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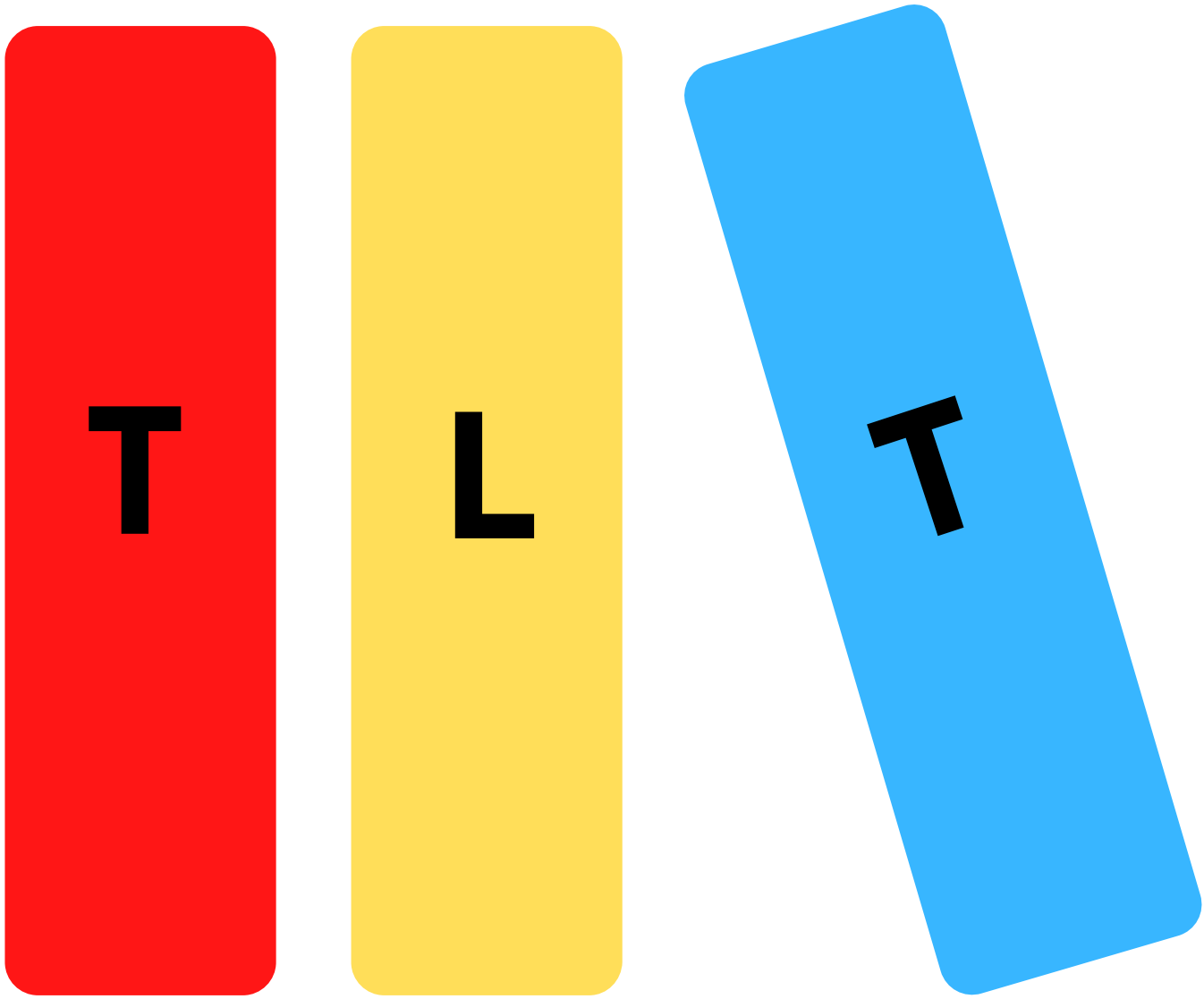

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RESEARCH ARTICLE

Teachers' Mindsets in Foreign Language Classrooms

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Abstract
This research aims to explore English teachers' mindsets and further investigate whether teachers' mindsets have anything to do with nine factors, namely, age, gender, the highest level of education completed, department graduated in, being abroad for education, receiving in-service training programs, teaching experience, level taught, and institution. In this descriptive study, data were collected from 162 English teachers working at geographically diverse institutions in Turkey through an online survey. The survey included a background questionnaire and a mindset instrument. Findings showed that more than half of the English teachers had a fixed mindset, and the remaining had either a mixed or a growth mindset, of which the latter constituted the smallest group in number. Results also revealed that teachers' mindsets were irrespective of nine previously determined variables.

Keywords
English as a foreign language, language teachers, mindset

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Introduction

Intelligence has long been under the spotlight of many, including teachers, teacher trainers, educators, parents, and students. From which perspectives and by which means it is investigated have always differed, yet the complexity of the human mind remained unchanged. Considering that intelligence and teaching are two inseparable concepts, and intelligence is a factor contributing to learning, the starting point of this study is the everlasting complexity of the human mind and irreducible interest in the interdependence of human intelligence and learning. Nonetheless, the relationship between intelligence and learning cannot be downgraded into the former being one of the predictors of the latter, as can be traditionally thought. Far beyond that, this relationship is so complex that learners' beliefs and perceptions of the nature of human intelligence may affect the meaning of effort and challenge to them, their conceptions of failure, and the goals they set for success (Dweck et al., 2014).

As scientists for years have developed many scientific theories about intelligence, people also develop implicit theories of intelligence or mindsets that involve their underlying beliefs about the nature of intelligence (Hong et al., 1995). People who believe in the malleability of intelligence are said to have a *growth mindset*, while others who think that intelligence is a fixed trait have a *fixed mindset* (Dweck, 2006). However, it is unlikely that all people fall into two discrete categories according to their mindsets; instead, they lie on a continuum, two extreme sides of which are the growth and fixed mindsets. Put differently, people may change how much they believe in the malleability of intelligence or reject it. More importantly, individuals' mindsets may differ in various areas such as sports, science, or language learning. When the uniqueness and distinctiveness of language learning are considered, the concept of mindset concerning foreign language learning becomes prominence.

In addition to the mindsets about their teaching skills, teachers also have mindsets about their students' intelligence and abilities, which brings forward the issue of nature versus nurture (Dweck, 2012). That is, do teachers believe that their students have specific capacities to learn and succeed in life by nature, or would nurture and teachers' efforts make their students any better? Teacher mindset is all-important particularly due to two reasons. First, teachers' mindsets may influence classroom teaching practices and affect student learning and the whole learning environment (DeLuca et al., 2019). Second, teachers' expectations for their students' intellectual abilities and performances may affect students' performances serving as self-fulfilling prophecies (Rosenthal & Jacobson, 1968). Teachers' mindsets are considered domain-specific, and teachers' implicit theories of intelligence may vary based on interpersonal factors (Patterson et al., 2016). That is why it seems worthwhile to study teachers with various backgrounds in a prespecified domain and further investigate whether factors such as age, experience, educational background, and teaching experience have anything to do with teachers' mindsets. While this study may set forth a different perspective on language teachers' belief systems and provide implications for them, it may also set the ground for mindset intervention studies. Below, a review of the literature is presented regarding the bases of the study. However, before giving the research synthesis, a theoretical framework is drawn.

Theoretical framework

Mindset is a broad term that is likely to appear in various contexts in language. Throughout this study, the use of mindset is limited to individuals' mindsets about personal attributes such as intelligence, abilities, and competence, as identified in the Mindset Theory by Dweck (2000). The Mindset Theory is based on a model in which individuals develop self-theories that reflect their belief systems and self-concepts (Dweck, 2000; Dweck & Leggett, 1988). These self-theories or mindsets are set of beliefs that are powerful enough to affect people's thoughts, views, and behaviors (Dweck & Leggett, 1988). According to the theory, there are two types of mindsets: the growth mindset (incremental theory) and the fixed mindset (entity theory). Individuals do not necessarily have a sharp single mindset; contrarily, they may have different mindsets for different areas of intellectual abilities, and the degree of fixed or growth mindset they hold may change.

