could participate in governance. For example, in 1840, "Miriam Kekāuluohi served as a female justice of the Supreme Court under this founding constitution. Additionally, at this time, five aliʻi women were included in the *Hale ʻAha ʻŌlelo Aliʻi*, or House of Nobles, indicating that Hawaiian women continued to wield significant power within the government" (Cornish, 2024, p. 62). Considering that the appointment of a woman to the U.S. Supreme Court did not occur until the 1980s, it is possible to argue that women held a more active and visible role in governance under Native Hawaiian rule.

In the section titled "From the Inland Sea," Michener introduces the Japanese as the fourth group of immigrants to Hawaii revealing both the increasing complexity of Hawaiian identity and the tensions among different racial groups. The narrative focuses on the Japanese immigrants, exemplified through the character Sakagawa. The Japanese are docile, obedient, law-abiding and unlike the Chinese, non-gambling (Michener, 1959, p.609). In other words, they are considered more "efficient" from the perspective of the American sugar plantations. Another expectation is that they would work, save money and eventually return to their homeland. However, as is common with many immigrant communities, the second generation chooses to remain and strive to climb the social ladder despite discrimination and systemic barriers. As a result, many Japanese volunteered for the American military during World War II to demonstrate their loyalty and commitment to the United States by fighting against Hitler's fascism. Michener uses the Sakagawa family to dramatize the evolution from immigrant otherness to full American patriotism. The father's generation remains divided between two homelands while the sons embody a painful but resolute integration through both against fascism abroad and against racism at home. Moreover, the unit that included Japanese soldiers was commanded by Colonel Whipple, a descendant of the sugar plantation families in Hawaii. During a mission to rescue a trapped Texas unit, Colonel Whipple called Lieutenant Goro Sakagawa and said, "You've got to go up that ridge, Goro. You mustn't come back without them" (Michener, 1959, p.798). The wartime scene in which Colonel Whipple orders Lieutenant Goro Sakagawa to "go up that ridge" and forbids him to return without rescuing his men reminds us the earlier plantation hierarchy in Hawaii. In the sugar economy, figures like Whipple's forebears stood as paternalistic owners and overseers while immigrant laborers like Japanese were expected to show obedience. Michener's transposition of this dynamic from the plantation to the battlefield reveals a continuity between colonial labor discipline and militarized patriotism. The same pattern of hierarchy that once structured the sugar fields now governs the Japanese American soldiers who must "prove" their loyalty through sacrifice.

In the final section of *Hawaii*, titled "The Golden Men," Michener summarizes the islands' historical development while also symbolizing hope and a vision for the future. This figure represents a new type of person emerging from Hawaii's diverse ethnic and cultural components. However, although the "Golden Men" appears to bridge East and West, he is ultimately characterized by a Western-centered identity. Michener (1959) explains:

> Golden Men concept referred to the coloring of the new man—a blend of Chinese, Polynesian and Caucasian, for at this time Japanese rarely intermarried… hopeful man of the future, this unique contribution of Hawaii to the rest of the world, did not depend for his genesis upon racial intermarriage at all. He was a product of the mind. His was a way of thought, and not of birth. (p.807)

As noted, the "Golden Men" is described as a new human emerging from a mixture of Chinese, Japanese, Polynesian, and White elements, idealized as Hawaii's hopeful contribution to the world. Michener further emphasizes that the superiority of this figure is not based on racial mixing but on intellectual and cultural production. However, the depiction of Kelly Kanakoa, a descendant of native Hawaiians and the Kelolo Kenakoa line, as a beach boy challenges the notion of the "Golden Men" relating to the indigineous people: "'If the missionaries hadn't interfered, he would now be our king', as if we had halted something fine and good. Do you know who the present king of Hawaii would be if the missionaries hadn't put a stop to such nonsense? The beachboy Kelly Kanakoa!" (Michener, 1959, p.878). Kelly, a descendant of the Hawaiian royal family, has no possessions or inherited wealth and works as a nightclub singer, escorting American divorcee and trying to survive in the newly established state of Hawaii. This portrayal can be seen as a foreshadowing of Hawaii's future at the time of the novel's publication in 1959, shortly after it became the 50th state of the United States. In the years that followed, Hawaii would develop into a romanticized, exotic tourist destination, with the indigenous traditions and histories of its native population becoming part of the cultural narrative that underpins its attraction.

Conclusion

Literary critic George Becker (1983) observes, "This novel is impressive above all for its control of vivid pseudo-historical fact concerning four disparate ethnic groups. The reader never doubts the authenticity of what he is reading" (p.73). Indeed, as previously noted, *Hawaii* sold millions of copies and was translated into numerous languages and reached vast number of readers both in the United States and internationally. This wide circulation not only presented *Hawaii* as one of the most influential popular historical novels of the twentieth century but also shaped the global imaginary of the islands themselves. For many readers, Michener's narrative became the lens through which Hawaii's past and cultural identity were understood, transforming complex histories of colonization

and hybridity into a mythic vision of progress and harmony. Michener skillfully reconstructs Hawaii's geological formation and the settlement of its earliest inhabitants in the early sections of the novel. With the arrival of missionaries, however, cultural hegemony was firmly established under white control. More crucially, Western systems of property, education, and religion reshaped the islands' social order and established a hierarchy dominated by missionaries, traders, and businessmen. Within this emerging structure, Chinese laborers and Japanese immigrants were incorporated as subordinate participants in the expanding plantation economy, their labor sustaining the triumph of capital that gradually drew the islands into the widening sphere of American imperial influence.

Michener frames this transformation as a version of the American "melting pot" implying that Hawaii's incorporation into the United States was smoother and more harmonious than similar patterns on the main continent. The culmination of this supposed harmony is embodied in the figure of the "Golden Men," proposed as a new, hybrid individual exemplary for both America and the wider world. Yet this figure, rather than presenting a genuine synthesis, exposes the contradictions of cultural hegemony. Although the "Golden Men" appears to reconcile cultural difference, his value rests not on hybridity itself but on his internalization of Western norms of rationality, progress and moral order. What Michener presents as cultural fusion is, in fact, an act of ideological containment in which non-Western identities are absorbed into a dominant Western narrative of civilization.

In the end, the "Golden Man," like the American "melting pot" ideal, represents the triumph of cultural hegemony rather than true multicultural integration. *Hawaii* therefore stands as both a celebration of diversity and an inadvertent criticism of the ideological contexts that define it, a narrative where paradise becomes part of America, but only on America's terms.

BIBLIOGRAPHY

Becker, G. J. (1983). *James A. Michener*. Frederick Ungar Publishing Co.

Coffman, T. (2016). *Nation within: The history of the American occupation of Hawaii*. Duke University Press.

Cornish, E. (2024). Photographing matrilineal power and prestige in the Hawaiian Kingdom. *Pacific Arts, 24*(1), 53–73. https://www.jstor.org/stable/48793954

Dalton, K. S. (1982). *Myth in Michener's epic-novels* (Master's thesis, Southwest Texas State University). https://digital.library.txst.edu/server/api/core/bitstreams/002c36e7-25c3-4c6b-b875-29769187b54b/content

Gero, A., & Sturcke, R. (1998). Adventures in paradise: The 1st New York Volunteers in Hawaii, 1898. *Military Images, 20*(1), 28–32. http://www.jstor.org/stable/44033170

Day, A. G. (1964). *James A. Michener*. Ticayne Publishers, Inc.

Hasslinger, T. (2022, January 3). Investigation open on vandalized Captain Cook monument. *Big Island Now*. https://bigislandnow.com /2022/01/ 03/investigation-op en-on-vandalized-captain-cook-monument/

Hayes, J. P. (1984). *James A. Michener: A biography*. The Bobbs-Merrill Co., Inc.

Imada, A. L. (2012). *Aloha America: Hula circuits through the U.S. empire*. Duke University Press.

Kashay, J. F. (2007). Agents of imperialism: Missionaries and merchants in early-nineteenth-century Hawaii. *The New England Quarterly, 80*(2), 280–298. https://doi.org/10.1162/tneq.2007.80.2.280

Mack, D. (2017, April 24). Jeff Sessions' Hawaii comment was a throwback to American imperialism. *TIME*. https://time.com/4752856/jeff-sessions-hawaii-pacific-island-travel-ban

Michener, J. A. (1959). *Hawaii*. Random House.

Michener, J. A. (1982). Historical fiction. *American Heritage, 33*(3). https://www.americanheritage .com/historical-fiction

Osborne, T. J. (1981). Trade or war? America's annexation of Hawaii reconsidered. *Pacific Historical Review, 50*(3), 285–307. https://doi.org/10.2307/3639601

Picayo, B. B. (2024, September 17). Hawaiian history month: Queen Lili'uokalani. *AAUW Honolulu*. https://www.aauwhonolulu.org/post/hawaiian-history-month-queen-lili%CA%BBuokalani

Rifkin, M. (2008). Debt and the Transnationalization of Hawai'i. *American Quarterly*, *60*(1), 43–66. http://www.jstor.org/stable/40068499

Shear, M. D. (2017, April 20). Jeff Sessions dismisses Hawaii as ‘an island in the Pacific.’ *The New York Times*. https://www.nytimes.com/2017/04/20/us/politics/jeff-sessions-judge-hawaii-pacific-island.html

Severson, M. S. (1996). *James A. Michener: A Critical Companion*. Greenwood Press.

Tate, M. (1967). U.S. diplomacy: Influence of Sandwich Island missionaries and the ABCFM. *Oregon Historical Quarterly, 68*(1), 53–74. https://www.jstor.org/stable/20612960

Yasutake, R. (2020). Women in Hawai'i and the Nineteenth Amendment. *Journal of Women's History, 32*(1), 32–40. https://dx.doi.org/10.1353/jowh.2020.0004

CHAPTER 9

Examination of the Relationship between Creative Personality Traits and Innovative Thinking Tendencies of Preparatory School Students

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INTRODUCTION

Creative thinking is the ability to generate new and original ideas, information, or solutions, and it's a key characteristic that distinguishes humans from other living things. The origins of this way of thinking date back to the emergence of Homo Sapiens. Various philosophers have stated that human thought differs from the simpler thinking of animals (Akarsu, 2018; Yurt, 2018). Chomsky (2018) also argued that human language emerged because of creative intelligence, while Plato argued that creativity may not be present in every human being (Dönmez and Kılınçer, 2011).

In ancient Greece, it was believed that creativity was bestowed by the muses. Aristotle considered creative thinking a natural skill and suggested that it could be found in every human being. By the 1980s, scientists recognized creative thinking as one of the fundamental forms of human thought. The experimental movements of newborns were seen as the beginning of creative thinking (He, 2017). In this sense, creative thinking can emerge at different levels depending on environmental and genetic factors. This process, which refers to unconventional thinking and enables the generation of new ideas and solutions, involves cognitive steps and includes functions such as establishing connections between information or situations and discovering new connections (Kelley and Kelley, 2014).

Creativity is defined as "creative thinking" in the process of learning new behaviors. Resnick (1987) views creative thinking as a higher-order form of thinking. Guilford (1967) defines the four components of creative thinking as fluency, originality, flexibility, and elaboration. Cognitive Creativity Theory states that these creative thoughts are based on cognitive foundations and that creative individuals possess certain cognitive abilities. This theory emphasizes individuals' cognitive mechanisms and differences. Furthermore, sources of creative ideas include elements such as conceptual integration, analogical reasoning, and accurate problem formulation (Ward and Kolomyts, 2010).

Some people are more creative than others. This often stems from possessing different personality traits (Özer, 2022). Individuals' creative personality traits are associated with high reflective thinking skills. Research shows that creative individuals have highly developed reflective thinking and problem-solving skills. Educators possessing these traits also improve students' reflective thinking skills (Çiçekler and Aral, 2021). Personality is the sum of the habits and habits of how an individual perceives, thinks, feels, and reacts to the world (Magnavita, 2016). More broadly, personality is the individual's interaction with the internal and external world, the aspects that distinguish them from others, and the way they adapt. Personality reflects a person's hereditary, biological, and psychological aspects and encompasses their desires and behaviors, and researchers have developed numerous psychometric tools to understand personality. Recent

approaches to personality view it not as a single whole but as a collection of specific characteristics. These characteristics include basic elements such as extraversion, conscientiousness and agreeableness (Bacanlı et al., 2009; Do-ğan, 2013).

Creative personality traits are undoubtedly closely linked to innovative thinking tendencies. Individuals with creative thinking skills can think innovatively in many areas and are aware of this in their daily lives. Especially in education, both creative thinking and being innovative contribute to academic success as factors that support problem-solving skills. Although these two concepts are related, the literature has not addressed these two variables together. Therefore, the study aimed to examine the relationship between the creative personality traits and innovative thinking tendencies of preparatory school students, and a field study was conducted to this end.

METHOD

This title includes detailed information about the research design, universe and sample, data collection tools and data analysis.

Research Design

A survey design, a quantitative research method, was chosen for this study. The survey design is used in research conducted to identify certain characteristics of a group. Studies conducted using this method generally identify relationships between variables and the distribution of participants (Büyüköztürk et al., 2016).

Sampling

The research population consisted of preparatory class students (n=338) currently in active education at Pamukkale University School of Foreign Languages, while the sample consisted of a total of 180 students selected from the population. The Cochran formula, which is used to calculate the number of samples with a known population, was used to determine the sample size (Gürbüz and Şahin, 2018):

$$n = \frac{n_0}{1+\frac{n_0}{N}} \quad (1)$$

$$n_0 = \frac{t^2 \times s^2}{d^2} \quad (2)$$

N: the size of the universe,

n: sample size

t: confidence level

z value (1.96 for 0.05, 2.58 for 0.01 and 3.28 for 0.001)

s: estimated standard deviation for the universe

d: acceptable deviation tolerance

Using the formula above, the minimum sample size was found to be 180 with 338 preparatory students constituting the universe size, the desired significance level of t being 5% (z value 1.96) and an acceptable deviation tolerance of d (±5):

$$n_0 = \frac{1{,}96^2 \times 0{,}5^2}{0{,}05^2} = 384{,}16$$

$$n = \frac{384{,}16}{1 + \frac{384{,}16}{338}} = 180{,}35 \cong 180$$

The sample was selected using a simple random sampling method. Simple random sampling is the quickest and easiest way to reach participants within the population. In this study, students who volunteered to participate were contacted via a Google Forms link. Participant gender and age information is provided in Table 1.

Table 1. Demographic Characteristics of Participants

Feature	Frequency(N)	Percentage (%)
Gender		
Female	122	32,2
Male	58	67,8
Age		
18-20	67	37,2
21-23	77	42,8
24-26	16	8,9
27 and over	20	11,1
Total	180	100

As seen in Table 1, according to the gender variable, 122 of the participants were female (67.8%) and 58 were male (32.2%). When the age distribution was examined, there were 67 people (37.2%) in the 18–20 age group, 77 people (42.8%) in the 21–23 age group, 16 people (8.9%) in the 24–26 age group, and 20 people (11.1%) in the 27 and older age group.

Data Collection Tools

In this study, the Innovative Thinking Tendency Scale (ITS), developed by Bilir et al. (2022), and the Creative Personality Traits Scale (CPTS), developed by Şahin (2017), were used as data collection tools. The ITS is a 5-point Likert-type scale with 10 items. There are no reverse items, and the Cronbach's alpha coefficient was determined as 0.85. The CPTS consists of 17 questions in a 5-point Likert-type scale. The scale has four subscales: Goal orientation, Intrinsic

motivation, Self-confidence, and Risk taking. Items 1, 2, 3, 4, 5, 12, and 13 are reverse-coded. Cronbach's alpha coefficient was found to be between 0.60 and 0.67 for all dimensions. Participants were also asked about their demographic characteristics: gender and age.

Data Analysis

The data obtained in the study were analyzed using the SPSS 22 statistical program. First, whether the data conformed to a normal distribution was tested using distribution analyses and skewness-kurtosis values (Table 2).

Table 2. Distributional Properties of Data

Scale	Kolmogorov-Smirnov[a]			Shapiro-Wilk			Skewness-Kurtosis
	Statistic	df	Sig.	Statistic	df	Sig.	
CPTS	,075	180	,095	,982	180	,058	-0,382 / -0,229
ITS	,074	180	,087	,969	180	,060	-0,497 / 0,602

*p<0,05

As seen in Table 2, according to the Kolmogorov-Smirnov and Shapi-ro-Wilk test results, the significance values for both scales are at the p>0.05 level. Furthermore, the skewness and kurtosis values range from -1 to +1. These findings indicate that the data obtained from the CPTS and ITS scales exhibited a normal distribution. Therefore, parametric testing techniques were used in the data analysis. Descriptive characteristics of the data were determined using descriptive statistical analyses, and the Independent Samples T-Test was used for pairwise comparisons, and One-Way Analysis of Variance (ANOVA) was used for multiple comparisons. Pearson Correlation Analysis was used to determine the relationship between variables, and Linear Regression Analysis was used for the effect. The significance level was set at 0.05. The research hypotheses were determined as follows:

- H1: Preparatory class students have high CPTS levels.
- H2: Preparatory class students have high ITS levels.
- H3: Preparatory class students' CPTS levels differ significantly by gender and age.
- H4: Preparatory class students' ITS levels differ significantly by gender and age.
- H5: There is a positive and significant relationship between the CPTS and ITS levels of preparatory class students.
- H6: Preparatory class students' CPTS levels have a positive and significant effect on ITS.

RESULTS

The analysis results obtained in this section of the research are shared.

Descriptive Statistics

In the study, firstly the averages of the responses given to the scales were shared (Table 3).

Table 3. Descriptive Statistics on Responses to Scales

Sub-dimensions	Min.-Max.	Mean. ($\bar{X}$)±S.D.
Goal orientation	5-25	17,11±4,23
Intrinsic motivation	5-25	20,30±3,75
Confidence	3-15	10,40±3,40
Risk taking	4-20	15,93±2,83
Creative Personality Traits(CPTS)	40-80	63,75±8,47
Innovative Thinking Tendency(ITS)	10-50	38,68±7,04

According to Table 3, goal orientation scores ranged from 5 to 25, and the average score of the participants was 17.11±4.23. Intrinsic motivation scores ranged from 5 to 25, and the average was calculated as 20.30±3.75. In the self-confidence subscale, scores ranged from 3 to 15, with an average of 10.40±3.40. Risk taking scores ranged from 4 to 20, and the average value was 15.93±2.83. Total scores on the Creative Personality Traits (CPTS) scale ranged from 40 to 80, with an average of 63.75±8.47. On the Innovative Thinking Tendency (ITS) scale, scores ranged from 10 to 50, and the average score of the participants was 38.68±7.04. Since no cut-off point was reported on the scales, score levels were interpreted qualitatively. It can be inferred that the average scores are at the middle-upper level and therefore H1 and H2 are accepted.

Analysis of Differences

In the study, comparisons between groups were made to test the H3 and H4 hypotheses (Tables 4-5).

Table 4. Differences Between Groups Based on Gender

Sub-dimensions	Gender	N	Mean ($\bar{X}$)	F	t	p
Goal orientation	Female	122	17,45	0,565	-1,587	0,115
	Male	58	16,37			
Intrinsic motivation	Female	122	20,36	1,279	-0,337	0,737
	Male	58	20,15			
Confidence	Female	122	10,22	0,009	0,990	0,324
	Male	58	10,77			
Risk taking	Female	122	15,91	0,288	0,148	0,883

	Male	58	15,98			
Creative Personality Traits (CPTS)	Female	122	63,97	0,279	-0,484	0,629
	Male	58	63,29			
Innovative Thinking Tendency (ITS)	Female	122	38,40	1,614	0,777	0,439
	Male	58	39,29			

T-Test for Independent Samples, *p<0,05

According to Table 4, the mean score for the goal-orientedness sub-dimension was 17.45 for women and 16.37 for men; the difference was not statistically significant (p=0.115). The mean score for intrinsic motivation was 20.36 for women and 20.15 for men, and no significant difference was found between the groups (p=0.737). The mean score for self-confidence sub-dimension was 10.22 for women and 10.77 for men; this difference was also not statistically significant (p=0.324). Risk taking scores were calculated as 15.91 for women and 15.98 for men, and no significant difference was found between the two groups (p=0.883). The mean score for Creative Personality Traits (CPTS) was 63.97 for women and 63.29 for men; the difference was not significant (p=0.629). In the Innovative Thinking Tendency (ITS) sub-dimension, the mean for women was 38.40 and for men, 39.29, and no significant difference was found according to gender (p=0.439).

Table5. Differences Between Groups by Age

Sub-dimensions	**Age**	**N**	**Mean ($\bar{X}$)**	**F**	**p**
Goal orientation	18-20	67	16,89	0,352	0,788
	21-23	77	17,20		
	24-26	16	18,00		
	27 ve üzeri	20	16,75		
Intrinsic motivation	18-20	67	19,79	1,121	0,342
	21-23	77	20,32		
	24-26	16	21,00		
	27 ve üzeri	20	21,35		
Confidence	18-20	67	10,56	0,480	0,697
	21-23	77	10,53		
	24-26	16	9,56		
	27 ve üzeri	20	10,05		
Risk taking	18-20	67	15,86	1,866	0,137
	21-23	77	15,77		
	24-26	16	17,50		
	27 ve üzeri	20	15,55		
Creative Personality Traits (CPTS)	18-20	67	63,11	0,520	0,669
	21-23	77	63,84		

	24-26	16	66,06		
	27 ve üzeri	20	63,70		
Innovative Thinking Tendency (ITS)	18-20	67	38,04	0,587	0,625
	21-23	77	38,70		
	24-26	16	39,25		
	27 ve üzeri	20	40,35		

ANOVA, *p<0,05

According to Table 5, goal-directedness scores did not differ significantly between age groups (p=0.788). No statistically significant difference was found between the groups in the intrinsic motivation subscale (p=0.342). There was no significant difference between age groups in terms of self-confidence scores (p=0.697). Although the mean score for the 24–26 age group was higher than the other groups in the risk-taking subscale, this difference was not statistically significant (p=0.137). No significant difference was found between age groups in the scores on the Creative Personality Traits (CPTS) scale (p=0.669). No significant difference was found between age groups in terms of Innovative Thinking Tendency (ITS) (p=0.625).

According to the results obtained in Tables 4 and 5, H3 and H4 were rejected.

Correlation Analysis

Correlation (Table 6) and regression (Table 7) analyses were performed to test H5 and H6 in the study.

Table6. Relationship Between Scales

		Innovative Thinking Tendency (ITS)
Goal orientation	Pearson Correlation	0,154
	Sig. (2-tailed)	0,039*
Intrinsic motivation	Pearson Correlation	0,584
	Sig. (2-tailed)	0,000*
Confidence	Pearson Correlation	0,320
	Sig. (2-tailed)	0,000*
Risk taking	Pearson Correlation	0,383
	Sig. (2-tailed)	0,000*
Creative Personality Traits (CPTS)	Pearson Correlation	0,592
	Sig. (2-tailed)	0,000*
	N	180

Correlation Analysis, *p<0,05

According to Table 6, there is a positive and low-level significant relationship between goal orientation and Innovative Thinking Tendency (ITS) (r=0.154; p=0.039). A positive and moderately significant relationship was found between intrinsic motivation and ITS (r=0.584; p<0.001). A positive and low-level significant relationship was found between the self-confidence sub-dimension

and ITS (r=0.320; p<0.001). There is a positive and low-to-moderate significant relationship between risk-taking scores and ITS (r=0.383; p<0.001). A positive and moderately significant relationship was found between Creative Personality Traits (CPTS) and ITS (r=0.592; p<0.001). According to this result, H5 is accepted.

Table7. The Effects of Creative Personality Traits (CPTS) and Its Sub-Dimensions on Innovative Thinking Tendency (ITS)

		t	F	r	r^2	p
Goal orientation	Regression	15,771	4,337	0,154	0,024	0,039*
	Residual	2,083				
Intrinsic motivation	Regression	6,969	91,952	0,584	0,341	0,000*
	Residual	9,589				
Confidence	Regression	19,795	20,307	0,302	0,102	0,000*
	Residual	4,056				
Risk taking	Regression	8,439	30,538	0,383	0,146	0,000*
	Residual	5,526				
CPTS	Regression	2,263	96,054	0,592	0,347	0,000*
	Residual	9,801				

Regression Analysis,*p<0,05

According to Table 7, the goal orientation variable showed a low and significant effect on ITS (F=4.337; r=0.154; r^2=0.024; p<0.05). Intrinsic motivation was observed to have a moderate and significant effect on ITS (F=91.952; r=0.584; r^2=0.341; p<0.001). The self-confidence subdimension predicted ITS at a low level but significantly (F=20.307; r=0.302; r^2=0.102; p<0.001). The risk-taking variable also showed a low to moderate significant effect on ITS (F=30.538; r=0.383; r^2=0.146; p<0.001). The total score of the CPTS has a moderate and significant effect on the ITS (F=96.054; r=0.592; r^2=0.347; p<0.001). According to this result, H6 is accepted.

DISCUSSION

This section provides an interpretation of the findings and a comparison with the literature. The study initially determined that the preparatory class students' CPTS and ITS scores were at the mid- to high-level. Mid- to high-level scores indicate that the students did not consider themselves to be entirely average, but neither did they possess a "very high" profile of creativity or innovative thinking; in other words, they were open to development but harbored a certain potential. Considering that creative personality traits include dimensions such as flexibility, originality, imagination, and risk-taking, while innovative thinking involves generating new ideas, trying different solutions, and thinking outside the box, the obtained level is consistent with the developmental characteristics of this age group. Preparatory class students are in a period of intense search for identity and professional direction, both cognitively and socially and emotionally; therefore,

it is expected that characteristics such as creative thinking and openness to innovation will become more prominent. The strong relationship between creative personality components such as originality, flexibility, and risk-taking and innovative thinking has been frequently emphasized in the literature. Runco and Jaeger (2012) show that creativity is activated in problem-solving situations, while Hughes et al. (2018) show that creative personality is one of the main predictors of innovative thinking. From this perspective, the similar mid-to-high level of scores on both scales in the study is an expected result. Possible reasons for the lack of high levels of creativity and innovative thinking among university freshmen include an exam-focused high school education, the process of adapting to a new academic environment, and previous learning experiences that limit critical risk-taking. Indeed, Pllana (2019) emphasizes that the creative potential of students in the transition period is not high, but can develop significantly with appropriate learning environments.

Preparatory class students' CPTS and ITS scores do not differ significantly by gender. Numerous studies also emphasize that individual characteristics such as creative personality traits, creative tendencies, and innovative thinking can be independent of gender; in other words, gender does not strongly determine such cognitive and personality-based tendencies. Baer and Kaufman (2008) emphasized that there are no significant gender-based differences in the creative personality profiles of university students; individual differences and environmental stimuli exert stronger influences than gender. Similarly, Kaufman and Sternberg (2010) stated that creative tendencies are shaped by an individual's educational experiences and problem-solving processes rather than gender, and that male and female students generally yield similar results on creativity measures. Studies on innovative thinking also support this finding. Scott and Bruce (1994) stated that innovative behavioral tendencies are more closely related to organizational culture, individual motivation, and personality structures, while gender is not a determining factor in innovative thinking.

Preparatory class students' CPTS and ITS scores do not differ significantly by age. Creative personality traits and innovative thinking tendencies are cognitive and personality-based constructs that are particularly stable between the ages of 18 and 25, and a significant age effect is not expected in this age group. Feist (1998) states that creative personality traits do not change rapidly in early adulthood, and personality-based creativity constructs are relatively stable during this period. Therefore, the lack of significant differences among preparatory class students across age groups is an expected finding from a developmental perspective. Similarly, Batey and Furnham (2006) stated that creativity does not show a significant increase or decrease with age and that creative personality is more closely related to individual differences such as motivation, originality, and flexibility than with age. Research on innovative thinking tendencies also supports this finding. West and Farr (1990) emphasized that innovative thinking

tendencies do not differ significantly with age, with factors such as the learning environment, institutional support, and individual motivation being more influential. Research conducted on university students also indicates that innovative thinking tendencies do not differ significantly across age groups. These findings are consistent with the results of the study. Furthermore, individuals aged 18–23 are reported to share similar developmental characteristics in terms of cognitive flexibility, openness to innovation, and creativity. Costa and McCrae's (2000) personality model research indicated that the dimension of "openness to experience," which is related to creativity, does not change significantly across young adulthood. This provides a theoretical framework supporting the lack of significant age-related differences in the study.

There is a positive and significant relationship between CPTS and ITS scores in preparatory class students. Creative personality traits include components such as originality, flexibility, curiosity, imagination, and risk-taking, and numerous studies emphasize that these components strengthen the fundamental mental processes of innovative thinking. Amabile (2018) states that the fundamental personal components of creativity increase the tendency to produce innovation, particularly the generation of original ideas and intrinsic motivation as the primary determinants of innovative thinking. Similarly, Tierney and Farmer (2004) have shown that creative personality directly influences individuals' innovative behavior, with students with high creative traits being more open to new ideas and more inclined to question existing situations. Furthermore, creative personality traits are reported to increase risk-taking and problem-solving skills. George and Zhou (2001) suggest that creativity enhances the capacity to generate innovative solutions, while Scott and Bruce (1994) suggest that an individual's tendency to generate new and different solutions is strengthened by creative personality traits. These findings support the positive relationship found in the study.

Preparatory class students' CPTS levels have a positive and significant effect on ITS. Components of creative personality, such as originality, flexibility, curiosity, risk-taking, and imagination, are considered the primary determinants of innovative thinking. Therefore, students with high creative personalities are said to be more likely to generate new ideas, develop alternative solutions, and question existing situations. This finding supports Barron and Harrington's (1981) study, which emphasized that creative personality fosters behaviors such as generating a high level of new ideas, trying different ways to solve problems, and being open to innovation. Similarly, Gough (1979) found a significant and positive correlation between the creative personality scale and innovation behavior, demonstrating that creative personality is a significant indicator of an individual's capacity for innovation. Hammond et al. (2011) also noted that the tendency to think innovatively is closely related to personality traits. Researchers emphasize that innovative tendencies are particularly enhanced by creative

personality components such as “openness to experience,”“cognitive flexibility,” and “risk-taking.” The study’s results explain the strong impact of creative personality on ITS in this context. Furthermore, Anderson and colleagues (2014), who demonstrated that innovative thinking is closely related to motivation, original idea generation, and creative problem-solving processes, stated that creative personality is one of the strongest cognitive components supporting an individual’s innovation behaviors. This study constitutes a large-scale meta-synthesis demonstrating that creative personality directly contributes to innovative thinking.

CONCLUSION AND RECOMMENDATIONS

This study, which aimed to examine the relationship between the creative personality traits and innovative thinking tendencies of preparatory class students, employed a survey design, a quantitative research method. The Innovative Thinking Tendency Scale (ITS) and the Creative Personality Traits Scale (CPTS) were used as data collection tools in the field study conducted with 180 preparatory class students currently enrolled in the School of Foreign Languages at Pamukkale University. The results of the statistical analyses are as follows:

- Preparatory class students’ CPTS and ITS scores were determined to be mid- to upper level.
- Preparatory class students’ CPTS and ITS scores did not differ significantly by gender.
- Preparatory class students’ CPTS and ITS scores did not differ significantly by age.
- There was a positive and significant correlation between preparatory class students’ CPTS and ITS scores.
- Preparatory class students’ CPTS levels had a positive and significant effect on the ITS.

As a result of these results, the following recommendations were developed:

- Faculty members should be supported in teaching strategies that encourage innovative thinking.
- Innovation-based project and club activities should be increased in schools.
- Safe learning environments that support students’ risk-taking and original idea development skills should be created.
- Future research should prioritize qualitative and longitudinal methods.

REFERENCES

Akarsu, B. (2018) *Yaratıcı düşünme sanatı*. Ankara: Cinius Yayınları.

Amabile, T. M. (2018). *Creativity in context: Update to the social psychology of creativity*. Routledge.

Anderson, N., Potočnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of management*, *40*(5), 1297-1333.

Bacanlı, H., İlhan, T., & Aslan, S. (2009). Beş faktör kuramina dayali bir kişilik ölçeğinin geliştirilmesi: sifatlara dayali kişilik testi (SDKT). *Türk Eğitim Bilimleri Dergisi*, *7*(2), 261-279.

Baer, J., & Kaufman, J. C. (2008). Gender Differences in Creativity. *The Journal of Creative Behavior*, *42*(2), 75-105.

Barron, F., & Harrington, D. M. (1981). Creativity, intelligence, and personality. *Annual review of psychology*.

Batey, M., & Furnham, A. (2006). Creativity, intelligence, and personality: A critical review of the scattered literature. *Genetic, social, and general psychology monographs*, *132*(4), 355-429.

Bilir, B., Akbaş, U., & Darıca, N. (2022). Okulöncesiöğretmenlerineyönelikinovatifdüşünmeeğilimiölçeğiningeliştirilmesi. *Eğitim Teknolojisi Kuram ve Uygulama*, *13*(1), 233-253.

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz, Ş. ve Demirel, F. (2016). *Bilimsel araştırma yöntemleri* (22. Baskı). Ankara: Pegem Akademi.

Chomsky, N. (2018). *Dil ve Zihin*. (A. Kocaman, Çev.). Ankara: Bilgesu.

Costa Jr, P. T., & McCrae, R. R. (2000). *Neo Personality Inventory*. American Psychological Association.

Çiçekler, C. Y., & Aral, N. (2021). Investigation of the relationship between creativity of preschool children and reflective thinking tendencies of teachers. *Research in Pedagogy*, *11*(2), 405-417.

Doğan, T. (2013). Beş factor kişilik özellikleri ve öznel iyi oluş. *Doğuş Üniversitesi Dergisi*, *14*(1), 56-64.

Dönmez, B. M., & Kılınçer, Z. (2011). Müziğin Yunan mitolojisi ve batı kültürü içindeki algılanışı. *İnönü Üniversitesi Sanat ve Tasarım Dergisi*, *1*(1).

Feist, G. J. (1998). A meta-analysis of personality in scientific and artistic creativity. *Personality and social psychology review*, *2*(4), 290-309.

George, J. M., & Zhou, J. (2001). When openness to experience and conscientiousness are related to creative behavior: an interactional approach. *Journal of applied psychology*, *86*(3), 513.

Gough, H. G. (1979). A creative personality scale for the adjective check list. *Journal of personality and social psychology*, *37*(8), 1398.

Guilford, J. P. (1967). Creativity: Yesterday, today and tomorrow. *The Journal of Creative Behavior*, *1*(1), 3-14.

Gürbüz, S., & Şahin, F. (2014). *Sosyal bilimlerde araştırma yöntemleri*. Seçkin Yayıncılık.

Hammond, M. M., Neff, N. L., Farr, J. L., Schwall, A. R., & Zhao, X. (2011). Predictors of individual-level innovation at work: A meta-analysis. *Psychology of aesthetics, creativity, and the arts*, *5*(1), 90.

He, K. (2017). *A Theory of creative Thinking*. Springer.

Hughes, D. J., Lee, A., Tian, A. W., Newman, A., &Legood, A. (2018). Leadership, creativity, and innovation: A critical review and practical recommendations. *The Leadership Quarterly*, *29*(5), 549-569.

Kaufman, J. C., & Sternberg, R. J. (Eds.). (2010). *The Cambridge handbook of creativity*. Cambridge University Press.

Kelley, T., & Kelley, D. (2014). *Yaratıcı özgüven*. İstanbul: Optimist Yayın Grubu.

Magnavita, J. J. (2016). *Overview and challenges of clinical decision making in mental health practice.* Washington: American Psychological Association.

Özer, A. A. (2022). *Müzik öğretmeni adaylarının yaratıcı kişilik özellikleri ile yansıtıcı düşünme eğilimleri arasındaki ilişki: Ege Bölgesi örneği.* Yüksek Lisans Tezi, Dokuz Eylül Üniversitesi.

Pllana, D. (2019). Creativity in Modern Education. *World Journal of Education*, *9*(2), 136-140.

Resnick, L. (1987). *Education and learning to think*. Washington: National Academy.

Runco, M. A., & Jaeger, G. J. (2012). The standard definition of creativity. *Creativity research journal*, *24*(1), 92-96.

Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of management journal*, *37*(3), 580-607.

Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of management journal*, *37*(3), 580-607.

Şahin, F., &Danışman, Ş. (2017). Yaratıcı kişilik özellikleri ölçeği: Güvenilirlikvegeçerlikçalışması. *Karabük ÜniversitesiSosyal Bilimler Enstitüsü Dergisi*, *7*(2), 747-760.

Tierney, P., & Farmer, S. M. (2004). The Pygmalion process and employee creativity. *Journal of management*, *30*(3), 413-432.

Ward, T. B. ve Kolomyts, Y. (2010). *The Cambridge handbook of creativity*. NY: Cambridge University Press.

Yurt, E. (2018). *Düşünme üzerine bir soruşturma: Heidegger felsefesinde düşünmenin yeri.* Isparta: Fakülte Kitabevi Yayınları.

CHAPTER 10

Concept and Misconception: Theoretical Foundations

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1. Introduction

In the context of mathematics education, misconceptions constitute one of the fundamental cognitive factors that determine the quality of student learning. The incorrect conceptualizations that students hold make it difficult to construct new knowledge, reduce problem-solving performance, and hinder long-term learning (Smith, diSessa, & Roschelle, 1993). Since mathematical concepts are abstract in nature, students' process of coping with this abstraction is shaped by their cognitive development levels and prior learning. Therefore, a systematic examination of misconceptions is critically important for both instructional design and assessment.

2. Concept and Misconception: Theoretical Foundations

2.1 The Role of Concepts in Mathematics Education

Concepts are basic mental structures used to organize and make sense of knowledge. In mathematics, understanding concepts correctly is associated with the development of conceptual knowledge rather than purely procedural knowledge (Hiebert & Lefevre, 1986). When students learn a concept meaningfully, they can establish relationships between concepts, make generalizations, and demonstrate transfer abilities beyond simple recall.

2.2 Definition of Misconception

A misconception refers to a mental structure that students accept as correct but which is scientifically or mathematically invalid (Vosniadou, 1994). These structures often arise from superficial similarities, intuitive inferences, or incorrect generalizations stemming from prior learning.

2.3 Distinguishing Misconceptions from Errors

- **An error** is usually a momentary and procedural mistake (e.g., misplacing a digit during addition).
- **A misconception** is a systematic and persistent pattern caused by a student's incorrect construction of a concept.

3. Causes of Misconceptions in Mathematics

3.1 Insufficient Prior Knowledge and Overgeneralization

Students' inaccurate or incomplete prior knowledge makes the learning of new concepts more difficult. For example:

- "A fraction with the larger denominator is the larger fraction." This misconception arises from interpreting fractions through the lens of natural number knowledge.

3.2 Differences Between Everyday Language and Mathematical Language

Mathematical terms often have different meanings in everyday language, leading to misconceptions. For instance, since the term *rational* means "reasonable" in everyday language, some students interpret rational numbers as "reasonable numbers."

3.3 Instructional Deficiencies

Common causes include the use of inappropriate examples, failure to concretize abstract concepts, instruction focused excessively on procedures, and insufficient use of multiple representations.

3.4 Cognitive Development and Intuitive Thinking

Children often rely on intuitive thinking. For example:

- "A longer object is always bigger." This intuition causes misconceptions in concepts such as perimeter, area, and volume.

4. Common Misconceptions in Mathematics

4.1 Misconceptions About Number and Number Systems

4.1.1 Natural-Number-Based Reasoning

Students tend to interpret all numbers using natural number logic. Examples:

- Larger denominator → larger fraction
- More digits in a decimal number → larger number (e.g., thinking $0.125 > 0.3$)

4.1.2 Negative Numbers

Common misconceptions include:

- Believing that multiplying a negative number by a positive number creates a "more negative" number
- Rejecting the idea that negative numbers lie to the left on the number line

4.2 Algebraic Misconceptions

4.2.1 Concept of Variable

Students often interpret the variable as a "single unknown number," a "letter," or a "specific value," rather than understanding it as a generalizable mathematical object.

4.2.2 Concept of Equality

Students frequently interpret the equal sign as “the symbol that shows the answer.

”Example: Believing the expression **3 + 4 = 7 + 2** is incorrect.

4.2.3 Manipulation of Algebraic Expressions

Common misconceptions:

- Thinking $(a + b)^2 = a^2 + b^2$
- Interpreting coefficients as multipliers and treating x^2 and $2x$ as the same type of quantity
- Confusing direct and inverse proportion

4.3 Geometric Misconceptions

4.3.1 Prototypical Perception of Shapes

Students often associate the square only with the upright prototype (horizontal–vertical sides)

Thus, they may fail to recognize a rotated square.

4.3.2 Misconceptions About Angles

- Believing angle size depends on the length of its sides
- Thinking an angle is the “space between sides” rather than the rotation or measure

4.3.3 Area–Perimeter Relationship

Examplemisconception:

“A shape with a larger perimeter must also have a larger area.”

4.4 Misconceptions in Probability and Statistics

4.4.1 Equiprobability Bias

Assuming all outcomes are equally likely. (e.g., believing different colored balls in a bag all have equal probability)

4.4.2 Sample–Population Confusion

Believing that the characteristics of a sample must match the population exactly.

5. Identifying Misconceptions

5.1 Diagnostic Assessment Tools

- Open-ended questions
- Diagnostic branched trees
- Concept maps
- Distractor analysis in multiple-choice tests

5.2 Monitoring Students' Thinking

- Clinical interviews
- Think-aloud protocols
- Analysis of incorrect solutions

These methods help understand how students construct conceptual meaning.

6. Instructional Approaches to Address Misconceptions

6.1 Conceptual Change Theory

Conceptual change occurs when students recognize their misconception and experience cognitive conflict with new information (Posner et al., 1982).

Key steps:

1. Creating dissatisfaction (presenting contradictory cases)
2. Making the new concept intelligible
3. Making the new concept plausible
4. Demonstrating its usefulness

6.2 Enhancing Concrete and Visual Representations

- Manipulatives
- Dynamic geometry software
- Number lines
- Multiple representations (verbal–graphical–symbolic)

6.3 Discussing Errors Through Explanatory Responses

Having students explain their incorrect reasoning allows teachers to diagnose misconceptions and provide targeted feedback.

6.4 Constructivist Learning Environments

Student-centered, inquiry-based activities strengthen conceptual structures:

- Problem-based learning
- Mathematical modeling
- Discussion-oriented classrooms

7. Discussion

The presence and persistence of misconceptions in mathematics education indicate that students' learning processes are shaped not only by content knowledge but also by cognitive, sociocultural, and instructional factors. For example, many of the errors students make while learning fundamental concepts such as number, fractions, algebraic expressions, and geometric shapes stem from excessive reliance on surface-level procedural knowledge (Hiebert & Lefevre, 1986; Rittle-Johnson & Schneider, 2015). This issue becomes especially evident in procedure-oriented classrooms and limits the development of students' conceptual understanding.

Numerous studies show that misconceptions do not arise merely from incomplete learning but from intuitive and natural thinking patterns that students use to make sense of the world (Vosniadou, 1994; Smith, diSessa & Roschelle, 1993). For instance, the misconception that the magnitude of a fraction depends on the size of its denominator stems from students extending everyday reasoning—"bigger numbers represent bigger quantities"—to fractions. In this sense, misconceptions should not be viewed simply as incorrect information but as alternative cognitive frameworks (Carey, 2000; diSessa, 2014).

In algebra, misconceptions about variables, equality, and functions are associated with the cognitive shift students experience when transitioning from arithmetic to algebra. Studies show that many students perceive variables as "unknown numbers" and fail to understand their multi-valued nature (Kitchen & Berk, 2016). Similarly, seeing the equal sign as an operator indicating the result of a calculation leads students to focus on sequences of operations rather than mathematical relationships (Knuth et al., 2006).

In geometry, misconceptions often arise from prototypical representations rather than definition-based reasoning (Hershkowitz, 1990). Students who perceive a square only as an upright figure may fail to recognize a rotated square and confuse it with other polygons. This suggests that students operate at the level of visual examples rather than conceptual definitions (Clements & Sarama, 2014).

In probability and statistics, misconceptions are strongly tied to intuitive thinking. The equiprobability bias reveals that students rely on intuition rather than systematic calculation (Lecoutre, 1992). Confusion between sample and population characteristics further illustrates inadequate understanding of variability (Watson & Moritz, 2002).

From the perspective of conceptual change theory, misconceptions do not completely block new knowledge but shape and distort it (Posner et al., 1982; Sinatra & Pintrich, 2003). Therefore, instructional interventions must not merely correct misconceptions but engage students in cognitive conflict and help them recognize, examine, and reconstruct their existing models.

Ultimately, the literature demonstrates that misconceptions are multidimensional phenomena intertwined with the learning ecosystem—teaching practices, representation choices, assessment tools, teachers' pedagogical content knowledge, and students' cognitive processes (Ball, Thames & Phelps, 2008; Hill, Rowan & Ball, 2005). Understanding misconceptions is thus essential for improving the quality of mathematics teaching and learning.

8. Conclusion

This study has provided a comprehensive examination of the structure, sources, and examples of misconceptions in mathematics and has offered theoretical and practical implications for instructional design. The findings indicate that misconceptions are cognitive structures inherent in learning, systematically influencing students' mathematical understanding. Students develop these misconceptions not only due to incorrect information but also through intuitive reasoning, everyday language, prior learning, and instructional shortcomings (Vosniadou, 2014; Rittle-Johnson & Schneider, 2015).

The results highlight that simply presenting corrective information is insufficient; instead, conceptual change processes must be effectively implemented (Posner et al., 1982; Sinatra & Pintrich, 2003). Creating cognitive conflict, supporting the construction of alternative conceptual models, and enabling students to experience the usefulness of these models are essential components. Innovative instructional approaches—such as dynamic geometry environments, multiple representations, mathematical modeling, and problem-based learning—have been shown to be effective tools for addressing misconceptions (Kaput & Blanton, 2019; Clements & Sarama, 2014).

Furthermore, teachers' pedagogical content knowledge and their skills in identifying misconceptions, guiding classroom discourse, and interpreting student thinking play a crucial role in the development of students' conceptual understanding (Ball, Thames & Phelps, 2008; Hill et al., 2005). Therefore,

teacher education programs should emphasize recognizing misconceptions and fostering conceptual clarity.

In conclusion, systematic research on misconceptions is essential for improving the quality of mathematics education. Future research should explore how emerging technologies—such as AI-assisted learning analytics, real-time digital error detection, and individualized feedback systems—can support the identification and remediation of misconceptions. Such work can contribute to deeper theoretical and practical understanding.

References

Ball, D. L. (1990). The mathematical understandings that prospective teachers bring to teacher education. *Elementary School Journal, 90*(4), 449–466.

Ball, D. L., Thames, M. H., & Phelps, G. (2008). Content knowledge for teaching: What makes it special? *Journal of Teacher Education, 59*(5), 389–407.

Carey, S. (2000). Science education as conceptual change. *Journal of Applied Developmental Psychology, 21*(1), 13–19.

Clements, D. H., & Sarama, J. (2014). Learning and teaching early math. Routledge.

diSessa, A. A. (2014). A history of conceptual change research. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 88–108). Cambridge University Press.

Hershkowitz, R. (1990). Psychological aspects of learning geometry. In P. Nesher & J. Kilpatrick (Eds.), *Mathematics and cognition* (pp. 70–95). Cambridge University Press.

Hiebert, J., & Lefevre, P. (1986). Conceptual and procedural knowledge. In J. Hiebert (Ed.), *Conceptual and procedural knowledge: The case of mathematics* (pp. 1–27). Lawrence Erlbaum.

Hill, H. C., Rowan, B., & Ball, D. L. (2005). Effects of teachers' mathematical knowledge for teaching on student achievement. *American Educational Research Journal, 42*(2), 371–406.

Kaput, J., & Blanton, M. (2019). Building algebra from the ground up. Springer.

Kitchen, A., & Berk, D. (2016). Children's understanding of variables. *Journal of Mathematical Behavior, 44*, 50–67.

Knuth, E. J., Stephens, A. C., McNeil, N. M., & Alibali, M. W. (2006). Middle school students' understanding of the equal sign. *Mathematics Teaching in the Middle School, 11*(9), 32–37.

Knuth, E. J., Stephens, A. C., McNeil, N. M., & Alibali, M. W. (2007). Middle school students' understanding of the equal sign. *Mathematics Teaching in the Middle School, 11*(9), 32–37.

Lecoutre, M. P. (1992). Cognitive models and problem spaces in "equiprobability bias." *British Journal of Mathematical and Statistical Psychology, 45*(2), 319–327.

Posner, G. J., Strike, K. A., Hewson, P. W., & Gertzog, W. A. (1982). Accommodation of a scientific conception. *Science Education, 66*(2), 211–227.

Rittle-Johnson, B., & Schneider, M. (2015). Developing conceptual and procedural knowledge. In R. Cohen (Ed.), *The Oxford handbook of numerical cognition* (pp. 1102–1118). Oxford University Press.

Sinatra, G. M., & Pintrich, P. R. (2003). Intentional conceptual change. Routledge.

Smith, J. P., diSessa, A. A., & Roschelle, J. (1993). Misconceptions reconceived. *Journal of the Learning Sciences, 3*(2), 115–163.

Vosniadou, S. (1994). Capturing and modeling the process of conceptual change. *Learning and Instruction, 4*(1), 45–69.

Vosniadou, S. (2014). Examining cognitive development from a conceptual change point of view. *Learning and Instruction, 29*, 154–160.

Watson, J. M., & Moritz, J. (2002). The development of understanding of sampling. *Journal of Mathematical Behavior, 21*(2), 109–136.

CHAPTER 11

Global Social Responsibility in Educational Research: A Systematic Review

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INTRODUCTION

The social, economic, and cultural transformations occurring on a global scale have necessitated the restructuring of education systems to cultivate individuals who develop a sense of responsibility not only towards their own societies but also towards all of humanity. One of the leading concepts playing a primary role in this transformation is global social responsibility (GSR), which requires individuals to develop sensitivity to, and take on roles as problem-solvers for, all of humanity (Holman et al., 1985; Özen, 2009). Within the intricate framework shaped by globalization, education functions as a key catalyst for advancing and formalizing this perspective. Its purpose is to equip individuals so they can operate with accountability for their own actions as well as those concerning the global community.

Globalization is a multi-layered phenomenon that refers to the expansion of interaction areas between people and societies, brought about by advancements in information, communication, and transportation technologies (Altan, 2024). The impact of this process on education is felt in two ways: on one hand, education is seen as a fundamental tool for training individuals who will adapt to the process of globalization; on the other hand, education itself is affected both structurally and in terms of content by this process (Balay, 2004). Education systems must now be restructured to be flexible enough to respond not only to local or national expectations, but also to social, environmental, and economic problems experienced at the global level (Schröttner, 2010).

The effects of globalization on social structures should be examined not only through cultural interactions or economic partnerships, but also through the transformation of concepts such as rights, justice, and responsibility (Held & McGrew, 2008). In this context, education stands out as a structure that supports the individual's socialization process, encourages critical thinking, and aims to raise individuals sensitive to social justice (Giddens, 1990; Toulmin, 1999). The globalization of education is frequently perceived as reducing educational curricula to Western-centric standards; however, this process actually involves restructuring with the goal of enabling different cultures to meet and collaborate within a framework of shared values (Akçay, 2003; Balay, 2004). In this context, themes such as multiculturalism, universal rights, peace education, and global justice have become indispensable components of contemporary educational systems (Banks, 2004).

Wintersteiner (2004) argues that it is not enough for individuals only to acquire knowledge; they must also combine this knowledge with ethical responsibility and social action. This reveals that, in education, not only cognitive goals but also affective and social goals need to be achieved simultaneously. In this sense, GSR can be considered a field of learning that seeks to integrate the

individual's cognitive achievements with ethical and social responsibility for the benefit of the public.

With globalization, the traditional understanding of citizenship has given way to the multidimensional concept of global citizenship (GC). GC refers to the individual acting not only with their national identity but also with a consciousness of universal rights, social justice, environmental awareness, and multicultural sensitivity (Falk, 1994; Oxfam, 2015). In this context, education reinforces GC awareness by equipping individuals with skills such as recognizing different cultures, developing empathy, producing solutions to universal problems, and engaging in active citizenship (Karacabey et al., 2024; Noddings, 2005; Westheimer & Kahne, 2004). GC is understood to revolve around three key areas, namely social responsibility, global competence, and civic engagement (Morais & Ogden, 2011). All these themes reflect high-level qualities that should be acquired by individuals through education. Therefore, educational systems should not only focus on academic achievement but also take on the task of fostering qualities that will make individuals subjects of social transformation.

GSR requires individuals to develop sensitivity not only towards the problems of their own societies, but also towards environmental, economic, or social issues that arise globally (Nakamura & Watanabe-Muraoka, 2006; Başer & Kılınç, 2015). The role of education in developing this awareness is significant. Starrett (1996) posits that those who possess a well-developed capacity for social responsibility have assimilated values like justice, trustworthiness, and compassion. Complementing this view, Körükçü and Tangülü (2021) assert that individuals conscious of GSR are capable of engaging with others with ontological respect. GSR encompasses not only the development of social sensitivity but also sub-themes such as altruism, environmental awareness, and national and universal belonging (Başer & Kılınç, 2015). In this sense, GSR reflects an action-oriented understanding of responsibility in which individuals, through education, are encouraged not only to recognize problems but also to develop solutions (Schwartz, 1968). In this context, restructuring education both structurally and in terms of content to support GSR has considerable potential for a sustainable world. The effects of GSR on education have become an increasingly prominent focus in educational research in recent years.

Nevertheless, an examination of existing research indicates that the GSR topic is largely confined to the conceptual domain, resulting in limited empirical studies based on practical data. There are particularly notable gaps in areas such as measuring individual levels of GSR, the global responsibility awareness of teacher candidates, and analyses of educational curricula from a GSR perspective (Göl, 2013; Büyükdoğan, 2020). Although the majority of investigations are dedicated to the higher education context, research focusing on the primary and secondary education levels remains markedly sparse. Additionally, although

quantitative methods have been preferred in this field, there are shortcomings in reflecting the depth and conceptual variety afforded by qualitative analysis (Seçgin & Yazıcı, 2018). This highlights the necessity for mixed-method research to match the multi-layered nature of GSR's educational implications. Although the concept of GSR has gained importance through the reflection of the societal impacts of globalization on education, most existing studies focus on individual levels of responsibility and provide only limited analyses associated with the structural dimensions of education. In-depth investigations into the integration of GSR into educational curricula, its relationship with teaching methods, and its effects on learning outcomes also remain inadequate. Especially regarding the developmental process of GSR within the individual, the teaching strategies that can support it, and the ways it can be integrated with multidimensional citizenship education, there is a clear empirical and theoretical gap. In this context, it is important to conduct more comprehensive, theoretically grounded, and methodologically diverse research in the field.

This paper systematically reviews academic research on the GSR theme within education to identify prevailing trends, shared aspects, and existing scholarly voids. The purpose is twofold: to enhance conceptual clarity and to establish a robust foundation for subsequent high-quality research. Thus, the aim is both to contribute to conceptual clarity and to prepare a structural basis for high-quality future research. Additionally, the study will function as a literature synthesis that can enable the development of applied recommendations to be taken into consideration in the shaping of education policies. In alignment with this context, the current study intends to provide a comprehensive overview of the GSR research in the educational sciences, offering a systematic examination of the field's current status. In the study, the trends of research addressing the topic of GSR are analysed in light of variables such as type of publication, year, language, research method, and data collection tools used, thus establishing a foundation that will guide future studies in both content and methodological contexts. Furthermore, by systematically compiling information that is heterogeneously distributed in the literature, this review aims to contribute to the integration of GSR into education. Given this scope, the present review was structured to respond to the subsequent research inquiries:

1. What is the scholarly output profile of GSR studies in education, considering aspects such as publication type, publication year, and language?

2. What are the aims and objectives of the academic studies addressing the topic of GSR in educational research?

3. What is the distribution of the academic studies addressing the topic of GSR in educational research in terms of their research method and research design?

4. What are the characteristics of the participant groups (educational level and participant description) in the academic studies addressing the topic of GSR in educational research?

5. Which instruments and techniques were utilized to gather data in the academic studies concerning GSR in educational research?

Method

Research Design

A systematic review methodology was adopted to pinpoint research centred on GSR in both national and global educational contexts. Diverging from conventional reviews, this approach entailed selecting the literature based on predefined standards and conducting a structured analysis of the results. A systematic review involves thoroughly searching the existing studies relevant to a defined research question. It requires selecting appropriate literature based on set inclusion/exclusion criteria, analysing their methodological features (quantitative, qualitative, or mixed), and integrating the resulting synthesis to present the findings. Systematic reviews can include only quantitative or qualitative research, or, within the framework of a "mixed method systematic review," can evaluate multiple types of evidence together. One distinctive feature of these reviews is the explicit definition of literature search strategies and study selection criteria. This transparency ensures that the research is carried out in an objective, comprehensive, and reproducible way, thereby increasing the reliability of the findings and contributing to the establishment of strong evidence. Consistent with the study's central focus, a systematic review was adopted; this approach facilitates an exhaustive scrutiny of the selected literature and enables the appraisal of the gathered data through a multi-faceted lens.

Data Collection Process

To access the studies examined within the scope of the review, the Web of Science (WoS), Scopus, Council of Higher Education Thesis Center (YÖKTEZ), the national thesis database of Türkiye, and DergiPark databases were used. The inclusion criteria were defined as: being a thesis or article published nationally or internationally, being conducted within the context of GSR, and having full-text access. If an article was published based on a thesis, the thesis itself was excluded, and only the article was taken into account. The primary literature search was conducted between January 2024 and July 2024, with no restrictions on publication year. Additionally, to include current studies, a supplementary search was conducted in October 2025. This supplementary effort resulted in the addition of three national theses, one national article, and one international article with a GSR theme to the review. In the targeted databases, the keyword "global social responsibility" was searched for, specifically limiting the query to the title and abstract fields of the scholarly works. Following an initial screening of the

abstracts, the studies deemed relevant to the review's objective were digitized and catalogued under the 'Year-Author(s)-Title' designation Figure 1 presents a detailed flowchart of the systematic search process.

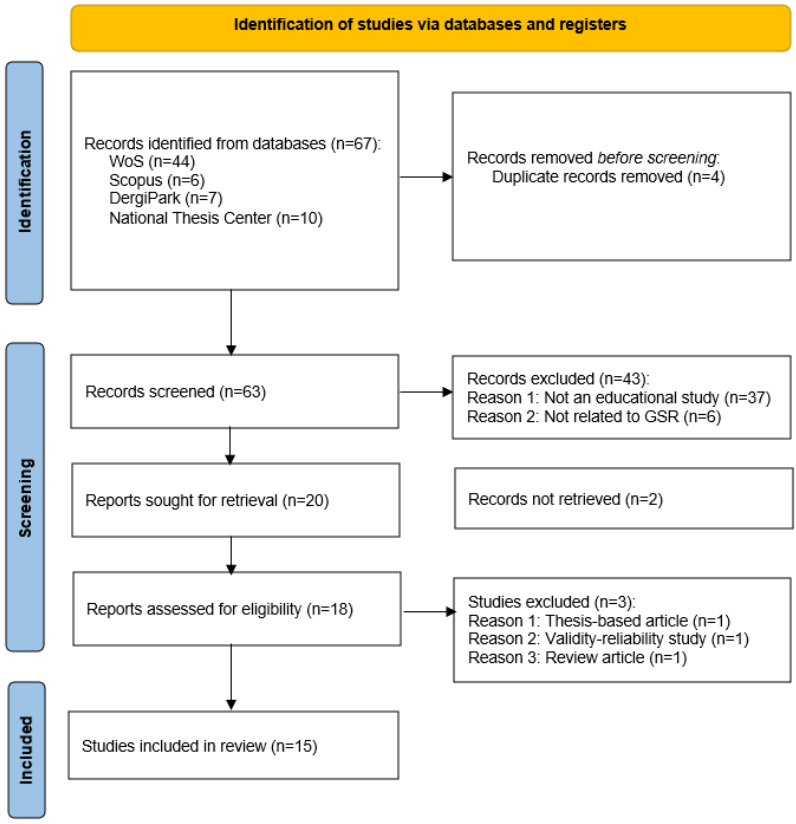


Figure 1. PRISMA Flow Diagram
Note. Adapted from Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., et al. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. BMJ, 372, n71. https://doi.org/10.1136/bmj.n71

Coding and Analysis Procedure

Adherence to the established inclusion criteria and rigorous methodological standards governed the systematic review process. Sixty-seven records were initially retrieved via searches conducted across the designated databases (WoS, Scopus, DergiPark, and YÖKTEZ). Following the removal of four duplicate studies, the screening phase commenced with 63 records.

Title and abstract screening resulted in the exclusion of 43 records. Specifically, 37 records were deemed unrelated to educational research, and six did not address Global Social Responsibility (GSR). Of the remaining 20 reports sought for retrieval, two could not be obtained in full-text format and were

therefore excluded. Eighteen full-text reports were subsequently assessed for eligibility.

Subsequent full-text evaluations led to the exclusion of three studies:

• One was an article derived from a thesis and was omitted to avoid duplication, as the original thesis was already included.

• The second was a review article.

• The third focused exclusively on validity and reliability analysis.

As both the review article and the validity/reliability study did not meet the analytical objectives and overall scope of this systematic review, they were excluded. A total of 15 studies were thus retained for the final data integration (see Appendix 1 and Appendix 2).

The sources examined in the study were coded and classified by the researchers according to their type to facilitate the systematic and orderly analysis of the data. The established coding system was:

• Master's theses were coded as "MT" with consecutive numbers (e.g., MT-TR1, MT-TR2).

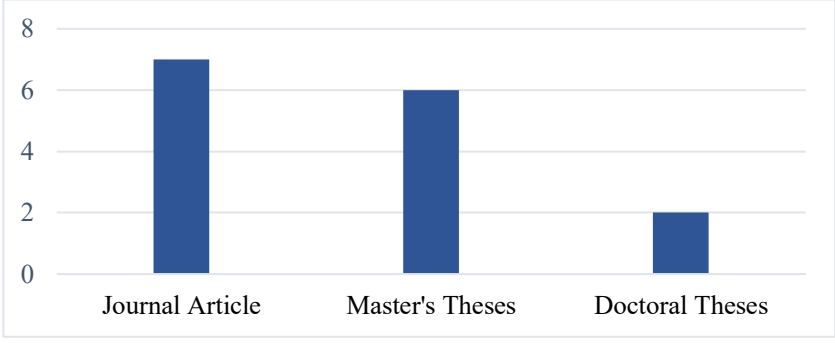
• Doctoral theses were coded as "PhD-T" with numbers (e.g., PhD-EN1, PhD-EN2).

• National articles were coded as "JA-TR" with numbers (e.g., JA-TR1, JA-TR2).

• International articles were coded as "JA-EN" with numbers (e.g., JA-EN1, JA-EN2).

Findings

Types of Studies



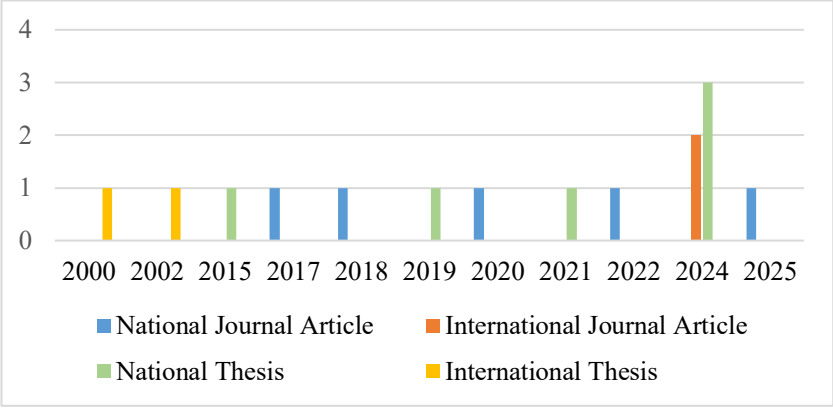
Graph 1. Types of Studies

As illustrated in Graph 1, the systematic review's final body of evidence consisted of 15 studies, categorized as: seven journal articles, six Master's

dissertations, and two Doctoral dissertations. A noteworthy observation was the predominance of journal articles (n = 7) among the included studies. While a moderate number of Master's theses in Turkish were identified (n = 6), no Turkish doctoral theses were retrieved. At the international level, only two doctoral theses were included, suggesting that a limited volume of research was conducted at this academic tier. This distribution highlights a potential gap in doctoral-level inquiry into GSR within educational contexts, particularly in national settings.

Publication Years of the Studies

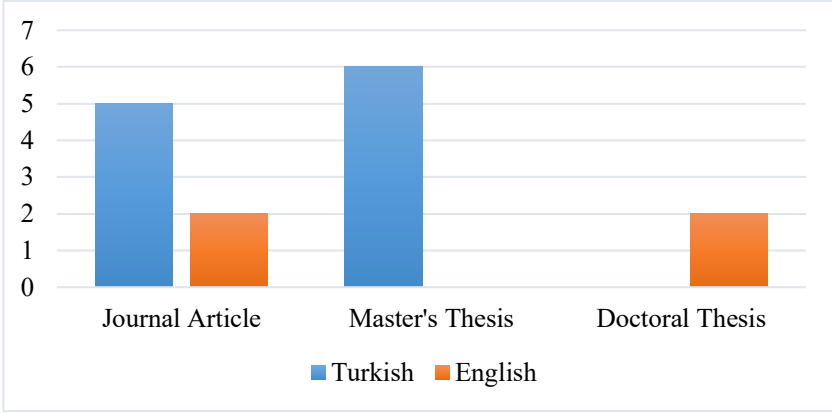
Without any restriction on publication dates, the literature was searched through the following four principal databases: WoS, Scopus, DergiPark, and YÖKTEZ.



Graph 2. Distribution of Publication Years

Graph 2 visually represents the distribution of publication years, categorized by study format. The publications integrated into this review span a period from 2000 to 2025. It should be noted that certain years within this timeline did not produce any relevant studies. An analysis of Graph 2 reveals that the earliest studies addressing GSR in the context of education were two international doctoral theses published in 2000 and 2002. Notably, no national theses were published before 2015, and no national journal articles were published before 2017. Furthermore, only two international journal articles were published in 2024. However, when considered collectively, 2024 emerged as the most prolific year in terms of publication frequency, with five studies included from that year.

Languages of Publication



Graph 3. Languages of Publication

The distribution of the publication languages among the included studies is shown in Graph 3. Within the journal article category, studies published in Turkish (n = 5) outnumbered those published in English (n = 2). Notably, all six Master's dissertations were authored in Turkish. In contrast, all doctoral theses (n = 3) were published exclusively in English.

Research Objectives

Analyses of the aims of the 15 studies examined (see Appendix 1 and Appendix 2) reveal that the theme of GSR in the field of education has predominantly focused on identifying individuals' levels of social responsibility, exploring their relationships with various demographic variables, and understanding the factors that influence GSR. Accordingly, most of the studies were designed with descriptive and correlational purposes.

The majority of the Master's dissertations (MT-TR1, MT-TR3, MT-TR5, MT-TR6) primarily focused on assessing the GSR proficiency of university students and preservice educators. Furthermore, they investigated the correlation of these proficiency levels with demographic and psychological factors, including gender, grade level, social intelligence, and metaphorical perception. These studies offer a static perspective on individuals' existing awareness and tendencies toward social responsibility, elucidating how GSR is structured at the individual level. However, one master's thesis (MT-TR2) differed in that it investigated the effect of an applied educational program, thereby adopting an intervention-oriented approach. Similarly, the two international doctoral theses (PhD-EN1, PhD-EN2) focused on service-learning practices and individual factors that facilitate the cultivation of social responsibility in university students, approaching GSR as a dynamic construct.

In the journal articles, GSR levels were generally examined in relation to demographic factors. Studies conducted with preservice teachers, university students, and undergraduate students in fields such as tourism and health sciences investigated the indicators through which GSR is associated with perceptions, levels, or tendencies. In two international publications (JA-EN1, JA-EN2), the relationships between GSR, identity functions, and classification patterns related to environmental issues were analysed. These studies offered enhanced theoretical models designed to assess the influence of psychological and ecological determinants on perceptions of social responsibility.

Overall, the research objectives were found to be largely concentrated on measuring and defining GSR, with limited attention given to program-based or instructional interventions directly integrated into teaching processes. This pattern indicates a strong tendency to describe existing GSR levels while highlighting a scarcity of studies designed to promote the pedagogical development of the concept. Furthermore, only a few studies associated social responsibility tendencies with ontological, environmental, cultural, or ethical contexts. In this regard, there is a clear need for studies with theoretically robust and multilayered aims that explore how GSR can be developed across different levels of education and effectively integrated into curricula.

Research Methods

Data concerning the research methods and designs of the 15 reviewed studies demonstrate the methodological framework employed by the current systematic review (see Table 1). Of the total articles examined, 14 utilised quantitative designs, whilst one adopted a qualitative approach." This distribution indicates that academic research on GSR in the field of education has predominantly relied on measurement-based quantitative data.

Table 1. Distribution of Research Methods

Research Method	Research Design/Model	f	%	Rank
Quantitative	Survey	10	66.66	1
	Experimental	2	13.33	2
	Cross-sectional descriptive epidemiology	1	6.66	3
	Questionnaire	1	6.66	3
Qualitative	Phenomenology	1	6.66	3
Total		15	100	

From the perspective of research design, the most frequently employed approach was the survey design. Specifically, the survey model was utilized in ten studies, encompassing models such as general survey (n = 4), cross-sectional survey (n = 3), correlational survey (n = 2), and descriptive survey (n = 1). These were followed by two studies adopting experimental models. The remaining studies consisted of one employing a cross-sectional epidemiological design and another utilizing a questionnaire-based design. The sole qualitative study adopted a phenomenological design, reflecting an interpretative approach aimed at exploring participants' lived experiences.

Participants of the Studies

The participant characteristics across the 15 studies incorporated in this systematic review demonstrate variation regarding educational levels and stages of schooling (see Table 2, located below this section). The majority of the studies (n = 11; 73.3%) focused on the higher education level. Within this group, participants primarily consisted of preservice teachers and students specializing in the health sciences (e.g., medical and nursing students). One international article (JA-EN1) uniquely included participants enrolled in both undergraduate and graduate programs. Analysis of participant descriptions indicates that GSR-related research in education has been particularly concentrated on preservice social studies and history teachers.

A subset of the studies (n = 4) involved students at the secondary education level, encompassing both middle and high school populations, generally categorized under the umbrella term K–12 students. This K–12 group included both gifted students and those attending public high schools.

Substantial variation was observed in sample sizes across the studies. While some studies involved relatively small groups of participants (ranging from 25 to 70 individuals), others employed considerably larger samples, exceeding 400 participants (e.g., MT-TR3, JA-TR2, JA-EN1, JA-EN2). The studies with the largest sample sizes were the international nursing study (JA-EN2, n = 1,466) and a national medical school study (MT-TR3, n = 1,203).

Table 2. Distribution of Participants across Studies

Study Code	Participant Group	Edu Level	Participant Description	Sample Size
MT-TR1	K–12 students	MS	Gifted middle school students	70
MT-TR2	K–12 students	HS	Students attending public high schools	25
MT-TR3	Higher education students	U	Medical school students	1,203
MT-TR4	Higher education students	U	University students who are members of student clubs	342
MT-TR5	K–12 students	HS	Gifted high school students	74
MT-TR6	Higher education students	U	Preservice social studies teachers	463
PhD-EN1	Higher education students	U	Students enrolled in a private university	100
PhD-EN2	Higher education students	U	University students	72
JA-TR1	Higher education students	U	Students from the faculties of social and humanities sciences at a foundation university	309
JA-TR2	Higher education students	U	Third- and fourth-year preservice social studies teachers	77
JA-TR3	Higher education students	U	Undergraduate students majoring in tourism education	463
JA-TR4	K–12 students	HS	High school students	410
JA-TR5	Higher education students	U	History teacher candidates and preservice social studies teachers	303
JA-EN1	Higher education students	U/G	Nursing students enrolled in undergraduate and graduate programs	723
JA-EN2	Higher education students	U	Nursing students	1,466

Note. Edu=Education; MS=Middle school; HS=High school; U=Undergraduate; G= Graduate

Data Collection Instruments Used in the Studies

Table 3 (located below this section) details the data collection instruments utilised across the literature incorporated in this systematic review. The vast majority of the studies—specifically those excluding MT-TR1 and JA-TR1—were found to have relied on more than one measurement instrument. The

predominantly employed data collection instrument was the GSR Scale, which was initially devised by Başer and Kılınç (2015) (n = 12; 35.29%).This finding indicates that a significant portion of the studies primarily aimed to measure social responsibility levels using standardized and validated scales.

The Personal/Demographic/Sociodemographic Information Form was also widely employed (n = 10; 29.41%). This pattern suggests that the studies placed a strong emphasis on sample profiling and variable control, demonstrating that researchers consistently prioritized systematic reporting of participant demographics and contextual characteristics.

The remaining instruments were generally used in only one or two studies. Among these, the GSR Scale by Starrett (1996) (used in PhD-EN1 and PhD-EN2) stands out as a key tool in assessing GSR tendencies in international contexts. The other less frequently used instruments reflect diverse approaches to measuring related constructs such as environmental awareness, social intelligence, and internal–external locus of control.

The study coded MT-TR1 was the only one employing a qualitative research method, thereby distinguishing it from the other studies included in the review. Its data collection instruments consisted of a personal information form, a metaphor questionnaire, and a semi-structured interview form. In this study, participants' perceptions of the GSR concept were analysed in depth and interpretively, in alignment with the nature of qualitative inquiry.

Table 3. Distribution of Data Collection Instruments by Type

Data Collection Instrument	f	%
Environmental Issues List (Song et al., 2020)	1	2.94
Multidimensional Social Values Scale (Bolat, 2013)	1	2.94
Interview/Semi-structured Interview Form	2	5.88
Internal–External Locus of Control Scale (Rotter, 1966)	1	2.94
Functions of Identity Scale (Demir, 2011)	1	2.94
Personal/Demographic/Sociodemographic Information Form	10	29.41
GSR Scale (Başer & Kılınç, 2015)	12	35.29
GSR Scale (Starrett, 1996)	2	5.88
Metaphor Questionnaire Form	1	2.94
Sustainable Development Awareness Scale (Atmaca et al., 2019)	1	2.94
Basic Disaster Knowledge Questionnaire	1	2.94
Tromsø Social Intelligence Scale (Silvera et al., 2001)	1	2.94
Total	15	100

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This systematic review examined fifteen academic studies conducted within both national and international contexts concerning GSR in educational settings, employing a multidimensional analytical lens. The findings reveal that GSR has become an increasingly prominent focus within educational research; however, this growing attention has not yet achieved theoretical maturity or methodological diversity. The results indicate the absence of a structural framework for integrating GSR into educational systems—beyond merely raising individual awareness—to effectively translate it into pedagogical practice.

The review demonstrates that most of the examined studies consist of master's theses and journal articles, while no doctoral theses were found at the national level. Only two doctoral theses—both international and written in English—were identified. This suggests that in Türkiye, GSR has not yet been adequately addressed at an advanced academic level in either theoretical or applied contexts. Given GSR's multilayered nature, which necessitates analysis across individual, societal, environmental, and ethical dimensions, future studies should approach the topic through interdisciplinary perspectives at the doctoral level and establish connections with educational policy frameworks.

Methodologically, the findings show a predominant preference for quantitative research approaches. Nearly all studies adopted quantitative designs, with only one employing a qualitative methodology. The qualitative study contributed valuable insights into the personal and subjective dimensions of social responsibility, utilizing creative techniques—such as metaphor analysis—to capture participants' internalized perceptions. The inclusion of qualitative data enriched the understanding of GSR beyond numerical scores, emphasizing meaning-making processes and representational patterns. This methodological variety, though limited, underscores the need for more diverse research designs, as the current dominance of quantitative analyses indicates that GSR is often evaluated through measurable outcomes rather than through affective or behavioural dimensions. While scale-based assessments are useful for statistically identifying students' levels of social responsibility, they fail to address essential questions about how individuals construct meaning from social responsibility, the societal conditions under which it develops, and the pedagogical processes that foster it. Therefore, future research should employ qualitative and mixed-method approaches to more comprehensively assess the educational implications of GSR.

Another salient finding concerns the standardization of data collection instruments. The most widely used measure is the GSR Scale (Başer & Kılınç, 2015), indicating that the concept has been operationalized and introduced into the Turkish educational context primarily through this single tool. Although the scale provides a theoretical foundation by defining GSR across four key axes:

altruistic, ecological, national, and action-oriented —its prevalent use has led to methodological uniformity. The scarcity of alternative instruments limits the representation of GSR's cultural, pedagogical, and experiential diversity. To address this issue, researchers should diversify data collection tools by incorporating open-ended questions, interviews, and metaphor analyses, thereby capturing participants' subjective interpretations and enriching the empirical understanding of GSR.

Participant-level analysis reveals that most GSR-related studies were conducted at the higher education level, primarily involving university students—particularly pre-service teachers and students in health sciences. This focus suggests that social responsibility awareness is perceived as closely linked to professional identity and reflects teachers' roles as agents of social transformation. However, the limited number of studies involving primary and secondary school students leaves critical questions unanswered regarding how and at what developmental stages social responsibility awareness emerges. As social responsibility can and should be cultivated from early ages through values education, civic education, environmental education, and social interaction, longitudinal studies encompassing diverse age groups would fill a significant research gap.