People may differ in what type of goals they set for success, how they perceive effort and failure, how willing they are to put effort, and how much they accept failures according to their mindsets. The growth mindset refers to the belief that people can improve their intellectual abilities regardless of where they start and how skillful they are. First, the growth mindset lets people love their work despite difficulties. Though they may feel anxious when they confront challenges, they are apt to take risks, face the difficulty and work on them with determination. If abilities can be improved and there is potential for progress and growth through effort, there are still many ways to succeed (Dweck, 2006). As it is well said by Dweck (2006, p.30), "Maybe they haven't found the cure for cancer, but the search was deeply meaningful." Second, instead of performance goals that aim to show the best of what one already has, people with a growth mindset have learning goals (or mastery goals) that turn setbacks into learning (Dweck et al., 2014). Third, when individuals with a growth mindset experience a setback, they know it does not define them; failure is an experience to be learned from. The growth mindset lets people believe that their qualities may develop and their abilities may improve. (Dweck, 2006).

The fixed mindset refers to the belief that one's intelligence and abilities are fixed and cannot easily change. People with this mindset consider that they may learn

new things, but their underlying intellectual abilities remain unchanged (Dweck et al., 1995). First, although ability and effort are seen as factors contributing to success in both mindsets, their weight may vary according to the person's mindset (Hong et al., 1999). In the fixed mindset, the outcome is more important than the process. If people are not successful enough or cannot reach the desired outcome, they may feel all their effort is wasted and give up (Dweck, 2006; Dweck et al., 2014).

Furthermore, making an effort is terrifying for people with a fixed mindset for two reasons. To begin with, if people are intelligent enough, they do not need to put in any effort to succeed; if they make effort, it casts doubt on their intellectual abilities. Moreover, it precludes excuses for failure; once people put effort into something, they cannot claim that they would be successful if they put effort into it (Dweck, 2006). Second, individuals with a fixed mindset are generally prone to worry about "proving" their abilities rather than "improving" them (Dweck & Leggett, 1988, p.259). Put differently, they have performance goals that involve the need to prove that the fixed amount of intelligence they have is at a sufficient level (Dweck, 2006). More explicitly, these people either have a "performance approach goal" and endeavor to show that they are performing well or have a "performance-avoidance goal" and try to avoid poor performance (Dweck et al., 2014, p.8). People who focus too much on performance goals, expecting to be potentially judged by others, also become more vulnerable to feeling helpless after a failure (Dweck, 2000). Third, failure is threatening for people with a fixed mindset who put other people in the judge's position instead of having them as allies. When people have positive impressions of a person, failure may turn those positive impressions into negative and since there is no true way to success in the fixed mindset and trying harder cannot let individuals go beyond their limits, the possibility of ending up with a negative label after a failure terrifies people (Dweck, 2006).

Literature review

A growing body of literature investigates how teachers' mindsets relate to the factors such as teachers' age, teaching experience, and subject area. Jonsson et al. (2012) conducted a study with 226 Swedish high school teachers from different disciplines. Findings revealed a significantly higher tendency to hold a growth mindset rather than a fixed mindset among teachers whose subject areas were language, social science,

and, practical disciplines. In contrast, contrastingly, there was no significant difference in science and mathematics teachers' preferences. Furthermore, it was pointed out that younger and less experienced teachers as well as older and more experienced teachers, showed the highest preference for a growth mindset. However, younger and more experienced teachers, as well as older and less experienced teachers, showed a lower preference for a growth mindset. The attention was drawn to the importance of teacher education and training.

The teacher-related variation in the outcomes of the mindset interventions is an issue that was investigated. One influential study of this kind was conducted by Schmidt et al. (2015) with two middle school science teachers and 160 students with various racial and ethnic backgrounds. The intervention was comprised of a web-based tutorial called Brainology, through which students were taught that the brain was like a muscle and that individuals may enhance their learning, abilities, and intelligence through effort and strategies. Analyses of classroom observations that took place before, during, and after intervention revealed that teachers were important factors that influenced the longevity of the intervention outcomes in students. Though both teachers implemented similar activities, their way of communicating with students and the mindset messages they sent differed. The teacher who was more experienced and educated teacher promoted a growth mindset, mastery orientation, strategy use, and achievement more effectively than the other teacher. Interactions in the classroom were reported to be influential in sustaining the positive effects of mindset intervention including students' beliefs about the malleability of intelligence, their preference for setting mastery-oriented learning goals, and the improvement in their achievements.

Further review of the literature shows that mindset has recently become a widespread research interest in the Turkish EFL context. Yılmaz (2020) conducted a correlational research study to determine the relationship between teachers' mindsets and their perceived self-efficacy and how these two variables were separately related to teachers' demographic characteristics with 151 English instructors working at universities in Turkiye. The analyses showed that there was a significant difference in the mindsets scores of teachers in terms of gender. Female instructors tended to

endorse a growth mindset, while male instructors tended to hold a fixed mindset. Moreover, instructors who attended teacher training programs reported higher scores on a growth mindset. However, instructors' mindsets did not differ according to their workplace, teaching experience, the program they graduated in, or the highest education level. In a similar study, Ergen (2019) found a positive correlation between mindset and technology self-efficacy beliefs with the data collected from 146 secondary school EFL teachers in Turkey. That is, teachers who endorse a growth mindset tended to have higher levels of self-efficacy in technology use, but it was further explored that the former construct did not predict the latter. Delibalta (2020) carried out a study with 330 preparatory class students. The statistical analyses showed that students with a growth mindset with some fixed ideas outnumbered others with a strong fixed mindset, a strong growth mindset, and a fixed mindset with some growth ideas. It was further suggested that female participants were more likely to hold a growth mindset than men. Altunel (2020) conducted a correlational research study with 203 English preparatory class students studying at universities in Turkey and found that students with a growth mindset outnumbered those with a fixed mindset in this sample. Furthermore, it was reported that female students were more likely to hold a growth mindset, while male students tended to maintain a fixed mindset.

Overview of the study

Intelligence has long been investigated as one of the factors that may contribute to learning. However, research shows that it is much more complicated than that. People's perceptions of human intelligence affect what they make of effort and challenge, how they interpret failure, and their life goals (Dweck, 2006; Dweck et al., 2014; Dweck & Leggett, 1988). As people have mindsets that include their views on human intelligence, teachers also have mindsets about their students' intelligence. Differently and significantly, the mindsets teachers have may greatly affect the learning environment in the classroom and influence students' underlying beliefs about human intelligence (DeLuca et al., 2019; Seaton, 2018).

A through review of the literature shows that mindset has recently become a more popular concept among educational researchers. A growing area of research suggests people's mindsets in various domains, such as language, science,

mathematics, sports, creative writing, and music may differ (Gouëdard, 2021). Some research focusing on language learning suggests that students may have a combination of both growth and fixed mindset with different weights (Jonsson et al., 2012; Rissanen et al., 2019; Stipek et al., 2001). In the related literature, it was further stated that students' mindsets concerning each sub-domain of language learning, such as writing, vocabulary, grammar, and reading, might also differ (Bahník & Vranka, 2017; Li & Bates, 2020). Moreover, while some recent research reports a positive relationship between the growth language mindset and English achievement, others investigate how English teachers' mindsets correlate with their self-efficacy beliefs and with other variables such as age, gender, highest education level attained, and workplace (Zilka et al., 2019). The concept has been studied in many ways for many different purposes, but still, many gaps are waiting to be closed by scientific research. When the research on mindset and education, specifically mindset and language teaching, is reviweved, it is possible to spot those gaps in the literature. While reviewing the literature, it was determined that several studies investigate language teachers' mindsets and how they correlate with factors such as age, gender, highest education level completed, and workplace. However, no study investigates language teachers' mindsets in the Turkish EFL context in relation to a number of predetermined variables collecting data from participants teaching different grades from primary to university level and working at diverse institutions across the country. Thus, this research is important because it will contribute to the field by addressing one of those gaps in the literature. This study, which set off to provide insights into the mindset issue and inspire further research in this relatively immature field, aims to answer the following research questions:

1. What types and levels of mindsets do EFL teachers have about intellectual abilities?
2. Do EFL teachers' mindsets differ according to demographic variables?