The distribution of methodological designs indicates that educational research on GSR has largely adopted descriptive approaches focused on participants' attitudes, perceptions, and current states. The prevalence of cross-sectional and survey designs suggests that a concept as multidimensional as social responsibility is often studied through static snapshots. The scarcity of experimental studies highlights a lack of efforts to test causal relationships, while the limited use of qualitative designs points to an underexplored space for understanding lived experiences. Thus, future studies employing mixed-method designs—and particularly qualitative inquiries— could yield more in-depth insights into the experiential dimensions of social responsibility.

Among the reviewed studies, survey models are the most frequently employed design. While such models are effective in identifying current levels of social responsibility, they fall short in explaining how GSR develops through educational processes, what instructional strategies best support it, and how learning environments and teacher attitudes shape it. The limited use of experimental designs hinders the production of empirical evidence regarding education's direct effects on GSR. Given that the development of social responsibility should not be left to spontaneous processes, but rather intentionally fostered through structured instructional interventions, it is crucial to design and empirically test GSR-based educational programs through experimental or action research frameworks.

Furthermore, GSR should not be confined to the realm of individual awareness; it must be connected to behavioural outcomes. As emphasized by Starrett (1996) and Morais and Ogden (2011), social responsibility entails more than cognitive awareness—it encompasses empathy, social problem recognition, solution generation, and active citizenship engagement. Therefore, future research should prioritize behaviour-oriented studies that examine how individuals transform awareness into concrete social action.

Another critical gap identified in the review is the limited number of studies focusing on teachers' roles in teaching GSR, including instructional strategies and curriculum integration. Given that GSR can be directly or indirectly conveyed through teachers' attitudes and behaviours, it is essential to include social responsibility-oriented modules in teacher education programs, monitor pre-service teachers' ability to integrate this value into pedagogical practices, and promote classroom-based, practice-oriented GSR interventions.

The limited number of systematic reviews within the educational field (İlgün-Dibek & Toptaş, 2023) further underscores the originality of this study. Overall, the present review demonstrates that GSR remains underrepresented in educational research, with rising awareness but limited methodological diversity and insufficient practice-based inquiry. The current conceptual focus on individual awareness must evolve into a behavioural and ethical responsibility domain, systematically embedded across all levels of education. Accordingly, greater emphasis should be placed on educational models that monitor and support the development of social responsibility from early schooling onward.

GSR, as a multifaceted competence encompassing sustainable development, environmental consciousness, social justice, and human rights, demands that education systems move beyond academic achievement to include the cultivation of ethical, environmental, and civic responsibility. From this perspective, GSR should be regarded not merely as a dimension of individual development but as a fundamental pillar for building a collective future. This systematic review, conducted in alignment with the structured writing principles proposed by Özer and Görgülü (2020), holistically maps existing trends, methodological emphases, and conceptual orientations within the literature. By identifying critical gaps—such as methodological uniformity, participant limitations, lack of theoretical depth, and insufficient practice-based inquiry— the current research offers essential direction to future scholarship regarding both content and methodology. Promoting GSR through education aligns with the pursuit of a just, equitable, and sustainable society. Thus, integrating GSR into education policies, teacher preparation programs, and instructional practices should be seen not only as an academic imperative but also as a collective moral responsibility.

References

Note. Studies included in the systematic review are marked with an asterisk (*).

Akçay, R. C. (2003). Küreselleşme, eğitimsel yoksunluk ve yetişkin eğitimi. *Milli Eğitim Dergisi. 159*(3). http://yayim.meb.gov.tr/dergiler/159/akcay.htm

Altan, M. Z. (2024). Küreselleşme, küreselleşme karşıtlığı ve İngilizce: Neredeyiz, nereye gidiyoruz?. *Eğitimde Yeni Yaklaşımlar Dergisi*, *7*(1), 14-36. https://dergipark.org.tr/tr/download/article-file/3876934

Balay, R. (2004). Küreselleşme, bilgi toplumu ve eğitim. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 37*(2), 61-82. https://doi.org/10.1501/Egifak_0000000097

Banks, J. A. (2004). Introduction: Democratic citizenship education in multicultural societies. In J. A. Banks (Ed.). *Diversity and citizenship education: Global perspectives* (s. 3-15). Jossey-Bass, An Imprint of Wiley.

*Başeğmez, G. G. (2019). *Üstün yetenekli lise öğrencilerinin küresel sosyal sorumluluk düzeyleri ve Suriyeli sığınmacılarla ilgili tutumlarının sosyal zekâ ile ilişkisi: Beşiktaş örneği* [Yayımlanmamış Yüksek Lisans Tezi]. İstanbul Bilgi Üniversitesi.

*Başer, E. H. (2015). *Sosyal bilgiler öğretmen adaylarının küresel sosyal sorumluluk düzeylerinin çeşitli değişkenler açısından incelenmesi* [Yayımlanmamış Yüksek Lisans Tezi]. Dumlupınar Üniversitesi.

Başer, E. ve Kılınç, E. (2015). Küresel sosyal sorumluluk ölçeği: Geçerlik ve güvenirlik çalışması. *Sakarya University Journal of Educatio*n, *5*(3), 75-89. https://doi.org/10.19126/suje.43673

*Büyükdoğan, B. (2020). Üniversite öğrencilerinin küresel sosyal sorumluluk algilarinin değerlendirilmesi. *Yeni Medya Elektronik Dergisi, 4*(3), 203-215. https://doi.org/10.17932/IAU.EJNM.25480200.2020/ejnm_v4i3005

*Erden, Ş. (2024). *Tıp Fakültesi öğrencilerinin küresel sosyal sorumluluk düzeylerinin çeşitli değişkenler açısından analizi: Ankara Üniversitesi Tıp Fakültesi örneği* [Yayımlanmamış Yüksek Lisans Tezi]. Ankara Üniversitesi.

Falk, R. (1994). “The Making of Global Citizenship”. B. Van Steenbergen (Ed.). *The Condition of Citizenship*. (s .39-50). Sage Publications.

Giddens, A. 1990. *The Consequences of Modernity*. Polity Press.

Göl, E. (2013). *Sosyal bilgiler öğretmen adaylarının küresel vatandaşlık tutum düzeylerinin farklı değişkenler açısından incelenmesi* [Yayımlanmamış Yüksek Lisans Tezi]. Ahi Evran Üniversitesi.

*Gürbüz, G. ve Aydın, M. (2022). Öğretmen adaylarının küresel sorunlara ilişkin küresel sosyal sorumluluk düzeylerinin incelenmesi. *İnönü Üniversitesi*

Eğitim Fakültesi Dergisi, 23(3), 1429-1460. https://doi.org/10.17679/inuefd.1165608

Held, D. ve McGrew, A. (2008). *Küresel dönüşümler büyük küreselleşme tartişmasi*. Phoenix Yayınevi.

Hemingway, P. & Brereton N (2009). *What is a systematic review*? Hayward Medical Communications.

Higgins, J. P. & Green, S. (Eds.). (2011). *Cochrane handbook for systematic reviews of interventions.* Cochrane Collaboration.

Holman, W. R., New, J. R. & Singer, D. (1985). "The Impact of Corporate Social Responsiveness on Shareholder Wealth". E. Lee (Ed.). *Preston* R*esearch in Corporate Social Performance and Policy Volume 7*. (s.137-152). Elsevier Science & Technology Books.

*Hopkins, S. M. (2000). *Effects of short-term service ministry trips on the development of social responsibility in college students* [Yayımlanmamış Doktora Tezi]. George Fox Üniversitesi.

*Işık, B. & Keçeci, A. (2024). The predictive effect of identity functions of nursing students on their global social responsibility tendencies: A cross-sectional study. *Nurse Education Today*, *133*, 106068. https://doi.org/10.1016/j.nedt.2023.106068

İlgün-Dibek, M. ve Toptaş, B. (2023). Bütün parçaların toplamından daha fazladır: Eğitim bilimlerinde sistematik derleme nasıl yazılır? *Erzincan Üniversitesi Eğitim Fakültesi Dergisi, 25*(3), 538–550. https://doi.org/10.17556/erziefd.1176257

Kale, M. ve Demir, S. (2017). İlkokullardaki destek oda eğitiminin Türkçe ve Matematik derslerindeki başarı üzerindeki etkisinin incelenmesi. *TÜBAV Bilim Dergisi, 10*(4), 48-58. https://dergipark.org.tr/tr/download/article-file/393448

Karacabey, M. F., Katıtaş, S. ve Kılınç, E. (2024). Küresel vatandaşlığa ve küresel vatandaşlık eğitimine ilişkin öğretmen görüşleri: Şanlıurfa ili örneği. *Batı Anadolu Eğitim Bilimleri Dergisi, 15*(3), 2789-2813. https://doi.org/10.51460/baebd.1550091

*Kennemer, K. N. (2002). Factors predicting social responsibility in college students [Yayımlanmamış Doktora Tezi]. George Fox Üniversitesi.

*Kocoglu-Tanyer, D., Dengiz, K. S. & Sacikara, Z. (2024). Nursing students' conceptualization of environmental problems: a descriptive cross-sectional study. *Nurse Education Today*, *140*, 106296. https://doi.org/10.1016/j.nedt.2024.106296

Körükçü, M. & Tangülü, Z. (2021). Individual and global social responsibility levels of social studies pre-service teachers in terms of different variables.

International Journal of Evaluation and Research in Education, 10(3), 1008-1017. https://doi.org/10.11591/ijere.v10i3.20552

*Küçükşen, K. ve Budak, H. (2017). Lise öğrencilerinin sosyal değer tercihlerinin küresel sosyal sorumluluk düzeylerine etkisi. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi, 6*(3), 1813-1826. https://doi.org/10.15869/itobiad.329654

Morais, D. B. & Ogden, A. C. (2011). Initial development and validation of the global citizenship scale. *Journal of Studies in International Education, 15*(5), 445-466. https://doi.org/10.1177/102831531037530

Moula, P. & Goodman, M. (2009). *Nursing Research*. (s. 111-149, 247-261). SAGE Publication Ltd.

Nakamura, M. & Watanabe-Muraoka, A. M. (2006). Global social responsibility: Developing a scale for senior high school students in Japan. *International Journal for the Advancement of Counselling, 28*(3), 213-226. https://doi.org/10.1007/s10447-005-9007-9

Noddings, N. (Ed.). (2005). Educating citizens for global awareness. Teachers College Press.

Oxfam. (2015). *Global citizenship in the classroom: A guide for teachers*. https://oxfamilibrary.openrepository.com/bitstream/handle/10546/620105/edu-globalcitizenship-teacher-guide-091115-en. pdf?sequence=9&isA ll owed=y

*Özcan, T. (2021). *Afet eğitiminde öğrenci topluluklarının önemi ve küresel sosyal sorumluluk çerçevesinde değerlendirilmesi: Uludağ Üniversitesi örneği* [Yayımlanmamış Yüksek Lisans Tezi]. Uludağ Üniversitesi.

Özen, Y. (2009). *İlköğretim 8. sınıf öğrencilerinin kişisel ve sosyal sorumluluk yordayıcılarının incelenmesi* [Yayımlanmamış Doktora Tezi]. Atatürk Üniversitesi.

Özer, A. ve Görgülü, Z. (2021). Bir Bilimsel Derlemenin Planlanması ve Yazımı. *Erzincan Üniversitesi Eğitim Fakültesi Dergisi, 23*(3), 698-713. https://doi.org/10.17556/erziefd.819971

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ (Clinical research ed.)*, 372(71), 1-9. https://doi.org/10.1136/bmj.n71

*Sağır, M., Güdül, A. ve Aydın Taştekin, A. U. (2025). Turizm alanında lisans eğitimi alan öğrencilerin küresel sosyal sorumluluk algılarının ölçülmesi: Konya

örneği. *Selçuk Üniversitesi Sosyal Bilimler Meslek Yüksekokulu Dergisi, 28*(1), 337-351. https://doi.org/10.29249/selcuksbmyd.1569069

Schröttner, B. T. (2010). The effects of globalization phenomena on educational concepts. *US-China Education Review*, *7*(8), 50–61. https://files.eric.ed.gov/fulltext/ED514734.pdf

Schwartz, S. H. (1968). Word, deeds, and the perception of consequences and responsibility in action situations. *Journal of Personality and Social Psychology, 10*(3), 232-242. https://doi.org/10.1037/h0026569

Seçgin, F. ve Yazıcı, F. (2018). Tarih ve sosyal bilgiler öğretmen adaylarının kontrol odakları ve küresel sosyal sorumluluk düzeyleri arasındaki ilişki. *OPUS Uluslararası Toplum Araştırmaları Dergisi, 8*(15), 1267-1292. https://doi.org/10.26466/opus.436414

Starret, R. H. (1996). Assessment of global social responsibility. *Psychological Reports, 78*(2), 535-554. https://doi.org/10.2466/pr0.1996.78.2.535

Toulmin, S. (1999). The ambiguities of globalization. *Futures*, 31, 905-912. https://doi.org/10.1016/S0016-3287(99)00049-X

*Uçar, D. (2024). *UbD temelli sürdürülebilir kalkınma eğitiminin lise öğrencilerinin sürdürülebilir kalkınma farkındalıkları ve küresel sosyal sorumluluk düzeylerine etkisinin incelenmesi* [Yayımlanmamış Yüksek Lisans Tezi]. Bahçeşehir Üniversitesi.

Westheimer, J. & Kahne, J. (2004). What kind of citizen? The politics of educating for democracy. *American Educational Research Journal*, *41*(2), 237-269. https://doi.org/10.3102/00028312041002237

Wintersteiner, W. (2004). Peace Education: Educational Science in The Age of Globalization. In G. Steffens & E. Weiß (Eds.), *Yearbook of educational science 2004: Globalization and education* (s. 319-329) Peter Lang Verlag.

*Yavuz, G. (2024). *Üstün yetenekli öğrencilerin küresel sosyal sorumluluk kavramına ilişkin metaforik algılarının incelenmesi* [Yayımlanmamış Yüksek Lisans Tezi]. Çanakkale Onsekiz Mart Üniversitesi.

*Yazıcı, F. ve Seçgin, F. (2018). Tarih ve sosyal bilgiler öğretmen adaylarının kontrol odakları ve küresel sosyal sorumluluk düzeyleri arasındaki ilişki. *OPUS International Journal of Society Researches, 8*(15), 1267-1292. https://doi.org/10.26466/opus.436414

Yılmaz, K. (2021). Sosyal Bilimlerde ve eğitim bilimlerinde sistematik derleme, meta değerlendirme ve bibliyometrik analizler. *MANAS Sosyal Araştırmalar Dergisi, 10*(2), 1457-1490. https://doi.org/10.33206/mjss.791537

Declarations

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Conflict of Interest: The authors declare that there are no competing interests exist concerning the authorship or publication of this paper.

Informed Consent: Not applicable, as this study did not involve direct data collection from individual participants.

Data availability: All sources used in this systematic review, including national and international academic databases, are properly cited in the manuscript and listed in the reference section. Additionally, Tables Appendix 1 and Appendix 2 present detailed information on the final body of evidence incorporated in the systematic review.

APPENDIX 1

Table 4. Distribution of Theses on Global Social Responsibility in Educational Research

Code	Author	Year	Thesis Type	University	Research Aim
MT-TR1	Yavuz, G.	2024	Master's Thesis	Çanakkale Onsekiz Mart University	To examine gifted students' mental imagery (metaphorical perception) regarding the concept of GSR and determine whether these perceptions differ based on demographic variables.
MT-TR2	Uçar, D.	2024	Master's Thesis	Bahçeşehir University	To design, implement, and examine the effect of a 15-week Sustainable Development (SD) training program on high school students' SD awareness and GSR levels.
MT-TR3	Erden, Ş.	2024	Master's Thesis	Ankara University	To establish the GSR levels exhibited by medical school students and to conduct an analysis of these levels in relation to various variables.
MT-TR4	Özcan, T.	2021	Master's Thesis	Uludağ University	To underscore the necessity of raising individuals' disaster awareness, emphasize the importance of providing disaster education to increase this awareness, and highlight the benefits of student club activities focused on disaster education.
MT-TR5	Başeğmez, G. G.	2019	Master's Thesis	İstanbul Bilgi University	To investigate the relationship between gifted students' GSR levels and their attitudes concerning Syrian refugees, in conjunction with social intelligence.
MT-TR6	Başer, E. H.	2015	Master's Thesis	Dumlupınar University	To examine preservice teachers' GSR levels based on various variables using a scale developed by the researcher.
PhD-EN1	Hopkins, S. M.	2000	Doctoral Thesis	George Fox University	To investigate the effect of university students' engagement in service-learning missions upon the cultivation of their social accountability.
PhD-EN2	Kennemer, K. N.	2002	Doctoral Thesis	George Fox University	To scrutinise the factors which potentially facilitate the advancement of social accountability within the university student population.

*Note***.** GSR = Global Social Responsibility; SD = Sustainable Development; MT = Master's Thesis; PhD = Doctoral Thesis.

APPENDIX 2

Table 5. Distribution of Articles on Global Social Responsibility in Educational Research

Code	Author(s)	Year	Journal Name	Article Type	Research Aim
JA-TR1	Büyükdoğan	2020	Yeni Medya Elektronik Dergisi	Research Article	To determine whether university students' perceptions of GSR differ within the framework of socio-demographic variables.
JA-TR2	Gürbüz & Aydın	2022	İnönü Üniversitesi Eğitim Fakültesi Dergisi	Research Article	To examine preservice teachers' levels of Social Responsibility (SR) and their views on global issues.
JA-TR3	Sağır, Güdül & Aydın Taştekin	2025	Selçuk Üniversitesi Sosyal Bilimler MYO Dergisi	Research Article	To establish the level of GSR awareness among undergraduate students enrolled in tourism programmes and to explore whether this perception shifts based on demographic variables.
JA-TR4	Küçükşen & Budak	2017	İnsan ve Toplum Bilimleri Araştırmaları Dergisi	Research Article	To determine the social value orientations and GSR levels of high school students.
JA-TR-5	Yazıcı & Seçgin	2018	OPUS Uluslararası Toplum Araştırmaları Dergisi	Research Article	To establish the locus of control and the GSR status of Social Studies and History preservice teachers, and subsequently to explore the relationship between the two attitudes.
JA-EN1	Işık & Keçeci	2024	Nurse Education Today	Research Article	To investigate the predictive effect that nursing students' identity functions have concerning their GSR tendencies.
JA-EN-2	Koçoğlu-Tanyer, Dengiz & Şakıkarar	2024	Nurse Education Today	Research Article	To ascertain how nursing students categorise environmental issues and to assess the effects of gender, economic status, school region, family environmental awareness, and global responsibility perception upon their definition of environmental issues.

Note. GSR = Global Social Responsibility; SR = Social Responsibility; JA-TR = Turkish Article; JA-EN = English Article.

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CHAPTER 12

CEFR Alignment in German Textbooks: A Comparative Analysis of Publisher Claims, Expert Opinions and AI Evaluations

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From the beginning of printing, textbooks became one of the fundamental tools of education and continued to change throughout the centuries due to the impact of educational systems, social transformations, and technological inventions. The content and the production processes were influenced by social, political, and pedagogical dynamics throughout the years. They currently undergo a deep transformation in digitalization. In this evolutionary process, textbooks have retained their central role in education, notably serving a functional purpose in foreign language teaching. However, physical textbooks are essential materials in foreign language education, as they give concrete form to the curriculum and offer structured possibilities for learners.

Almost every national education system worldwide selects or develops textbooks according to guidelines issued by the government and then adopts textbooks for classroom purposes (Clark et al., 2024). In Turkey, parallel to this worldwide approach, textbooks approved by the MoNE are used for German language education at secondary schools (MoNE, 2021). The texts in these books align directly with the Common European Framework of Reference for Languages, affecting both the quality of the curriculum and the effectiveness of instruction. However, this is often challenging to guarantee that there is alignment, and discrepancies between intended and actual proficiency levels may disrupt the learning process.

The purpose of the present study is to assess these proficiency levels for their accuracy by comparing publisher designations with assessments by human experts and artificial intelligence. Specifically, the research questions guiding this investigation are as follows:

RQ1: How well do publisher-indicated CEFR levels align with expert evaluations?

RQ2: How consistent are ChatGPT's CEFR level assessments with the levels provided by publishers?

RQ3: Is there a tendency to evaluate texts at higher or lower CEFR levels?

These research questions form the basis of the following hypotheses:

- **H1**: The CEFR levels marked by the publishers of coursebook texts do not match the evaluations made by the experts and AI systems.
- **H2**: ChatGPT tends to assess coursebook texts at higher levels than those suggested by the publishers.

THEORETICAL FRAMEWORK AND CONCEPTUAL DEFINITIONS

Common European Framework of Reference for Languages (CEFR)

The CEFR categorizes texts and language use in the framework of an action-oriented approach, considering users and learners as social agents who accomplish tasks under specified conditions. The CEFR is an instrument that provides a unified basis for language education in Europe. It provides a shared basis for designing syllabuses, curricula, examinations, and teaching materials, and it also provides an detailed description of what learners have to acquire in order to use a language adequately for communication. Most importantly, the Framework includes not only linguistic knowledge and skills but also the cultural contexts in which language is embedded.

It allows, moreover, for the systematic description of levels of proficiency, providing a basis for tracking the progress of learners both in schools and throughout life. The CEFR is also supposed to transcend the structural and systemic differences separating European educational traditions, which have often hindered cooperation in the field of modern languages. Providing shared criteria, it allows teachers, syllabus designers, examiners, and policymakers to reflect individually and collectively on their policies and actions, to harmonize their endeavors to meet learners' needs. Thus, more transparency, comparability, and international cooperation are attained.

Key contributions of the CEFR can be outlined as follows (2001):

- It creates a clear framework for defining aims, content, and teaching methods, thus helping to reinforce international cooperation.
- Provides standardized levels of language proficiency that support the recognition of qualifications across different contexts and facilitate European mobility.
- Leads to a holistic approach towards language education, as linguistic competencies may be individually analyzed, yet they are interacting within the personality and social identity of the learner.
- Includes recognition of partial qualifications to allow learners with limited time or specific goals-for example, receptive skills only-to receive formal recognition, hence promoting plurilingualism.

But the CEFR is more than a technical tool for classification; it is a pedagogical and intercultural framework. It emphasizes that language competences must be developed as part of the development of the whole

personality and identity of the learner. By assigning value to full and partial competences, it reinforces the principles of lifelong learning and gives support to the wider European ideal of promoting plurilingual and interculturally competent citizens.

According to North 2007, the CEFR provides an overall framework that encompasses both common reference levels and a descriptive scheme. The reference levels provide a structural basis for describing L2 learning targets and support a coherent approach to developing teaching materials, learning tasks, and testing methodology. The descriptive scheme is used along two main dimensions: vertical and horizontal.

The vertical dimension of the CEFR describes learners' proficiency levels in the four core language skills. These levels are hierarchically ranked from A1 to C2 and grouped into three broad categories: Basic User, Independent User, and Proficient User (see Figure 1).

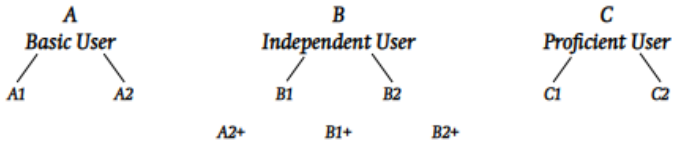

Figure 1. User Categories (CoE, 2001:23)

Each level is defined by positive "can do" descriptors, which specify what learners are able to do at a particular stage. As Figueras (2012) points out, even though language education might differ in different countries, programs, and classrooms, it usually focuses on what learners can do and what is observable and measurable rather than on what they cannot do. In a similar vein, "can do" descriptors depict typical performances that are associated with certain proficiency levels, while these performances can be well observed, assessed, and described (Jin et al., 2017).

The horizontal dimension of the CEFR categorizes the contexts of language use based on such variables as communicative purposes, cognitive contexts, constraints, situations, domains, communicative themes, and tasks. This dimension also encompasses learners' communicative language competences and strategies they use to bridge the gap between their linguistic resources (competences) and real-world communicative demands (actual performance).

Although the 2001 version of the CEFR provided a wide range of information from pedagogical approaches to language competencies, over time it has increasingly been subjected to criticisms. According to the Companion Volume issued in 2020, the CEFR (2001) was considered too complicated and hard to

interpret by many language professionals. Based on this observation, the new version issued by the Council of Europe aimed to be more accessible, comprehensible, and user-friendly (CoE, 2020).

One of the most striking additions within this second edition is the rainbow-coloured graphic designed to enhance clarity regarding the levels of language proficiency. This infographic, as shown in Figure 2, really captures the message of the levels not being strictly divided, but rather existing along a continuum whereby there is considerable fluidity and overlap, and there will be times when it would be impossible to clearly distinguish one level from another.

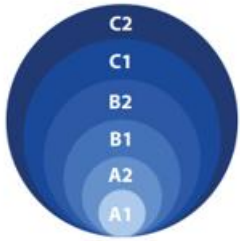

Figure 2. CEFR Common Reference Levels (CoE, 2020:36)

To elaborate further, the Companion Volume uses the analogy of the color spectrum to reinforce the idea of language proficiency, where the boundaries may appear clear and distinct but are, in fact, part of a continuum.

Figure 3. A Rainbow (CoE, 2020:36)

Figure 4. The conventional six colours (CoE, 2020:36)

As stated in the Companion Volume (CoE, 2020), "All categories in the humanities and liberal arts are, in any case, conventional, socially constructed concepts. Like the colours of the rainbow, language proficiency is actually a continuum. Yet, as with the rainbow, despite the fuzziness of the boundaries between colours, we tend to see some colours more than others (…). Yet, to communicate, we simplify and focus on six main colours (…)."

- **Reading Skills in the CEFR**

In this respect, the CEFR does provide detailed frameworks for receptive skills that are particularly critical. Next, we discuss how the reading skill-a critical area in the assessment of a learner in terms of their ability to make meaning from written language-is approached by the CEFR. The CEFR descriptors therefore give clear guidelines on what learners at different levels of proficiency-A1 to C2-are expected to be able to do. The key areas covered by the framework include:

- **Reading for Detail vs. Global Understanding:** The difference between reading comprehension of specific information and the overall meaning of a text.
- **Levels of Difficulty in Texts:** How the CEFR categorizes texts according to their complexity and the related degree of proficiency.
- **Skills Development:** Gradual development from basic comprehension at A1 to critical engagement with the most complex texts at C2.

By defining these areas precisely, the CEFR allows learners and educators to determine the development in reading comprehension while offering a sequential approach to language learning.

Building further on this structured way of looking at the process of language acquisition, a key issue concerns how the CEFR framework informs the design and assessment of educational materials that are used for teaching German as a foreign language. Specification of aims concerning various levels of proficiency and coherence of aims in assessment and development are integral parts of textbook evaluation and development in DaF. If textbooks are to be compatible with the Common European Framework of Reference for Languages, they need to be developed in a manner such that learners at different levels of ability can refer to the internationally recognized scales.

The CEFR gives tremendous help in formulating objectives and learning outcomes because of its guidelines and descriptors. If the textbooks are organized to correspond to the CEFR levels, then learners will have a chance to progress in a more transparent, coherent, and systematic manner up to the development of their communicative competence. CEFR provides the necessary guarantee in quality and consistency as an internationally standardized and foundational reference for language learning, teaching, and assessment (Sahib & Stapa, 2022).

The six main levels (A1, A2, B1, B2, C1, and C2) and their subcategories, for example, A1.1, enable an objective categorization of learners' linguistic competencies (CoE, 2020). These levels are not only descriptors of proficiency but also serve as useful tools in aligning instructional objectives with the needs

of learners. When assessing whether a text is at an appropriate level, the following four central criteria should be applied:

- **Vocabulary:** variety, level of abstraction, and frequency of words used.
- **Grammatical complexity:** sentence structures, use of subordinate clauses, and verb tenses.
- **Textual coherence:** logical flow, cohesion through connectors, and paragraph structures.
- **Communicative adequacy:** the communicative purpose of the text and the range of functions it enables for the learner.

In other words, the clearer the learning objectives within the CEFR framework are, the easier it is for authors and teachers to select appropriate text types and design incremental activities which build upon prior knowledge and skills. In this respect, CEFR-based objectives lead not only to coherence in the development of materials but also to continuity and progress in language education. What is more, translation of objectives into classroom practice needs to be done according to a structured and incremental path.

Such a strategy ensures that the learners gradually strengthen their linguistic competencies, reducing the role of chance and random exposure. Instead, carefully designed learning steps—firmly grounded in internationally recognized descriptors—give learners a comprehensible trajectory toward proficiency. In all, explicit level-appropriate learning objectives across the A1–C2 scale are defined in the CEFR. Such descriptors could serve as a central reference point in the design, evaluation, and adaptation of teaching materials.

The Regulation on Textbooks and Educational Materials in Türkiye

The Regulation on Textbooks and Educational Materials, which was put into effect by the Ministry of National Education of the Republic of Türkiye, constitutes the legal and pedagogical basis concerning the preparation, review-evaluation, approval, and distribution processes regarding textbooks and educational materials. The regulation aims to form a basis for how textbooks, supplementary resources, and other instructional tools used in official and private educational institutions affiliated with the Ministry are prepared properly in conformity with the Constitution, scientific standards, and the fundamental principles of Turkish national education.

Moreover, the regulation clearly outlines the qualifications of experts who will assist in review processes, responsibilities of applicants, and provisions about

copyright, plagiarism, and other forms of ethical infringement, apart from fee schedules assigned for review processes.

First, the regulation systematically outlines the basic criteria for reviewing, evaluating, and approving textbooks. The criteria outline general characteristics of the materials, as well as specific indicators that the panels use in their review of the materials. The key criteria are summarized under headings:

I. Compliance with the General Objectives and Fundamental Principles of Turkish National Education

This regulation's main purpose is to ensure that the content, structure, and presentation of textbooks and other study materials are developed and evaluated in conformity with the general objectives and fundamental principles of Turkish national education.

II. Qualities of Textbooks and Educational Materials (Article 6)

The law clearly outlines the required qualities of textbooks and educational materials:

- **Compliance with Legislation**: Everything shall be prepared in harmony with the Constitution and relevant legal provisions: Article 16/a.
- **Scientific Validity**: Textbooks must be prepared with up-to-date and reliable scientific knowledge and reflect the consensus of the subject matter experts(Article 16/b).
- **Alignment with Program Goals and Scope**: Materials must be presented in a manner that coincides with the mission and scope of the particular educational program involved(Article 16/c).
- **Consistency with the Integrated Structure**: Materials should support the holistic structure of the curriculum, considering interdisciplinary connections (Article 16/ç).
- **Assessment and Evaluation**: Textbooks should include formative and developmental assessment activities which will determine the student's level of knowledge and skill (Article 16/d).
- **Language and Expression**: The language utilized has to be clear, accurate, and according to the learners' level; the narrative should be pedagogically sound (Article 16/e).
- **Visual and Content Design**: The graphics and texts should support learning and be appropriate according to the students' developmental features (Article 17/f).

- **Digital Content**: Whenever applicable, textbooks shall be accompanied by digital content prepared for the characteristics of the subject and the age/grade of the students for the purpose of enhancing pedagogical effectiveness (Article 17/g) (see also Arabacıoğlu & Yeğin, 2023).

This law, as can be seen from the above selection criteria, is to a large extent a blanket framework legislation applied to all textbooks across the board irrespective of subject area. For the most part, this document represents more administrative and procedural guidelines without discussion of strict, subject-specific pedagogical concerns. It lays down minimum standards on quality of content, legality, scientific accuracy, and pedagogical design but does not address detailed, discipline-specific prescriptions, which may be needed in specialized areas like foreign language teaching.

A close reading of the law shows that it does not contain any provisions that explicitly refer to any level of language proficiency or even internationally acknowledged frameworks like the Common European Framework of Reference for Languages. While teaching a foreign language has very specific pedagogical and linguistic requirements, there is no mention of matching the content in textbooks with language level descriptors, communicative competencies, or language acquisition theories underpinning modern language education.

This absence suggests that there is a gap between the general criteria put forward by the regulation and the specific needs of foreign language teaching and learning. For instance, foreign language textbooks should, in principle, be evaluated not only for general educational quality but also for their relevance to learners' cognitive and linguistic development stages, the progression of skills (listening, speaking, reading, writing), and the integration of authentic language use.

Furthermore, criteria like intercultural competence, task-based language teaching, and formative feedback strategies-which are widely accepted as fundamental in foreign language pedagogy-are not explicitly addressed in the current regulatory framework. For this reason, while the regulation sets a basic legal and pedagogical framework for developing and evaluating textbooks, it may not be congruent with the particular needs of FLE. A more explicit and field-sensitive set of criteria is required in order to ensure effectiveness, relevance, and international compatibility of foreign language textbooks that will be utilized in all educational institutions throughout Türkiye.

The Century of Türkiye Education Model

The Turkey Century Education Model, published by the Ministry of National Education in 2025, represents a paradigm shift in foreign language teaching,

grounding itself in contemporary pedagogical approaches within a comprehensive framework (MoNE, 2025). The model structures foreign language proficiency under two main categories: Foreign Language Core Skills (FLCS), covering receptive and productive skills, and Foreign Language Supportive Skills (FLSS), which ensure structural accuracy and natural language use. By integrating these components, the model aims to foster both communicative competence and conscious awareness of language structure in a multidimensional manner.

Crucially, the model places a strong emphasis on "authentic, real-life-oriented materials" to allow students to grasp real-world language use effectively. In this context, the alignment of textbooks with international standards becomes even more critical. Since this model is a novel and holistic approach, its success depends heavily on its consistent integration across all layers of education, particularly in the quality of Course Books and Educational Materials. However, without accurate CEFR alignment and appropriate text difficulty as investigated in this study, the ambitious goals of the Turkey Century Education Model regarding communicative competence cannot be fully realized. Ensuring that textbooks provide the correct level of "comprehensible input" is essential for the effective implementation of this new educational vision.

The Pedagogical Function of Texts in Textbooks

The Turkey Century Education Model, which was published by the Ministry of National Education in 2025, represents a paradigm shift in foreign language teaching, based on modern approaches to pedagogy within a comprehensive framework. The model structures foreign language proficiency under two main categories: Foreign Language Core Skills (FLCS), covering receptive and productive skills, and Foreign Language Supportive Skills (FLSS), which ensure structural accuracy and natural language use. The integration of these components within the model shall work toward developing both communicative competence and conscious awareness of language structure in a multidimensional manner.

Most importantly, the model lays great emphasis on "authentic, real-life-oriented materials" that will enable students to effectively learn the realistic use of languages. In relation to this, the significance of the alignment of textbooks with international standards is amplified. Because this model is new and a holistic approach, its success largely relies on its consistent integration into all layers of education, especially in the quality of Course Books and Educational Materials. However, the ambitious goals about communicative competence, put forward by the Turkey Century Education Model, cannot be fully achieved without accurate CEFR alignment and appropriate text difficulty, as investigated in this study.

Assuring that textbooks provide the right level of "comprehensible input" is one of the main factors necessary for the effective implementation of the new educational vision.

Beyond the legal framework, the pedagogical quality of these texts themselves plays an important role in language acquisition. These textbooks are vitally important in the teaching of foreign languages, both to develop learners' grammatical and lexical knowledge and to enhance their cultural knowledge, as well as to provide support for their communicative competence. In particular, reading texts show learners how to use the target language in different contexts. Therefore, the pedagogical function of these texts in textbooks is not merely to provide information in the target language; they also contribute to students' exposure to new cultural elements and raise their awareness of other societal values. In this respect, the pedagogical function of textbook texts enables both linguistic and intercultural learning through literary translations and classic works (Arabacıoğlu, 2020; Arabacıoğlu & Alkan, 2023; Arabacıoğlu & Balkaya, 2023; Yeğin & Arabacıoğlu, 2023).

For texts to perform their function in language teaching, the authenticity of the materials used is crucial. Authentic texts reflect the natural flow of the target language, the patterns used in everyday life, and communicative strategies; they provide learners with a real-life experience. On the other hand, when foreign language learners advance only through texts that have been artificially arranged or over-simplified for pedagogical reasons, they will probably fail to understand the forms of expression they meet in real use. However, authentic texts make language acquisition more permanent and functional by familiarizing learners with both the natural rhythms of the language and its cultural context.

Equally important to authenticity is the inclusion of natural language features in texts. Natural language demonstrates how language operates not only at the level of rules but also in communicative contexts. This involves lexis, idiomatic expressions, discourse markers, forms of address, and varieties of language use along different socio-cultural dimensions. It is through examples of natural language that students pick up not only grammatical patterns but also "how" and "when" a language is used. It is for this reason that natural language must be included, especially within today's language teaching environment, which has adopted a communicative approach.

However, the fact that texts used in language teaching are artificial examples constructed solely for the teaching of linguistic structures creates serious limitations. Such texts are often produced to illustrate a specific grammatical topic, devoid of context, and have limited communicative function. With such texts, learners perceive the language more as a set of rules and may have difficulty

adapting to real-life usage. In addition, this kind of fictional texts can reduce learners' motivation because learners fail to experience the vitality and dynamism of the language in real life.

More than the dichotomy of artificial versus authentic, the match between the linguistic complexity of the text and the learner's proficiency level is the determinant factor in pedagogic success. Even if a text is culturally rich and very authentic, it cannot attain its instructional objective if it poses a cognitive barrier for the learner. Recent studies put forward that readability is an important indicator for the suitability of DaF textbooks (Başaran, 2023; Başaran, 2026), where a serious mismatch between the text difficulty and the student's readiness may have terrible consequences (Başaran, 2023). A serious mismatch between the text difficulty and the students' preparedness may have grave consequences. Specifically, in such cases when learners are exposed to texts which are well beyond their current zone of proximal development, they often experience "linguistic anxiety" and cognitive overload (Balkaya et al., 2020; Yorulmaz & Arabacıoğlu, 2023). This frustration can result in lost self-efficacy, making students retreat from the learning process.

Conversely, texts that are considerably beneath the learners' proficiency level provide none of the cognitive challenge that is necessary for language acquisition. If "comprehensible input" at the level of i+1 (slightly above their current level) is not provided, learners may well become bored and stagnant. Thus, the perfect textbook text must walk a tightrope: It must be authentic enough to carry meaning, yet carefully selected or scaffolded to be accessible and engaging to the target proficiency group.

Here, it becomes clear that the texts within textbooks should not be created solely for the teaching of the language. Instead, learners need to be given materials that increase both the linguistic and cultural value, open up doors into different communicative contexts, stay within the proficiency boundaries of the learner, and mirror the actual usage of the target language in a natural way. This way, the learners learn the rules but acquire proficiency in using the language functionally.