Method

Research design

This research first identifies English teachers' mindsets and then explores the relationship between English teachers' mindsets and several predetermined factors. These factors are namely demographic variables such as age and gender; educational backgrounds, including the department participants graduated in and the highest level of education they attained; being abroad for education or not; and their teaching experience including years of teaching, the levels they teach, type of institutions they work at, and attending any in-service training or not. In other words, this study identifies several factors that may relate to a predetermined construct, mindset, and investigates the construct and its relationship with the identified factors. As Dulock (1993) states, descriptive research portrays the characteristics of a group of people, explores the associations between already existing variables, and documents the phenomenon methodically as it naturally occurs in its setting. In line with this, this descriptive research has no manipulation but investigates the variables as they exist (Seliger & Shohamy, 1989). For conducting such descriptive research, an online survey method was employed. The questionnaire that collected background information about participants and the scale that measured teachers' mindsets were both combined and integrated into an online survey. According to Wright (2005), the online survey method for collecting data is advantageous due to several reasons. While collecting data, online surveys let the researcher recruit a great number of participants in a short time and save time for the researcher. Moreover, it gives a chance to involve participants who are otherwise hard to reach because of distance. Considering the abovementioned advantages, the online survey method was determined as the most appropriate method for the design and purpose of this study.

Participants

One hundred and sixty-two English teachers/instructors from diverse schools and universities in Turkey participated in the study. Of these participants, 85.2% were females (n=138), and 14.8% were males (n=24). The mean age for all participants is 32.1, with the youngest participant being 23 and the oldest being 65 years old. Slightly more than half of the participants had a bachelor's degree (%53.7, n=87), while 38.3% of them had a master's (n=62), and 8% of them had a doctoral degree

(*n*=13). Most teachers, with a percentage of 83.3, graduated from English Language Teaching (ELT) Department (*n*=135), while 16.7% of the teachers graduated from departments such as Language and Literature, Translation, Linguistics, and Educational Sciences (*n*=27). Moreover, 54.9% of the teachers stated that they had not been abroad for educational purposes (*n*=89), while 45.1% stated that they had been abroad for education at any time (*n*=73). On average, participants had 8.8 years of teaching experience, with the least experienced teacher having one and the most experienced teacher having 40 years of teaching experience. Participants taught various groups of learners at preschools (*n*=3), primary schools (*n*=18), secondary schools (*n*=37), high schools (*n*=23), and universities (*n*=81). Most participants, with a percentage of 64.2 worked at public/state institutions (*n*=104), and 35.8% worked at private institutions (*n*=58). Moreover, 36.4% of the participants stated that they attended at least one in-service teacher training program in their lives (*n*=59), while 63.6% of them expressed attending no in-service teacher training programs (*n*=103).

Tools

With the aim of collecting Tdata, an online survey consisting of a questionnaire and the Dweck Mindset Instrument was used. The questionnaire included nine questions aiming to collect background information about participants. The second part of the online survey comprised the Dweck Mindset Instrument, one of the commonly used versions of mindset scales that originate from the Implicit Theories of Intelligence Scale provided by Dweck (2000). The scale includes sixteen items that investigate people's core assumptions and beliefs about intelligence and talent. For each item, participants need to make a numerical expression that reflects their beliefs about the given statement using a six-point Likert type scale (6 = "Strongly agree," 5 = "Agree," 4 = "Mostly Agree," 3 = "Mostly Disagree," 2 = "Disagree," 1= "Strongly Disagree"). As Dweck et al. (Dweck et al., 1995) define mindset as a "construct with a simple unitary theme" and thus state that mindset scale items can be used alone to form shorter versions of the scale (Dweck, 2000), the reliability coefficients of the scale with the different number of items were calculated in several other studies and are given below in Table 1.

Table 1. Reliability values of the scale in previous studies

	Studies	Reliability Coefficients (α)
16-item	DeLuca et al., 2019	.93
	Ergen, 2019	.72
	Sashar, 2017 Growth mindset Fixed mindset	 .81 .78
6-item	Blackwell et al., 2007 (2-week test-retest, *r* = .77)	.78
3-item	Yan et al., 2014	.95
	Dweck et al., 1995 (six studies) (2-week test-retest, *r* = .80)	0.94 - .98

Procedure

After receiving the approval of the ethics committee at a state university, the online survey that consisted of a demographic questionnaire and Dweck Mindset Instrument was shared with English teachers and instructors working at diverse institutions in Turkey through e-mails and social media posts. Since it was empirically found that sending personalized invitations and reminder messages increase the participation rate in web-based surveys, participants were sent personalized invitation letters when possible and reminded several times about the survey (Muñoz-Leiva et al., 2010). The online survey included a brief text informing prospective participants of the aim, methodology, and procedure of the study. Participants were also ensured that the data obtained through the survey would be kept confidential and used only for the purposes of this scientific research. After being informed about the study, participants needed to approve the consent form to be eligible to see the items and fill out the survey. All items of the demographic questionnaire and Dweck Mindset Instrument were presented together to maintain the integrity of the survey. Participation was voluntary, and participants had the right to leave the survey without submitting their answers. Participants also had the ease and flexibility of filling out the survey at any time and place. When the data collection phase terminated, the online survey was deactivated, and collected data were analyzed through statistical software.

Data analysis

Statistical Package of Social Sciences (SPSS) 26.0 was used as statistical software. First, the mean age and the mean of teachers' years of experience were calculated. Then, the minimum and maximum values for the age and experience range were

found. Right after, intervals for both age and years of experience were specified, and the frequencies and percentages for each interval were computed. For gender, frequencies and percentages were computed, as well. Regarding the highest education level attained, B.A., M.A., and Ph. D. were identified as three nominal categories. As for the department they graduated in, teachers were separated into two groups: English Language Teaching Department graduates and graduates of other departments. Other nominal variables were yes-no questions, namely, being abroad for education or not and attending in-service training. The level participants teach and the institutions they work at were also identified as nominal variables. Analyses were performed for all nominal variables to find the frequencies and percentages. Then, reliability and construct validity tests were conducted for the 16-item scale. The reliability coefficient of the scale was calculated in Cronbach's alpha and found as α = .91, which indicates good internal reliability (Feldt & Charter, 2006). As for the construct validity of the scale, the varimax rotation was run, and % of variance was calculated as 70.15.

Since the scale items 1, 2, 4, 6, 9, 10, 12, and 14 measure the fixed mindset, while items 3, 5, 7, 8, 11, 13, 15, and 16 measure the growth mindset, which stem from phrasing statements either positively or negatively, fixed mindset items were reverse coded before calculating mean mindsets scores. By averaging their scores on sixteen scale items, participants' mindset scores were calculated out of 6. The highest end (6.0) indicates a strong endorsement of a growth mindset, and the lowest end (1.0) indicates a strong endorsement of a fixed mindset. Participants were assigned to three categories according to their mindset scores: participants with a mindset score of 4.00-6.00 fell into the growth mindset category, participants with a mindset score of 1.0-3.0 fell into the fixed mindset category, and participants with a mindset score of 3.01-3.99 were identified as having a mixed mindset. Next, the frequency and percentage of participants besides mean and standard deviation values were calculated for each item separately. Finally, the relationships between the scale score and the other variables were investigated through parametric tests (One-way ANOVA and independent sample t-test) where data were normally distributed and through non-parametric tests (Mann-Whitney U Test and Kruskal-Wallis-H Test) where data were

skewed. Intervals including a value less than 30 were considered skewed and subjected to non-parametric tests.

Results

The types and levels of mindsets of EFL teachers

As Table 2 illustrates, out of 162 participants, 10.49% (n=17) had a growth mindset, 58.02% (n=94) had a fixed mindset, and 31.48% (n=51) had a mixed mindset. Although there were participants who strongly agreed to fixed mindset ideas in each item so that they scored the minimum score of 1.00, indicating a very strong endorsement of a fixed mindset, no participants strongly agreed to growth mindset ideas throughout the entire scale and received the highest score that would imply a very strong endorsement of a growth mindset. The mean score of the mixed mindset category ($\bar{x}$=3.42) also showed that many participants in the mixed mindset category were closer to fixed mindset beliefs rather than growth mindset beliefs. With exploratory analyses, skewness and the Kurtosis values for the mindset scores were found to be .31 and -.26, respectively, which demonstrate the normal distribution of the data (George & Mallery, 2010).