In conclusion, the pedagogical role of textbooks is manifold, since, aside from grammatical and lexical support, authentic content in textbooks also contributes to the development of students' communicative competence. Such use tends to raise intercultural awareness and motivational levels. Authentic, natural language examples in texts enable students to contextualize the learning process and comprehend the target language in a pragmatic and cultural way, aside from its theoretical enhancement.

METHODOLOGY

Research Design

This study was conducted using a research design that involves quantitative data analysis. The aim of the study is to examine the correspondence between the CEFR levels assigned by publishers and the actual text difficulty of these levels as perceived by independent evaluators. In this study, the CEFR levels assigned by the publishers were compared with the levels identified by experts and ChatGPT-4o. This method aims to determine how consistent the CEFR levels are between different evaluators.

Unlike previous studies that may focus solely on expert opinion, this research integrates an artificial intelligence model into the evaluation process to provide a comparative perspective on text difficulty. In the first part of the study, the alignment between the CEFR levels assigned by publishers and those identified by experts and ChatGPT was assessed quantitatively. Furthermore, the relationship between the linguistic features of the texts and their corresponding CEFR levels was analyzed.

Sample

The study examined four German textbooks currently used in high schools and approved by the Turkish Ministry of National Education:

- *Deutschgenie A1.1*
- *Deutsch Macht Spaß A2.1*
- *Mein Schlüssel zu Deutsch B1.1*
- *Mein Schlüssel zu Deutsch B2.1*

From each textbook, three reading passages were randomly selected from the beginning, middle, and end sections, resulting in a total of twelve texts for analysis.

Data Collection and Analysis

The CEFR levels of the texts were examined based on vocabulary range, grammatical difficulty, coherence, and communicative competence criteria. This analysis was conducted separately by subject matter experts and an artificial intelligence model (ChatGPT-4o).

- **Expert Evaluation:** Each text was independently evaluated by three subject experts. Experts were asked to assign a CEFR level based on the linguistic and communicative features of the text.

- **ChatGPT Analysis:** The texts were input into the model, and level predictions were made by ChatGPT. The prompt used for the AI analysis specifically requested an evaluation based on standard CEFR descriptors.

Finally, the data collected from both sources were compared against the publisher's official labels to identify patterns of agreement, disagreement, and potential bias.

FINDINGS

Alignment between Publisher Labels and Expert Evaluations

The analysis revealed a minimal overall agreement between publisher-indicated CEFR levels and expert ratings. As shown in Table 1, the exact match rates for the three experts ranged from 25% to 41.6%, indicating a low level of consensus with the official labels.

Table 1. Agreement Rates Between Experts and Publisher Labels

Evaluator	Matches (n=12)	Match Rate (%)	Trend of Mismatches
Expert 1	4	33.3%	Higher than Publisher
Expert 2	3	25.0%	Higher than Publisher
Expert 3	5	41.6%	Higher than Publisher

This pattern implies a systematic difference between how publishers indicate levels and how experts assess linguistic difficulty.

Discrepancies were particularly evident at the B-band levels and above. For instance, a text labeled B1 by the publisher was rated as C1 by all experts (ID 10), and a B1.1 text was assessed as B2 by the consensus (ID 8). Even for A2.1 texts, experts agreed they belonged to the beginning of the B1 level, suggesting an "under-badging" effect where publishers label texts at a lower proficiency level than their actual linguistic complexity warrants. Qualitative inspection showed that factors such as tense variation (e.g., Perfekt tense) and idiomatic usage heavily influenced the experts' decisions to rate texts higher.

Consistency of ChatGPT Assessments with Publisher Levels

When comparing ChatGPT’s assessments with publisher labels, the results showed partial alignment and a systematic upward bias. The quantitative comparison is summarized in Table 2.

Table 2. Consistency of ChatGPT Assessments with Publisher Levels

Metric	Value
Number of texts	12
Exact matches	6 (50.0%)
Mismatches	6 (50.0%)
Direction of mismatches	100% upward (ChatGPT > Publisher)
Mean difference (Δ GPT−Publisher)	+0.58 CEFR levels
95% CI of mean difference	[0.16, 1.01]

As the table demonstrates ChatGPT aligned with the publisher's level in exactly half of the cases (6 out of 12). However, in every instance where there was a mismatch, ChatGPT assigned a higher proficiency level than the publisher.

The mean difference was +0.58 CEFR levels, indicating a consistent bias rather than random error. This upward bias was prominent in lower-band texts; for example, texts labeled A1 or A2.1 by the publisher were often classified as A2.0 or B1 by the model. This suggests that the AI model interprets clause complexity and lexical density as warranting a higher placement, often prioritizing surface linguistic properties over curricular placement.

General Tendency in Evaluation: Upward Bias (RQ3)

In response to the third research question regarding the direction of evaluation tendencies, the data indicates a consistent "upward bias" across both human and AI evaluators. Neither the experts nor ChatGPT rated any text at a level lower than the publisher's designation. Instead, discrepancies were exclusively in the direction of higher proficiency levels.

- **Expert Tendency:** Experts frequently rated texts one or two levels above the publisher's label (e.g., B1 texts rated as C1).
- **ChatGPT Tendency:** The AI model systematically assigned higher levels, with a mean difference of +0.58 levels.

This finding confirms that the misalignment in current textbooks is not random but follows a specific pattern where the actual linguistic difficulty consistently exceeds the labeled proficiency.

DISCUSSION AND CONCLUSION

This study aimed to investigate the reliability of CEFR labeling in German textbooks through three guiding research questions. In addressing the first research question (RQ1) regarding the alignment between publisher-indicated levels and expert evaluations, the data revealed a minimal agreement rate (approximately 33%). Experts frequently rated texts at higher proficiency levels than the publishers. These findings provide strong empirical support for

Hypothesis 1 (H1), confirming that there is a distinct mismatch between the CEFR levels indicated by publishers and the evaluations made by external experts.

Regarding the second and third research questions (RQ2 & RQ3), which examined ChatGPT's consistency and evaluation tendencies, the analysis showed that while the AI matched the publisher's label in half of the cases, every instance of mismatch involved the AI assigning a higher level. This systematic deviation confirms Hypothesis 2 (H2), which posited that ChatGPT tends to assess coursebook texts at higher levels than those suggested by publishers . Collectively, the answers to these research questions point to a consistent "upward bias" in the actual difficulty of the materials provided to students.

The confirmed mismatch between publisher labels and actual text difficulty aligns with the "rainbow metaphor" discussed in the theoretical framework (CoE, 2020). The "under-badging" phenomenon observed in this study serves as empirical evidence that language proficiency is intrinsically fluid rather than rigid. While publishers attempt to categorize texts into distinct "colors," the linguistic reality often defies these sharp boundaries and spills over into higher proficiency bands. Such discrepancies are not merely labeling errors but fundamental pedagogical issues, as readability is a crucial indicator for the suitability of DaF textbooks (Başaran, 2023). Furthermore, complexity often arises because language proficiency is intertwined with "migrating" cultural elements and the nuances of migrant literature that are difficult to categorize strictly (Arabacıoğlu, 2018; Arabacıoğlu, 2023; Arabacıoğlu & Balkaya, 2020; Arabacıoğlu & Balkaya, 2023). Ultimately, this inconsistency likely stems from the lack of explicit CEFR criteria in the Ministry of National Education's textbook regulations, as well as varying interpretations of CEFR descriptors by material developers.

The confirmation of H2 also carries significant pedagogical implications. The tendency of ChatGPT to "over-level" texts suggests that while large language models can accelerate material analysis, their pedagogical reliability remains limited without human oversight. The AI often prioritized lexical density over pedagogical function. Consequently, teachers should treat AI tools as complementary aids rather than replacements, utilizing them to cross-check text difficulty rather than accepting their output as the sole truth. As we stand at the crossroads of AI and pedagogy, the integration of these tools must be guided by sound professional practice to avoid the pitfalls of "admiration and anxiety" regarding new technologies (Başaran, 2024; Başaran, 2025a; Başaran, 2025b).

Limitations of the Study

While this study offers significant insights into the CEFR alignment of German textbooks, it has certain limitations. First and foremost, the analysis was conducted on a relatively small sample size, consisting of 12 reading texts selected from four specific textbooks. Although this sample was sufficient to identify qualitative patterns and systematic biases within the scope of this exploratory research, The results require careful consideration regarding their generalizability to all German textbooks used in Türkiye. Secondly, the analysis relied exclusively on ChatGPT-4o. Since different Large Language Models (LLMs) and even different versions of the same model may yield varying results, relying on a single iteration constitutes a limitation. Future research would benefit from replicating this analysis with alternative LLMs to observe potential variances and ensure the consistency of the findings. Future quantitative studies involving a larger corpus of texts and a wider variety of publishers would provide a more comprehensive validation of these findings.

Recommendations

To ensure the quality of foreign language education, there is a need for a more detailed and field-sensitive set of regulatory criteria that explicitly addresses CEFR alignment. Based on the confirmation of the study's hypotheses, the following recommendations are proposed:

- For Publishers: Meticulous criteria must replace broad estimations. Publishers should adopt a combination of quantitative analysis and qualitative expert review to prevent the "under-badging" phenomenon.

- For the Ministry of National Education (MoNE): The textbook approval process should be strengthened by incorporating independent expert reviews that specifically verify alignment with international standards (CEFR). This step is crucial to address the identified regulatory gaps, where general criteria currently fail to capture the nuances of language proficiency levels. Moreover, rectifying this misalignment is imperative to support the implementation of the newly introduced Turkey Century Education Model, which relies on high-quality, level-appropriate materials to foster genuine communicative competence.

- For Teachers: In-service training programs should be designed to empower teachers to critically cross-examine textbook labels against actual text difficulty. Furthermore, teachers should be equipped with the skills to utilize AI assessments as a supportive, rather than definitive, tool, ensuring that human pedagogical oversight remains central to the learning process.Bridging the gap between publisher labels and actual text difficulty is essential for providing learners with a transparent and pedagogically valid trajectory toward proficiency.

Future research should expand this analysis to a broader range of textbooks to verify whether this systemic misalignment persists across different educational contexts.

REFERENCES

Aksöz, A. S. (2011). Kriterien zur Auswahl von authentischen Texten im DaF-Unterricht. Çukurova Üniversitesi Eğitim Fakültesi Dergisi, 3(40), 164-171.

Arabacıoğlu, B. (2018). Göç eden kültür. Anadolu Üniversitesi Eğitim Fakültesi Dergisi (AUJEF), 2(2), 83-91.

Arabacıoğlu, B. (2020). Edebi çeviri ve çeviri eleştirisi: Karşılaştırmalı bir çalışma. Anadolu Journal of Educational Sciences International, 10(2), 1004-1016. https://doi.org/10.18039/ajesi.724391

Arabacıoğlu, B. (2023). Ein Überblick über die Migrantenliteratur von Gestern bis zur Gegenwart. In: Sprachliche Welten: Forschungen im Bereich Deutsche Sprache und Literatur.

Arabacıoğlu, B., & Alkan, B. (2023). Stefan Zweigs charakteristische Legenden im Überblick. Diyalog Interkulturelle Zeitschrift Für Germanistik, 11(1), 51-68. https://doi.org/10.37583/diyalog.1312767

Arabacıoğlu, B., & Balkaya, Ş. (2020). Die Frauenbilder im Roman ‚Die Brücke vom Goldenen Horn' von der Migrantenliteraturautorin Emine Sevgi Özdamar. Diyalog Interkulturelle Zeitschrift Für Germanistik, 8(1), 63-82. https://doi.org/10.37583/diyalog.759418

Arabacıoğlu, B., & Balkaya, Ş. (2023). Comparative analysis of cultural elements in textbooks "Schritte" and "Yeni Hitit". African Educational Research Journal, 11(3), 386-402. https://doi.org/10.30918/AERJ.113.23.075

Arabacıoğlu, B., ve Balkaya, Ş. (2023). Literatur und interkulturelle Sensibilisierung: Ein psychotherapeutischer Roman im Hinblick auf Vorurteile, Stereotype und Fremdbilder in einer multikulturellen Gesellschaft. International Journal of Language Academy, 11 (3), 297-315. http://dx.doi.org/10.29228/ijla.71805

Arabacıoğlu, B., & Yeğin, D. (2023). Online übungen zum einstieg oder zur vertiefung: Eine analyse des lehrwerks "Netzwerk neu a1". Uluslararası Eğitim Bilimleri Dergisi, 10 (36), 237-263. 10.29228/INESJOURNAL.71680

Balkaya, S., Arabacioglu, B., & Cakir, M. (2020). Angstzustände im Fremdsprachenunterricht von Studierenden der Abteilung Deutsch als Fremdsprache auf Lehramt (Am Beispiel Anadolu Universität). Alman Dili ve Edebiyatı Dergisi - Studien zur deutschen Sprache und Literatur, 44, 111-134. https://doi.org/10.26650/sdsl2019-0019

Başaran, B. (2023). Die Lesbarkeit; noch ein weiterer Indikator für DaF-Lehrwerke? Diyalog Interkulturelle Zeitschrift Für Germanistik, 11(2), 590-609. https://doi.org/10.37583/diyalog.1407754

Başaran, B. (2024). Hayranlık Ve Endişe Arasında; Yabancı Dil Öğretiminde Yapay Zeka. In Aydın Kızılaslan (Ed.), Eğitim Bilimleri Alanında Akademik Araştırma ve Derlemeler (pp. 487-504). Platanus Yayınevi.

Başaran, B. (2024). Rethinking AI in Education: A Comparative Study of Custom and External Systems. In 2024 6th International Workshop on Artificial Intelligence and Education (WAIE) (pp. 16–28). IEEE. https://doi.org/10.1109/waie63876.2024.00011

Başaran, B. (2025). The cultural dance of words: The transforming value of language teaching in the age of AI. In D. B. Çevikkılıç (Ed.), International studies in educational sciences (Chapter 1). Serüven Yayınevi.

Başaran, B. (2025). Language learning at the crossroads of AI, pedagogy, and professional practice. In S. Demir Başaran (Ed.), Theoretical and applied approaches in educational sciences (pp. 1-23). Duvar Yayınları.

Başaran, B. (2026). Enhancing readability assessment for language learners: a comparative study of AI and traditional metrics in German textbooks. European Journal of Educational Research, 15(1), 101-119. https://doi.org/10.12973/eu-jer.15.1.101

Clark, P., Llewellyn, K., García, R., & Clifford, S. (2024). Context matters in history textbook studies: A call to address the socio-political landscape of textbook production. Historical Encounters: A Journal of Historical Consciousness, Historical Cultures, and History Education. Advance online publication. https://doi.org/10.52289/hej11.109

Council of Europe (2020), Common European Framework of Reference for Languages: Learning, teaching, assessment – Companion volume, Council of Europe Publishing, Strasbourg, www.coe.int/lang-cefr.

Figueras, N. (2012). The impact of the CEFR. ELT Journal, 66(4), 477–485. https://doi.org/10.1093/elt/ccs037

Jin, Y., Wu, Z., Alderson, C., & Song, W. (2017). Developing the China standards of English: Challenges at macropolitical and micropolitical levels. Language Testing in Asia, 7(1), 1–19. https://doi.org/10.1186/s40468-017-0032-5

Ministry of National Education [MoNE]. (2021, October 14). Regulation on textbooks and educational materials of the Ministry of National Education (No. 39000). Official Gazette of the Republic of Turkey. https://mevzuat.gov.tr/mevzuat?MevzuatNo=39000&MevzuatTur=7&MevzuatTertip=5

Ministry of National Education (MoNE). (2025). TÜRKİYE YÜZYILI MAARİF MODELİ ÖĞRETİM PROGRAMLARI ORTAK METNİ. Ministry of National Education. https://mufredat.meb.gov.tr/ProgramDetay.aspx?PID=1945

North, B. (2007). The CEFR: Development, theoretical and practical issues. Babylonia, 1, 22–29.

Sahib, F., & Stapa, M. (2022). Global trends of the Common European Framework of Reference: A bibliometric analysis. Review of Education. https://doi.org/10.1002/rev3.3331.

Yeğin, D. & Arabacıoğlu, B. (2023). Ein Themenvergleich in auserwählten Werken von Stefan Zweig. In: Schriften zur Sprache und Literatur VII.

Yorulmaz, B., & Arabacıoğlu, B. (2023). Foreign Language Learning Anxiety in Turkey: The Case of Aydın Province. Shanlax International Journal of Education, 11(S1), 47–54. https://doi.org/10.34293/education.v11iS1-Oct.6612

CHAPTER 13

AI-Powered Metadiscourse Activities for Improving Writing Skills of Preparatory Class Students

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INTRODUCTION

Metadiscourse demonstrates that writing is a form of social interaction and examines how writers and readers interact within a text. In the writing and speaking processes, various decisions are made regarding the desired effects on readers; language is used strategically accordingly. While different taxonomies and classifications of metadiscourse exist in the literature, Hyland's proposed taxonomy appears to be one of the most widely used frameworks in the field. Variables such as genre, discourse community, and culture significantly influence the use of metadiscourse. However, it is noteworthy that metadiscourse is not given sufficient importance in educational processes. Teachers mostly focus on grammatical elements, giving limited attention to the rhetoric of discourse and its interaction with the reader. Nevertheless, recent research emphasizes that teaching metadiscourse is becoming increasingly important in developing language skills, especially academic writing.

Addressing the problems students encounter in the English writing process both supports the development of their writing skills and contributes to their effective use of the target language. Developing writing courses in light of current research is considered a functional way to overcome these problems. In Turkey, writing skills are attempted to be developed through various courses within the scope of foreign language education; however, studies on the systematic evaluation of AI-supported innovative approaches in this field at the higher education level are limited. Accordingly, this study aims to examine the potential of AI-supported metadiscourse activities in developing the writing skills of preparatory class students and to present an in-depth evaluation of the subject.

ACADEMIC WRITING IN EFL PREPARATORY PROGRAMS

When examining students' written works in academic studies, it is necessary to first clarify the definition of writing skills. Writing is a fundamental tool that serves to ensure the permanence of information and to establish intergenerational communication. Individuals use writing to convey their feelings and thoughts to others. However, teaching writing skills is a highly complex process and presents various challenges for both students and teachers (Özbay and Daşöz, 2016).

Writing in a second or foreign language is considered one of the most challenging skills for students, especially in an academic context. This difficulty stems from the requirements of appropriate word choice, correct sentence structure, and consistent paragraph organization. It is not enough for students to simply learn to write; they are also expected to understand how texts are shaped according to subject matter, target audience, and cultural norms. Establishing a balance between speed and quality in written content production is also a significant area of difficulty. Therefore, students need to correctly understand the social functions and structural characteristics of different text types (Adas and Bakir, 2013). Various studies have shown that writing skills are challenging for

individuals learning English as a second language or foreign language. These difficulties stem from both internal and external factors. Internal factors include self-motivation, self-confidence, lack of information, and feelings of pressure; while external factors encompass teaching methods, classroom atmosphere, and materials used (Budjalemba and Listyani, 2020). Writing skills are considered crucial competency at all academic levels and are particularly complex for foreign language learners. Since the development of writing skills is a long-term process involving many variables, research in this area continues unabated. Therefore, improving writing skills requires serious and sustained effort (Uyar, 2016). For students to produce high-quality writing, they need to understand the fundamental elements of writing. Writing consists of various components such as word choice, correct grammar usage, appropriate sentence structure, mechanical elements, and the coherent organization of ideas. Therefore, writing is a challenging skill for students, and teacher guidance in this process is of great importance. Students are expected to be able to write and understand narrative, descriptive, and explanatory texts (Yulianti et al., 2019).

Academic writing skills are becoming increasingly critical, especially for students who wish to study in English-language settings. Standards established in the United States define academic writing as an integral component of literacy. Product-oriented and process-oriented approaches are considered the two main methods in writing instruction. The product-oriented approach aims to improve students' writing skills by imitating sample texts (Gabrielatos, 2002). This approach has been the most common method for teaching writing, particularly to students learning English as a foreign language, for many years. In the 1960s and 1970s, writing lessons focused heavily on sentence construction and grammar exercises because the primary goal was for students to use the language flawlessly at the sentence level (Fang, 2009). In contrast, the process-oriented approach emerged as an alternative to this traditional method and is gaining more acceptance today. O'Brien (2004) defines process-oriented writing as an activity that encourages the exploration of ideas rather than grammatical accuracy. The process-oriented approach focuses on the planning, drafting, and revision stages, enabling students to actively participate in the writing process. In this context, the dual structure between formal and functional approaches becomes evident in the historical development of writing instruction. From a formal perspective, writing is defined as the recording of spoken expressions using signs; from a functional perspective, writing is considered a process of producing meaning for a communicative purpose (Yi, 2009).

Challenges in Writing and Student Needs

Writing skills develop later than other language skills, but this does not diminish their importance. Writing allows individuals to permanently record their thoughts, feelings, and beliefs and transmit them to future generations (Batur et

al., 2017). It is noted that writing skills are not acquired through natural means like listening and speaking but are mostly learned through systematic activities carried out in a school environment. However, writing develops not through a mechanical process, but through the integration of critical and creative thinking processes. Therefore, writing requires more cognitive effort and knowledge compared to other language skills (Huy, 2015).

It has long been stated that developing writing skills in education is difficult and that there are various problems related to writing lessons. The inadequacy of systematic approaches to writing instruction, the prioritization of communication skills in foreign language learning, and the lack of sufficient practice opportunities for students are among the main factors limiting writing development (Çakır, 2010; Hirano, 2010). Research shows that students' writing skills are generally lower than their performance in other language areas. Because writing skills directly reflect student performance and academic development, students may experience anxiety when they feel they are being evaluated on writing activities, which can lead to lower grades. Furthermore, many English language learners lack sufficient confidence in their writing skills, negatively impacting their academic success (Cole and Feng, 2015; Mohammad and Hazarika, 2016). In this context, Ntereke and Ramoroka (2015) emphasize that first-year university students should learn the fundamental components of academic writing. These components include argumentation, explanation, summarization, rephrasing, paragraph construction, and integrating sources. Students also need to learn the use of vague statements and understand the stages of the writing process. The authors state that academic writing skills should be developed over time and that systematically addressing these skills up to the third level of university education is crucial.

Gugin (2014) also states that teaching paragraph writing is critical for ESL/EFL students at all levels to learn academic writing. The author suggests focusing on narrative, descriptive, illustrative, comparative-contrasting, cause-and-effect, and persuasive writing styles in an eight-week instructional process. This process emphasizes thematic sentences, supporting sentences, concluding sentences, logical relationships, and transitional phrases. In the second half of the instructional process, it is recommended that students begin writing five-paragraph essays; this approach is noted to guide teachers in organizing students' ideas and content more meaningfully. Furthermore, four activities that can be effective in teaching academic writing are suggested: developing reading and note-taking skills, increasing academic vocabulary, encouraging teacher-student discussions, and implementing peer review for final drafts. Therefore, it is observed that the challenges students face in the writing process have both cognitive and affective dimensions; consequently, structured, gradual, and supportive approaches should be adopted in teaching writing.

Writing Components (Cohesion, Coherence)

Cohesion and consistency are among the fundamental elements that constitute the meaning of a text. Poudel (2018) states that for a high-quality academic text to be comprehensible, these two characteristics must function together. Cohesion provides a structure that allows the reader to follow the conceptual relationship between sentences and phrases. Beaugrande and Dressler (1981) define cohesion as a concept expressing the relationships between the components in a text and draw attention to the importance of linguistic connections in ensuring semantic integrity. Accordingly, cohesion establishes the overall meaning structure of the text and helps the reader to comprehend the text as a whole.

Halliday and Hasan (1976) use the concept of cohesion to explain the relationship between meaning and grammar in a text, defining cohesion as "linguistic resources that connect the parts of the text." Accordingly, appropriate word choices and structural connections in the text contribute to the reader's coherent perception of the text. Developing cohesion is of great importance for students to be able to produce meaningful and cohesive texts. Cohesion is considered in two dimensions: grammatical cohesion and lexical cohesion. Cohesion and cohesion are multifaceted concepts addressed from different perspectives by linguists. Hyland (2014) considers cohesion as a property related to how texts construct meaning, while Hinkel (2003) explains cohesion as a form of organization where all elements in a text come together in a logical order. Beaugrande and Dressler (1981), on the other hand, state that cohesion is not only a property of the text but also a result of the mental establishment of relationships between concepts and information in the communication process. Yule (2008) states that cohesion arises not from a word or structure-level property, but from the semantically harmonious connection of all elements in the text. Thus, cohesion facilitates the reader's interpretation of the text and supports the overall flow of meaning. In conclusion, researchers such as Halliday and Hasan (1976) and Oshima and Hogue (2007) emphasize that the appropriate use of nouns, pronouns, transitional phrases, and other integrative elements makes a text coherent. Therefore, teachers involved in writing instruction need to effectively guide the use of linguistic tools that ensure coherence and consistency, both at the paragraph level and throughout the text. When students are taught the systematic use of these connecting elements, they are able to produce more coherent, clear, and understandable texts.

AI-Powered Writing

Artificial intelligence technologies are playing an increasingly important role in language learning and assessment processes. Recent research shows a growing need for AI-based language assessment tools, and these technologies have a positive impact, particularly on writing skills (Xu and Ouyang, 2022). However, it is noted that most existing tools consist of limited, rule-based systems, making

generalizability of results difficult (Chen et al., 2024). Furthermore, the fact that pre-trained models operate without considering student-specific variables prevents these systems from always performing effectively. Methods like Automated Writing Assessment (AWE) can quickly analyze writings but may not adequately assess the deep structure and content quality of texts (Chan et al., 2024).

One of the most important contributions of AI to writing assessment is its ability to provide students with instant feedback. This feature positively influences students' writing performance, self-regulation skills, and attitudes towards writing (Osawa, 2024). For example, AI-powered writing tools like Notion help students manage their writing processes more effectively; AI-powered peer feedback significantly improves feedback literacy and revision practices. Furthermore, AI plays a collaborative role in the writing process, providing support to students at various stages. However, it is also emphasized that current AI systems have limitations in making reliable assessments at the discourse level. Nevertheless, the integration of AI tools into writing instruction increases students' metacognitive awareness, enabling them to participate more consciously in the writing process (Su et al., 2023; Wang, 2024).

The literature shows an overfocus on English and insufficient representation of less taught languages. This imbalance is attributed to the dominance of English in the technology field and the lack of multilingual data. Won et al. (2025) emphasize that for an equitable assessment system, Big Language Models should be trained with data from different student groups. This view suggests that AI-powered writing tools need to become more inclusive in the future. On the other hand, while it is acknowledged that automated feedback and AI-powered writing environments offer innovative assessment methods, it is noted that research in this area is still insufficient. Godwin-Jones (2024) states that there is a need to design more holistic and contextually sensitive AI-based assessment tools. It is known that AI tools make significant contributions to language learning and assessment processes, but their classroom applications are still limited. In this context, it is suggested that integrating variables such as student proficiency level, teaching context, and targeted writing types into the assessment process can yield effective results (Lin et al., 2022). AWE systems evaluate written works based on specific linguistic features, but it is stated that critical elements such as textual coherence, author's point of view, and discourse structure are not adequately addressed (Hyland, 2005; Chan et al., 2024). This indicates that AI-based writing assessment tools still have areas that need improvement. AI is also significantly transforming feedback processes. Tools that provide immediate feedback have been shown to have positive effects on students' writing abilities, while AI-assisted peer feedback improves students' text interpretation and evaluation skills (Nazari et al., 2021). However, it is also noted that current AI systems overlook

some structural elements when evaluating language proficiency and may create problems of fairness in evaluation (Li, 2024).

Overall, the integration of AI tools into the writing process offers significant potential for improving students' writing skills, increasing discourse awareness, and providing guidance on the writing process. Tools like ChatGPT are used to provide students with information about essay types, offer text editing suggestions, and raise discourse awareness (Hartwell and Aull, 2023). However, the limited number of studies on less taught languages indicates that artificial intelligence technologies need to be developed to meet multilingual needs. Although possibilities such as automated assessment and instant feedback are offered, the long-term effects appear to be insufficiently researched. Therefore, there is a greater need for studies on developing effective models in the context of disadvantaged student groups and LCTL (Less Commonly Taught Languages) (Winke and Koné, 2025).

THE CONCEPT OF METADISCOURSE

Metadiscourse is a concept frequently used in language teaching and discourse analysis, referring to the interpretations a text's creator makes of discourse. This term is particularly used as a method for examining written texts requiring specialized expertise. Research in the literature shows that the concept of metadiscourse has been used in hundreds of articles and master's theses. However, it is noted that defining metadiscourse is difficult and that it is interpreted in various ways by different researchers. Furthermore, the fact that the concept finds widespread use without a clear analysis of its developmental framework or impact makes it difficult to evaluate the power of metadiscourse. The term metadiscourse was first defined by Zelig Harris in 1959 and gained importance in applied linguistics with studies conducted in the mid-1980s. This concept reveals that language is not only a tool for transmitting information but also contains references to itself. Metadiscourse encompasses linguistic elements that help readers organize and interpret information. The concept is also associated with approaches that focus on the functional aspects of language, such as Jakobson's "metalinguistic function" and Halliday's "metaphenomena." While related to meta-language and meta-pragmatics, metadiscourse differs from these concepts. Meta-language deals with the knowledge individuals possess about language and is used in fields such as language teaching. In this respect, meta-language contributes to understanding and explaining what language is. Meta-pragmatics, on the other hand, deals with judgments that evaluate the appropriateness of speakers' communicative behaviors and allows for the monitoring of language users' interaction processes (Jaworski et al., 2004; Caffi, 2006). Therefore, meta-pragmatics supports awareness of the contextually appropriate use of linguistic tools. Meta-discourse encompasses discourse monitoring and interaction functions; however, it offers a different focus than

meta-pragmatics. Meta-discourse analyses mostly focus on written texts and rely on corpus-based methods rather than ethnographic studies. In this context, analyses tend to focus on specific forms of language variation and the persuasive structure of discourse; however, since they generally prioritize explicit linguistic tools, they can lead to the neglect of more indirect pragmatic signals. This situation results in limited analyses of pragmatic concepts (Hyland, 2005).

Metadiscourse refers to the strategic use of language in the communication process to better assist the reader or listener. In other words, metadiscourse serves a guiding function, showing how the message is expected to be understood by the reader. In this context, metadiscourse reveals that the author considers the reader's needs and contributes to making the discourse more understandable, coherent, and persuasive. Furthermore, effectively managed local rhetorical resources facilitate the achievement of both social and communicative goals. Metadiscourse is also considered important for the construction and maintenance of belonging within a community, and for these reasons, it is increasingly attracting the attention of researchers in social and rhetorical contexts (Hyland, 2017).

The Use of Metadiscourse in Academic Writing

Hyland (2005) defines metadiscourse as a general term for self-reflective statements that help discuss interactive meanings in a text, convey the author's or speaker's point of view, and enable interaction with readers as members of a particular community. Researchers acknowledge the communicative function of metadiscourse markers and emphasize that these markers contribute to authors conveying their messages clearly, meaningfully, and contextually. Metadiscourse reflects the author's intention and discourse strategies; it also helps the reader understand the author's attitude towards the text and its content. Furthermore, it is stated that metadiscourse markers are among the fundamental elements supporting consistency and integrity in written texts (Akbaş, 2012).

Writing instruction has long relied on teaching grammar rules and examining the written works of native English speakers. However, writing skills require a much broader range of components beyond grammar. The increasing importance of English as an international language also makes the writing process more complex. The communicative function of writing requires the use of appropriate linguistic resources, taking into account the reader's needs and the characteristics of the context. At this point, metadiscourse markers play a critical role in enabling the realization of communicative functions in written texts (Akbarpour and Sadeghoghli, 2015; Çubukçu, 2017).

Writing skills teach students to use the target language effectively and enable them to express their thoughts in writing. The main aim of writing education is to equip students with the skills to communicate their ideas in an organized, clear, and reader-oriented manner. Understanding communicative purposes,

recognizing the reader's needs, and correctly evaluating the context of the text are necessary when writing in the target language. This requires attention, planning, and intensive work from students during the writing process. Since writing has a multi-dimensional structure encompassing content, style, and organization, it is important that teaching materials are prepared in accordance with these requirements. Accordingly, it is recommended that instructors carefully select topics that meet the needs of students (Ahmed, 2010). The need for more effective methods in writing instruction has led to the emergence of the process-based writing approach. In this approach, students approach writing tasks in a cyclical process, and perfect results are not expected from the writing. The process approach emphasizes that students should produce drafts, receive feedback, and revise their texts. This approach encompasses the planning, drafting, revision, and editing stages. The planning stage consists of various activities to help students generate ideas. In the drafting stage, students are expected to put their thoughts into writing. The response stage involves improving the initial drafts with feedback from teachers or peers. In the revision and editing stages, students review their drafts, make necessary adjustments, and finalize their texts for evaluation. The post-writing stage allows students to reinforce the process by sharing their writings (Seow, 2002).

Teaching Metadiscourse in EFL Contexts

In the past, writing instruction was conducted through imitating the texts of experts or focusing on grammatical rules, largely neglecting metadiscourse features. This approach continues to some extent in contemporary writing courses. Although writing is a skill involving grammatical knowledge and structural accuracy, the appropriate use of metadiscourse is also crucial as an integral part of effective writing. Metadiscourse refers to the linguistic structures that writers use in their texts, taking into account readers' expectations. For example, expressions such as "primarily" or "more importantly" are used in presenting ideas, making it easier for the reader to follow the flow of the text. However, teaching metadiscourse is not adequately addressed in most programs, making it difficult for students to engage effectively with readers. This can lead learners to use overly formal or inappropriate informal expressions. Therefore, students need systematic training in metadiscourse and to practice writing that aligns with reader norms. It is stated that the use of argumentative models for writing practice supports this process (Adel, 2006).

Hyland (2005) states that teaching students metadiscourse features provides three main contributions. First, teaching metadiscourse helps students understand the cognitive requirements of texts and how these requirements progress within the text. Second, it provides students with the necessary linguistic resources to express their own perspectives. Third, it allows students to discuss their perspectives with readers and thus gain a place in academic discourse. In addition,

it is stated that teaching metadiscourse provides context to information, increases persuasiveness, improves comprehension and memory, supports consistency, clarifies the author's position, and reduces the cognitive burden for readers. There are several studies that show that teaching metadiscourse strategies improves learners' communication skills. Jalilfar and Alipour (2007), in their study conducted on Iranian intermediate-level English learners, revealed the positive effects of teaching metadiscourse markers. Parvaresh and Nemati (2008) demonstrate that metadiscourse markers contribute to the comprehension of English texts, particularly having more pronounced effects on students with lower proficiency levels. They also note that understanding the main points in texts varies depending on the use of metadiscourse, and that the presence of metadiscourse facilitates the reading process. Tavakoli et al. (2010) found that metadiscourse training improves reading comprehension skills and positively impacts students' overall academic achievement. In this context, the finding that the training increases students' awareness of textual markers is noteworthy. Studies examining the impact of metadiscourse strategies on writing skills similarly report positive results. Cheng and Steffensen (1996) report that students using metadiscourse strategies achieve higher writing scores. Shaw and Lieu (1998) observed significant improvements in students' writing skills after a two-month English Academic Purpose Program (EAP) training, noting a significant increase in their ability to use metadiscourse features. Sengupta (1999), in her study with Chinese students, demonstrates that metadiscourse strategies can be used effectively. Furthermore, Martinez (2004) highlights the direct link between metadiscourse and writing quality by revealing a positive correlation between metadiscourse markers and students' writing scores.

CONCLUSION: AI-ASSISTED METADISCOURSE INSTRUCTION, POTENTIAL AND APPLICATIONS

The integration of AI into language learning is considered a significant area of transformation, particularly due to its potential to increase accessibility and make language education more inclusive. However, a critical examination of this technological development reveals that while AI facilitates access to linguistic input, it does not always enable students to develop a critical awareness that allows them to cope with existing discursive power structures. AI-powered platforms can equip students with various language skills, but these skills do not empower learners to challenge dominant discourses. Therefore, while AI adds a certain type of power to language learning processes, it does not inherently provide the capacity to transform power dynamics (Moulick, 2025).

This review examines the potential and application possibilities of AI-assisted metadiscourse instruction in improving the academic writing skills of preparatory students. Findings in the literature show that EFL learners experience significant deficiencies in the use of metadiscourse. There are significant deficiencies in

fundamental components of academic writing, particularly in areas such as intratextual coherence, reader awareness, and academic identity construction. These deficiencies necessitate the systematic teaching of metadiscourse strategies. AI-assisted tools are increasingly being used in writing instruction, offering students new learning opportunities. These tools can support teaching processes in identifying, classifying, and addressing deficiencies in metadiscourse components. Real-time feedback provided by AI in second-language writing significantly contributes to students recognizing their errors, making revisions, and increasing their writing awareness (Li et al., 2020; Lee et al., 2018). The ability of AI models to automatically identify metadiscourse elements allows students to use discursive structures more consciously.

In conclusion, AI-assisted metadiscourse instruction increases students' discourse awareness, strengthens rhetorical control in academic writing, and enables them to manage textual integrity more effectively.

REFERENCES

Adas, D., & Bakir, A. (2013). Writing difficulties and new solutions: Blended learning as an approach to improve writing abilities. *International journal of humanities and social science*, *3*(9), 254-266.

Adel, A. (2006). *Metadiscourse in L1 and L2 English.* Philadelphia: John Benjamins.

Ahmed, A. H. (2010). Students' problems with cohesion and coherence in EFL essay writing in Egypt: Different perspectives. *Literacy Information and Computer Education Journal (LICEJ)*, *1*(4), 211-221.

Akbarpour, M., & Sadeghoghli, H. (2015). The study on Ken Hyland's interactional model in OUP publications. *International Journal of Language and Linguistics*, *3*(4), 266-270.

Akbaş, E. (2012). Interactional Metadiscourse in Turkish Postgraduates' Academic Texts: A Comparative Study of How They Introduce and Conclude. *Journal on English language teaching*, *2*(3), 35-44.

Batur, Z., Erkek, G., Kaplan, K., & Ercan, E. (2017). Türkçe eğitimi ve yabancı dil olarak ingilizce öğretiminde dört temel dil becerisinin edinimine ilişkin öğretmen görüşleri. *Avrasya Dil Eğitimi ve Araştırmaları Dergisi*, *1*(1), 42-75.

Beaugrande, R., & Dressler, W. (1981). *Introduction to text linguistics*. Longman.

Budjalemba, A. S., & Listyani, L. (2020). Factors contributing to students difficulties in academic writing class: Students perceptions. *UC Journal: ELT, Linguistics and Literature Journal*, *1*(2), 135-149.

Caffi, C. (2006). Metapragmatics. In *Encyclopedia of language and linguistics, 2nd Edition* (pp. 82-88). Elsevier.

Chan, S., Sathyamurthy, M., Inoue, C., Bax, M., Jones, J., & Oyekan, J. (2024). Integrating Metadiscourse Analysis with Transformer-Based Models for Enhancing Construct Representation and Discourse Competence Assessment in L2 Writing: A Systemic Multidisciplinary Approach. *Journal of Measurement and Evaluation in Education and Psychology*, *15*(Special Issue), 318-347.

Chen, A., Zhang, Y., Jia, J., Liang, M., Cha, Y., & Lim, C. P. (2025). A systematic review and meta-analysis of AI-enabled assessment in language learning: Design, implementation, and effectiveness. *Journal of Computer Assisted Learning*, *41*(1), e13064.

Cheng, X., & Steffensen, M. S. (1996). Metadiscourse: A technique for improving student writing. *Research in the Teaching of English*, *30*(2), 149-181.

Cole, J., & Feng, J. (2015). Effective Strategies for Improving Writing Skills of Elementary English Language Learners. *Online Submission*.

Çakır, İ. (2010). Yazma becerisinin kazanılması yabancı dil öğretiminde neden zordur?. *Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *1*(28), 1-12.

Çubukçu, F. (2017). Revisiting metadiscourse markers of the language learners in academic writing. *Revista Românească pentru Educaţie Multidimensională*, *9*(2), 36-47.

Fang, X. I. (2009). *Teaching the new English curriculum in a Chinese school: An ethnographic study*. Sheffield Hallam University (United Kingdom).

Gabrielatos, C. (2002). EFL Writing: Product and Process.

Godwin-Jones, R. (2024). Distributed agency in second language learning and teaching through generative AI. *arXiv preprint arXiv:2403.20216*.

Gugin, D. (2014). A Paragraph-First Approach to the Teaching of Academic Writing. In *English Teaching Forum* (Vol. 52, No. 3, p. 24). US Department of State. Bureau of Educational and Cultural Affairs, Office of English Language Programs, SA-5, 2200 C Street NW 4th Floor, Washington, DC 20037.

Halliday, M. A. K., and Hasan, R. (1976). *Cohesion in English*. Abingdon/New York, NY: Routledge.

Hartwell, K., & Aull, L. (2023). Editorial Introduction–AI, corpora, and future directions for writing assessment. *Assessing Writing*, *57*, 100769.

Hinkel, E. (2003). *Teaching academic ESL writing: Practical techniques in vocabulary and grammar*. Routledge.

Hirano, J. (2010). The importance of learning and teaching communicative writing: To end the primacy battle between writing and speaking.

Huy, N. T. (2015). Problems affecting learning writing skill of grade 11 at Thong Linh high school. *Asian Journal of Educational Research*, *3*(2).

Hyland, K. (2005). Metadiscourse: Exploring interaction in writing. *Continuum*.

Hyland, K. (2014). English for academic purposes. In *The Routledge companion to English studies* (pp. 392-404). Routledge.

Hyland, K. (2017). Metadiscourse: What is it and where is it going?. *Journal of pragmatics*, *113*, 16-29.

Jalilifar, A., & Alipour, M. (2007). How explicit instruction makes a difference: Metadiscourse markers and EFL learners' reading comprehension skill. *Journal of College Reading and Learning*, *38*(1), 35-52.

Jaworski, A., Coupland, N., & Galasinski, D. (Eds.). (2012). *Metalanguage: Social and ideological perspectives* (Vol. 11). Walter de Gruyter.

Johnson, M. D., & Tabari, M. A. (2023). *Cognıtıve task complexıty and second language performance.* Routlage.

Lee, K., Han, S., & Myaeng, S. H. (2018). A discourse-aware neural network-based text model for document-level text classification. *Journal of Information Science*, *44*(6), 715-735.

Li, M. (2024). Leveraging ChatGPT for second language writing feedback and assessment. *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT)*, *14*(1), 1-11.

Lin, T., Wang, Y., Liu, X., & Qiu, X. (2022). A survey of transformers. *AI open*, *3*, 111-132.

Martínez, A. C. L. (2004). Discourse markers in the expository writing of Spanish university students. *Ibérica: Revista de la Asociación Europea de Lenguas para Fines Específicos (AELFE)*, (8), 63-80.

Mohammad, T., & Hazarika, Z. (2016). Difficulties of learning EFL in KSA: Writing skills in context. *International Journal of English Linguistics*, *6*(3), 105-117.

Moulick, D. (2025). Teaching Posthuman: The Idea of Beyond Human Depicted in Manjula Padmanabhan's Harvest. *Authorspress*.

Nazari, N., Shabbir, M. S., & Setiawan, R. (2021). Application of Artificial Intelligence powered digital writing assistant in higher education: randomized controlled trial. *Heliyon*, *7*(5).

Ntereke, B. B., & Ramoroka, B. T. (2015). Effectiveness of academic writing activities and instruction in an academic literacy writing course at the University of Botswana.

O'Brien, T. (2004). Writing in a foreign language: Teaching and learning. *Language teaching*, *37*(1), 1-28.

Osawa, K. (2024). Integrating automated written corrective feedback into e-portfolios for second language writing: Notion and notion AI. *RELC Journal*, *55*(3), 881-887.

Oshima, A., & Hogue, A. (2007). *Introduction to academic writing* (3rd Ed.). White Plains, NY: Pearson Education.

Özbay, M., & Daşöz, T. (2016). Öz düzenlemeye dayalı öğrenme ve yazma eğitimi. *Journal of Turkish Research Institute*, (56), 1441-1458.

Parvaresh, V., & Nemati, M. (2008). Metadiscourse and reading comprehension: The effects of language and proficiency. *Electronic journal of foreign language teaching*, *5*(2), 220-239.

Poudel, A. P., & Dhankuta, N. (2018). Academic writing: Coherence and cohesion in paragraph. *Retrieved August*, *8*, 2019.

Sengupta, S. (1999). Rhetorical consciousness raising in the L2 reading classroom. *Journal of Second Language Writing*, *8*(3), 291-319.

Seow, A. (2002). The writing process and process writing. *Methodology in language teaching: An anthology of current practice*, *315*(320), 67.

Shaw, P., & Liu, E. T. (1998). What develops in the development of second-language writing?. *Applied linguistics*, *19*(2), 225-254.

Su, Y., Lin, Y., & Lai, C. (2023). Collaborating with ChatGPT in argumentative writing classrooms. *Assessing Writing*, *57*, 100752.

Tavakoli, M., Dabaghi, A., & Khorvash, Z. (2010). The Effect of Metadiscourse Awareness on L2 Reading Comprehension: A Case of Iranian EFL Learners. *English Language Teaching*, *3*(1), 92-102.

Uyar, Y. (2016). Yazma becerisini geliştirmeye yönelik araştırmalar: son çeyrek asrın değerlendirilmesi. *Electronic Turkish Studies*, *11*(3).

Wang, C. (2024). Exploring students' generative AI-assisted writing processes: Perceptions and experiences from native and nonnative English speakers. *Technology, Knowledge and Learning*, 1-22.

Winke, P., & Kone, K. (2025). Why we need more research on technology applications in less-commonly-taught-language (LCTL) programs. *Language Learning and Technology, 29*(2), 1-10.

Won, D. O., Shin, Y. K., Kim, H. J., & Yoo, I. W. (2025). Advancing Language Assessment with GPT: Is It Nonnative-Language Friendly?. *Language Assessment Quarterly*, *22*(1), 1-28.

Xu, W., & Ouyang, F. (2022). The application of AI technologies in STEM education: a systematic review from 2011 to 2021. *International Journal of STEM Education*, *9*(1), 59.

Yi, J. Y. (2009). Defining Writing Ability for Classroom Writing Assessment in High Schools. *Journal of Pan-Pacific Association of Applied Linguistics*, *13*(1), 53-69.

Yule, G. (2008). *The study of language*. (3rd Ed). New Delhi: CUP.

Yulianti, S., Nuraeni, S., & Parmawati, A. (2019). Improving students' writing skill using Brainswriting strategy. *Project (Professional Journal Of English Education)*, *2*(5), 714-721.

CHAPTER 14

AI in Curriculum, Assessment, and Personalized Learning: Opportunities and Governance Challenges

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1. Introduction

Artificial intelligence (AI) has begun to reshape the foundational processes of curriculum design, assessment, and personalized learning across global educational systems. No longer confined to experimental EdTech prototypes, AI-driven tools now influence large-scale instructional decisions, shape data infrastructures, and increasingly mediate teacher–student interactions (Luckin, 2017; Zawacki-Richter et al., 2019). As education systems adopt adaptive learning platforms, automated scoring systems, intelligent tutoring applications, and large-scale data analytics, the nature of instructional governance is undergoing a profound transformation. These developments require a re-examination of how curriculum is designed, implemented, and evaluated—and, critically, how educational leaders govern algorithmic systems that make pedagogical decisions once reserved for humans (Williamson, 2019).

Although the promise of AI in education is substantial, its unregulated or poorly governed implementation risks amplifying inequities, embedding invisible biases, and obscuring the human values that should underpin democratic education systems (UNESCO, 2021; OECD, 2023). As UNESCO (2023) and the European Commission (2021) emphasize, AI's integration into curriculum and assessment is not merely a technical upgrade but a socio-technical shift that alters power relations, data flows, and institutional responsibilities. Thus, education cannot approach AI adoption solely from an innovation or efficiency perspective—it must be framed as a governance challenge requiring clear accountability, transparency, data ethics, and human-centered oversight.

Curriculum studies, educational leadership, and assessment research offer essential frameworks for analyzing this shift. Historically, curriculum reform has followed cycles of philosophical debate, political negotiation, professional expertise, and classroom-level interpretation (Glatthorn et al., 2018; Priestley et al., 2017). Assessment systems have evolved through parallel tensions between accountability and professional judgment, validity and practicality, fairness and efficiency (DeLuca & Johnson, 2017). AI accelerates and complicates these long-standing dynamics by introducing algorithmic agents capable of sequencing content, evaluating student work, and recommending learning pathways at a scale and speed previously impossible.

However, as scholars in governance and critical data studies argue, algorithmic decision-making in education rarely operates neutrally (Selwyn, 2019; Keddie, 2021). The data used to train AI are not value-free; predictive models encode historical patterns of inequality; personalization engines may inadvertently narrow rather than expand learners' opportunities; and automated assessment systems raise questions about validity, transparency, and explainability (Popenici & Kerr, 2017). For these reasons, AI-driven systems must be conceptualized as governance objects, not merely instructional tools.

To address these complexities, this chapter examines how curriculum and assessment practices can be responsibly aligned with AI technologies through structured governance models. It synthesizes research from AI ethics, curriculum leadership, assessment governance, and organizational change to propose a human-centered governance framework for schools adopting AI-enabled instructional systems. The goal is not to introduce a new theory, but to integrate well-established principles—transparency, accountability, fairness, human oversight, and data ethics—into a practical model that educational leaders can use to guide implementation across early, mid, and mature stages of AI adoption.

1.1. The Rise of AI in Curriculum and Assessment

AI's growing presence in curriculum and assessment reflects technological, political, and market-driven forces. Adaptive learning systems, for instance, draw on predictive analytics to tailor learning experiences in real time, promising improved learner engagement and differentiated instruction (Pane, 2018). Automated scoring systems analyze student writing, problem-solving, and behavioral data to deliver immediate feedback, augmenting teachers' capacity to monitor progress across large student populations (Williamson, 2019). These systems are being integrated into national strategies across OECD, EU, and UNESCO member states, signaling a global shift toward data-driven instruction.

Yet the expansion of algorithmic systems into curriculum decision-making complicates traditional notions of curriculum authority. Where curriculum mapping and sequencing were once exclusively the domain of professional educators, AI-supported systems now shape content progression and determine optimal learning pathways (Holmes et al., 2019). This shift demands a fundamental reconsideration of instructional governance: Who holds power over the curriculum? How transparent are algorithmic decisions? What safeguards ensure that automated recommendations align with pedagogical values rather than vendor priorities?

1.2. Why AI Adoption Requires Governance and Leadership

The adoption of AI in schools requires more than technological readiness—it necessitates leadership capable of navigating ethical, organizational, and socio-political complexities. AI tools amplify existing challenges: data privacy, bias, explainability, accountability gaps, teacher deskilling, workload intensification, and the emotional labor associated with technological change (Hargreaves & Fullan, 2020; Keddie, 2021). Without robust governance structures, schools risk ceding educational judgment to opaque digital systems.

Global frameworks such as UNESCO's Recommendation on the Ethics of AI (2021) and the European Commission's Ethics Guidelines for Trustworthy AI (2019) emphasize that AI systems must be lawful, ethical, and technically robust. For educational institutions, this means adopting governance mechanisms that

ensure human oversight, transparency of algorithmic processes, fairness in automated assessments, and accountable data practices.

Educational leaders therefore become central actors in mediating AI integration. They must develop new competencies in data governance, vendor negotiation, sociotechnical risk assessment, organizational adaptation, and distributed leadership—while also protecting professional autonomy and safeguarding democratic values.

1.3. Scope and Purpose of the Chapter

This chapter pursues three major aims:

1. To conceptualize how AI is transforming curriculum, assessment, and personalized learning, drawing on global empirical evidence and theoretical literature.
2. To examine the governance challenges associated with AI-driven instructional systems, including bias, transparency, accountability, data privacy, and vendor power asymmetries.
3. To propose a school-level governance framework that educational leaders can use to ensure human-centered, ethical, and pedagogically aligned implementation.

Rather than treating AI as an inevitable technological destiny, the chapter approaches it as a contingent sociotechnical development shaped by leadership choices, institutional cultures, and governance arrangements.

1.4. Positioning Curriculum AI Within Educational Management Research

AI's integration into curriculum and assessment systems intersects with long-standing themes in educational management:

- instructional leadership,
- distributed decision-making,
- organizational learning,
- accountability structures, and
- change management (Leithwood et al., 2020; Fullan, 2020).

By synthesizing research across these domains, this chapter positions AI not merely as a curriculum innovation, but as a force that redefines the governance architecture of schooling. It extends curriculum leadership literature into the algorithmic era and reframes assessment governance as a sociotechnical process requiring continuous human oversight and ethical scrutiny.

In doing so, the chapter contributes to emerging scholarship on AI governance in education and offers a structured model that school leaders can use to guide responsible AI integration—balancing innovation with equity, efficiency with ethics, and data-driven insights with human judgment.

2. Conceptual and Theoretical Background

AI-driven transformations in curriculum, assessment, and personalized learning cannot be understood solely as technological innovations; they reshape the underlying conceptual and governance architectures of schooling. This section synthesizes foundational frameworks—curriculum leadership, instructional governance, assessment theory, personalization models, and global AI policy—to establish the theoretical basis for analyzing AI-enabled instructional systems. By grounding the chapter in these established traditions, the discussion avoids the technological determinism that frequently oversimplifies AI discourses in education (Selwyn, 2019). Instead, it positions AI as a socio-technical actor embedded within organizational, political, cultural, and ethical contexts.

2.1. Curriculum Leadership and Instructional Governance

Curriculum leadership traditionally involves designing, interpreting, and stewarding the educational program in ways that maintain coherence with pedagogical values, social purposes, and institutional missions (Glatthorn et al., 2018). Instructional governance extends this mandate by defining how authority, decision-making, and accountability are distributed across actors—teachers, school leaders, policymakers, and increasingly, technological systems (Priestley et al., 2017).

Teacher agency and curriculum making

Priestley, Biesta, and Robinson (2017) argue that curriculum is not merely implemented but enacted through teacher agency, shaped by teachers' professional judgment, contextual knowledge, and ethical considerations. AI-driven curriculum tools—such as automated content sequencing or predictive analytics—challenge this paradigm by introducing algorithmic actors into curriculum enactment. These systems may support teachers by reducing workload or offering data-driven insights, yet they also risk diminishing professional autonomy if algorithmic recommendations become prescriptive rather than advisory.

Governance implications

From a governance perspective, AI transforms:

- curriculum authority (Who decides learning progression—teachers or algorithms?),

- curriculum transparency (On what basis does the AI sequence content?),
- curriculum accountability (Who is responsible for student outcomes influenced by automated decisions?).

These questions illustrate why curriculum leadership must expand to include algorithmic literacy, data ethics, and oversight mechanisms capable of evaluating vendor platforms and ensuring alignment with curricular standards (Fullan, 2020).

2.2. Assessment Governance: Standards, Accountability, Data

Assessment plays a central role in educational governance by shaping instructional priorities, student pathways, and system-level accountability structures (DeLuca & Johnson, 2017). The introduction of automated scoring, machine learning–based feedback, and large-scale analytics transforms this landscape profoundly.

Validity, reliability, and fairness

Decades of assessment scholarship emphasize the need for:

- construct validity,
- reliability,
- fairness,
- transparency,
- ethical administration (AERA, APA, & NCME Standards).

Automated scoring systems—whether using natural language processing, computer vision, or predictive modeling—must be evaluated against these established criteria. Research shows that machine scoring can achieve reliability comparable to human raters, but risks include reinforcement of linguistic biases, opacity of scoring logic, and differential performance across demographic groups (Williamson, 2019; Popenici & Kerr, 2017).

Assessment as a governance tool

Williamson (2019) argues that digital assessment expands the reach of educational governance by producing continuous data streams that inform decisions beyond the classroom—such as predictive risk modeling, performance management, and resource allocation. This "datafication" of assessment amplifies concerns about surveillance, bias, and the normalization of algorithmic authority in evaluating learners.

Therefore, assessment governance in the AI era requires robust transparency standards, the preservation of professional judgment, and mechanisms for auditing automated evaluations.

2.3. Personalized Learning Models and Organizational Adaptation

Personalized learning—long pursued as an educational ideal—has gained renewed momentum with adaptive learning systems that tailor content and pacing to individual learners based on real-time analytics. While AI-driven personalization promises increased engagement and differentiated support, it simultaneously raises questions concerning equity, data ethics, and the risks of algorithmically narrowing learners' opportunities (Bulger, 2016).

Adaptive learning systems

Adaptive platforms commonly deploy:

- learner modeling,
- item-response theory algorithms,
- reinforcement learning techniques,
- predictive analytics

to generate personalized learning pathways (Pane, 2018).

Empirical findings show mixed outcomes: some systems improve mastery and retention, while others offer limited pedagogical value when underpinned by simplistic behavioral metrics rather than nuanced cognitive models (Holmes et al., 2022).

Organizational transformation

Adopting personalized learning requires schools to adapt their:

- instructional roles,
- data infrastructures,
- teacher collaboration structures,
- professional development systems,
- and leadership practices (Hargreaves & Fullan, 2020).

Leadership must reconcile personalization with broader commitments to equity. Without governance safeguards, personalization can unintentionally reproduce bias—such as recommending "lower-level" content disproportionately to marginalized students or reinforcing stereotype-consistent expectations revealed in training data (Noble, 2018).

2.4. AI in Education: Global Trends (OECD, UNESCO, EU)

Global policy organizations provide conceptual frameworks that influence how national and school-level actors interpret AI in education.

UNESCO

UNESCO's Beijing Consensus (2019) and AI and Education: Guidance for Policy-makers (2021) advocate:

- human-centered AI,
- equity and inclusion,
- algorithmic transparency,
- teacher empowerment,
- ethical data governance.

UNESCO warns that AI can reinforce social inequalities if deployed without robust ethical oversight.

OECD

OECD's Digital Education Outlook (2021) and AI in Education (2023) identify:

- rapid commercialization of EdTech,
- increased reliance on automated assessment,
- expansion of adaptive systems,
- heightened concerns around privacy and datafication,
- governance gaps in school-level implementation.

OECD frames AI as both an opportunity for innovation and a governance challenge requiring new accountability structures.

European Commission

The European Commission's Ethics Guidelines for Trustworthy AI (2019) and the AI Act (proposed 2021) establish requirements for:

- transparency,
- explainability,
- human oversight,
- bias mitigation,
- data governance,

- risk classification (education often falls under “high-risk”).

These frameworks signal a shift from voluntary ethical principles to legal compliance expectations—implying that schools must adopt formal governance systems rather than ad hoc practices.

2.5. Governance Frameworks for AI-Driven Instruction

A central tension in AI-enabled instruction concerns the balance between technological efficiencies and democratic, human-centered educational values. Governance frameworks offer conceptual tools for managing this tension.

Ethical AI principles

Floridi and Cowls (2019) synthesize a unified framework built on:

- beneficence,
- non-maleficence,
- autonomy,
- justice,
- explicability.

In education, these translate into protecting student rights, ensuring fairness, preventing harm, maintaining teacher agency, and enabling transparent decision-making.

Algorithmic accountability

Research in data governance stresses:

- auditability of algorithms,
- explainable decision outputs,
- mechanisms for contesting automated decisions,
- clear responsibility chains for errors or harms (Koene, 2019; Mittelstadt, 2016).

Within schools, these concepts require:

- internal oversight committees,
- data governance protocols,
- structured evaluation of vendor technologies,
- safeguards against opaque or biased automated recommendations.

Socio-technical governance perspective

AI systems are not standalone entities; they operate within networks of:

- institutional norms,
- teacher practices,
- political pressures,
- market incentives,
- data infrastructures.

Therefore, governance models must address human, technological, and organizational components simultaneously. Without such holistic governance, AI risks shifting power toward external vendors, depersonalizing learning, and privileging efficiency over pedagogical depth.

3. AI in Curriculum Design and Implementation

Artificial intelligence is increasingly embedded in the foundational stages of curriculum design and implementation, influencing how content is structured, sequenced, and delivered across educational systems. These developments extend far beyond digitalization; they signify a shift toward algorithmically mediated pedagogical decision-making. As instructional processes become data-driven, the curriculum no longer represents solely a human-constructed framework but emerges as a hybrid product shaped by human expertise, institutional priorities, and algorithmic logics (Luckin, 2017; Holmes et al., 2019). Understanding this transformation requires examining how AI interacts with curriculum mapping, content progression, teacher autonomy, and governance structures.

3.1. AI-Supported Curriculum Mapping

AI-enhanced curriculum mapping tools analyze large datasets—learner performance histories, prerequisite structures, course standards, and pedagogical patterns—to design coherent curricular pathways. These systems identify gaps, redundancies, or misalignments across units, making the mapping process more dynamic and evidence-informed. Research demonstrates that predictive analytics can support curriculum coherence by highlighting where learners struggle, where pacing adjustments may be required, or where content progression might benefit from restructuring (Pane, 2018; OECD, 2023).

However, the integration of these tools introduces important governance questions. Curriculum mapping has traditionally relied on teacher judgment and institutional values; when algorithms begin recommending revisions, the epistemic authority of curriculum design shifts subtly toward data-driven systems. This shift is not inherently negative, but it requires transparency about

how algorithms define "optimal" pathways, what assumptions underlie their recommendations, and whether their logic aligns with broader educational purposes.

3.2. Intelligent Content Sequencing and Progression

One of AI's most visible impacts on curriculum design is its role in sequencing learning materials. Intelligent tutoring systems and adaptive platforms detect learners' patterns in real time and adjust the order, difficulty, or modality of content accordingly. These systems promise more responsive instruction, especially in contexts where large class sizes limit individualized attention (Holmes et al., 2022).

Yet the power of sequencing algorithms also highlights risks. The criteria used to determine when a student is "ready" to progress may rely on behavioral proxies rather than deep cognitive indicators. Moreover, if these systems are trained on historically biased data, they may disproportionately divert certain groups of students into slower tracks or narrower content pathways (Noble, 2018; Williamson, 2019). For this reason, the algorithmic basis of sequencing must be subject to scrutiny, ensuring that personalization does not inadvertently become a mechanism of stratification.

3.3. Governance Challenges in Algorithmic Curriculum Decisions

As AI systems become more influential in shaping curriculum design, governance becomes central. Decisions about what knowledge is prioritized, how it is organized, and who controls access to learning pathways have always been political. Algorithmic mediation intensifies these dynamics by embedding decision rules within systems that are often opaque or proprietary (Selwyn, 2019).

Educational leaders must therefore evaluate:

- transparency, meaning whether teachers and administrators understand how decisions are generated;
- alignment, meaning whether algorithmic outcomes reflect curricular standards and institutional values;
- bias mitigation, ensuring that algorithmic pathways do not reinforce existing inequities;
- accountability, clarifying responsibility for errors or harmful outcomes.

Vendor-school relationships further complicate governance because companies often retain control over model architecture, data pipelines, and update schedules. Without structured oversight mechanisms, schools may inadvertently relinquish curricular authority to external actors.

3.4. School Leaders' Role in AI-Mediated Curriculum Oversight

Effective governance requires educational leaders who can interpret algorithmic decisions, question underlying assumptions, and mediate the interplay between human and machine judgment. Leadership responsibilities increasingly include evaluating AI-enabled curriculum tools, managing data governance, ensuring professional development for teachers, and establishing ethical guidelines for implementation (Leithwood et al., 2020; Fullan, 2020).

School leaders must also maintain a pedagogical perspective. AI systems can recommend efficient learning routes, but efficiency is not equivalent to educational value. Leaders therefore need to preserve a space for deliberation—deciding when to accept algorithmic recommendations, when to override them, and when to intervene to protect equity, inclusiveness, or long-term developmental goals.

In this sense, AI does not diminish leadership; it expands its scope. Leaders must cultivate algorithmic literacy, negotiate with vendors from an informed position, protect teacher agency, and ensure that curriculum decisions—even when automated—remain grounded in human values and pedagogical coherence.

4. AI in Assessment and Feedback Systems

AI-driven assessment systems have rapidly evolved from experimental tools into institutional mechanisms that shape instructional decision-making, student trajectories, and broader educational accountability structures. Automated scoring engines, natural language processing (NLP), and machine learning-based feedback systems promise greater efficiency and scalability, particularly in large and diverse learning environments (Williamson, 2019). Yet their integration fundamentally alters how assessment is conceptualized, who controls evaluative authority, and how fairness and validity are ensured. Understanding these shifts requires attention to both the pedagogical opportunities and the ethical–governance challenges embedded in automated assessment.

4.1. Automated Scoring and Formative Feedback Tools

Automated scoring systems increasingly evaluate student writing, short answers, mathematical reasoning, and even affective engagement patterns. These systems draw on linguistic models, semantic mapping, and predictive algorithms to approximate human judgment. In many contexts, automated scoring has demonstrated reliability levels comparable to trained human raters—especially in standardized, rule-bound assessment tasks (DeLuca & Johnson, 2017). The advantage is clear: rapid turnaround, consistent scoring, and the ability to provide immediate formative feedback.

AI-based formative feedback tools also expand teachers' capacity to monitor learning progress by identifying misconceptions, offering customized hints, and

suggesting next steps in learning pathways. Platforms leveraging NLP and machine learning can analyze thousands of submissions instantaneously, revealing patterns that would be invisible or too time-consuming for educators to detect manually.

However, performance equivalence with human raters does not guarantee fairness or transparency. Automated systems may privilege particular linguistic styles, reward surface features over deep reasoning, or systematically misinterpret responses from students whose dialects, cultural references, or learning profiles differ from the training datasets (Noble, 2018). For this reason, the pedagogical value of automated scoring is inseparable from rigorous oversight of model training, evaluation, and deployment.

4.2. Validity, Reliability, and Transparency Challenges

Assessment validity traditionally requires demonstrating that an instrument measures what it claims to measure. In AI-based assessment, this principle becomes more complex because the "instrument" is a dynamic model that can update, evolve, or drift over time. Machine learning systems trained on historical data may internalize outdated or biased patterns, producing scores that appear consistent but fail to reflect the intended construct (Mittelstadt, 2016).

Reliability, too—long considered a technical concern—acquires ethical dimensions when automated scoring affects high-stakes decisions. Consistency may come at the cost of nuance, particularly in domains requiring interpretive evaluation or culturally sensitive judgments.

Transparency is arguably the most significant challenge. Many commercial scoring systems operate as "black boxes," preventing educators from understanding how scores are generated. This opacity undermines professional judgment, limits teachers' ability to diagnose learning difficulties, and restricts students' rights to contest scores. Without explainability, assessment becomes an act of unexamined trust in algorithmic authority.

4.3. Bias, Fairness, and Ethical Concerns in Automated Assessment

Bias in automated assessment arises not because algorithms "intend" discrimination, but because they inherit statistical patterns, structural inequalities, and cultural assumptions embedded in their training data. Studies show that NLP models can exhibit measurable differences in scoring accuracy across demographic groups, yielding systematic disadvantages for students from linguistic minorities or marginalized communities (Williamson, 2019; Noble, 2018).

Three fairness concerns frequently emerge:

- Representation bias, when training data underrepresents certain populations.

- Outcome bias, when scoring outputs systematically favor or penalize specific groups.
- Feedback bias, when personalized feedback steers learners into differentiated pathways that reinforce inequality.

These challenges underscore that automated assessment is not a neutral technology; it is an intervention in the social fabric of schooling. Consequently, fairness auditing, demographic impact analysis, and continuous monitoring must be embedded into assessment governance.

4.4. Governance Structures for Monitoring AI-Based Assessment

Effective assessment governance requires the development of school-level and system-level structures that oversee the ethical, pedagogical, and technical dimensions of AI systems. UNESCO (2021) and the European Commission (2019) emphasize that AI in assessment must remain accountable to human values, which means governance cannot be outsourced to vendors or assumed to occur implicitly.

Schools benefit from establishing mechanisms such as:

- assessment oversight committees, responsible for auditing automated systems and flagging risks;
- data governance protocols, outlining how assessment data is stored, used, and shared;
- vendor accountability frameworks, ensuring transparency in model design, updates, and error reporting;
- appeal processes, enabling students and teachers to challenge automated decisions.

These structures protect both pedagogical integrity and student rights, while also fostering an institutional culture that critically examines technological systems rather than adopting them uncritically.

4.5. Professional Autonomy vs. Algorithmic Evaluation

The expansion of automated assessment raises profound questions about the role of teacher judgment. While AI tools can assist in scoring and identifying learning needs, there is a risk that educators become implementers of algorithmic decisions rather than active evaluators of student learning. This dynamic contributes to "teacher deskilling," where professional expertise is subtly displaced by standardized machine outputs (Selwyn, 2019).

Preserving autonomy requires that teachers remain the final arbiters of student evaluation. Automated scoring should function as advisory, not authoritative. Teachers must have the ability—and the confidence—to override algorithmic

outputs when they conflict with contextual knowledge, relational understanding, or professional ethics.

At the same time, school leaders must provide professional development that helps educators engage productively with AI systems: understanding their limits, interpreting their outputs, and using them to enrich rather than constrain pedagogy (Hargreaves & Fullan, 2020). In this framework, AI becomes a partner in assessment rather than a replacement for human expertise.

5. AI in Personalized Learning Environments

Artificial intelligence has become a defining force in contemporary personalized learning environments, reshaping how learners navigate content, receive feedback, and construct their educational trajectories. Adaptive learning systems, predictive analytics, and intelligent tutoring platforms promise to individualize instruction by adjusting pacing, sequencing, and task difficulty in real time. Research shows that such systems can enhance learner engagement and support mastery-oriented progression, particularly in large classrooms where differentiated instruction is otherwise difficult to sustain (Pane, 2018; Holmes et al., 2022). Yet the integration of AI into personalization introduces governance and equity concerns that require careful examination.

At the core of AI-enabled personalization lies learner modeling—the continuous analysis of behavioral and performance data that enables algorithms to infer a student's needs, preferences, or readiness for new material. While this creates opportunities for targeted interventions, the accuracy of these models depends heavily on the quality and representativeness of the training data. Systems trained on narrow datasets may encode assumptions that limit learners' pathways, especially for students whose cultural or linguistic backgrounds diverge from dominant patterns (Noble, 2018). Consequently, personalization can unintentionally lead to "algorithmic tracking," where students receive differentiated content not based on potential but on historical correlations embedded in the data.

A second challenge concerns the pedagogical framing of personalization. Many AI systems optimize for rapid progression or task completion rather than deeper cognitive engagement, critical thinking, or long-term conceptual development. This tension reflects a broader debate within curriculum theory: whether personalization serves authentic educational aims or simply adapts learners to the logic of data-driven efficiency. Without strong pedagogical governance, AI may narrow rather than expand the learning experience by prioritizing easily measurable outcomes over complex intellectual and social growth (Williamson, 2019).

Leadership plays a crucial role in mediating these tensions. School leaders must ensure that personalization strategies align with curricular values, equity

commitments, and developmental goals rather than simply following algorithmic recommendations. This includes establishing protocols for reviewing algorithmic decision rules, providing professional development so teachers can interpret AI-generated insights, and maintaining teacher autonomy in determining whether personalized pathways genuinely benefit learners (Hargreaves & Fullan, 2020). Teachers must remain empowered to override algorithmic suggestions when contextual knowledge or professional judgment indicates a different course of action.

Furthermore, privacy and data governance are central considerations. Personalized learning systems often rely on extensive data collection, raising questions about consent, proportionality, and the long-term use of student information. UNESCO (2021) and the European Commission (2019) emphasize that personalization must operate within ethical and legal boundaries, with transparency regarding how data influences learning pathways and how algorithmic decisions are made.

When implemented responsibly, AI-enabled personalization can enhance equity by offering tailored support to learners who face barriers in traditional instructional models. However, this potential is only realized when governance structures protect students from biased decision-making, when teachers retain meaningful control over learning pathways, and when personalization is grounded in rich pedagogical principles rather than efficiency metrics. In this balanced framework, AI functions as an augmentative tool—enhancing human judgment rather than replacing it.

6. Organizational and Leadership Implications

The integration of AI into curriculum, assessment, and personalization systems reshapes the organizational architecture of schools. Far from being a purely technical enhancement, AI adoption reconfigures professional roles, decision-making processes, and cultural norms. As schools transition toward data-driven instructional models, leadership becomes responsible not only for managing technological change but also for safeguarding pedagogical integrity, professional autonomy, and equitable learning opportunities.

6.1. Redesigning Roles: AI Coordinators, Data Teams, EdTech Leads

AI-enabled schooling requires new forms of expertise. Traditionally, curriculum specialists, instructional coaches, and assessment coordinators handled pedagogical design and evaluation. With AI systems now influencing these domains, schools increasingly require roles such as AI curriculum coordinators, data governance officers, and learning analytics specialists. These positions support teachers in interpreting algorithmic outputs, ensure ethical use of student data, and maintain alignment between AI tools and institutional priorities.

However, role expansion must avoid creating technocratic hierarchies that marginalize teachers. Research on distributed leadership emphasizes that instructional improvement succeeds when responsibility is shared across the organization rather than concentrated in specialized units (Hargreaves & Fullan, 2020). Thus, AI-oriented roles should empower rather than displace teacher expertise, ensuring that technology supports professional judgment rather than constraining it.

6.2. Distributed Responsibilities in AI-Mediated Instruction

AI adoption intensifies the need for distributed leadership. Algorithms influence pacing, content sequencing, assessment outcomes, and interventions, meaning no single leader can oversee all decision points. Instead, responsibility must be shared across teachers, data teams, school leaders, and oversight committees.

Distributed responsibility also mitigates organizational risk. When automated systems generate high-stakes recommendations, shared oversight reduces the chance that errors go unnoticed and creates built-in opportunities for professional dialogue. This aligns with OECD (2023) findings that successful AI integration depends on collaborative structures capable of evaluating technological outputs critically rather than deferring to them.

6.3. Change Management in Curriculum and Assessment Transformation

Implementing AI systems requires robust change management. Educational organizations commonly encounter resistance not because teachers oppose innovation, but because technological change often disrupts routines, increases workload, and challenges established identities (Fullan, 2020). AI compounds these pressures: teachers must learn new platforms, interpret data dashboards, and reconcile algorithmic recommendations with existing pedagogical practices.

Effective change management demands clear communication about the pedagogical purpose of AI tools, opportunities for iterative experimentation, and structured professional learning. Leaders must anticipate emotional labor by validating concerns, avoiding deterministic narratives (“the algorithm knows better”), and framing AI as a partner rather than a replacement. Research on technology adoption in schools consistently shows that innovations succeed when teachers perceive them as enhancing—not undermining—their agency and instructional vision.

6.4. Cultural Resistance: Teacher Identity, Workload, Emotional Labor

AI challenges core professional identities. Teachers often view instructional decisions as deeply human, relational, and context-dependent; algorithmic mediation may appear reductive or presumptive. Studies on datafication highlight that teachers resist not because they oppose evidence-based practice but because automated systems can compress nuanced pedagogical work into quantifiable metrics that obscure complexity (Keddie, 2021).

Teachers also face heightened workload when AI tools are introduced without adequate planning. The promise of automation can paradoxically increase labor: interpreting dashboards, cross-checking algorithmic suggestions, troubleshooting platform errors, or responding to increased administrative data demands. Emotional labor emerges when teachers must reconcile their human understanding of learners with algorithmic profiles that seem incomplete or misaligned.

School leaders must cultivate cultures of trust where teachers feel safe to critique AI systems, question outputs, and propose adjustments. This is crucial for preventing "silent compliance," where teachers accept algorithmic decisions despite professional discomfort.

6.5. Accountability Structures in AI-Driven Instructional Decisions

AI shifts the dynamics of accountability. When algorithms influence curriculum pathways or assessment results, institutional responsibility becomes more complex. Who is accountable when automated recommendations disadvantage students—teachers, school leaders, system designers, or vendors? UNESCO (2021) stresses that human accountability cannot be transferred to machines; schools must define explicit structures that clarify roles, responsibilities, and procedures for addressing algorithmic errors.

Key elements of accountability include:

- mechanisms for teachers to override automated decisions,
- transparent documentation of how AI contributes to instructional recommendations,
- oversight committees capable of auditing algorithmic performance,
- vendor contracts specifying explainability, data usage, and remediation requirements.

These structures protect both students and educators by ensuring that algorithmic systems do not operate without scrutiny.

7. Governance Challenges

AI-enabled curriculum, assessment, and personalization systems introduce profound governance challenges that extend beyond technical risk management. These systems shape how knowledge is organized, how learners are evaluated, and how educational decisions are distributed across humans and algorithms. As UNESCO (2021) and the European Commission (2019) emphasize, educational AI must be governed not only through technical safeguards but through ethical, legal, and organizational structures that preserve human values, equity, and democratic accountability. Governance challenges arise precisely because AI systems do not simply automate existing processes—they restructure them, often in ways that are opaque, asymmetrical, and difficult to contest.

7.1. Data Privacy, Security, and Student Rights

AI systems depend on large quantities of student data: performance metrics, behavioral traces, interaction logs, and sometimes sensitive demographic information. This raises immediate concerns about privacy, consent, proportionality, and the long-term implications of data retention. In many jurisdictions, students and families lack meaningful control over how educational data is collected, processed, or repurposed.