Table 2. Classification of participants' mindsets (n=162)

	N	%	M	MIN	MAX	SD
Growth mindset (Mindset score ≥4)	17	10.49	4.41	4.00	5.13	.35
Fixed mindset (Mindset score ≤3)	94	58.02	2.27	1.00	3.00	.47
Mixed mindset	51	31.48	3.42	3.06	3.94	.25

After participants' mean mindset scores were calculated, answers given to each questionnaire item by the whole group were identified. Numerical data showing frequency and percentage values for responses to each item are given in Table 3. As some of the items were positively phrased, and some were negatively phrased, a higher mean score in an item (e.g., $\bar{x}$=4.35) might correspond to a higher endorsement of a fixed mindset. However, in another item (e.g., $\bar{x}$=2.65), a lower mean score might correspond to a higher endorsement of a fixed mindset.

Table 3. Dweck Mindset Instrument (n=162)

Items		Strongly Disagree	Disagree	Mostly disagree	Mostly Agree	Agree	Strongly Agree	Mean	SD
1) You have a certain amount of intelligence, and you can't really do much to change it.	%	1.9	14.2	22.2	16	32.1	13.6	4.03	1.35
	N	3	23	36	26	52	22		
2) Your intelligence is something about you that you can't change very much.	%	1.9	11.7	18.5	20.4	36.4	11.1	4.11	1.28
	N	3	19	30	33	59	18		
3) No matter who you are, you can significantly change your intelligence level.	%	17.3	32.1	21.6	14.2	13.6	1.2	2.78	1.33
	N	28	52	35	23	22	2		
4) To be honest, you can't really change how intelligent you are.	%	4.9	13	13	23.5	35.8	9.9	4.02	1.36
	N	8	21	21	38	58	16		
5) You can always substantially change how intelligent you are.	%	9.3	36.4	20.4	19.8	12.3	1.9	2.95	1.26
	N	15	59	33	32	20	3		
6) You can learn new things, but you can't really change your basic intelligence.	%	6.2	21.6	18.5	19.8	27.2	6.8	3.60	1.42
	N	10	35	30	32	44	11		
7) No matter how much intelligence you have, you can always change it quite a bit.	%	9.9	37	26.5	10.5	13.6	2.5	2.88	1.28
	N	16	60	43	17	22	4		
8) You can change even your basic intelligence level considerably.	%	11.1	32.1	19.8	20.4	14.8	1.9	3.01	1.32
	N	18	52	32	33	24	3		
9) You have a certain amount of talent, and you can't really do much to change it.	%	3.1	9.3	13	20.4	36.4	17.9	4.31	1.33
	N	5	15	21	33	59	29		
10) Your talent in an area is something about you that you can't change very much.	%	2.5	8.6	13	24.7	36.4	14.8	4.28	1.26
	N	4	14	21	40	59	24		
11) No matter who you are, you can significantly change your level of talent.	%	14.8	38.9	24.1	13	6.8	2.5	2.65	1.22
	N	24	63	39	21	11	4		
12) To be honest, you can't really change how much talent you have.	%	1.9	7.4	13	23.5	40.1	14.2	4.35	1.20
	N	3	12	21	38	65	23		
13) You can always substantially change how much talent you have.	%	11.7	38.3	24.7	17.3	6.2	1.9	2.73	1.17
	N	19	62	40	28	10	3		
14) You can learn new things, but you can't really change your basic level of talent.	%	3.7	10.5	16	22.8	37	9.9	4.09	1.30
	N	6	17	26	37	60	16		
15) No matter how much talent you have, you can always change it quite a bit.	%	10.5	38.3	27.2	13	10.5	0.6	2.77	1.17
	N	17	62	44	21	17	1		
16) You can change even your basic level of talent considerably.	%	12.3	39.5	25.3	13.6	8.6	0.6	2.69	1.16
	N	20	64	41	22	14	1		

EFL teachers' mindsets according to predetermined variables

Age

A Kruskal-Wallis H test was performed to explore whether English teachers' mindsets differed according to their age. As Table 4 shows, there was no statistically significant difference ($H(2)=2.63$, $p=0.27$) in the mindsets of teachers aged between 20 and 30, 31 and 40, or 41 and older.

Table 4. Relationship between mindset and age (Kruskal-Wallis H test)

	Age Groups	N	Mean Rank	H (chi-square)	Sig. (p-value)
Mean Mindset Score	20-30	79	80.44	2.63	0.27
	31-40	67	86.52		
	41+	16	65.69		

However, a detailed item-based analysis revealed that teachers' responses to some of the items differed significantly among prespecified age groups (See Table 5). Significance values were found as .02, .04, .02, .01 for items 6, 9, 10, and 14, respectively, which indicates a statistically significant ($p<0.05$) difference among groups regarding these four items. To further understand which group differed from the others significantly, a post hoc analysis was conducted. As Table 6 illustrates, Tamhane's T2 test showed that in items 6 and 14, teachers who were 41 years of age or older tended to endorse the fixed mindset ideas more than teachers between 20-30 did. However, teachers aged between 20-30 did not differ significantly from the other groups in their responses to these items. As for items 9 and 10, the post hoc analysis did not reveal a significance level in the prespecified range (p=.10-.48).

Table 5. Relationship between scale items and age (Kruskal-Wallis H test)

Items	Age Interval	N	Mean Rank	*H* (chi-square)	Sig. (*p*-value)
6) You can learn new things, but you can't really change your basic intelligence.	20-30	79	85.09	7.47	.02
	31-40	67	71.80		
	41+	16	104.38		
9) You have a certain amount of talent, and you can't really do much to change it.	31-40	67	79.97	6.65	.04
	41+	16	83.91		
	20-30	79	84.58		
10) Your talent in an area is something about you that you can't change very much.	31-40	67	72.64	7.73	.02
	41+	16	103.38		
	20-30	79	84.18		
14) You can learn new things, but you can't really change your basic level of talent.	31-40	67	72.44	9.39	.01
	41+	16	106.19		
	41+	16	105.56		

Table 6. Tamhane's T2 post hoc analysis for scale items

Dependent Variable	(I) Age Interval	(J) Age Interval	Mean Difference (I-J)	Sig. (p-value)
6) You can learn new things, but you can't really change your basic intelligence.	20-30	31-40	.42	.20
		41+	-.59	.31
	31-40	20-30	-.42	.20
		41+	-1.01*	.03
	41+	20-30	.59	.31
		31-40	1.01*	.03
9) You have a certain amount of talent, and you can't really do much to change it.	20-30	31-40	.30	.43
		41+	-.48	.48
	31-40	20-30	-.30	.43
		41+	-.79	.12
	41+	20-30	.48	.48
		31-40	.79	.12
10) Your talent in an area is something about you that you can't change very much.	20-30	31-40	.29	.39
		41+	-.52	.40
	31-40	20-30	-.29	.39
		41+	-.82	.10
	41+	20-30	.52	.40
		31-40	.82	.10
14) You can learn new things, but you can't really change your basic level of talent.	20-30	31-40	.44	.12
		41+	-.53	.28
	31-40	20-30	-.44	.12
		41+	-.97*	.02
	41+	20-30	.53	.28
		31-40	.97*	.02

Gender

A Mann-Whitney U test was performed to determine whether English teachers' mean mindset scores differed regarding their gender, as Table 7 shows. The results indicated that the difference between males and females in terms of their mindsets was non-significant (U=1642, p=0.95). However, an item-based Mann-Whitney U test analysis revealed that there was a significant difference (p=.03) in teachers' responses to item 3, showing a greater endorsement of a growth mindset idea *"No matter who you are, you can significantly change your intelligence level."* for the female teachers' part (See Table 8).

Table 7. Relationship between mindset and gender (Mann-Whitney U test)

	Gender	N	Mean Rank	U	Sig. (p-value)
Mean Mindset Score	Female	138	81.40	1642	0.95
	Male	24	82.08		

Table 8. Mann-Whitney U test results for the scale item

Items	Gender	N	Mean Rank	*U*	Sig. (*p*-
3) No matter who you are, you can significantly change your intelligence level.	Female	138	84.83	1197	.03
	Male	24	62.38		
	Male	24	83.83		

Highest level of education completed

A Kruskal-Wallis H test was conducted to determine whether there was a significant difference in English teachers' mindsets according to the highest level of education they attained. As Table 9 demonstrates, teachers' mindsets did not differ significantly ($H(2)=1.28$, $p=.53$) according to attaining a bachelor's, master's, or doctoral degree. A further item-based analysis was also performed to determine any possible statistically significant difference in teachers' responses to the scale items. Nevertheless, teachers' responses to the scale items did not differ significantly according to the highest level of education they completed.

Table 9. Relationship between mindset and the highest level of education completed (Kruskal-Wallis H test)

	Highest Level of Education Completed	N	Mean Rank	H (chi-square)	Sig. (p-value)
Mean Mindset Score	Bachelor's degree	87	82.82	1.28	0.53
	Master's degree	62	77.33		
	Doctoral degree	13	92.54		

Department

A Mann-Whitney U test was conducted to see if there was a statistically significant difference in the mean mindset scores between English Language Teaching and other department graduates. As Table 10 illustrates, although teachers who graduated in other departments tended to have a higher mean score of mindset than teachers who graduated in the English Language Teaching Department, this difference was not

statistically significant (*U*=1713.5, *p*=0.62). An item-based Mann-Whitney U test was also conducted to see if there was a difference in teachers' responses to scale items. Analysis showed no significant difference in teachers' responses to the scale items when their departments were considered.

Table 10. Relationship between mindset and department (Mann-Whitney U test)

	Department	N	Mean Rank	U	Sig. (p-value)
Mean Mindset Score	English Language Teaching	135	80.69	1713.5	.62
	Other	27	85.54		

Being abroad for education

To determine if there was a significant difference in the mindsets of teachers who had been abroad for educational purposes and those who had not, an independent sample t-test was performed. As Table 11 demonstrates, analyses revealed that the mindsets of teachers who had been abroad for educational purposes (*M*=2.76, *SD*=.94) did not differ significantly from those of teachers who had not (*M*=2.93, *SD*=.76), providing the *p*-value as .22. Moreover, further analyses showed no statistically significant difference in teachers' responses to scale items regarding their overseas experiences.

Table 11. Relationship between mindset and being abroad for education (Independent sample t-test)

	Being Abroad for Education	N	Mean	SD	T	Sig. (p-value)
Mean Mindset Score	Yes	73	2.76	.94	-1.25	.22
	No	89	2.93	.76		

Teaching experience

A one-way ANOVA test was conducted to ascertain whether there was a significant difference in English teachers' mindsets according to their teaching experiences. As Table 12 illustrates, despite the differences in the mean values of English teachers' mindsets varying according to their teaching experiences (*M*=2.86, 2.77, 2.97; *SD*=.90, .75, .90), the computed significance value (*p*=.49) shows that the difference is insignificant. An item-based one-way ANOVA test was also conducted to explore further if participants' responses to the scale items differed significantly (see Table

13). The analysis yielded a significant difference in the responses given to the item "*No matter how much intelligence you have, you can always change it quite a bit.*" (p=0.03).

Table 12. Relationship between mindset and teaching experience (One-Way ANOVA)

	Teaching Experience	N	Mean	SD	F	Sig. (p-value)
Mean Mindset Score	0-5	55	2.86	.90	.72	.49
	6-10	64	2.77	.75		
	11+	43	2.97	.90		

Table 13. One-Way ANOVA test results for the scale item

Items	Teaching Experience	N	Mean	SD	*F*	Sig. (*p*-value)
7) No matter how much intelligence you have, you can always change it quite a bit.	0-5	55	2.87	1.26	3.48	.03
	6-10	64	2.63	1.18		
	11+	43	3.28	1.37		
	11+	43	3.30	1.41		

As for finding out which group differed from the others in their responses to item 7, a post hoc analysis was conducted. The Scheffe test revealed that, as shown in Table 14, participants with teaching experience of 11 years or more agreed with the growth mindset idea more than participants with teaching experience of 6-10 years did, and this difference was statistically significant (p=.03). However, relatively less experienced teachers' (0-5 years) responses to the item did not differ significantly from those of teachers in other groups.

Table 14. Scheffe post hoc analysis for the scale item

Dependent Variable	(I) Experience Interval	(J) Experience Interval	Mean Difference (I-J)	Sig. (p-value)
7) No matter how much intelligence you have, you can always change it quite a bit.	0-5	6-10	.25	.57
		11+	-.41	.29
	6-10	0-5	-.25	.57
		11+	-.65*	.03
	11+	0-5	.41	.29
		6-10	.65*	.03

Level taught

As the number of participants teaching at different levels was not normally distributed and there were more than two categories, a Kruskal-Wallis H test was conducted to

determine whether teachers' mindsets differed significantly across groups. As Table 15 shows, teachers' mindsets about intellectual abilities differed insignificantly according to the levels they teach $H(4)=4.01$, $p=.40$). To capture the significant differences in the responses given to individual scale items, if there were any, a further Kruskal-Wallis H test was performed. However, the difference in teachers' responses to the scale items was insignificant.

Table 15. Relationship between mindset and level taught (Kruskal-Wallis H test)

	Level Taught	N	Mean Rank	H (chi-square)	Sig. (p-value)
Mean Mindset Score	Preschool	3	106.67	4.01	.40
	Primary School	18	65.67		
	Secondary School	37	76.77		
	High School	23	87.50		
	University	81	84.54		

Institution

To see if teachers differed significantly in their mindsets according to the institutions they work at, an independent sample t-test was conducted. Table 16 shows that teachers' mindsets who worked at state institutions ($M=2.85$, $SD=.87$) did not differ significantly from those who worked at private institutions ($M=2.85$, $SD=.87$), with the calculated p-value being 1. To capture the significant differences in the responses given to individual scale items, if there were any, a further independent sample t-test was performed. However, again, there were non-significant differences in the responses given to the individual scale items by teachers working at state or private institutions.

Table 16. Relationship between mindset and institution (Independent sample t-test)

	Institution	N	Mean	SD	t	Sig. (p-value)
Mean Mindset Score	State	104	2.85	.87	-.01	.99
	Private	58	2.85	.81		

Receiving in-service training programs

To find out if there was a significant difference in the mindsets of teachers who had received in-service training and those who had not, an independent sample t-test was

performed. As Table 17 illustrates, analyses showed that the mindsets of teachers who had received in-service training (*M*=2.80, *SD*=.80) did not differ significantly from those of teachers who had not (*M*=2.89, *SD*=.87), providing the *p*-value as .54. Further analyses were also performed to identify any significant difference in teachers' responses to the individual scale items (see Table 18). The independent sample t-test performed for scale items revealed that, except for an item, no statistically significant difference was observed in teachers' responses to the scale items (*p*=.12-.98). However, as for item 13, *"You can always substantially change how much talent you have."*, there was a significant difference in the mean value calculated for the teachers' having received in-service teacher training (*M*=2.47, *SD*=1.04) or not (*M*=2.88, *SD*=1.22). Interestingly, teachers who have not attended any in-service teacher training programs differed in endorsing the abovementioned growth mindset idea more than the other group of teachers at the significance level of .03.

Table 17. Relationship between mindset and receiving in-service training (Independent sample t-test)

	In-service Training	N	Mean	SD	t	Sig. (p-value)
Mean Mindset Score	Yes	59	2.80	.80	.62	.54
	No	103	2.89	.87		

Table 18. Independent sample t-test results for the scale item

Items	In-service Training	N	Mean	SD	*t*	Sig. (*p*-value)
13) You can always substantially change how much talent you have.	Yes	59	2.47	1.04	2.16	.03
	No	103	2.88	1.22		

Conclusions and Discussion

The main purpose of this study was to investigate English Language teachers' mindsets about intellectual abilities. For doing so, teachers' mindsets were initially identified, and then the association between teachers' mindsets and several variables was studied. Concerning the two research questions, this study has two main conclusions. First, teachers with a fixed mindset greatly outnumbered those with a mixed or a growth mindset. In other words, more than half of the English teachers in the Turkish EFL context had a fixed mindset, and the remaining had a mixed or a growth mindset, which the latter constituted the smallest group.