Machine learning models further complicate privacy because they may infer characteristics that students never explicitly provided. This blurs the line between data given and data derived, a distinction central to emerging AI regulations. If not governed through transparent policies, schools risk normalizing forms of surveillance that change the nature of student–institution relationships.

From a rights-based perspective, privacy is not merely a technical issue but a matter of safeguarding learner dignity and agency. Governance frameworks must therefore articulate clear policies on consent, data minimization, and data sharing, ensuring that AI does not erode students' fundamental rights.

7.2. Vendor–School Power Asymmetries

Commercial AI vendors increasingly shape the architecture of digital learning environments. Their platforms determine how data flows, how algorithms operate, and how educational decisions are structured. This creates power asymmetries: while schools are accountable for instructional outcomes, vendors often retain proprietary control over algorithmic models.

Several challenges arise:

- schools cannot independently audit or fully understand how systems produce recommendations;
- vendors may update models or interfaces in ways that affect instruction without transparent communication;

- contractual agreements may limit schools' access to training data or decision logic.

Research in critical data studies highlights that these asymmetries risk transferring curriculum and assessment authority to private actors, undermining democratic control over educational aims (Williamson, 2019). Effective governance requires shifting from passive procurement to active negotiation—ensuring oversight rights, auditability, and transparent reporting mechanisms.

7.3. Transparency and Explainability Issues

Opaque algorithmic systems pose one of the most significant governance risks. If teachers cannot understand why a system recommends a certain pathway, score, or intervention, they cannot meaningfully evaluate or challenge it. This erodes professional judgment and introduces dependency on automated outputs.

Explainability becomes especially important when AI influences high-stakes decisions. Without insight into the decision process, learners lose the ability to contest outcomes, and accountability becomes diffused across actors. As a result, educational institutions must require explainability-by-design approaches: models should be interpretable, accompanied by documentation, and capable of being interrogated by educators and oversight bodies.

7.4. Regulatory and Policy Gaps

Even as AI adoption accelerates, educational policy frameworks lag behind. Many national systems lack explicit guidance on algorithmic fairness, vendor accountability, impact assessment, or student rights in AI-mediated learning environments. Existing data protection laws (e.g., GDPR) provide baseline safeguards but do not address the full complexity of predictive analytics, automated feedback systems, or personalization algorithms.

This regulatory vacuum places school leaders in a difficult position: responsible for ethical oversight yet lacking comprehensive legal tools. OECD (2023) notes that the absence of coherent national guidelines often leads to inconsistent implementation and unequal protections for students. Strengthening policy is therefore essential—not to restrict innovation, but to provide clarity on acceptable practices, minimum standards, and governance obligations.

7.5. School-Level Ethical Oversight Committees

Because national regulations remain incomplete, schools increasingly need internal ethical oversight structures. These committees serve as interpretive bodies that review AI tools, assess risks, clarify responsibilities, and examine potential harm. They play a role analogous to institutional review boards (IRBs) in research contexts, but designed specifically for algorithmic systems.

Their functions typically include:

- reviewing algorithmic decision pathways and their educational alignment,
- monitoring demographic impacts and bias patterns,
- establishing procedures for challenging automated decisions,
- ensuring transparency for students, families, and teachers.

Such committees safeguard against uncritical adoption and help create institutional reflexivity—the ongoing capacity to evaluate technology in light of educational values.

7.6. Alignment Between National Standards and AI Systems

AI tools often embed pedagogical assumptions that may not align with national curriculum standards or institutional missions. Some personalization engines, for example, optimize for speed rather than conceptual understanding. Others construct learning pathways that diverge from local sequencing requirements. Assessment algorithms may rely on linguistic or cultural models that do not match the normative frameworks of the curriculum.

Governance therefore requires continuous alignment work. School leaders and curriculum specialists must ensure that AI systems reinforce—not replace—curricular aims. Misalignment can generate subtle but significant distortions: reshaping what counts as mastery, narrowing the knowledge considered valuable, or privileging competencies that align with commercial platform logics rather than educational goals.

Alignment is not a one-time task but a sustained governance practice, especially because AI models evolve through updates and retraining.

8. Opportunities and System-Level Benefits

Despite significant governance and ethical concerns, AI integration offers meaningful opportunities for strengthening instructional systems when implemented responsibly. At the curriculum level, AI can enhance coherence by identifying gaps, redundancies, and misalignments across grade levels or subject areas, helping schools maintain a more continuous progression of learning. These improvements are especially valuable in large systems where curriculum variation across classrooms or schools is common (OECD, 2023). By synthesizing data from multiple sources, AI-supported curriculum tools allow leaders to make more informed, evidence-based decisions that were previously impractical at scale.

Another major benefit lies in AI's capacity to generate real-time feedback loops. Automated analysis of student performance enables teachers to detect misconceptions more quickly, adjust instruction with greater precision, and intervene before learning gaps widen. Research in adaptive learning shows that

timely diagnostic insights can significantly improve learner mastery, particularly in contexts where class sizes limit individualized support (Pane, 2018; Holmes et al., 2022). When teachers retain authority over instructional decisions, these tools augment rather than replace professional judgment.

At the system level, AI can enhance equity-oriented planning by revealing patterns that remain invisible in traditional assessment approaches. Learning analytics can highlight disparities across demographic groups, track differential access to learning resources, or flag early signs of disengagement. When coupled with strong governance frameworks, this allows leaders to design targeted interventions that support historically marginalized learners. Importantly, AI's contribution to equity is contingent on rigorous oversight; without it, the same systems may reproduce the very inequalities they are meant to address.

AI also supports continuous school improvement cycles. Automated data synthesis reduces administrative burden and enables schools to monitor instructional quality, pacing, and alignment more efficiently. Leaders can cross-reference curriculum implementation with student outcomes, identify structural issues, and adjust schoolwide strategies in shorter cycles. These capabilities are particularly valuable in rapidly changing educational environments, where traditional annual review processes may be too slow to respond effectively.

Finally, AI can expand professional learning opportunities by providing teachers with insights into patterns of learner thinking, common errors, and differentiated needs. Over time, this data-rich environment can enhance pedagogical reflexivity and support collaborative inquiry among teachers. When embedded within ethical frameworks emphasizing transparency, teacher autonomy, and human-centered design, AI becomes a catalyst for innovation rather than a mechanism of control.

9. A School Governance Framework for AI-Enabled Curriculum and Assessment

AI-enabled schooling requires governance models that integrate educational leadership, organizational theory, data ethics, and pedagogical oversight into a coherent framework. As AI systems increasingly influence curriculum sequencing, assessment decisions, and personalized learning pathways, the role of school leaders shifts from overseeing instructional processes to governing socio-technical systems. This demands leadership competencies that extend beyond traditional instructional leadership into domains such as algorithmic accountability, risk management, vendor negotiation, and institutional data governance. Drawing on UNESCO (2021), OECD (2023), Leithwood's leadership research, and Spillane's distributed leadership theory, this section proposes a human-centered governance framework tailored for schools adopting AI-mediated instructional systems.

9.1. Principles of Human-Centered AI Governance

Human-centered governance begins with the premise that AI must augment rather than replace professional judgment, organizational agency, and democratic educational values. Five principles provide the normative foundation:

1) Transparency

Leaders must ensure that teachers and students understand how AI systems generate recommendations, what data they rely on, and how algorithmic decisions influence learning. Without transparency, professional autonomy erodes.

2) Accountability

Responsibility for AI-enabled decisions must remain explicitly human. Leaders must define roles for monitoring model performance, authorizing AI interventions, and handling errors or harmful outputs.

3) Fairness and Equity

AI must be continuously audited for demographic bias, differential impact, and unintended tracking mechanisms. Equity becomes a proactive governance responsibility, not an afterthought.

4) Human Oversight and Pedagogical Authority

Teachers retain final authority over curriculum pacing, assessment interpretation, and personalization decisions. AI outputs inform but do not dictate instructional choices.

5) Data Ethics and Protection of Student Rights

Data collection must follow principles of proportionality, necessity, and informed consent. Students should not be exposed to unnecessary surveillance or long-term profiling.

These principles align with Floridi and Cowls (2019), the EU Trustworthy AI guidelines, and foundational concepts in educational leadership such as ethical stewardship, moral purpose (Fullan), and the protection of learner dignity.

9.2. A Governance Model for AI-Enabled Schooling (Educational Leadership–Integrated Model)

The proposed governance model synthesizes leadership theory, organizational learning, and AI ethics into a structure suitable for schools. It rests on three interconnected layers:

Layer 1: Leadership and Decision Authority

This layer positions school leaders as mediators between algorithmic outputs and pedagogical judgment. Their core tasks include:

- establishing institutional norms for AI use,
- ensuring alignment between algorithms and curriculum standards,
- safeguarding teacher autonomy,
- negotiating transparency and oversight requirements with vendors,
- facilitating professional learning on AI literacy.
- This reflects Leithwood's transformational and instructional leadership dimensions: leaders shape vision, build capacity, and protect the integrity of the instructional core.

Layer 2: Distributed Oversight Structures

Because AI permeates multiple decision points, oversight must be distributed. Drawing on Spillane's distributed leadership framework, governance is enacted collaboratively across:

- teachers (interpretation and override authority),
- data teams (monitoring system performance),
- ethical oversight committees (risk assessment, bias audits),
- curriculum specialists (alignment and pedagogical review),
- IT/security teams (data governance and privacy protections).

Distributed oversight prevents over-centralization and increases organizational resilience by embedding accountability across roles rather than in a single office.

Layer 3: Technical, Ethical, and Pedagogical Integration

AI systems must be evaluated through three simultaneous lenses:

- technical robustness (accuracy, explainability, error monitoring),
- ethical integrity (bias mitigation, data minimization, transparency),
- pedagogical alignment (coherence with curriculum objectives, equity goals, and developmental appropriateness).

This triadic integration prevents AI adoption from becoming a purely technical project and keeps educational purpose at the forefront.

9.3. Implementation Roadmap for School Leaders

Early Stage: Establishing Foundations

- Conduct an AI readiness review focused on leadership capacity, teacher preparedness, data governance maturity, and infrastructural conditions.
- Form an AI Oversight Committee including administrators, teachers, data specialists, and ethics representatives.
- Develop transparent communication protocols explaining what AI will do—and what it will not do—to prevent unrealistic expectations.

Mid Stage: Structured Integration and Monitoring

- Implement AI tools on a limited scale using pilot groups, ensuring continuous feedback loops.
- Train teachers to interpret algorithmic outputs critically, reinforcing override authority.
- Require vendors to provide documentation on model logic, updates, fairness metrics, and error reporting.
- Conduct regular equity audits to examine differential impact.

Mature Stage: Institutionalization and Continuous Improvement

- Embed AI governance into school policy: data use policies, oversight committee mandates, and ethical guidelines.
- Integrate AI insights into school improvement cycles while ensuring that data supports—not replaces—professional deliberation.
- Develop long-term partnerships with vendors or research institutions to refine models collaboratively.
- Maintain dynamic review cycles to adapt governance structures as algorithms, regulations, and educational priorities evolve.

10. Policy, Research, and Practice Implications

The integration of AI into curriculum, assessment, and school-level decision-making requires a recalibration of educational policy, research agendas, and professional practice. Because AI systems influence instructional priorities, equity outcomes, and governance structures, policy frameworks must move beyond generic technology guidelines and address the specific socio-technical dynamics that shape AI-mediated schooling. At the same time, research must provide leaders with evidence for navigating these emerging complexities, and

practice must evolve toward more reflective, data-informed, and ethically grounded approaches.

10.1. Policy Directions for Ethical Curriculum and Assessment AI

At the policy level, governments and educational authorities must develop coherent frameworks that define acceptable uses of AI in instructional contexts. Current regulations (e.g., GDPR-like protections) establish baseline privacy safeguards but do not adequately address algorithmic bias, explainability, or the pedagogical implications of automated decision-making. Policies therefore need to include:

- mandatory transparency standards, requiring vendors to disclose model logic, data sources, and fairness metrics;
- minimum requirements for human oversight, ensuring teachers retain authority over curriculum and assessment decisions;
- equity impact assessments, designed to detect and mitigate demographic disparities in personalized learning pathways or automated scoring;
- procurement standards, obligating vendors to meet ethical and technical criteria aligned with national curriculum goals.

Policy must also protect teacher professionalism. Without safeguards, AI may shift decision power away from educators toward proprietary systems. Clear guidelines defining professional override rights, accountability structures, and dispute-resolution processes are essential for maintaining the integrity of instructional leadership.

10.2. Needed Research on Instructional AI Governance

AI in education remains an under-theorized field in terms of governance. Research has largely focused on technical performance (e.g., model accuracy) or pedagogical outcomes, while the organizational, political, and leadership implications remain comparatively underexplored. Future research should prioritize:

- leadership models for AI governance, examining how principals, distributed teams, and ethical committees mediate algorithmic decision-making;
- organizational learning processes, including how teachers interpret, contest, and adapt AI-generated insights;
- equity analyses, especially longitudinal studies tracking AI-mediated differentiation and its effects on marginalized learners;

- policy implementation studies, mapping how national AI directives translate into school-level practices;
- comparative studies, analyzing how governance systems differ across countries with varying regulatory traditions.

There is also a need for research partnerships between universities, ministries, and schools to co-develop evaluation frameworks for AI tools. Such collaborations can prevent commercial vendors from becoming the sole arbiters of what constitutes "effective" AI.

10.3. Implications for School Leaders and District Administrators

For practitioners, particularly school leaders and district administrators, AI generates new forms of responsibility that extend beyond conventional instructional leadership. Leaders must cultivate algorithmic literacy, not to become technical experts but to critically interpret AI outputs, question underlying assumptions, and ensure alignment with educational values. They must also orchestrate distributed governance structures, coordinating teachers, data specialists, and oversight bodies to collectively monitor AI's influence on learning.

Professional development becomes indispensable. Teachers require structured training to understand how AI systems operate, when to rely on them, and when to override their outputs. Leaders must foster a culture of inquiry in which teachers engage with AI tools reflectively rather than passively. This includes providing opportunities for collaborative interpretation of data dashboards, reviewing algorithmic recommendations, and evaluating personalization patterns in relation to equity goals.

Finally, AI integration demands new forms of strategic communication. Leaders must articulate clearly to families, students, and teachers how AI is used, what data is collected, and how privacy and fairness are protected. Transparent communication strengthens trust and mitigates fears that AI will supplant human judgment or erode the relational foundations of schooling.

10.4. Future Directions for AI-Integrated Learning Environments

Looking ahead, AI will continue to shape instructional governance, but its impact will depend on the strength of ethical, organizational, and leadership frameworks surrounding its use. Schools that embed AI within reflective, human-centered governance structures are more likely to harness its benefits while avoiding its risks. Future directions may include hybrid systems that combine teacher expertise with explainable AI models, school-level "algorithmic audits," and cross-institutional data collaboratives aimed at improving pedagogical models rather than reinforcing commercial dominance.

Ultimately, the future of AI in education is not determined by technology itself but by the decisions of leaders, policymakers, and educators who shape its use. When grounded in strong governance and ethical purpose, AI can support more responsive, equitable, and effective learning environments—without compromising human agency or professional integrity.

11. Conclusion

AI's integration into curriculum, assessment, and personalized learning reshapes the architecture of schooling in ways that demand deliberate, human-centered governance. Although AI systems offer powerful opportunities for enhancing coherence, equity monitoring, and instructional responsiveness, they also carry risks of opacity, bias, vendor dependency, and erosion of professional autonomy. The central task of educational leadership, therefore, is not to adopt AI uncritically but to mediate its influence through ethical oversight, organizational learning, and transparent decision structures.

The governance framework outlined in this chapter positions school leaders as stewards of both technological integrity and pedagogical purpose. By grounding AI adoption in principles of transparency, accountability, fairness, human oversight, and data ethics, leaders can ensure that algorithmic tools augment rather than displace teacher expertise. Distributed governance structures—ethical committees, data teams, and collaborative decision units—further strengthen institutional capacity to interpret, audit, and challenge AI-mediated decisions when necessary.

Ultimately, the future of AI in education will not be determined by algorithms but by the values, leadership practices, and governance systems that shape their use. When guided by a clear moral purpose, robust institutional safeguards, and a commitment to equity, AI can support more responsive and humane educational systems. When these elements are absent, the same technologies risk narrowing learning, distorting accountability, and undermining democratic control. The responsibility of educational leaders is to ensure that the former prevails.

References

Books & Book Chapters

Floridi, L., & Cowls, J. (2019). *A unified framework of five principles for AI in society*. Harvard Data Science Review, 1(1).

Fullan, M. (2020). *The new meaning of educational change* (5th ed.). New York, NY: Teachers College Press.

Glatthorn, A. A., Boschee, F., Whitehead, B. M., & Boschee, F. (2018). *Curriculum leadership: Strategies for development and implementation* (6th ed.). Thousand Oaks, CA: Sage.

Hargreaves, A., & Fullan, M. (2020). *Professional capital: Transforming teaching in every school*. New York, NY: Teachers College Press.

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Boston, MA: Center for Curriculum Redesign.

Marsh, C., & Willis, G. (2021). *Curriculum: Alternative approaches, ongoing issues* (6th ed.). New York, NY: Routledge.

Noble, S. U. (2018). *Algorithms of oppression: How search engines reinforce racism*. New York, NY: NYU Press.

Popenici, S., & Kerr, S. (2017). Exploring the risks of artificial intelligence in higher education. *Research and Practice in Technology Enhanced Learning, 12*(1), 1–13.

Spillane, J. (2006). *Distributed leadership*. San Francisco, CA: Jossey-Bass.

Journal Articles (Q1–Q2)

DeLuca, C., & Johnson, S. (2017). Developing assessment literacy: Shifts in teachers' understandings and practices. *Assessment in Education: Principles, Policy & Practice, 24*(2), 117–133.

Holmes, W., Porayska-Pomsta, K., & Holstein, K. (2022). Ethics in AI in education: Towards responsible adoption. *Computers & Education, 178*, 104449.

Keddie, A. (2021). Datafication, inequality and the future of schooling. *Journal of Educational Administration, 59*(4), 409–423.

Koene, A. (2019). Algorithmic accountability and public policy. *Internet Policy Review, 8*(2), 1–15.

Luckin, R. (2017). Towards artificial intelligence–enabled education. *British Journal of Educational Technology, 48*(4), 1–12.

Mittelstadt, B. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society, 3*(2), 1–21.

Pane, J. F. (2018). Strategies for implementing personalized learning. *Review of Educational Research, 88*(1), 41–76.

Priestley, M., Biesta, G. J. J., & Robinson, S. (2017). Teacher agency: An ecological approach. *Curriculum Inquiry, 47*(1), 1–26.

Selwyn, N. (2019). Should robots replace teachers? AI and the future of schooling. *Learning, Media and Technology, 44*(1), 1–16.

Williamson, B. (2019). Policy networks, performance metrics and the datafication of education. *Learning, Media and Technology, 44*(1), 64–76.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on AI in higher education. *International Journal of Educational Technology in Higher Education, 16*(39), 1–27.

Reports & International Policy Documents (UNESCO, OECD, EU)

European Commission. (2019). *Ethics guidelines for trustworthy AI*. Brussels, Belgium: Author.

European Commission. (2021). *Proposal for a regulation laying down harmonized rules on artificial intelligence (AI Act)*. Brussels, Belgium: Author.

Holmes, W., et al. (2021). *AI in education: Global mapping of policies and practices*. Paris, France: OECD Publishing.

OECD. (2020). *The future of education and skills 2030*. Paris, France: OECD Publishing.

OECD. (2021). *Digital education outlook 2021: AI in education*. Paris, France: OECD Publishing.

OECD. (2023). *AI in education: Breakthroughs, opportunities, and governance challenges*. Paris, France: OECD Publishing.

UNESCO. (2019). *Beijing consensus on artificial intelligence and education*. Paris, France: UNESCO.

UNESCO. (2021). *AI and education: Guidance for policymakers*. Paris, France: UNESCO.

UNESCO. (2023). *Global education monitoring report: Technology in education*. Paris, France: UNESCO.

Additional Works Cited in Leadership & Governance Sections

Leithwood, K., Harris, A., & Hopkins, D. (2020). Seven strong claims about successful school leadership revisited. *School Leadership & Management, 40*(1), 5–22.

CHAPTER 15

English As a Global Language: World Englishes and Lingua Franca Perspectives

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INTRODUCTION

English has emerged as the most widely used medium of international communication, serving various purposes in areas such as business, diplomacy and digital media. The increasing functionality of English has not only increased the number of its users but also has changed assumptions that associate English exclusively with native-speaker norms and fixed standards. In parallel with these transformation, two influential theoretical perspectives have gained recognition in applied linguistics: World Englishes (WE) and English as a Lingua Franca (ELF).

This study focuses on the use of English as a global language and aims to shed light on this phenomenon through the perspectives of World Englishes (WE) and English as a Lingua Franca (ELF). It addresses the global spread of English and the emergence of multiple English varieties, while also discussing English as a shared communicative resource used among speakers from diverse linguistic and cultural backgrounds.

English as a Global Language

Globalization is the process by which the world becomes more interconnected and unified. Beck (2000) equated globalization with the disappearance of nationalistic states and the emergence of the borderless global village. In addition, Robins (2003) defined globalization as the growing exchange of goods, services, knowledge, information, and human resources across national borders. Kumaravadivelu (2008) also argues that globalization has substantial effects on the economic, sociocultural, technological, and political dimensions of society.

As the world becomes increasingly interconnected, the value of fast and effective means of communication has skyrocketed. As a result, most people throughout the world started interacting with individuals from various regions using English, a globally recognized language. English is a global language, enabling it to play a vital role in today's world. As a result of the significant global role of English as a language, it is accepted as a 'global language' by many people worldwide; hence, the desire to learn English has rapidly increased all over the world. Akbulut (2016) states that globalization has brought people together into a single, interconnected society, leading English to be increasingly regarded as a global or international language learned primarily for communication rather than as a native language. As a result, people have begun learning English to survive in the exceedingly globalized world and use it as an international communication tool.

For a long time, it was believed that only nations that spoke Anglophone languages possessed English. Hence, the primary objective of an English learner was to master English with a native-like proficiency and accent. However, things are different now, given that there are far more people who are bilingual in

English than there are native English speakers (Crystal, 2003). Graddol (2006) highlights that the number of people who speak English, not as their first language, is quickly growing and has surpassed the number of native speakers. As a result, the global spread of English and the rise in the number of non-native speakers caused changes in English's standing. According to Crystal (2003), linguistic shifts are an unavoidable consequence of the expansion of English, and these alterations resulted in a new status, a new position, and new advancements for English. English has gained a global status and emerged as a worldwide communication tool that exceeds national and linguistic borders. According to Halliday and Martin (2003), when a language has achieved global status, it no longer belongs solely to its original speakers but also extends beyond its borders and is used by non-native speakers worldwide. Here, it is essential to articulate that English gained central status as it has become one of the contributing components that shape and direct world politics, economy, entertainment and education.

Spread of English around the World

English is a universal language that facilitates communication among millions of people from distinct sociolinguistic and sociocultural settings. It serves as the principal medium of communication across various regions globally. However, the spread of English started centuries before today's internationalized world order. The expansion of the British Empire, spanning approximately from 1600 to 1900, established the foundation for the dissemination of the English language (Spichtinger, 2000). As it is claimed by Graddol (2006), with Britain's colonial expansion over these centuries, different English speakers have spread in several regions of the world, providing a critical base for the globalization of the language.

The rise of British colonial power throughout the nineteenth century, which reached its zenith around the end of the nineteenth century (Graddol, 2006), is responsible for the present-day standing of the English language. However, the emergence of the United States as the preeminent economic and political power of the twentieth century is another undeniable factor (Todorova & Todorova, 2018). As stated by Sert (2020), particularly since the 20th century, the United States has been influencing the world as an economic, military and technological power. Businesses in the United States were successful at the time and quickly expanded their reach into international markets, just as their British counterparts had done in the previous century. Because of this, English, as the language of international trade and logistics, was strengthened. In addition, there was a significant export of American culture through entertainment media, such as art, music, and cinema. All of these commercial, political and cultural developments led to the spread of English as a world language.

In addition, technological advances and the widespread use of the internet contributed to the spread of English worldwide, as these developments originated in English-speaking countries. As Abbas (2019) notes, since the spread of technology and the internet in the early 1990s, they have become significant components of globalization and the expansion of the English language. Seidlhofer (2011) states that the global spread of English is greatly influenced by the internet, advertising, press, broadcasting, and technological developments.

On the other hand, it is a common misconception that the perceived aesthetic characteristics, clarity of expression, or religious standing of the English language are the primary reasons for its rise to prominence on a worldwide scale (Crystal, 2003). A prevalent misconception is that the simplicity of a language, along with its vocabulary and literary prowess, can bestow upon it global status. English has not attained its status due to these concerns (Önen, 2014). Instead, the influence of the individuals who speak the language gives it the capacity to become an international standard. The technological, economic, political and military strength of the people and countries play crucial roles in the rise of a language to a more prominent position on the world stage.

World Englishes

English has long been the preeminent language in global communication. It is spoken by billions of individuals across numerous countries. The global spread of English has led to the emergence of new centers beyond Great Britain and the United States, resulting in multiple varieties that differ in grammar, pronunciation, intonation, spelling, and vocabulary (Kachru & Nelson, 2006). As a result of the emergence of variations within the English language, the plural designation 'Englishes' has started to be employed by scholars (Kachru, 1985; McKay, 2011). Thus, the term' world Englishes' began to appear in the literature. World Englishes (WE) refers to the English language used in different parts of the world. McKay (2011) uses WE as a framework to characterize the phonological, grammatical, lexical, and pragmatic aspects of English's current use in various geographical locales. Kirkpatrick (2007) defines World Englishes as localized versions of English that have emerged globally, influenced by indigenous languages and cultures, and that embody the cultural and pragmatic norms of their speakers. World Englishes spoken in different parts of the world result from complex borrowing, mixing, and styling techniques used with other language families or discourses (Ricento & Hornberger, 2006, cited in Canagarajah, 2006).

Researchers and academics have developed several models to categorize varieties of English. Among these models, the best-known is Kachru's (1985). Kachru (1985) has categorized the three circles in his model as the inner circle, the outer circle, and the expanding circle, based on the patterns of English's development and attainment. The traditional foundations of English are regarded

as part of the inner circle. These are places where most of the citizens speak English as their first language. The countries in the inner circle are the United Kingdom, the United States of America, and Canada. Most of the nations that make up the outer circle are those in which English is used for official or managerial purposes. In outer circle counties, English is not the only official language, although some laws protect the position of English in educational and managerial domains. This circle consists primarily of countries that were formerly under British colonial rule; examples include Nigeria, Singapore, India and the Philippines. On the other hand, the countries that make up the expanding circle are the rest of the world's nations in which English is neither a native nor an official language. Because of its importance as a global language, people in these countries learn English as a foreign language (EFL). Japan, China, Tunisia, Italy and Argentina are among the countries in the widening circle. Turkey and a great majority of the rest of the world belong to this group.

In his model, Kachru (1985) classified countries worldwide as those that provide norms, those that develop them, and those that are dependent on them. Accordingly, the countries in the innermost circle serve as suppliers of language-related usages, suggesting that they disseminate standard English norms for non-native English speakers (NNESs) to follow. On the other hand, former colonial countries in the second circle have been identified as creating their own norms. That is to say, due to their colonial history and long-term use of English, they established their own conventions and codified varieties. Because of the imposition of the standards brought about by the native speakers (NSs) in the center, the nations that make up the third circle, which are known to be dependent on native supplies of English, have been forced to depend on native provisions of English (Kachru, 1985).

Use of English as a Lingua Franca

The teaching, learning, and use of English as a common language among speakers of various native languages is known as English as a lingua franca (ELF). It enables people with diverse linguistic and cultural backgrounds to communicate. Its primary purpose is to convey meaning effectively, especially among non-native speakers. Seidlhofer (2009) defines ELF as the primary medium for communication in interactions and transactions outside speakers' primary social and linguistic communities. English has become a global lingua franca because it has spread rapidly worldwide and is widely used in international economic and cultural contexts.

Another critical point worth mentioning is the term 'lingua franca core' proposed by Jenkins (2000). According to Jenkins (ibid), the lingua franca core includes the phonological and grammatical alternatives that non-native speakers use to improve intelligibility. Instead of using the correct rules of English, the speakers simplify and modify the language to improve mutual understanding.

Seidlhofer (2004) notes that speakers of English as a lingua franca often simplify English grammar. For example, they may drop the third-person singular –s, use who and which interchangeably, omit definite and indefinite articles, and pluralize nouns that are typically uncountable in native English. As proposed by Jenkins (2009), ELF speakers' communication needs surpass their motives to use the language with perfect grammar and semantic utilization.

The widespread use of English as a lingua franca has sparked debates over who owns the language. Widdowson (1994) argues that English can no longer be considered the exclusive property of its native speakers. In many communicative settings, English is used successfully without the presence of native speakers. Seidlhofer (2011) further points out that native speakers are actually a minority in ELF interactions and therefore do not usually serve as the main linguistic reference. Similarly, Gnutzmann (2000) emphasizes that when English functions as a lingua franca, it departs from the linguistic and cultural norms of native English-speaking communities. As a result, English is now used by a wide range of users and operates independently of native-speaker dominance. On the other hand, some researchers hold certain opposing beliefs. For example, House (1999) alleged that the users of English as a lingua franca are unsuccessful English speakers and exclude native speakers of English from the ELF definition. In addition, Firth (1996) argues that English still belongs to native speakers, who determine its norms. As noted by Seidlhofer (2005), native speakers are still viewed as the curators of English and have the ability to judge what is acceptable English and what is not. Taken together, these contrasting perspectives highlight the ongoing tension between native-speaker authority and the evolving, pluralistic nature of English as a lingua franca.

CONCLUSION

This chapter has examined the emergence of English as a global language within the context of globalization. It has shown that the global use of English has led to the development of multiple varieties, conceptualized within the World Englishes framework, and to the widespread use of English as a Lingua Franca among speakers from diverse linguistic and cultural backgrounds. By addressing both WE and ELF perspectives, the chapter has highlighted that English no longer belongs solely to native speakers but is a shared communicative resource shaped by its global users. The research also underscores the dynamic and evolving nature of English in today's world and the need to understand its global role beyond traditional native-speaker norms.

REFERENCES

Abbas, J. M. (2019). The Impact of Technology on Modern English Language. Al-Iraqia University–College of Arts.

Akbulut, F. D. (2016). ESP needs analysis of university preparatory school students: Learning-centred approach. Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 13(36).

Beck, U. (2000). The cosmopolitan perspective: sociology of the second age of modernity. The British journal of sociology, 51(1), 79-105.

Canagarajah, A. S. (2006). The place of world Englishes in composition: Pluralization continued. College composition and communication, 586-619.

Crystal, D. (2003). English as a Global Language. Cambridge: Cambridge University Press.

Firth, A. (1996). The discursive accomplishment of normality: On 'lingua franca'English and conversation analysis. Journal of pragmatics, 26(2), 237-259.

Gnutzmann, C. (2000). Lingua franca. The Routledge encyclopedia of language teaching and learning. London: Routledge, 356, 359.

Graddol, D. (2006). English Next: Why Global English May Mean the End of English as a Foreign Language. London: British Council.

Halliday, M. A. K., & Martin, J. R. (2003). Writing science: Literacy and discursive power. Routledge.

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

Jenkins, J. (2000). The phonology of English as an international language. Oxford University Press.

Jenkins, J. (2009). English as a lingua franca: Interpretations and attitudes. World Englishes, 28(2), 200-207.

Kachru, B. B. (1985). Standards, codification, and sociolinguistic realm: the English language in the outer circle. In R. Quirk & H.G. Widdowson, English in the World: Teaching and learning the language and literatures Cambridge: Cambridge University Press, 11–30.

Kachru, Y., & Nelson, C. L. (2006). World Englishes in Asian Contexts (Vol. 1). Hong Kong University Press.

Kirkpatrick, A. (2007). World Englishes hardback with audio CD: Implications for international communication and English language teaching. Cambridge University Press.

Kumaravadivelu, B. (2008). Cultural globalization and language education. Yale University Press.

McKay, S. L. (2011). English as an international lingua franca pedagogy. In Handbook of research in second language teaching and learning (pp. 122-139). Routledge.

Önen, S. (2014). Lexico-Grammatical Features of English as a Lingua Franca: A Corpus-Based Study on Spoken Interactions (Unpublished doctoral dissertation). Istanbul University, Istanbul.

Robins, K. (2003). The global transformations reader: The great globalization debate: An introduction. In D. Held & A. McGrew (Eds.), Encountering globalization (pp. 239- 145). Malden, MA: Polity Press.

Seidlhofer, B. (2004). 10. Research perspectives on teaching English as a lingua franca. Annual review of applied linguistics, 24, 209-239.

Seidlhofer, B. 2005. 'English as a lingua franca'. ELT Journal 59/4: 339–41.

Seidlhofer, B. (2009). Common ground and different realities: World Englishes and English as a lingua franca. World Englishes, 28(2), 236-245.

Seidlhofer, B. (2011). Conceptualizing 'English 'for a multilingual Europe. English in Europe today: Sociocultural and educational perspectives, 133-146.

Sert, S. (2020). Teaching English as a lingua franca in Turkey: An autoethnographic study (Unpublished doctoral dissertation). Çukurova University, Adana, Turkey.

Spichtinger, D. (2000). The Spread of English and its Appropriation. (Unpublished Masters' thesis). Geisteswissenschaftlichen Fakultat der Universitat Wien Austria.

Todorova, N., & Todorova, A. (2018). Globalization and the Role of the English Language. Міжнародні зв'язки України: наукові пошуки і знахідки, (27).

Widdowson, H. G. (1994). Autonomous learner and authentic language. Autonomy in language learning. Porto Alegre: Editora da UFRGS, 381-394.

CHAPTER 16

Self-Efficacy And Anxiety In Foreign Language Teaching

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Speaking a foreign language is a skill that extends beyond merely knowing grammatical and semantic rules. Canale & Swain (1980) suggest that speaking skill comprises grammatical competence, discourse competence, sociolinguistic competence and strategic competence. The speaking skill is often regarded as the most difficult of the four language skills (speaking, listening, writing and reading) because effective oral communication requires the ability to use the language appropriately in social interactions. Some researchers approach foreign language speaking skill in terms of three dimensions: (1) pronunciation, grammar and vocabulary; (2) opportunities to use speaking skills for real communication goals; and (3) fluency (Nation & Newton, 2009).

In the definitions concerning foreign language speaking skill, two important elements, accuracy and fluency, come to the fore (Derakhshan, Khalili, & Beheshti, 2016). Gower, Phillips ve Walters (1995) define the concept of accuracy as the use of vocabulary, grammar and pronunciation through certain activities, and the concept of fluency as the ability to continue speaking spontaneously.

Bygate (1987) classifies speaking skill as a production skill, which occurs in an environment without time constraints, and an interaction skill, which creates negotiation among learners. Shumin (2002), who treats speaking skill as part of grammar, stated that the appropriate use of grammar, vocabulary, pronunciation, intonation and stress contributes to fluency. Shumin explains discourse competence as the rules of cohesion and coherence that aid in the formation of meaningful communication. Furthermore, sociolinguistic competence is explained as knowing what is socially and culturally expected by users of the target language, and knowing how to ask questions and respond according to the purpose of the conversation. Strategic competence, meanwhile, is expressed as an individual's knowledge of when and how to take the floor, how to maintain a conversation, how to end it and how to address communication breakdowns as well as comprehension problems.

As the speaking skill requires diverse interactions, it is important to consider students' interests, needs and affective states in the development of this skill. Accordingly, the development of this skill necessitates activities that allow students to express their thoughts and effective teaching methods through which these activities will be implemented.

Different methods are proposed for the development of the speaking skill. Hussain (2017) recommends practices such as rhymes, picture description, oral composition, pronunciation exercises, reading aloud, open-ended stories and describing festivals, celebrations or events to improve speaking skill. Kumari (2014), on the other hand, views various function-based activities and tasks as important for developing speaking skills, such as dialogue, role-playing, expressing opinions on controversial topics, problem situations, surveys and

interviews, visual narration, describing dreams or goals, songs and rhymes. Moreover, Noviyenty (2018) deems techniques such as role-playing, group presentation, group discussion, speech contests, dialogues, direct correction, speaking in groups, debate contests, games and listening to songs as appropriate for teachers in teaching the speaking skill.

Today, modern technologies such as communication laboratories, video conferencing, video libraries, podcasts, quick link pen, quickdictionary, programs created via educational satellites, speech recognition software and internet and blog sites are used to develop speaking skill (Kuning, 2019). In addition to these, applications such as digital storytelling (Tatlı, Saylan, & Kokoç, 2022; Yang, Lo, Hsieh, & Wu, 2020), augmented realityand virtual reality have begun to be integrated into English lessons.

It is thought that students' exposure to an English-speaking environment in learning settings provided by dialogue will help facilitate their speaking naturally and automatically (Thituyetanh, 2015). In dialogue-based teaching activities, practice activities can be conducted by distributing different worksheets to students. Furthermore, multimedia materials on tools such as audio devices, television, and computers can also be used for listening and practice. At this point, there are also criticisms from some researchers that multimedia materials may fall short of providing an interactive representation of language teaching (Lee & Chen Hsieh, 2018). In this case, students cannot experience practical contexts during the learning process and may view the foreign language as a lesson in the classroom where they must learn basic rules related to grammar (Chen-Hsieh, Wu, & Marek, 2017). Therefore, the potential of this method can be strengthened by tools that can maintain a high level of interpersonal interaction during the dialogue process.

Dialogue-based teaching applications in speaking skill development efforts indicate that the principles of social learning theory can be taken into account in learning environments. Re-evaluating the principles of this theory within the framework of SG platforms and creating suitable environments may contribute to reducing the limitations in teaching speaking skills.

SELF-EFFICACY

Self-efficacy is based on a broad theoretical framework known as social cognitive theory, which assumes that human achievement depends on interactions between personal factors such as one's behaviors, thoughts, beliefs and environmental conditions. Bandura (2012) defined general self-efficacy as people's belief in their own abilities. General self-efficacy is defined as an individual's confidence in their skills to perform an action or achieve an outcome, as well as their ability to influence challenges and events in their own lives. This belief in one's own ability, called self-efficacy, is a situation related to an individual's assessment of how well they can plan and execute the necessary

actions in stressful situations that may contain unforeseeable elements (Bandura, 1977, 1982; Schunk, 1982). According to Pintrich and Schunk (1996), self-efficacy beliefs are important determinants in a person's decision-making process, career planning and academic achievement, in addition to affecting their mental and physical health. Self-efficacy has an influence on how people will approach and succeed at various challenges and tasks.