Second, this research concludes that teachers' mindsets were irrespective of nine previously determined variables. That is, teachers' mindsets did not differ significantly according to their age, gender, the highest level of education completed, the department they graduated in, being abroad for education or not, years of experience in teaching English, the level they teach, type of institution they work at, and attending any in-service training program or not. However, it is noteworthy that item-based analyses showed a significant difference in teachers' beliefs regarding the ideas given in some of the items. This is especially important once the scale used in this research is considered reducible to fewer items before its use (Dweck, 2000).

Pedagogical implications

Considering the importance of teacher mindset for teachers themselves, their students, and the whole educational setting, the importance of findings regarding teacher mindset becomes more evident. For instance, according to Leroy et al. (2007), the teacher mindset is crucial because teachers' beliefs on abilities guide their behaviors in educational settings. Besides, the teacher mindset is vital because their teachers' beliefs affect how students perceive their abilities (Seaton, 2018). In line with these, an OECD report suggests that teaching a growth mindset in schools might enhance the school atmosphere and improve students' learning, and teachers should be the first to be taught a growth mindset (Gouëdard, 2021). As many studies address, teacher mindset, directly and indirectly, impacts student achievement. Teacher mindset directly influences students' academic success because teachers with a growth mindset feel more responsible for student's academic attainment; give effort-based feedback and focus more on students' learning; foster individual learning processes; and prioritize assessment *as a* learning approach (DeLuca et al., 2019; Patterson et al., 2016; Rissanen et al., 2019). Teacher mindset may also indirectly impact students' academic success because teachers with a growth mindset treat students in a more unbiased and appropriate way; support autonomy in the classroom; help students alter their responses to challenges; and, most importantly, help students develop a malleable view of intellectual abilities (Lee, 1996; Leroy et al., 2007; Rau, 2016; Yeager et al., 2022).

This research study concludes that the majority of the participants in the sample have either a fixed or a mixed mindset, and only a small proportion has a growth mindset, which is in line with the findings of Beyaztaş and Hymer (2018), despite diverging from those of Delibalta (2020) and Altunel (2020). The second major conclusion this study drew is that teachers' mindsets do not vary according to demographic variables such as their age and gender, their educational backgrounds, and their teaching experience. These findings are in line with the findings of Macnamara and Rupani (2017), who reported an insignificant relationship between mindsets and age, gender, and education, and partially congruent with those of Yılmaz (2020), who found that teachers' mindsets did not differ significantly according to their workplace, teaching experience, the program they graduated in, and the highest education level attained. However, the findings differ from those of Spinath et al. (2003), who reported that mindset had a weak but consistent relationship with gender and age, and partially differ from those of Yılmaz (2020), who reported that mindset was significantly related to gender and receiving teacher training.

The independence of mindset from certain variables statistically documented in this study suggests that mindset is a distinct trait, and a type of mindset cannot be attributed to a certain group. That is, expecting a teacher to hold a particular mindset because they belong to a group is undue and invalid. Thus, intuitively thinking that a group of teachers holds a growth or fixed mindset just because they have several characteristics in common would be misleading. These are consistent with Mystkowska's (2014) findings that despite people sharing much in common such as having similar backgrounds, taking the same courses, and having the same age and gender, they may vary in their mindsets. Teachers' mindsets are complex systems shaped by internal and external factors. Internal factors contributing to one's mindset include upbringing, grit, inner motivation, ego, burnout, and success and failure experiences. On the other hand, external factors that shape one's mindset include mentorship, guidance, feedback, school environment, principal support, lack of autonomy, and lack of sufficient appreciation.

To foster a growth mindset among teachers and, in turn, lead their students to achieve higher, implementations and training programs can be utilized. Research shows that such practices are effective when they are systematically implemented and

include active and reflective teaching strategies (Seaton, 2018). Nevertheless, it should be clarified that mindsets are not a panacea, although they seem to be a point of entry to improving education. Besides, labeling mindsets as good or bad can be misleading at some point. There are many pathways in life to improve and achieve, and people may prefer their unique ways of going. In other words, one size does not fit all at every turn (Mercer, 2011).

Practical recommendations

This study has several implications for practice. Before anything else, teachers should be aware of their mindsets and how their mindsets influence their pedagogies and, in turn, their students' mindsets and achievements. As it was empirically found that promoting a growth mindset among teachers is beneficial for both teachers themselves and their students, and this study concluded that English teachers tend to have a fixed mindset, teachers may personally take several steps to enhance their belief systems. Teachers may read scientific articles, receive training programs, and attend seminars or courses that teach the plasticity of the brain and how intellectual abilities can be developed through effort. As Kroeper et al. (2022) indicate, students' being equipped with growth mindset beliefs are insufficient for having the desired level of motivation and academic achievement. Those students also need a supportive learning environment. To provide a supportive learning environment, teachers may adopt growth mindset beliefs by broadening their perspectives, then better communicate growth mindset messages in classrooms and implement classroom activities that promote growth mindset beliefs.

Moreover, as it was used as an effective method in a few intervention studies (Blackwell et al., 2007; Good et al., 2003), teachers may teach the malleability of human abilities to their students through workshops, journal papers, scientific articles, books, or videos, either implicitly or explicitly, as a supplement to the instructional plan. In addition to the roles of teachers' mindsets in creating a supportive learning climate in classrooms, as Rattan et al. (2015) point out, teachers also transfer their mindsets to students. From this viewpoint, it might be asserted that policymakers and educators have an important role in prioritizing and implementing the desired mindset among students. Thus, policymakers, school managers, and teachers should work

collaboratively toward implementing a growth mindset at schools. This collaboration can be achieved by creating a supportive school environment, choosing proper teaching materials, and designing lessons that integrate growth mindset messages. However, it may not be as simple as it seems, so effective strategies should be sought to achieve substantial changes. With the steps taken, teachers may lead their students to set learning goals, value effort, and learn from failures.

Limitations and recommendations for further research

The present study has several limitations. First, this is a cross-sectional study that measured teachers' mindsets at a given point in time. However, as intervention studies show, the mindset itself is a mutable and cultivatable quality. Thus, the identified mindsets of the participating teachers may not remain consistent over time. Second, only quantitative data were collected for this descriptive study; qualitative data obtained through interviews and observations, together with quantitative data, could help better understand the teachers' underlying belief systems (Creswell & Garrett, 2008). Third, data collected for this research are based on self-reports, which might not reflect the actual beliefs of participants. Fourth, the participants of this study are limited to 162 teachers. Moreover, out of 162 teachers, only twenty-four were males, which may be insufficient to represent the group. Fifth, this study did not use random sampling; teachers who responded to the online survey were, at least to some extent, technology literate and reached the survey by technological means. Further research may mitigate any inconvenience arising from this by collecting data from a bigger number of participants that would reflect the characteristics of the target population better or collecting data through both online and paper-based surveys for those who are unavailable to receive the online invitation letters and/or participate in the online survey.

As mentioned earlier, the teacher mindset regarding language teaching and/or learning is still in its youth, and there is a lot to unveil in the area. For instance, research may study mindsets through longitudinal research to understand how teachers' mindsets take shape over time, and these longitudinal studies may or may not include an intervention. In the former, whether personal or environmental factors change teacher mindset over time may be investigated. If yes, to what extent and by which means personal or environmental factors influence teacher mindset can be

examined. In the latter, research may study the effectiveness and possible outcomes of various mindset interventions. Further research may address how teachers' mindsets are reflected in their classroom pedagogies. To achieve this, qualitative or mixed-method research that uses scales, interviews, and extensive classroom observations may be carried out. Such research may be extended to the study of teacher mindset and its reflections on student achievement. Small-scale studies mainly provide extensive and in-depth information on the investigated phenomenon. Nevertheless, rigorous large-scale studies can be carried out to reach more conclusive and overall findings on how the teacher mindset reveals itself in school settings. For this study, data were collected through a mindset scale that measured teachers' beliefs on general abilities; further research may measure teachers' language mindset and investigate how teachers' language mindset relates to certain factors. Besides, research may study whether teacher mindset regarding general intellectual abilities and teacher mindset regarding abilities to learn languages vary, and if yes, how and to what extent.