Self-efficacy is goal-related. It does not have a comparative feature; it is based only on one's own perception. Furthermore, self-efficacy expresses a future perception. An individual's self-efficacy determines the amount of effort they show toward their goals (Bandura, 1997). If an individual believes they can complete things to achieve a goal, they will expend more effort to fulfill this task. In early infancy, the individual begins to learn cause-and-effect relationships, including the reciprocal effects of the self on the world. These early experiences shape the child's sense of personal agency and contribute to their personal agency in specific behavioral development situations. Such situation-specific beliefs are defined as self-efficacy beliefs and as strengths and weaknesses develop in an individual's behaviors, it can be said that performance-based beliefs associated with these behaviors also develop (Cervone et al., 2006).

Self-efficacy is not the sole determinant of the effort an individual will put into their studies, but it holds great importance. Self-efficacy is the domain-specific perceived self-confidence one has in their abilities. Self-efficacy beliefs influence task choice, effort, persistence, resilience and achievement, as well as the amount of stress and anxiety (Pajares and Miller, 1994; Pajares, 2002). To develop students' self-efficacy perceptions, specific, short-term goals can be set that will challenge students but are still seen as achievable. Students can be helped to determine a specific learning strategy and to verbalize their plans. As students progress on a given task, they can be asked to note their progress (Schunk and Pajares, 2002).

Characteristic Features of High Self-Efficacy Perception

People who have high confidence in their abilities possess a high level of self-efficacy (Bandura, 1994). It is linked to how individuals behave and motivate themselves based on their knowledge and skills. A strong sense of efficacy enhances human achievement and personal confidence in many ways. People with high self-efficacy in their abilities approach difficult tasks as challenges to be mastered rather than as threats to be avoided. Such an effective outlook fosters intrinsic interest in activities. They set challenging goals for themselves and maintain a strong commitment to them. Individuals with a high perception of self-efficacy increase and sustain their efforts in the face of failure; they quickly recover their sense of efficacy after failures or setbacks. They attribute failure to insufficient effort or to a lack of knowledge and skills which are acquirable. They approach threatening situations with the assurance that they can exercise control

over them (Bandura, 1994). Self-efficacy affects not only the goals students set for their studies but also how well they achieve those goals. The higher the perception of one's own ability, the higher the goals students will set. Confident individuals expect successful outcomes. Students who are confident in their social skills expect successful social encounters. Those who are confident in their academic abilities expect high grades on exams and expect the quality of their work to yield personal and professional benefits.

Characteristic Features of Low Self-Efficacy Perception

According to Bandura (1997), low self-efficacy beliefs can play a role in a person's low academic achievement. People who doubt their abilities shy away from difficult tasks, which they view as personal threats. They have low aspirations and weak commitment to the goals they pursue. When faced with difficult tasks, they dwell on their personal deficiencies, the obstacles they will encounter, and all sorts of adverse outcomes, rather than concentrating on how to perform successfully. Individuals with a low perception of self-efficacy slacken their efforts and give up quickly in the face of difficulties. They are slow and find it difficult to recover their sense of efficacy following a failed experience. Because they view insufficient performance as deficient aptitude, it does not take many failure experiences for them to lose faith in their capabilities (Bandura, 1994). People with a low perception of self-efficacy succumb to stress and depression. Students who doubt their social skills may often anticipate rejection or ridicule even before initiating social contact. Those who lack confidence in their academic skills envision receiving a low grade before starting an exam or enrolling in a course. Margolis and McCabe (2006) stated that strategies such as giving students moderately challenging tasks, utilizing their interests, allowing them to make their own choices, encouraging them to try and providing frequent feedback can be used to raise students' self-efficacy perceptions.

Processes Affected by Self-Efficacy

Bandura (1994) set forth the processes that influence the development of self-efficacy perception as cognitive, motivational, affective and selection processes.

Cognitive Process

Bandura (1993) evaluated the cognitive process by stating, “Most courses of action are initially shaped in thought.” People's beliefs in their efficacy shape the expected outcomes of the actions they put into performance. Those with a high sense of efficacy dwell on successful scenarios in their minds and realize the successful outcomes expected from their performance. When people believe they will succeed, they set goals for themselves toward the situation they desire (Bandura, 1977). Those who doubt their efficacy, however, conclude the expected outcome will be failure. It is difficult to achieve much while battling

self-doubt. The main function of thought is to enable people to predict events and to develop ways of gaining control over situations that affect their lives.

Motivational Process

Belief in one's efficacy plays an important role in the self-regulation of motivation. Most human motivation is cognitively generated. People motivate themselves and guide their actions by anticipating their performance. They form beliefs about what they can do (Bandura 1994). Self-efficacy perceptions influence individuals' motivation (Zimmerman, 2000). According to Gardner's (1985) definition, there are at least three basic indicators related to the learner; motivation, the effort of students, the students' desire to learn the language, and the learners' satisfaction with learning. By making self-satisfaction conditional on matching adopted goals, people give direction to their behavior and incentivize themselves to persist in their efforts until they achieve their goals. When people who doubt their abilities encounter an obstacle or failure, they reduce their efforts or give up quickly. Those who have a strong belief in their abilities, however, exert greater effort when they fail to meet a challenge. Strong perseverance contributes to performance accomplishments.

Bandura (1994) stated that there are three types of cognitive motivators: causal attributions, outcome expectancies and cognitive goals. Each motive is formed from a different theory. Individuals attribute their successes or failures to different reasons. Individuals who believe in their abilities define their success by their ability and effort (Bandura, 1977). Furthermore, people have a thought about how successful they can be at a specific task (expectancy) and they consider what the task means to them (value).

Self-Efficacy Perception in Foreign Language Learning

Since language learning is different from other learning situations, attention should be paid to how students develop self-efficacy and what factors influence their self-efficacy in the foreign language context. Research findings from various fields indicate that self-efficacy is a significant factor influencing students' interest, persistence, the effort students expend on learning, the goals they choose to pursue, and their use of self-regulatory strategies when performing a task (Carmichael and Taylor, 2005; Lane, Lane, and Kyprianou, 2004; Linnenbrink and Pintrich, 2003; Schunk, 2003; Raoofi et al., 2012).

Self-efficacy beliefs appear to have both direct and indirect effects on different aspects of language learning. Sharma & Nasa (2014) explains academic self-efficacy as the ability to organize, execute and regulate action to achieve performance. In a study investigating the relationship between students' academic self-efficacy perceptions and their academic achievement, Nasir and Iqbal (2019) concluded that there is a positive correlation between self-efficacy and academic achievement. Research conducted by Mills, Pajares, and Herron (2007)

concluded that self-efficacy is a strong predictor of language learning success among university students learning a foreign language at an intermediate level. The higher the self-efficacy in an individual, the stronger the effort the person will expend, and the greater their power to persist in finishing a task when faced with difficulties. Students with low self-efficacy, however, tend to perform or execute simple academic tasks, expend minimal effort and persistence; they may even avoid completing the task altogether. In addition to these, the performance of teachers also plays an important role in providing opportunities for students to increase their self-efficacy. If the teacher wants students to cope with all the difficulties they face in their learning processes, they will need to do their best to ensure students have high self-efficacy. If the teacher assigns student tasks according to each student's competence level, each student can fulfill the given task and feel that they will be successful in language learning. In this way, students' self-confidence will increase, and consequently, their self-efficacy will be higher (Güç, 2019). In summary, self-efficacy is an effective element in students' success in English language learning

FOREIGN LANGUAGE ANXIETY

Anxiety is a feeling of distress or worry an individual feels, as if something bad is about to happen (Azazi Aslan, 2023). Anxiety is seen in many areas of life; consequently, it is frequently encountered in the learning process as well. When looking at the main causes that give rise to foreign language anxiety, test anxiety can be given as the first example. Test anxiety is a condition frequently observed in students. Sarıkaya and Gemalmaz (2021) stated that test anxiety is a significant problem that causes performance decline in students and is accompanied by serious psychological issues. In this respect, anxiety is a situation we cannot ignore in the educational environment. Test anxiety is a common and mostly detrimental emotion in learning and achievement settings (Roos et al., 2021).

Anxiety and attitude in students are seen as necessary components of learning and, consequently, play an important role in second language acquisition (Ali, Anvar, 2021). In foreign language learning, anxiety and its effects on language learning have become one of the main topics attracting the interest of researchers in recent years. In terms of both theoretical and practical interest, most research in this field has examined the relationship between anxiety and second language achievement (Teimori, Goetze, and Plonsky 2019). Some researchers are redefining anxiety in terms of language learning. Halder (2018) defines English language anxiety as a situation-specific type of anxiety primarily associated with speaking, listening and learning, especially in English language contexts. According to Chen and Chang (2004), some anxious students have past English learning problems, receive low grades, experience difficulties in classroom learning, and exhibit weak developmental skills.

Foreign language anxiety can also occur in the learning environment within the classroom. In this case, teachers also have roles within the classroom in helping students cope with anxiety. It is recommended that the classroom environment be very friendly, encouraging and motivating (Azher, Anvar, and Naz, 2010). Furthermore, teachers must realize that language learning is a potentially stressful situation for some students and that the tension and discomfort associated with language learning require the attention of the language teaching profession (Horwitz, 2001). While it is vital for teachers to increase students' attitudes and motivations and make foreign language teaching enjoyable, they must also consider ways to alleviate students' foreign language classroom anxiety or at least teach them how to manage their situations to limit the negative effects of foreign language classroom anxiety (Dewaele and Proietti Ergün 2020).

Previous research by Bailey, Daley, and Onwuegbuzie (1999) suggested a connection between students' self-perception as language learners and their subsequent academic performance and anxiety in foreign language settings. Despite this, the specific relationship between an individual's learning style and their level of foreign language anxiety had not, until now, been subjected to empirical investigation. Consequently, the current investigation, which included 146 university-level participants, aimed to pinpoint specific learning modalities that correlate with foreign language anxiety. Employing multiple regression analysis, the study examined twenty different learning variables and found that only two—responsibility and peer orientation—showed a significant relationship to this anxiety. Specifically, higher levels of foreign language anxiety were observed in students who demonstrated a lack of responsibility regarding homework completion and who showed a preference against collaborative group learning environments. While these two learning style factors accounted for merely six percent of the variance, the researchers assert that this seemingly minimal discovery holds important implications for the broader field of foreign language anxiety research. The article proceeds to discuss these outcomes, puts forward potential avenues for subsequent inquiry, and offers recommendations aimed at better understanding this form of anxiety and improving the language learning process.

In a 2001 review, Horwitz synthesizes the existing literature on language learning anxiety to clarify its precise relationship with the process of second language acquisition. The review first establishes the importance of conceptualizing language anxiety as a specific, situational anxiety rather than a general, continuous one, noting that this distinction has brought greater clarity to the research field. The findings regarding the link between anxiety and language achievement are largely uniform, consistently revealing a moderate negative correlation between the two. However, the review also addresses the ongoing debate about causality, highlighting that some researchers have argued anxiety is

a *consequence* of poor language learning, not its cause. Horwitz (2001) ultimately concludes that for certain individuals, anxiety does indeed function as a cause of poor learning outcomes. The research explores possible origins of this anxiety, such as the inherent difficulty of presenting one's authentic self in a new language and various common language teaching practices. Finally, the review identifies new trends in the research, which attempt to disaggregate the anxiety response by identifying specific aspects of language use, such as reading anxiety or writing anxiety, that are uniquely triggering for some learners.

In a longitudinal study spanning 10 years, Sparks and Ganschow (2007) tracked 54 students, assessing their native language skills from first through fifth grade. Later, in high school, the same participants were tested for foreign language aptitude and proficiency after they had all completed two years of study in either Spanish, French or German. The students were categorized into low, average and high-anxiety groups using their scores on the Foreign Language Classroom Anxiety Scale (FLCAS). The results revealed that the low-anxiety cohort performed significantly better than the high-anxiety cohort on all native language measures starting as early as the second grade. This performance gap extended to the high school measures, where the low-anxiety group again significantly outperformed the high-anxiety group across all foreign language proficiency tests, aptitude assessments and final course grades. Conversely, minimal significant differences were observed when comparing the low-anxiety and average-anxiety groups on both native and foreign language metric. Furthermore, the study found a negative correlation between FLCAS scores and the students' native language skills in reading, spelling and vocabulary, dating back to the start of the first grade. These results led the authors to suggest that the FLCAS may, in fact, be capturing students' self-perceptions of their underlying language learning capabilities. This implies that inherent language skills could be a significant confounding variable in studies that attribute poor foreign language outcomes primarily to the effects of anxiety.

Aydın and Zengin (2008) conducted a literature review on anxiety in foreign language learning. According to this, the results of the studies show that anxiety has significant effects on foreign language learning. This study aims to present a synthesis of studies conducted on anxiety in foreign language learning. Based on this aim, the studies conducted were grouped under the headings of determination of anxiety types, causes of anxiety, effects of anxiety on foreign language learning, ways of coping with anxiety and studies conducted in Türkiye, and are summarized in chronological order. The study is thought to contribute to raising the awareness levels of target groups such as teachers, students and teacher trainers on the subject of anxiety and to their research activities.

Serraj and Noordin (2013) conducted a study grounded in the understanding that anxiety is an influential variable affecting outcomes in foreign language

acquisition. Their research specifically aimed to investigate the interplay between listening comprehension, general foreign language anxiety (FLA), and the more specific foreign language listening anxiety (FLLA). The study's participants comprised 210 Iranian EFL students. The researchers identified distinct correlations among the three variables. A positive correlation (0.513) was found between general foreign language anxiety and foreign language listening anxiety, suggesting these two forms of anxiety are consistent with one another. Furthermore, the results showed a negative correlation of -0.214 between general foreign language anxiety and listening comprehension. However, a significantly stronger negative correlation of -0.414 was observed between foreign language listening anxiety and listening comprehension. Based on these results, the authors concluded that foreign language listening anxiety, in particular, has a more significantly problematic impact on the listening skills of this student group. The study therefore recommends that both language instructors and learners should cultivate a greater awareness of the inhibitory effects that both general and listening-specific anxieties can impose on the language learning process, especially concerning listening comprehension.

Üner, Alcı, and Türkan (2017) aimed to determine the relationship between middle school students' levels of coping with foreign language anxiety and their emotional intelligence skills. The participants of this descriptive and quantitative research, conducted in a survey model, were 205 middle school students studying in a provincial center in the Western Black Sea region. The "Foreign Language Learning Anxiety Scale" and the "Bar-On Emotional Intelligence Scale Child and Adolescent Form" developed by Bar-On and Parker were used in the research. The result of the research revealed a moderate positive relationship between middle school students' levels of coping with foreign language anxiety and their emotional intelligence skills. In addition, moderate and low-level relationships were also identified between the sub-dimensions of both foreign language anxiety and emotional intelligence. Furthermore, it was also seen that the differentiation according to gender and grade level was significant in some sub-dimensions of foreign language anxiety skills and emotional intelligence skills.

Chen and Hwang (2022) implemented an Interactive Spherical Video-Based Virtual Reality (ISVVR) system to immerse students in realistic sociocultural contexts for English speaking practice. They conducted an experiment involving 93 students across two classes to assess how this ISVVR approach affected speaking performance and anxiety, particularly in relation to the students' differing cognitive styles. Using a pre-test-post-test quasi-experimental design, the researchers explored the interplay between cognitive style and the learning mode on several outcomes: learning motivation, speaking anxiety oral presentation skills, and gesture analysis. All participants completed the Group Embedded Figures Test to categorize their cognitive styles as either field-dependent or field-independent. The results revealed a significant interaction

between the learning mode and cognitive style, which notably influenced both the students' oral presentation abilities and their levels of speaking anxiety. A specific finding was that participants using the ISVVR mode adopted structural gestures during their presentations that more closely resembled the speech patterns characteristic of TED speakers. These findings suggest that accounting for students' cognitive styles when implementing ISVVR learning environments is beneficial for EFL learners

REFERENCES

Ali, B.J, & Anwar, G.(2021). Anxiety and foreign language learning: analysis of students' anxiety towards foreign language learning. *International Journal of English Literature and Social Sciences,* 6(3), 234-244.

Aydın, S., & Zengin, B. (2008). Yabancı Dil Öğreniminde Kaygı: Bir Literatür Özeti. *Journal of Language and Linguistic Studies, 4*(1), 81-94.

Azazi Aslan, S. (2023). Ergenlerde ana-baba tutumu, sınav kaygısı, ders çalışma becerilerinin lise giriş sınavını yordama düzeyleri. (Yüksek lisans tezi). Mersin Üniversitesi.

Azher, M., Anwar, M. N., & Naz, A. (2010). An investigation of foreign language classroom anxiety and its relationship with students achievement. *Journal of College Teaching & Learning (TLC)*, 7(11).

Bailey, P., Daley, C. E., & Onwuegbuzie, A. J. (1999). Foreign Language Anxiety And Learning Styles. *Foreign Language Annals, 32*(1), 63-76.

Bandura, A. (1977). Self-Efficacy: Toward a Unifying Theory Of Behavioral Change. *Psychological Review, 84*(2), 191–215.

Bandura, A. (1982). Self-efficacy Mechanism In Human Agency. *American Psychologist, 37*(2), 122–147.

Bandura, A. (1993). Perceived Self-Efficacy In Cognitive Development And Functioning. *Educational Psychologist, 28*(2), 117-148.

Bandura, A. (1994). Self-Efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of Human Behavior* (Vol. 4, pp. 71-81). Academic Press.

Bandura, A. (1997). *Self-efficacy: The Exercise of Control*. W. H. Freeman.

Bandura, A. (2012). Self-efficacy. In H. T. Reis & S. K. E. Sprecher (Eds.), *Encyclopedia of Human Relationships* (Vol. 1, pp. 1-10). Sage Publications.

Bygate, M. (1987). Speaking: *The Cambridge guide to teaching English to speakers of other Language.* Cambridge: Cambridge University Press.

Canale, M., & Swain, M. (1980). Theoretical Bases of Communicative Approaches to Second Language Teaching and Testing. *Applied Linguistics,* 1, 1-47.

Carmichael, C., & Taylor, J. A. (2005). Fostering Female Student İnterest İn It Careers: A Case Study. *Journal of Information Technology Education: Research, 4*(1), 219-226.

Cervone, D., Shadel, W. G., Smith, R. E., & Fiori, M. (2006). Self-efficacy Beliefs And The Architecture Of Personality: On Knowledge Structures, Cognitive Processes, And Other Theoretical Mechanisms. In R. F. Baumeister & K. D. Vohs (Eds.), *Encyclopedia of Social Psychology* (pp. 776-778). Sage.

Chen, T. Y., & Chang, C. S. (2004). The Relationship Between Foreign Language Anxiety And Learning Difficulties İn The Chinese Efl Context. *English Teaching & Learning, 28*(3), 89-110.

Chen Hsieh, J. S., Wu, W.-C. V., & Marek, M. W. (2017). Using the flipped classroom to enhance EFL learning. *Computer Assisted Language Learning,* 30(1-2), 1-21. doi: http://10.1080/09588221.2015.1111910

Chen, Y. L., & Hwang, W. Y. (2022). Effects of An İnteractive Spherical Video-Based Virtual Reality Mode On Students' English-Speaking Performance And Anxiety. *Computers & Education, 183*, 104481.

Derakhshan, A., Khalili, A. N., & Beheshti, F. (2016). Developing EFL learner's speaking ability, accuracy and fluency. *English Language and Literature Studies*, 6(2), 177-186.

Dewaele, J. M., & Proietti Ergün, A. L. (2020). How different are the relations between enjoyment, anxiety, attitudes/motivation and course marks in pupils' Italian and English as foreign languages? *Journal of the European Second Language Association,* 4(1), 45-57.

Gardner, R. C. (1985). *Social Psychology And Second Language Learning: The Role of Attitudes And Motivation*. Edward Arnold.

Gower, R., Phillips, D., & Walters, S. (1995). *Teaching practice handbook*. Oxford: MacMillan Education.

Horwitz, E. K. (2001). Language Anxiety And Anxiety Research: A New Agenda. *Annual* Review of Applied Linguistics, 21, 112-121.

Hussain, M. A. (2018). Language anxiety and attitude of secondary school students towards learning English. *Pakistan Journal of Education,* 35(1).

Kumari, A. (2014) Examınatıon Stress And Anxıety: *A Study Of College Students. Global Journal of Multidisciplinary Studies,* 2014/12/31

Halder, U. K. (2018). English language anxiety and academic achievement. *UGC Journal,* 4(3), 138-147.

Lane, J., Lane, A. M., & Kyprianou, A. (2004). Self-efficacy, İntrinsic Motivation, And Computer-Related Ability İn Greek-Cypriot Students. *Journal of Educational Computing Research, 30*(4), 303-316.

Lee, J. S., & Chen Hsieh, J. (2018). University students' perceptions of English as an International Language (EIL) in Taiwan and South Korea. *Journal of Multilingual and Multicultural Development,* 39(9), 789–802.

Linnenbrink, E. A., & Pintrich, P. R. (2003). The Role of self-efficacy Beliefs İn Student Engagement And Learning İn The Classroom. *Reading & Writing Quarterly, 19*(2), 119-137.

Margolis, H., & McCabe, P. P. (2006). Improving Self-Efficacy And Motivation: What To Do, What To Say. *Intervention in School and Clinic, 41*(4), 218-227.

Mills, N., Pajares, F., & Herron, C. (2007). Self-efficacy of College Intermediate French Students: Relation To Achievement And Motivation. *Language Learning, 57*(3), 417-442.

Nasir, M., & Iqbal, J. (2019). The relationship Between Academic Self-Efficacy And Academic Achievement Of University Students. *Journal of Educational Research, 22*(1), 47-59.

Nation, I.S,P & Newton, Jonathan. (2009). Teaching ESL/EFL Listening and Speaking. New York: Routledge.

Noviyenty, L. (2018). Strategies in Learning and Techniques in Teaching English Speaking. ENGLISH FRANCA : *Academic Journal of English Language and Education,* 2(1 June), 35–48. https://doi.org/10.29240/ef.v2i1.454

Pajares, F. (1996). Self-efficacy Beliefs in Academic Settings. *Review of Educational Research, 66*(4), 543-578.

Pajares, F. (2002). Self-efficacy Beliefs İn Academic Contexts: An Outline. *Self-Efficacy Beliefs in Academic Contexts, 1*(1), 1-28.

Pajares, F., & Miller, M. D. (1994). Role of Self-Efficacy And Self-Concept Beliefs İn Mathematical Problem Solving: A Path Analysis. *Journal of Educational Psychology, 86*(2), 193–203.

Pintrich, P. R., & Schunk, D. H. (1996). *Motivation in Education: Theory, Research, and Applications*. Merrill/Prentice Hall.

Raoofi, S., Tan, B. H., & Chan, S. H. (2012). Self-efficacy in Second/Foreign Language Learning Contexts. *English Language Teaching, 5*(11), 60-73.

Roos, A. L., Goetz, T., Voracek, M., Krannich, M., Bieg, M., Jarrell, A., & Pekrun, R. (2021). Test anxiety and physiological arousal: A systematic review and metaanalysis. Educational Psychology Review, 33, 579-618.

Sarıkaya, A., & Gemalmaz, A. (2021). Sınav kaygısı: Nedenleri, Belirtileri ve Başa Çıkma Yöntemleri Üzerine Bir Derleme. *Anadolu Psikiyatri Dergisi, 22*(Ek 1), 52-59.

Sharma, H. L. & Nasa, G. (2014). Academic self-efficacy a reliable predictor of educational performances. *British Journal of Education,* 2(3), 57-64.

Shumin, K. (2002). Factors to consider: Developing adult EFL student speaking abilities. In J. C. Richards & W. A. Renandya (Eds.), *Methodologyin language teaching: An anthology of current practice* (pp. 204-211). Cambridge: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511667190.028

Schunk, D. H. (1982). Verbal Self-Reports As A Source Of Evaluative İnformation. *Review of Educational Research, 52*(1), 3-26.

Schunk, D. H. (2003). Self-efficacy for Reading And Writing: Influence of Modeling, Goal Setting, and Self-Evaluation. *Reading & Writing Quarterly, 19*(2), 159-172.

Schunk, D. H., & Pajares, F. (2002). The Development of Self-Efficacy. In A. Wigfield & J. S. Eccles (Eds.), *Development of Achievement Motivation* (pp. 15-31). Academic Press.

Serraj, S., & Noordin, N. (2013). Relationship Among Foreign Language Anxiety, Listening Anxiety And Listening Comprehension. *International Journal of English Language Education, 1*(1), 1-14.

Sparks, R. L., & Ganschow, L. (2007). Is the Foreign Language Classroom Anxiety Scale Measuring Anxiety Or Language Skills? *The Modern Language Journal, 91*(3), 385-403.

Tatlı, Z., Saylan, E., Kokoç, M. (2022). Digital Storytelling in an Online EFL Course: Influences on Speaking, Vocabulary, and Cognitive Load, *Participatory Educational Research (PER)* Vol.9(6), pp. 89-112, November 2022

Teimori, A., Goetze, J., & Plonsky, L. (2019). A Meta-Analysis Of The Relationship Between Anxiety And Language Achievement. *Applied Linguistics, 40*(6), 932-959.

ThiTuyetAnh, N. (2015). The Key Principles for Development of Speaking. *International Journal on Studies in English Language and Literature* (IJSELL), 49 - 53

Üner, S., Alcı, B., & Türkan, B. (2017). Ortaokul Öğrencilerinin Yabancı Dil Kaygısıyla Başa Çıkma Düzeyleri İle Duygusal Zekâ Becerileri Arasındaki İlişkinin İncelenmesi. *Eğitimde ve Psikolojide Ölçme ve Değerlendirme Dergisi, 8*(2), 220-234.

Yang, Y. T. C., Chen, Y. C., & Hung, H. T. (2020). Digital storytelling as an interdisciplinary project to improve students' English speaking and creative thinking. *Computer Assisted Language Learning,* 1-23.

Zimmerman, B. J. (2000). Self-efficacy: An Essential Motive To Learn. *Contemporary Educational Psychology, 25*(1), 82-91.

CHAPTER 17

The Affective Filter in Foreign Language Teaching: Anxiety and Motivation

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Researchers have different theoretical approaches to foreign language learning. Some of these theories deal with the obstacles to language learning. In this context, the 5 hypotheses of Krashen's (1982) Second Language Acquisition theory have frequently been taken into consideration by language educators in recent years. The Acquisition-Learning hypothesis suggests that there are two ways for adults to develop competence in a second language. The first way is a subconscious language acquisition process, similar to how children develop abilities in their first language. Through this path, they are often unaware of the fact that they are acquiring the language; they are only aware that they are using the language for communication. The second way is to consciously possess knowledge about the foreign language, to know its rules, to be aware of them and to be able to talk about them. Language theorists assume that children acquire language, whereas adults can only learn it. However, this hypothesis suggests that adults' ability to "pick up" languages is not lost during adolescence. Although this idea does not mean that adults can always achieve native-like proficiency in a second language, it can be thought that adults also have access to the natural "language acquisition device" that children use.

The Monitor hypothesis suggests that language acquisition initiates our utterances in a foreign language and is responsible for our fluency. This hypothesis posits that conscious rules can only be used when users have sufficient time, focus on form, and know the rule. The Monitor hypothesis states that conscious learning plays only a limited role in foreign language performance. The Natural Order hypothesis, in turn, suggests that language learners tend to acquire certain grammatical structures early and others later. The Input hypothesis attempts to answer the question, "How do we acquire language?" and according to this hypothesis, acquisition occurs when someone at level "I" understands language containing structures slightly above their current level, "i+1". This understanding can be possible when the context of the language being listened to or read and general world knowledge are used. Another hypothesis, the Affective Filter hypothesis, suggests that affective variables such as motivation, self-confidence, and anxiety influence success in foreign language learning by strengthening or weakening the power of messages.

Affect is fundamentally concerned with "aspects of emotion, feeling, mood or attitude that condition behavior" (Arnold, 1999; Brown, 2001). In this context, the assessment has been made that "Success in language learning depends less on materials, techniques and linguistic analyses, and more on what goes on inside and between the people in the classroom" (Stevick, 1980). Here, the concept of 'inside' emphasizes individual or personality factors such as self-concept/self-esteem, anxiety, inhibition, attitudes, motivation and learning styles, while the concept of 'between' highlights the interactions developing within the classroom between student-student or teacher-student, or between students and the target language and culture (Arnold, 2011). The Affective Filter hypothesis identifies a

set of affective variables that help or hinder foreign language acquisition (Krashen, 1982). In this process, the affective filter is defined as an imaginary wall that emerges in the mind and blocks input. According to this view, anxiety, motivation and self-confidence are three main variables that play a role in foreign language learning. When students' affective filters are raised, their language learning will become more difficult. When the affective filter is lowered, students will become more open to input as feelings of security and self-confidence increase and language learning will increase. In this context, it can be said that learning environments developed by taking the affective filter hypothesis into account will positively affect language learning. In this study, it was evaluated that the elements of reality, sense of presence and interaction created by SG platforms might have the potential to lower the affective filters in students, and the affective filter hypothesis was included among the theoretical frameworks on which the study was based. Within this hypothesis, anxiety, motivation and attitude draw attention as sources of the filter (Du, 2009; MacIntyre & Gardner, 1994) and are among the important variables focused on in this study.

Anxiety

Anxiety is an emotion that develops unconsciously due to the inability to cope with or succeed in a dangerous situation and is consciously perceived by the individual (Freud, 1936). Rogers (1957), on the other hand, considers anxiety as a state of unease with an undetermined cause, arising from conflicts between an individual's own thoughts and the expectations of them. Freud (1936) classifies anxiety as realistic anxiety, neurotic anxiety and moral anxiety. While realistic anxiety arises in response to danger from external factors; neurotic anxiety stems from instincts and moral anxiety is a feeling of fear directed towards one's own conscience Cüceloğlu (2010) argues that anxiety emerges as a result of departing from a familiar environment, negative outcomes, and behavior contrary to what one thinks. Psychologically; anxiety, seen as a feeling that creates worry and restlessness, can manifest physiologically through conditions such as individuals sweating, rapid heartbeat, restlessness and feeling tense Horwitz, 2013).

Anxiety can create distraction and negatively affect learning performance because it disturbs individuals' thoughts regarding an event and imparts a feeling of avoidance toward the new situation causing these thoughts (Zeidner, 2014). On the other hand, the alerting feature of anxiety can also offer positive contributions, such as taking precautions against events, becoming motivated and controlling behavior by mobilizing the individual (Ersevim, 2005; Manav, 2011)

Foreign language learning, by its nature, includes many situations that can create anxiety. Foreign Language Anxiety (FLA) is a type of anxiety linked to the language learning process. This anxiety is conceptualized by Horwitz et al. (1986) as a combination of personal perceptions, beliefs, feelings and behaviors related to language learning in the classroom, stemming from the uniqueness of

the language learning process (p.128). For foreign language learners, many factors such as the native language factor, grammar and pronunciation factor, peer factor, stage fright factor, lack of self-confidence and shyness can cause anxiety (Rajitha & Alamelu, 2020).

Horwitz et al. (1986) asserted that high levels of Foreign Language Speaking Anxiety (FLSA) inhibit speaking, comprehension and sound production in language learning environments during the development of speaking skills. The potential sources of Foreign Language Speaking Anxiety are generally the fear felt when speaking the foreign language, fear of negative evaluation, apprehension and feelings of restlessness (Pakpaham & Gultom, 2022). Deficiencies in speaking activities, limitations in pedagogical practices, comprehension problems and negative experiences in classes are also among the sources of speaking anxiety (Von Worde, 2003). Furthermore, linguistic difficulties in terms of vocabulary, grammar and pronunciation, fear of making mistakes in front of others or low self-confidence, the negative role of the teacher in speaking classes (Kayaoğlu & Sağlamel, 2013), language barriers, negative attitudes, and intercultural communication difficulties (Mulyono, Sari, & Ningsih, 2019) are also sources of foreign language speaking anxiety.

Those who are anxious while speaking a foreign language may experience physical and psychological problems such as sweating, palpitations, fear, panic, forgetfulness, numbness and difficulty in language learning (Yalçın & İnceçay, 2014). Students with high anxiety levels tend to receive lower course grades, want to drop language classes, freeze up during conversations, forget previously learned information, show reluctance to answer and participate less in class (Dewaele & Thirtle, 2009; Horwitz et al., 1986) Anxiety levels in individuals can generally be determined by behavioral tests where their actions are observed, and by their self-reports about their internal feelings and reactions.

In summary, speaking anxiety is seen as a significant obstacle to foreign language learning. Therefore, it is important that learning environments designed to develop speaking skills incorporate features that will alleviate students' speaking anxiety.

Motivation

One of the affective filters in foreign language learning is low motivation. Beşiktaş and Terekli (2023) treated motivation as an internal energy that affects all aspects of our lives, including what we think, how we feel, and how we interact. Motivation research, dating back to Freud, has attempted to answer questions such as what activates the individual, why the individual prefers one behavior over another and why individuals react differently to the same motivational stimuli. In foreign language learning, motivation is classified in three ways: intrinsic, integrative, and instrumental. Intrinsic Motivation: The individual enjoys learning the foreign language and is interested in language

learning; Integrative Motivation: The individual learns the foreign language to adapt to a community they are foreign to, to communicate, and to meet daily communication needs more comfortably; and Instrumental Motivation: The individual learns the foreign language to obtain material and career benefits (Akmençe & Tuncer, 2023; Atay, 2004; Dörnyei, 1998).

In the foreign language learning process, motivation and attitude can be evaluated as a desire, willingness, and driving force in the individual's learning, influenced by internal and external factors. A lack of motivation in the foreign language learning process can lead to situations such as disinterest in learning, hesitation to participate in any class activity, inability to form a close bond with the teacher and/or peers and increasing shyness in the classroom environment (Ekiz & Kulmetov, 2016;Tuan, 2011).

Research offers some suggestions to teachers for motivating foreign language learners (Dörnyei & Csizer, 1998). Setting a personal example with their own behavior, creating a relaxed atmosphere in the classroom, properly explaining what needs to be done and developing good relationships with students are some of these suggestions. Suggestions such as increasing students' linguistic self-confidence, making language classes interesting, promoting student autonomy, personalizing the learning process, increasing students' goal-orientation and introducing students to the culture of the target language are also among the recommendations for increasing motivation in foreign language teaching (Lan, 2015). Furthermore, Godwin-Jones (2018) suggested that speaking skills should be developed by creating appropriate contexts, based on the fact that out-of-context situations can negatively affect learners' motivation in foreign language speaking.

Reviews by Crookes & Schmidt (1991), Dörnyei (1994), and Oxford and Shearin (1994) suggested that research on motivation in second language acquisition would benefit from considering motivational constructs from other research areas. In their study, Tremblay and Gardner (1995) addressed this issue by investigating the relationship of a set of new motivational measures, such as persistence, attention, goal specificity, and causal attributions, to each other, to existing attitude and motivation measures, and to indices of achievement in foreign language classes. A sample of 75 students in a secondary school with a foreign language-intensive education completed various motivation and attitude measures. Their final grades in the foreign language course were subsequently obtained from school records. Support was found for a LISREL structural equation model that related different aspects of motivation to language attitudes, foreign language proficiency and foreign language achievement. It was concluded that the new motivational measures contribute to our understanding of motivation in language learning.

Dörnyei (1998) stated that one of the most important factors affecting the rate and success of second or foreign language learning is motivation, which is well-accepted by both teachers and researchers. Tünde (2022), in her study, aimed to identify some of the motivating factors that push secondary school students to learn English or German as a foreign language. The study was conducted in 16 secondary schools in northeastern Hungary in the autumn of 2018, and 453 students learning English or German as a foreign language completed the survey in Hungarian. The study revealed the importance of instrumental orientation, which proved to be higher than motivation intensity. Therefore, foreign language education practices need to be adjusted to the needs of secondary school students to support their instrumental motivation requirements and simultaneously increase their motivational intensity.

According to Acat and Demiral (2002), in a globalizing world, it has become a necessity in every respect for nations to learn and use English, which has become the language of the century, in addition to their own languages. Many difficulties are encountered in overcoming this necessity, which also affects the foreign language education in Turkey. Perhaps the most important of these, and the least emphasized, is "lack of motivation." In this research, Acat and Demiral (2002) aimed to determine the motivation problems experienced by foreign language learners, what factors motivate individuals to learn a foreign language, and how these differ according to individuals' gender and educational status. A survey model was used in the research. Student perceptions were surveyed by administering a questionnaire prepared by the researchers to a sample group representing students attending to foreign language education centers providing education services in the province of Eskişehir, which was accepted as the population of the study. The obtained data were analyzed by comparing them in terms of students' gender, educational status, and occupation variables using t-test and analysis of variance techniques.

Kim and Seo (2012), in this mixed-methods study, investigated the decline in motivation of Korean primary and secondary school students in foreign language learning and their teachers' perceptions of student motivation loss. A survey was administered to 6,301 primary and secondary school students from 3rd to 6th grade to examine changes in motivation. This revealed a decrease in all motivation constructs (instrumental, intrinsic, integrative, parental/academic extrinsic motivations) as students progressed through school grades. The findings were analyzed in more detail using interviews with 17 English teachers and open-ended questionnaires. Students' demotivation was attributed to three factors: 1) the negative influence of the English teacher, such as incompatibility with students' needs, teachers' impatience, and indifference to teaching and their students; 2) excessive societal expectation regarding English proficiency; and 3) the increasing English proficiency gap among students.

Işigüzel (2012) suggested that the importance of motivation in terms of foreign language learning and teaching cannot be ignored and that motivation must be at a sufficient level to achieve success. Motivation is the hormone of the foreign language lesson and encourages learning. It was stated that even if the most effective teaching methods and materials are used, an effective foreign language lesson is impossible if motivation is lacking. In this case, an important path to foreign language learning success is blocked. In this study, Işigüzel (2012) theoretically examined the concept of motivation in terms of the foreign language lesson. The motivation-cognition interaction in foreign language learning and the processing of information as a result of this interaction were emphasized. In addition, variables specific to foreign language learners developed by motivation research were included. According to the results of the achievement and motivation tests in the experimental part of the study, it was concluded that motivation is one of the most important foundations for foreign language learning success.

In their research, Mehdiyev, Usta and Uğurlu (2016) aimed to determine the language learning motivations of students studying in the relevant departments at Cumhuriyet University Faculty of Education. A case study design was used in this qualitative approach study. Participants were selected equally from all grade levels of students using purposeful sampling, specifically the typical case sampling method. A structured and semi-structured interview form was used in the research. In the analysis of qualitative data, descriptive analysis technique was used to ensure that the data were placed under the determined theme headings in a meaningful and understandable way. In order to increase the Credibility (internal validity), Transferability (external validity), Consistency (internal reliability) and Confirmability (external reliability) of the research, the analysis of the data was carried out with necessary studies by obtaining multiple expert opinions. According to the 10-point rating scale organized to determine the motivation levels of university students, 134 out of 184 students stated that their motivation level was 5 or above. It can be said that the majority of the students who coded have motivation levels at the median value or higher. When attitudes and behaviors towards the target language are compared with these research results, it is seen that the finding that students' interest and willingness positively affect motivation shows similarity.