Meanwhile, other research may address teachers' mindsets about subdomains of a language, such as reading, writing, speaking, and listening as separate units. However, other research may scrutinize the interdependence of teacher and student mindsets, how they are related, and whether there is a cause-and-effect relationship between the two. All in all, many areas concerning teacher mindset are under-researched now and waiting to be disclosed. On the one hand, research might be conducted to bring uninvestigated areas to light. On the other hand, research adopting different methods and perspectives with distinctive research designs might be carried out to develop new insights into the already investigated issues.

Ethics Committee Permission Information

This research study was conducted with the Research Ethics Committee approval of Istanbul Medeniyet University, dated 01.03.2021 and numbered 2021/03-01.

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RESEARCH ARTICLE

Multimodality in EAP Objectives and Coursebooks

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Abstract
Academic discourse is complex and dense regarding the information it conveys by nature. This complexity requires more effective ways of communication, which is possible by utilizing different modes of meaning– in other words, multimodality. English for Academic Purposes (EAP) aims to prepare learners for the academic discourse that they will be exposed to during their studies. Accordingly, multimodality has become one of the skills learners require to develop during their EAP experiences. This study attempts to reveal how much multimodality is included in EAP objectives and practices. For that purpose, target skills defined for academic English by the Global Scale of English (GSE) (Pearson, 2019) are analyzed to study the multimodal aspect of objectives. For the practice aspect, the tasks in two EAP course books are analyzed using a qualitative approach. The results of the analyses revealed that the use of multiple modes is set as an objective skill for EAP learners within the descriptors of GSE, especially for academic speaking, and this expectation is reflected within the tasks designed in EAP coursebooks. These findings are in agreement with the assumption that multimodality is considered a necessity for academic contexts and, therefore, EAP.

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Introduction

Although the concept of literacy has gained a much wider scope in recent years, what it refers to in its most basic sense is limited to the written mode of semiotics, which is the study of signs or how meaning is constructed through signs in the broadest sense (Chandler, 2022). From a historical perspective, literacy refers to the ability to code and encode or comprehend, process, and produce written symbols (Perry, 2012). To put it simply, it is the ability to read and write. However, with the development of technologies and our lives becoming increasingly digital, the amount and variety of semiotic resources we are exposed to have increased dramatically. These resources also undergo similar processes of coding and encoding as written ones, which raises the question of defining competence in achieving this with other modes. Changes in understanding the concept of literacy occurred mostly between the early 1970s and

the early 1990s (Lankshear & Knobel, 2011). The concepts of functional literacy and illiteracy are used to distinguish between people who can and cannot make use of their ability to read and write functionally (UNESCO, 1979). Since then, the concept of literacy has been used in many different areas, pairing up with new concepts such as media literacy, digital literacy, and computer literacy, mostly referring to the ability to function in a specific field (Lankshear & Knobel, 2011). Among many different types of literacies identified in different fields, this study focuses on the "academic literacy." As more ways of meaning-making are included in our lives with technological developments, pedagogical approaches focus on the methods of adapting learners to make use of these ways in their meaning-making processes. Therefore, multimodality, making use of multiple modes of meaning, inevitably turns out to be one of the skills on which EAP objectives and practices focus.

Literature Review

English for Academic Purposes

With the ever-developing global status of English and the worldwide trend towards the internationalization of higher education (Macaro et al., 2018), the prevalence of English Medium Instruction (EMI) has been rapidly increasing in many parts of the world (Dearden, 2014). EMI is the instructional use of English by an audience whose first language is not English (Pecorari & Malström, 2018). As speakers of languages other than English, this audience requires a certain level of readiness before starting the courses offered through EMI. English for Academic Purposes (EAP), which refers to the teaching of English with a focus "on the specific communicative needs and practices of particular groups in academic contexts" (Hyland & Hamp-Lyons, 2002, p. 2), serves to provide learners with that readiness in academic discourse. In the broadest sense, English for Academic Purposes (EAP), as a sub-domain of English Language teaching, is the practice of teaching English aiming to provide learners with the specific language skills they will need in their studies and research activities (Flowerdew & Peacock, 2001). Providing a more specific definition, Hyland (2006a) defines EAP as the "specialized English-language teaching grounded in the social, cognitive and linguistic demands of academic target situations, providing focused

instruction informed by an understanding of texts and the constraints of academic contexts" (p. 2). He suggests that with an aim covering the language use in academic contexts for all levels, it makes use of various tools to provide learners with an understanding of "the structures and meanings of spoken, written, visual and electronic academic texts" (p.2). Research has proven the significance of EAP for academic success among non-native speakers of English (Rose et al., 2019; Terraschke & Wahid, 2011), which means that the better EAP courses are at providing learners with proficiency in academic discourse, the better they will be in academic literacy. Therefore, the attention paid to EAP increases in line with the prevalence of EMI.

Academic literacy and academic genres

The concept of academic literacy/literacies comes from New Literacy Studies (Turner, 2012). Initially, it was defined within the scope and reading and writing skills that higher education students have and use while reading and researching in their fields of study (Lea & Street, 1998). However, the developments leading to diverse modes in resources, and expanding the scope of literacy, have had the same impact on the concept of academic literacies, which encompasses multiple skills and modes in academic studies (Lea, 2004). These skills cover but are not limited to "critical thinking, database searching, familiarity with academic conventions such as referencing, use of formal register and the ability to manipulate a range of academic genres" (McWilliams & Allan, 2014, p. 1).

As proposed by Marius (1990), the purpose of academic discourse is to define disciplines and present evidence supporting those disciplines, along with the associations between the existing evidence of various sorts. However, different disciplines have different approaches to knowledge and research, which makes academic discourse rather varied in terms of how it is produced, especially by the subject field it is for (Hyland, 2016). Many studies have been conducted on the variance in academic discourse across disciplines, focusing on both written (Dontcheva-Navratilova, 2021; Hyland, 2006b; Parodi, 2015; Samraj, 2008) and spoken (Kashiha & Heng, 2014; Simpson-Vlach, 2006; Yang, 2014) discourse, all reporting the existence of differences in certain genres of academic discourse between different fields of study. The variation is not only at the lexical or structural level. As

stated by Duff (2010, p. 169), "Academic discourse socialization is a dynamic, socially situated process that in contemporary contexts is often multimodal, multilingual, and highly intertextual as well."

Multimodality

The concept of multimodality was introduced in the literature in the late 1990s, which is comparatively recent, yet still it has been a widely studied subject of academic research (Jewitt et al., 2016). Technological developments enabled the creation of multimodal texts enriched with different semiotic resources, including audio and visual modes, along with others. These developments facilitated the emergence of new multimodal genres for many different discourse communities, and the academy was no exception to this (Gotti et al., 2012).

As the name suggests, it makes use of multiple modes, which was defined within the scope of discourse as "the medium in which language is used between two or more people in a particular situation, such as written, spoken, face to face, telephone, or via the Internet" (Richards & Schmidt, 2010, p. 371). As this definition suggests, making use of a range of different modes and forming them in a social and cultural manner to convey the meaning more effectively (Bezemer & Kress, 2008) is the basis of multimodality, which is a common feature of academic genres.

The importance of multimodality for EAP pedagogies has been put forward in the literature, though not widely. Archer (2022) discusses that multimodal approaches can enable EAP learners to become creative in their meaning-making processes. Similarly, O'Halloran et al. (2016) emphasize the importance of multimodal pedagogies for learners of academic discourse "for enhancing students' capacities for understanding and producing texts that employ and integrate a range of modalities" (p. 257). Having conducted a genre-based needs analysis for EAP classes, Molle and Prior (2012) report that academic genres are multimodal both in process and form, yet the search for the related literature doesn't produce many results for studies revealing how the multimodal aspect of academic discourse is reflected on EAP objectives and coursebooks. One study conducted by Fontenelle (2013) compares engineering textbooks and EAP coursebooks in terms of the co-occurrence of verbal and visual modes of meaning making and concludes that although EAP coursebooks include

some multimodal representations, they fail to reflect the complexity required by engineering.