Ünal (2018) suggested that motivation is one of the important factors affecting the language learning process. It was stated that a highly motivated student will not only employ the necessary strategies to learn the target language effectively but will also make an effort to use that language. However, in the learning process, student motivation is often affected by negative situations, causing it to decrease, a state referred to as demotivation. The aim of this research was to determine, according to the students' own opinions, what factors demotivate secondary school students in their foreign language learning and what methods

they use to cope with these factors. Data for the study were collected through a demotivation scale developed by the researcher, along with two open-ended questions. A total of 535 secondary school students, 255 female and 280 male, participated. For the analysis of the scale data, tests for normality of distribution, independent samples t-tests and one-way ANOVA were utilized. Data from the open-ended questions were analyzed using content analysis. The results from the scale indicated that secondary school students were highly demotivated in their foreign language learning. Regarding gender, female students were found to be more demotivated than male students. At the class level, there was no significant difference found in the "failure experience" sub-dimension of the scale, but significant differences were present in other sub-dimensions. Students emphasized that to be successful in their language learning, they got engaged in memorizing words outside of school, solving many tests, reading English books, watching movies and listening to music. In school, they noted that they played games and held competitions.

Paul Sun, Yang, and Hou (2023) examined the motivations of primary school students in New Zealand for foreign language learning and their use of foreign language learning strategies. A total of 1157 students from 29 schools took part in the study. The results revealed that the general motivation and strategy use of students in primary schools for second language learning were relatively inadequate. Furthermore, grade, ethnicity and length of learning were found to be important common factors that differentiated students' motivation and strategy use for second language learning. A strong canonical correlation was found between motivation and strategy use in second language learning. Specifically, primary school students who were more driven by motivational visions, intrinsic motives and extrinsic motives would use more metacognitive, cognitive and compensatory strategies in the second language learning process, but fewer social strategies. The implications of these findings were discussed in terms of how to increase students' motivation and strategy use for second language learning.

Ünal (2018) suggested that one of the important factors affecting the language learning process is motivation. It was stated that a highly motivated student will not only employ the necessary learning strategies to learn the target language effectively but will also make an effort to use the target language. Dörnyei (1998) stated that one of the most important factors affecting the rate and success of second or foreign language learning is motivation, which is well-accepted by both teachers and researchers. Işigüzel (2012) suggested that the importance of motivation in terms of foreign language learning and teaching cannot be ignored and that motivation must be at a sufficient level to achieve success. According to some resarchers in a globalizing world, it has become a necessity in every respect for nations to learn and use English, which has become the language of the century, in addition to their own languages. Many difficulties are encountered in overcoming this necessity, which also affects Türkiye. Perhaps the most

important of these, and the least emphasized, is "lack of motivation." Foreign language education practices need to be adjusted to the needs of secondary school students to support their instrumental motivation requirements and simultaneously increase their motivational intensity (Tünde, 2022).

REFERENCES

Acat, M. B., & Demiral, S. (2002). Yabancı Dil Öğretiminde Motivasyon Sorunları Ve Çözüm Önerileri. Milli Eğitim Dergisi, 155-156, 156-163.

Akmençe, K., & Tuncer, M. (2023). Yabancı Dil Öğreniminde Motivasyon: İçsel, Dışsal, Bütünleştirici Ve Araçsal Motivasyon. Uluslararası Teknoloji ve Eğitim Araştırmaları Dergisi, 6(1), 1-13.

Arnold, J. (1999). Affect in language learning. Cambridge University Press.

Arnold, R. (2011). A qualitative study of performance leadership and management in elite sport. *Journal of Applied Sport Psychology, 23*(2), 223–242.

Atay, D. (2004). Yabancı Dil Eğitiminde Motivasyon. Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi, 20, 27-34.

Brown, H. D. (2001). Teaching by principles: An interactive approach to language pedagogy. Addison Wesley Longman.

Crookes, G., & Schmidt, R. W. (1991). Motivation: Reopening The Research Agenda. Language Learning, 41(4), 469-512.

Cüceloğlu, D. (2010). İnsan ve Davranışı: Psikolojinin Temel Kavramları. Remzi Kitabevi

Dewaele, J. M., & Thirtle, H. (2009). Why is Some Students' L2 Pronunciation Better Than Others'? An Exploratory study Of The Effects Of 22 Variables On Pronunciation Accuracy. International Review of Applied Linguistics in Language Teaching, 47(2), 137-160.

Dörnyei, Z. (1994). Motivation And Motivating İn The Foreign Language Classroom. The Modern Language Journal, 78(3), 273-284.

Dörnyei, Z. (1998). Motivation In Second And Foreign Language Learning. Language Teaching, 31(3), 117-135.

Dörnyei, Z., & Csizér, K. (1998). Ten Commandments For Motivating Language Learners: Results Of An Empirical Study. Language Teaching Research, 2(3), 203-229.

Du, X. (2009). The Affective Filter In Second Language Acquisition. Canadian Social Science, 5(3), 16-21.

Ekiz, S., & Kulmetov, Z. K. (2016). The Factors Affecting The Foreign Language Speaking Anxiety of Students: A Case Study At A Turkish University. Journal of Education and Research, 6(1), 45-60.

Ersevim, İ. (2005). Freud ve psikanalizin temel ilkeleri. Asos.

Freud, S. (1936). The Problem of Anxiety. W. W. Norton & Company.

Godwin-Jones, R. (2018). Autonomous Language Learning. Language Learning & Technology, 22(1), 8-18.

Horwitz, E. K. (2013). Becoming A Language Teacher: A practical Guide To Second Language Learning And Teaching. Pearson.

Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign Language Classroom Anxiety. The Modern Language Journal, 70(2), 125-132.

İşigüzel, B. (2012). Yabancı Dil Öğretiminde Motivasyon ve Önemi. Xenophobia, 1(1), 25-38.

Kayaoğlu, M. N., & Sağlamel, H. (2013). Students' Sources Of Foreign Language Speaking Anxiety: A Study At A Turkish University. Journal of Language and Linguistic Studies, 9(1), 161-176.

Kim, T. Y., & Seo, H. (2012). Demotivation And The Decline Of Motivation İn Korean Efl Learning. The Asia-Pacific Education Researcher, 21(2), 279-290.

Krashen, S. D. (1982). Principles and Practice in Second Language Acquisition. Pergamon Press.

Lan, Y. J. (2015). Designing a 3D Simulation-Based Learning Environment For Enhancing Students' Motivation And Performance İn Language Learning. Interactive Learning Environments, 23(4), 438-451.

MacIntyre, P. D., & Gardner, R. C. (1994). The Subtle Effects Of Language Anxiety On Cognitive Processing İn The Second Language. Language Learning, 44(2), 283-305.

Manav, F. (2011). Kaygı kavramı. Toplum Bilimleri, 5(9), 201-211.

Mehdiyev, E., Usta, H. G., & Uğurlu, M. (2016). Üniversite Öğrencilerinin Dil Öğrenme Motivasyonlarının İncelenmesi: Cumhuriyet Üniversitesi Eğitim Fakültesi Örneği. International Journal of Languages' Education and Teaching, 4(1), 112-126.

Mulyono, H., Ferawati, Sari, R. N., & Ningsih, S. K. (2019). Factors contributing to EFL students' speaking anxiety. Register, 12(1), 13–27. https://doi.org/http://dx.doi.org/10.18326/rgt.v12i1.13- 27

Oxford, R. L., & Shearin, J. (1994). Language Learning Motivation: Expanding The Theoretical Framework. The Modern Language Journal, 78(1), 12-28.

Pakpahan, E. M., & Gultom, I. (2022). Overcoming foreign language speaking anxiety by using a language exchange website in online learning. Professional Journal of English Education, 5(2), 385–394. https://doi.org/10.22460/project.v5i2.p385-394

Paul Sun, P. P., Yang, D., & Hou, Y. (2023). New Zealand Primary School Students' Motivation And Strategy Use For Second Language Learning. Journal of Multilingual and Multicultural Development, 1-20.

Rajitha, K., & Alamelu, C. (2020). A Study On Factors Affecting Speaking Anxiety Among Engineering Students. Procedia Computer Science, 172, 1046-1051.

Rogers, C. R. (1957). The Necessary And Sufficient Conditions Of Therapeutic Personality Change. Journal of Consulting Psychology, 21(2), 95–103.

Stevick, E. W. (1980). Teaching Languages: A Way and Ways. Newbury House.

Tremblay, P. F., & Gardner, R. C. (1995). Expanding The Motivation Construct İn Language Learning. The Modern Language Journal, 79(4), 505-518.

Tuan, L. T. (2011). An Empirical Research On Factors Affecting Efl Students' Speaking Skill. International Journal of English Linguistics, 1(1), 1-12.

Tünde, L. (2022). Investigating The Motivating Factors Of Hungarian Secondary School Students Learning English Or German As A Foreign Language. WoPaLP (Working Papers of Applied Linguistics), 15, 23-42.

Ünal, M. (2018). Ortaokul Öğrencilerinin Yabancı Dil Öğrenme Süreçlerindeki Motivasyon Düşürücü (De-Motive) Faktörler. Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 18(3), 1629-1650.

Von Worde, R. (2003). Students' Perspectives On Foreign Language Anxiety. Inquiry, 8(1), 1-15.

Yalçın, Ö. C., & İnceçay, G. (2014). Yabancı dil konuşma kaygısı: nedenleri ve başa çıkma stratejileri. Eğitim ve Bilim, 39(173), 209-222.

Zeidner, M. (2014). Anxiety In Education. In R. Pekrun & L. Linnenbrink-Garcia (Eds.), International handbook of emotions in education (pp. 265-288). Routledge.

CHAPTER 18

When Critical Thinking is Automated: Cognitive Governance for Teacher Education

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1. INTRODUCTION

For more than two decades, educational reform has been organized around the discourse of 21st-century skills, most commonly articulated through the framework of the "4Cs": *Critical Thinking, Communication, Collaboration, and Creativity*. These competencies were advanced as the defining capabilities of the knowledge economy, grounded in the belief that they represented uniquely human forms of higher-order cognition. Mastery of the 4Cs was therefore positioned as both an educational ideal and a safeguard against technological displacement.

This foundational premise is now increasingly untenable. The rapid development of agentic generative artificial intelligence (GenAI) systems has profoundly altered the cognitive landscape in which education operates. Contemporary large language models, particularly when orchestrated into multi-agent workflows, now demonstrate near-human and often superhuman fluency in tasks traditionally used to operationalize the 4Cs, including analysis, synthesis, argumentation, ideation, drafting, and adaptation to audience and context (Ali et al., 2026; Dogan & Arslan, 2026; Kamalov et al., 2025). These systems do not merely support human cognition; they increasingly perform it.

This shift fundamentally destabilizes the educational logic underpinning skills-based curricula. When the execution of critical thinking or creative production can be delegated to AI agents with minimal effort, the traditional alignment between skill performance and human competence collapses (Nasr et al., 2025) Outputs that once functioned as reliable indicators of internal cognitive mastery are now indistinguishable from proxy-generated artifacts. As a result, the value of skill execution as an educational signal is rapidly diminishing.

The challenge this presents is not primarily technical, nor is it resolvable through prohibition or surveillance. Instead, it is epistemic and curricular. If AI agents function as cognitive proxies, then the educational imperative must shift from certifying internal performance to cultivating and certifying cognitive governance: the capacity to manage, critique, direct, and ethically contextualize automated cognition. The goal of education, under these conditions, is no longer the production of "thinking students" in the traditional sense, but the formation of students who can think about thinking, especially when thinking itself is distributed across human–AI systems.

This chapter develops this argument by using critical thinking as an analytical anchor, while extending the analysis to the broader constellation of 21st-century skills. It proposes cognitive governance as a higher-order educational construct

capable of preserving epistemic agency, responsibility, and judgment in an era of automated cognition.

2. THE HIDDEN ASSUMPTIONS BEHIND 21ST-CENTURY SKILLS

The resilience of the 4Cs framework rests on a set of assumptions that were largely invisible when the framework was formulated but are now increasingly fragile. These assumptions concern the nature of cognition, ownership of expertise, and the epistemic meaning of effort.

2.1 Human Exclusivity of Higher-Order Cognition

The first assumption is that higher-order cognitive processes—critical analysis, synthesis, complex problem solving, and creative ideation—are intrinsically human. This belief justified the elevation of the 4Cs as future-proof skills resistant to automation. However, agentic GenAI systems now routinely generate outputs that are functionally and qualitatively indistinguishable from those produced by proficient humans across domains, including education, software engineering, law, and health sciences (Larson et al., 2024; Naqvi et al., 2025). In high-stakes professional education, such as medicine, AI systems can generate plausible diagnostic reasoning chains, differential diagnoses, and treatment rationales. This does not merely assist human reasoning; it directly challenges the assumption that critical thinking is a uniquely human cognitive resource. The performance gap that once underwrote the exclusivity argument has narrowed dramatically, if not closed.

2.2 Cognitive Ownership and Internalization

A second assumption concerns cognitive ownership. Traditional education presumes that demonstrating a skill independently is evidence of its internalization. Assessment systems are built on this premise, treating products as transparent windows into the learner's mind. Multi-agent AI systems destabilize this logic by diffusing cognition across human–AI assemblages, making it increasingly difficult to determine where human contribution ends and AI-proxied labor begins (Luo et al., 2025; Ganesan & Mojes, 2025).

While AI-powered agents can scaffold learning productively, they can also mask the absence of internalized competence. A student may submit analytically sophisticated work that reflects the model's representational capacity rather than their own cognitive development (Dai et al., 2024). Certification systems grounded in ownership thus face a growing crisis of validity.

2.3 Effort-Based Competence and the Collapse of the Costly Proxy

Education has historically relied on what can be termed the costly performance proxy: the assumption that time, effort, and cognitive struggle correlate with learning. The hours spent researching, drafting, and revising served as indirect evidence of intellectual engagement. GenAI collapses this proxy by reducing complex cognitive execution to seconds of prompting (Kamalov et al., 2025). When execution effort is no longer required, product complexity ceases to function as a reliable indicator of mastery. As a result, assessments grounded in output quality alone increasingly measure orchestration efficiency rather than understanding. These three assumptions form the conceptual foundation of the 4Cs. Agentic GenAI renders all three unstable.

3. AI AGENTS AS COGNITIVE PROXIES: FROM DISTRIBUTED COGNITION TO DELEGATED THINKING

The most consequential feature of contemporary GenAI is not its intelligence per se, but its agentic structure. When large language models are embedded in autonomous or semi-autonomous workflows, they operate as cognitive proxies, executing entire cognitive loops associated with the 4Cs.

1.Critical Thinking: AI agents now perform rapid synthesis, evaluation, and analytical comparison across large information spaces. In multi-agent configurations, models can critique, refine, and iteratively improve each other's reasoning, effectively simulating collaborative analytical teams (Luo et al., 2025). The human role shifts from performing analysis to exercising epistemic stewardship: verifying claims, identifying errors or hallucinations, and deciding which reasoning paths are defensible (Larson et al., 2024; Nasr et al., 2025).

2.Communication: GenAI systems function as fluent ghostwriters, capable of generating communication tailored to audience, tone, and genre. Under these conditions, communication competence shifts away from linguistic execution toward intent specification, ethical framing, and disclosure. While often reduced to "prompt engineering," this role is more accurately understood as governance over communicative intent and impact (Walter, 2024).

3.Collaboration: AI agents increasingly function as "cognitive co-pilots," participating in ideation, debugging, and problem-solving as constant collaborators (Ganesan & Mojes, 2025). Collaboration, in this context, no longer refers primarily to interpersonal coordination, but to managing interaction with intelligent digital partners whose contributions shape outcomes.

4.Creativity: AI agents generate novel content through large-scale pattern synthesis, acting as powerful idea catalysts. However, reliance on shared models

introduces the risk of mechanized convergence, where outputs become stylistically and conceptually homogenized. Human creativity is therefore displaced upward, toward strategic divergence: guiding, curating, and critically redirecting generative outputs toward context-specific originality.

Across all four Cs, execution is increasingly automated. What remains human is not production, but governance. The distinction between augmentation and automation is crucial. Earlier technologies augmented human skill execution; GenAI automates it. In tool use, humans control each cognitive step. In agentic automation, humans specify objectives and evaluate outcomes while internal processes remain opaque (Ali et al., 2026). This shift transforms learners from practitioners into directors of cognition. The appropriate educational response is therefore not resistance to offloading, but the cultivation of cognitive governance: the strategic management of automated reasoning. In automation, the human shifts from a driver to a governor. They control the cognitive objective and evaluate the automated result. The internal steps that generate the result are opaque and offloaded. This is the difference between driving a car (Tool use requiring constant skill) versus programming and overseeing a self-driving car (Automation, requiring governance and evaluation of the automated system). Cognitive governance encompasses intent framing (defining goals, constraints, and success criteria), epistemic vigilance (verifying accuracy, coherence, and bias), iterative direction (refining outputs through strategic intervention) and contextualization and accountability (integrating outputs into ethical, social, and professional contexts and assuming responsibility for consequences) (Bielik & Krell, 2025; Daher, 2025; Gkintoni et al., 2025; Mazari, 2024). Unlike metacognition or AI literacy, cognitive governance foregrounds responsibility for hybrid cognition.

4. FROM COGNITIVE OFFLOADING TO COGNITIVE GOVERNANCE

The increasing delegation of cognitive tasks to AI agents foregrounds a distinction that remains underdeveloped in educational discourse: the difference between cognitive offloading and cognitive governance. Cognitive offloading refers to the delegation of mental operations to external systems in order to reduce cognitive load or improve efficiency. While offloading has long been part of human cognition, AI agents extend it into domains traditionally considered irreducibly human.

When systems can generate analyses, evaluate evidence, and propose reasoned judgments, offloading moves from peripheral support to central cognitive activity. In this context, the educational challenge is no longer how to

prevent offloading, but how to ensure that it does not result in epistemic disengagement or unreflective dependence.

Cognitive governance refers to the learner's capacity to deliberately manage, supervise, and take responsibility for cognition distributed across human and artificial agents. It operates at a level above skill execution, focusing not on performing cognitive operations, but on deciding when, how, and with what consequences those operations are delegated. Governance is therefore not a rejection of AI-mediated thinking, but a higher-order orientation toward it.

Cognitive governance entails evaluating AI-generated reasoning, recognizing its limitations, and situating it within broader epistemic and ethical contexts. It includes knowing when automated reasoning is appropriate, when it must be challenged, and when human judgment must override algorithmic recommendations. Crucially, governance foregrounds accountability: even when cognition is distributed, responsibility for decisions and outcomes remains human.

This concept should not be conflated with metacognition or AI literacy. Metacognition focuses on awareness and regulation of one's own cognitive processes, while AI literacy emphasizes understanding how AI systems function. Cognitive governance extends beyond both by explicitly addressing responsibility for hybrid cognition, where governance is a normative educational obligation rather than a technical skill. This functional difference leads to a profound shift in the locus of cognitive control.

Table 1. Augmentation versus Automation of Skills

Feature	**Tool Use (Augmentation)**	**Skill Automation (AI Agent)**
Cognition Locus	Internal, individual learner	Distributed across human–AI systems
Educational Focus	Performing the skill (Execution)	Governing the automated process
Core Human Task	Execution of micro-steps	Strategic evaluation and refinement

5. UNGOVERNED COGNITIVE OFFLOADING

When cognitive offloading occurs without governance, several risks emerge. One central risk is *hollow competence,* where students produce outputs that meet academic standards without possessing corresponding depth of understanding. Over time, this can erode learners' capacity to engage meaningfully with complex problems.

A related risk is epistemic erosion. When reasoning is routinely delegated, students may become less attentive to assumptions, evidence, and uncertainty. This can foster uncritical reliance on algorithmic authority and weaken habits of justification and skepticism traditionally associated with critical thinking.

Ungoverned offloading also encourages performative learning, where educational success is measured by polished products rather than intellectual engagement. In such environments, assessment practices risk rewarding orchestration efficiency rather than epistemic judgment.

Further risks include diminished epistemic agency, diffusion of responsibility, and the exacerbation of educational inequalities related to access and AI fluency. These risks underscore the limitations of prohibitionist or purely technical responses to AI use and highlight the need for governance-oriented educational models.

6. THE CURRICULAR IMPERATIVE: FROM SKILL EXECUTION TO COGNITIVE GOVERNANCE

The automation of higher-order cognitive skills through agentic GenAI does not merely require minor pedagogical adjustments. It demands a structural reorientation of educational design. If education continues to define competence primarily in terms of skill execution, it risks certifying proxy performance rather than human expertise. Cognitive governance offers a principled alternative: it preserves rigor by relocating educational value to domains where human judgment, responsibility, and contextual reasoning remain indispensable. Curriculum must be redesigned to center around complex governance tasks that integrate multi-agent systems and require strategic control (Luo et al., 2025; Ganesan & Mojes, 2025).

Table 2. Old versus New Curricular Foci

Old Curricular Focus (Execution)	New Curricular Focus (Governance)
Task: Write an essay analyzing X.	Task: Review and refine three AI-generated analyses of X based on their logical structure, source quality, and ethical tone.
Goal: Demonstrate knowledge of factual content.	Goal: Demonstrate command over the analytical process and judgment regarding the automated output.

6.1 Curriculum Design: Rewriting Learning Outcomes for Governance

Traditional learning outcomes are predominantly execution-oriented. Phrases such as "analyze," "evaluate," "produce," or "design" presuppose that these actions are carried out internally by the learner. In AI-mediated contexts, such formulations become epistemically ambiguous, as the same outcomes can be achieved through delegation. A governance-oriented curriculum reframes learning outcomes around control, judgment, and responsibility, rather than production. This does not lower standards; it raises them by demanding that students demonstrate command over *how* cognition is produced. Four categories of governance-aligned learning outcomes are particularly critical. Before AI is invoked, students must articulate what the problem is, why it matters, what constraints apply, and what would count as an acceptable or unacceptable solution. This requires domain knowledge, contextual awareness, and ethical sensitivity. AI can optimize within frames, but it cannot justify why one framing should govern. Curriculum should therefore explicitly assess framing decisions as intellectual acts.

Students must be able to interrogate AI-generated reasoning as a set of claims rather than accept it as an answer. This includes identifying assumptions, checking coherence, detecting hallucinations, comparing outputs against alternative sources or models, and assessing uncertainty. Importantly, this competence is domain-specific and must be embedded within disciplinary curricula rather than treated as a generic "AI skill."

Governance is dynamic, not static. Students must learn how to redirect AI reasoning strategically by issuing refined instructions, imposing constraints, requesting counterarguments, or shifting perspectives. This demonstrates mastery of the reasoning process without performing every cognitive step manually.

Students must explicitly state what they accept, reject, or modify in AI outputs and justify those decisions. They must also situate outputs within ethical, social,

and professional contexts. This includes acknowledging potential harms, biases, or misapplications. Accountability is the defining feature that distinguishes governance from mere orchestration. A predictable critique is that such outcomes are "too abstract." However, each of these capacities can be operationalized through observable artifacts: framing statements, critique logs, revision rationales, and responsibility declarations. Governance is therefore teachable and assessable, not merely aspirational.

6.2 Pedagogy: Designing Tasks That Require Governance, Not Delegation

In AI-rich environments, poorly designed tasks inadvertently reward outsourcing. The pedagogical solution is not to prohibit AI use, but to design tasks in which learning occurs only if governance is exercised. three design principles are essential:

Tasks must require students to document how AI was used, why particular outputs were selected, and how those outputs were evaluated or modified. This shifts attention from product quality to reasoning quality. Students should be required to stress-test AI outputs by generating counterexamples, alternative interpretations, or competing solutions. This forces engagement with uncertainty and limits rather than passive acceptance. Importantly, this also anticipates the technical objection that "better AI will remove the need for evaluation." Increased fluency amplifies, rather than eliminates, the risk of persuasive error. Tasks should incorporate local constraints, real data, stakeholder perspectives, or ethical trade-offs that cannot be resolved through generic optimization. This ensures that governance requires situated human judgment rather than generic prompt refinement. These principles reposition pedagogy away from surveillance and toward epistemic apprenticeship, where students learn how experts govern automated cognition in real-world contexts.

6.3 Assessment: Restoring Construct Validity in the Age of AI

Assessment is where the governance shift is most urgent. When AI can generate high-quality products on demand, output-based assessment suffers a construct validity failure: it no longer measures what it claims to measure. A governance-aligned assessment model must therefore triangulate evidence across multiple layers. Product evidence remains relevant but insufficient.

Process evidence becomes central. Students should submit reasoning traces, including problem framing, prompt iterations, evaluation criteria, and justification for revisions.

Robustness evidence tests whether governance is genuine. Oral defenses, live critiques, or transfer tasks require students to explain and adapt reasoning under new constraints. Concerns about reliability are legitimate but manageable. Governance can be assessed using structured rubrics focused on a limited set of indicators: framing quality, evaluation rigor, justification clarity, and responsibility ownership. These are no more subjective than writing assessment or clinical performance evaluation, both of which have established reliability practices. Another anticipated objection is that students may fabricate governance traces. This risk can be mitigated through staged submissions, in-class checkpoints, and brief interactive assessments that require real-time judgment. Notably, continuing to rely on product-only assessment in AI contexts constitutes a greater methodological error than adopting governance-based evaluation.

Figure 1.

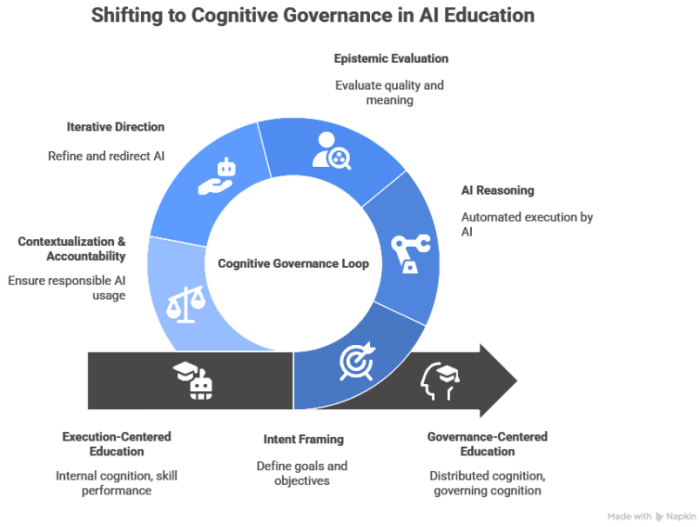

Figure 1 above synthesizes the conceptual argument of this chapter by contrasting execution-centered and governance-centered educational models under conditions of AI-mediated cognition. While traditional curricula, pedagogy, and assessment practices presume internally enacted skills, the governance model recognizes cognition as distributed across human and artificial agents. The figure illustrates how educational validity is restored when learning outcomes, instructional design, and assessment criteria are aligned around cognitive governance rather than skill execution. By making governance the central object of teaching and evaluation, institutions can preserve epistemic agency and accountability even as cognitive execution becomes increasingly automated.

6.4. Teacher Education: Preparing Educators as Cognitive Governance Architects

The successful transition from execution-centered to cognitive governance–centered education depends fundamentally on teacher preparation. While curriculum, pedagogy, and assessment can be redesigned at the policy level, their enactment ultimately rests with educators' professional judgment. If teachers are trained primarily to evaluate products and enforce compliance, governance-oriented education will remain rhetorical rather than operational. Teacher education must therefore be reconceptualized to prepare educators not as transmitters of content or monitors of AI use, but as architects and facilitators of cognitive governance. Figure 1 makes clear that governance-centered education relocates the locus of learning from automated execution to the human cognitive governance loop. Teacher education must mirror this shift by equipping educators to design, model, and assess each stage of that loop. This requires a substantial expansion of teacher competence beyond technical familiarity with AI tools.

The first responsibility of educators in a governance-centered model is to design learning environments that foreground human intent framing, the entry point of the governance loop. Teacher education programs must therefore train educators to construct open-ended, ill-structured problems that cannot be solved through generic AI prompting alone. This involves learning how to embed disciplinary constraints, ethical considerations, and contextual complexity into task design. Crucially, this form of pedagogical expertise is epistemic rather than technical. Teachers must understand how knowledge is constructed, validated, and contested within their disciplines in order to guide students' framing decisions. For example, history educators must be able to surface issues of source credibility and perspective; science educators must foreground uncertainty and model assumptions; language educators must address audience, register, and ethical implication. Teacher education must therefore integrate discipline-specific governance cases that illustrate how AI-generated reasoning can appear fluent while remaining epistemically weak or contextually inappropriate.

The second stage of the governance loop requires educators who can model expert judgment explicitly. Teacher education has traditionally emphasized correctness and coverage; governance-centered education demands that teachers demonstrate how experts *interrogate* reasoning rather than simply accept or reject it. Teacher preparation programs must therefore include structured opportunities for educators to practice evaluating AI-generated outputs using disciplinary standards. This includes identifying hidden assumptions, detecting hallucinations, recognizing bias, and distinguishing between plausible language and valid reasoning. Importantly, educators must learn how to make these

evaluative moves visible to students, transforming tacit expert judgment into explicit instructional practice.

A likely objection is that this places unrealistic cognitive demands on teachers. Figure 1 helps clarify why this objection is misplaced. Educators are not expected to outperform AI in execution, but to model judgment over execution. This role aligns closely with how expertise already functions in professional practice, where senior practitioners supervise, review, and validate work rather than perform every task themselves.

The third component of governance requires educators who can guide students in refining and redirecting AI-mediated reasoning processes. Teacher education must therefore address not only how AI systems generate outputs, but how those outputs can be strategically reshaped through constraint specification, perspective shifts, and counterfactual exploration. This competence goes beyond basic AI literacy or prompt syntax. It involves understanding how changes in framing, assumptions, or evaluative criteria alter the trajectory of reasoning. Teacher education programs should include guided design studios in which educators practice steering AI-generated reasoning toward greater rigor, ethical sensitivity, or contextual relevance. Such experiences prepare teachers to support students in developing adaptive governance rather than static rule-following.

The final stage of the governance loop (accountability and contextualization) is where teacher education assumes its most explicitly ethical dimension. Educators must be prepared to insist that responsibility for AI-mediated outcomes remains human, even when execution is automated. This includes guiding students in transparent disclosure of AI use, justification of decisions, and reflection on consequences.

Teacher education programs must therefore integrate governance-oriented discussions of academic integrity, professional ethics, and public trust. Rather than framing AI use as a compliance issue, educators should be trained to frame it as a matter of professional accountability. This shift is especially critical in fields where errors have material consequences, such as teacher education itself, health sciences, engineering, and public policy.

Without educators capable of enacting cognitive governance, the framework proposed in this chapter cannot be sustained. Teacher education therefore functions as the stabilizing force that ensures alignment across curriculum, pedagogy, and assessment. By preparing educators to design governance-rich tasks, model epistemic judgment, and assess responsibility rather than fluency, teacher education safeguards the educational validity of AI-mediated learning environments.

In this sense, teacher education is not a peripheral concern but the linchpin of governance-centered education. It determines whether AI integration deepens learning or merely accelerates hollow performance. Preparing teachers as cognitive governance architects ensures that the shift visualized in Figure 1 is not merely conceptual, but institutionally and pedagogically realizable.

7. CONCLUSION: FROM SKILL PERFORMANCE TO THE GOVERNANCE OF THOUGHT

This chapter has argued that the automation of higher-order cognition by agentic generative artificial intelligence fundamentally disrupts the educational logic underpinning 21st-century skills. Frameworks built around the execution of critical thinking, communication, collaboration, and creativity presuppose that these capacities must be enacted internally by learners in order to retain their educational value. That presupposition no longer holds. When AI agents can perform the core operations associated with these skills with speed, fluency, and persuasive coherence, the traditional alignment between skill performance and human competence collapses. The central claim advanced here is that the educationally decisive human capacity in the age of automated cognition is not execution, but governance. Thinking has not become obsolete; it has become redistributed. What matters now is who sets the goals of thinking, who evaluates its adequacy, and who assumes responsibility for its consequences.

Creativity, communication, and collaboration have not disappeared, but their educational meaning has shifted upward. They no longer reside primarily in the production of artifacts, but in the framing of intent, the evaluation of automated outputs, the orchestration of multi-agent systems, and the ethical contextualization of results. This shift does not impoverish education; it concentrates its intellectual core. Cognitive governance names a higher-order competence that integrates epistemic judgment, metacognitive control, and ethical accountability in contexts where cognition is distributed across human and artificial agents. Unlike adjacent constructs such as metacognition or AI literacy, cognitive governance foregrounds responsibility for outcomes, insisting that even when reasoning is automated, accountability remains irreducibly human.

Cognitive governance is not an abstract philosophical ideal, but a pedagogically and methodologically actionable construct. It can be specified in learning outcomes, cultivated through governance-centered pedagogy, assessed through multi-evidence designs, and supported through teacher education and institutional policy. Governance does not weaken educational standards; it restores them under conditions where traditional proxies of learning have lost their reliability.

The broader implication is that the future of education cannot be secured by defending execution-oriented skills frameworks against technological change. Such defenses risk producing graduates whose apparent competence is increasingly indistinguishable from proxy-generated performance. Instead, educational systems must take responsibility for redefining what counts as expertise in a world where intelligent systems participate directly in cognitive labor. Certifying competence in this context requires certifying the capacity to govern cognition, not merely to display its outputs.

This reconceptualization also carries ethical weight. In professional and civic life, the consequences of decisions informed by AI-generated reasoning remain human consequences. Whether in education, healthcare, engineering, or public policy, delegating cognition does not delegate responsibility. Cognitive governance therefore offers a principled basis for preserving public trust in educational credentials at a time when the boundary between human and machine intelligence is increasingly opaque.

Finally, this chapter invites a shift in how the purpose of education itself is articulated. The ultimate aim of education in the age of generative AI is not to produce individuals who can outperform machines at tasks machines now execute better, faster, and more consistently. It is to cultivate individuals capable of *judging*, *directing*, and *contextualizing* automated cognition in ways that are intellectually defensible and ethically grounded. In this sense, the most consequential 21st-century skill is no longer critical thinking understood as task execution, but critical thinking about thinking itself.

By reframing 21st-century skills through the lens of cognitive governance, this chapter offers a coherent and forward-looking response to the realities of automated cognition. It does not signal the end of human thinking in education, but its recalibration. The future of expertise belongs not to those who merely generate reasoning, but to those who can govern it.

REFERENCES

Ali, M. A., Dornaika, F., & Charafeddine, J. (2026). Agentic AI: a comprehensive survey of architectures, applications, and future directions. *Artificial Intelligence Review*, *59*(11). https://doi.org/10.1007/s10462-025-11422-4

Bielik, T., & Krell, M. (2025). Developing and evaluating the extended epistemic vigilance framework. *Journal of Research in Science Teaching*, *62*(3), 869-895. https://doi.org/10.1002/tea.21983

Dai, C.-P., Ke, F., Pan, Y., Moon, J., & Liu, Z. (2024). Effects of artificial intelligence-powered virtual agents on learning outcomes in computer-based simulations: A meta-analysis. *Educational Psychology Review*, *36*(31). https://doi.org/10.1007/s10648-024-09855-4

Daher, R. (2025). Integrating AI literacy into teacher education: a critical perspective paper. *Discover Artificial Intelligence*, *5*(1), 217. https://doi.org/10.1007/s44163-025-00475-7

Dogan, M., & Arslan, H. (2026). Empowering Academics in the Digital Age: Navigating the Transformation of Higher Education. European Journal of Education, 61(1), e70420. https://doi.org/10.1111/ejed.70420

Ganesan, V. S., & Mojes, V. (2025). *Revolutionizing education using personalized AI: Multi-agent approach*. Social Science Research Network.

Gkintoni, E., Antonopoulou, H., Sortwell, A., & Halkiopoulos, C. (2025). Challenging cognitive load theory: The role of educational neuroscience and artificial intelligence in redefining learning efficacy. *Brain Sciences*, *15*(2), 203. https://doi.org/10.3390/brainsci15020203

Kamalov, F., Santandreu Calonge, D., Smail, L., Azizov, D., Thadani, D. R., Kwong, T., & Atif, A. (2025). Evolution of AI in education: Agentic workflows. https://doi.org/10.48550/arXiv.2504.20082

Larson, B. Z., Moser, C., Caza, A., Muehlfeld, K., & Colombo, L. A. (2024). Critical thinking in the age of generative AI. *Academy of Management Learning & Education*, *23*(3), 373-378. https://doi.org/10.5465/amle.2024.0338

Luo, Z., Li, D., Wan, J., Wang, S., Wang, G., Cheng, M., & Li, T. (2025). Multi-agent collaboration mechanisms based on distributed online meta-learning for mass personalization. *Journal of Industrial Information Integration*, *46*(100852). https://doi.org/10.1016/j.jii.2025.100852

Mazari, E. (2024). Metasynthesis of cognitive governance; convergence of governance and cognitive sciences in understanding the complexities of governance. *Psychological Researches in Management*, *10*(1), 9-32. https://doi.org/10.22034/jom.2024.2021985.1154

Milana, M., Brandi, U., Hodge, S., & Hoggan-Kloubert, T. (2024). Artificial intelligence (AI), conversational agents, and generative AI: implications for

adult education practice and research. *International Journal of Lifelong Education*, *43*(1), 1-7. https://doi.org/10.1080/02601370.2024.2310448

Naqvi, W. M., Ganjoo, R., Rowe, M., Pashine, A. A., & Mishra, G. V. (2025). Critical thinking in the age of generative AI: Implications for health sciences education. *Frontiers in Artificial Intelligence*, *8*, 1571527. https://doi.org/10.3389/frai.2025.1571527

Nasr, N. R., Tu, C. H., Werner, J., Bauer, T., Yen, C. J., & Sujo-Montes, L. (2025). Exploring the Impact of Generative AI ChatGPT on Critical Thinking in Higher Education: Passive AI-Directed Use or Human–AI Supported Collaboration?. *Education Sciences*, *15*(9), 1198. https://doi.org/10.3390/educsci15091198

Walter, Y. (2024). Embracing the future of artificial intelligence in the classroom: The relevance of AI literacy, prompt engineering, and critical thinking in modern education. *International Journal of Educational Technology in Higher Education*, *21*(15). https://doi.org/10.1186/s41239-024-00448-3

Yusuf, H., Money, A., & Daylamani-Zad, D. (2025). Pedagogical AI conversational agents in higher education: a conceptual framework and survey of the state of the art. *Education Technology Research and Development*, *73*, 815-874. https://doi.org/10.1007/s11423-025-10447-4