Taking the multimodal nature of academic genres and the purpose of EAP, along with the lack of research revealing how this is reflected in the classroom as presented above into consideration, the present paper aims at investigating the practical aspect of EAP in terms of multimodality. With this purpose, it offers an analysis of the Global Scale of English (GSE) Learning Objectives for Academic English (Pearson, 2019), focusing on the different modes learners are expected to make effective use of once they achieve the levels of proficiency defined by the descriptors. Additionally, the speaking tasks assigned to learners in two EAP coursebooks are included in the analysis to see the different modes learners are expected to employ as they produce for the requirements of the courses. For that purpose, the paper seeks answers to the following questions:

1. Which modes of meaning-making are EAP learners expected to employ as they master different levels of proficiency in four language skills as defined by the descriptors of GSE?
2. Which of these modes of meaning-making defined within GSE are reflected in the tasks designed by two EAP coursebooks analyzed for the present research?

Method

The Data

Global Scale of English for Academic English

"The Global Scale of English (GSE) is a standardized, granular scale which measures English language proficiency. Unlike some other frameworks which describe attainment in broad bands, the Global Scale of English identifies what a learner can do at each point on the scale across speaking, listening, reading, and writing skills." (Pearson, 2019, p. 4). What is basically meant in this sentence with 'some other frameworks' is the Common European Framework of Reference for Languages (CEFR), on which the GSE is based. Unlike the CEFR, which serves a *common* framework for all languages and defines language proficiency on six broad levels from A1 to C2, the GSE is specific to English language and defines English language

proficiency on a scale from 10 to 90, which is aligned with the CEFR. With the concern that too broad definitions provided in the CEFR may vary depending on many factors, such as age and native language, the GSE was created to offer a "more granular definition of language proficiency" (p. 5), with 'Can Do Statements' some of which are directly from the CEFR. The GSE Learning Objectives for Academic English includes a total of 1255 descriptors, 449 of which are specific to Academic English. The numbers of items in each level for four skills are presented in Table 1. The present study focuses on these 449 objectives.

Table 1. Distribution of descriptors by level

	Reading		Listening		Speaking		Writing	
Level	EAP	All	EAP	All	EAP	All	EAP	All
GSE 10–21/Below A1	0	7	0	15	0	32	0	5
GSE 22–29/A1	0	14	0	32	0	54	0	19
GSE 30–35/A2	0	16	0	16	0	73	0	18
GSE 36–42/A2(+)	2	20	1	18	0	57	0	29
GSE 43–50/B1	10	27	5	25	8	59	12	42
GSE 51–58/B1(+)	16	32	21	45	20	73	25	62
GSE 59–66/B2	19	36	15	40	14	85	23	65
GSE 67–75/B2(+)	34	57	29	47	24	72	40	66
GSE 76–84/C1	30	37	18	30	28	52	33	49
GSE 85–90/C2	4	10	2	4	4	10	8	13
TOTAL	115	256	91	272	98	567	141	368

Coursebooks

Two advanced level (C1-C2) EAP coursebooks were included in the analysis of the present study. The first 'Prism Listening and Speaking 4' is from a mainstream publisher, Cambridge University Press (Williams, 2017). With the claim of "a fresh approach to EAP," Prism focuses on developing students' academic skills with an emphasis on critical thinking and academic vocabulary for both receptive and productive skills with a series of ten books on paired skills of 'Reading and Writing' and 'Listening and Speaking' on five levels from A1 to C1 level (Cambridge University Press & Assessment, n.d.). The final Listening and Speaking book of the series consists of eight units, and at the end of each unit, there is a 'Speaking Task', and these eight tasks are included in the analysis.

The second is 'The Compass: Route to Academic Success' is from a Turkish publisher, specifically chosen from a Turkish publisher to offer a national perspective. Written by the academicians of a reputable Turkish university, Middle East Technical University, the book is targeted at EAP students aiming at meeting their needs through tasks designed to improve their speaking skills for academic contexts (Duzan & Yalcin, 2019). The five tasks in this book were included in the analysis as well.

Data Analysis

In order to have an understanding of the multimodal aspect of EAP, the present research employs a mixed-methods design for qualitative and quantitative approaches. First, GSE descriptors and two EAP coursebooks were examined for the existence of multimodal tasks through document analysis, which is a qualitative analysis method. Bowen (2009) defines document analysis as "a systematic procedure for reviewing or evaluating documents" (p. 27) and recommends some approaches for analyzing documents, such as thematic or content analysis. The latter, defined by Bowen (2009) as categorizing the information included in the documents in accordance with the research questions, fits the purpose of the present research better. Bowen (2009) also suggests that the evidence for the question at hand-multimodality of EAP in our case-should be sought from at least two different sources of data. For this reason, the present study analyses both descriptors in GSE and tasks in two EAP coursebooks. Then, the number of tasks with a multimodal aspect, along with the modes included within, are presented for each skill in GSE and each task in the coursebooks.

The documents were analyzed on MAXQDA 2020, and the different modes included in the descriptors in the GSE and the 13 tasks from two EAP textbooks were coded with this software. The coding procedure focused on keywords for five different modes of meaning defined by The New London Group (Cazden et al., 1996) as: Audio, Spatial, Gestural, Visual and Linguistic. The keywords were also selected based on the definitions offered by The New London Group (Cazden et al., 1996) for these modes of meaning. Taken that four language skills the descriptors are defined for focus on two modes of discourse as written (reading and writing skills) and spoken (speaking and listening skills) any keyword indicating the use of an additional

mode was taken as a sign of multimodality, such as the inclusion of visuals in a spoken task.

As recommended by Neuendorf (2017) for reliability, a minimum amount of 10% of the data (50 of 449 descriptors: 10 for listening and speaking, 15 for reading and writing each, and two of the 13 tasks) was analyzed by two coders, who came to a full agreement in terms of the modes present in descriptors and tasks.

Findings

To answer the first research question related to the different modes EAP learners are expected to employ as they master different levels of proficiency in four language skills, different modes included in the 449 descriptors specific to Academic English in the GSL were analyzed. The descriptors and the modes they employ are presented in tables based on four skills. The descriptors which require the use of multiple modes are listed in Appendix 1.

Table 2. GSE EAP Reading Objectives

Level	n of items	written	w+ visual
A2+	2	2	0
B1	10	9	1
B1+	21	19	2
B2	19	18	1
B2+	33	33	0
C1	30	30	0
C2	4	4	0

As presented in Table 2, four of the 115 descriptors for EAP reading, only four of them require employing of two modes. Two descriptors for B1+ level and one descriptor for each of B1 and B2 levels include visual mode along with the written mode.

Table 3. GSE EAP Listening Objectives

Level	n of items	spoken	s+ visual	s+ intonation	s+ written
A2+	1	0	0	0	1
B1	5	4	0	1	0
B1+	21	20	0	0	1
B2	15	12	2	1	0
B2+	29	27	0	1	1
C1	18	15	1	0	2
C2	2	2	0	0	0

As presented in Table 3, 11 of the 91 descriptors defined for EAP listening skill in the GSL require the use of multiple modes. Three of these covered visuals, three intonation, and five written modes in addition to the spoken mode.

Table 4. GSE EAP Speaking Objectives

Level	n of items	spoken	s+ written+ visual	s+ visual	s+ written
B1	8	6	0	2	0
B1+	20	17	0	3	0
B2	14	12	0	1	1
B2+	24	19	1	2	2
C1	28	25	0	3	0
C2	4	4	0	0	0

As presented in Table 4, 15 of the 98 descriptors defined for EAP speaking includes employing multiple modes. One of these from B2+ level requires making use of both written and visual modes in addition to spoken, 11 include visual and 3 include written mode in addition spoken mode.

Table 5. GSE EAP Writing Objectives

Level	n of items	written	w+ symbol	w+ visual	w+ spoken
B1	12	11	0	0	1
B1+	24	19	1	2	2
B2	23	17	3	3	0
B2+	39	35	1	1	2
C1	33	29	2	0	2
C2	8	8	0	0	0

As presented in Table 5, 20 of the 141 descriptors defined for EAP writing in the GSE are multimodal. Seven of these include symbols, six include visual and seven include spoken mode in addition to written modes.

To answer the second research question, instructions for 13 speaking tasks from two EAP coursebooks were analyzed in terms of the different modes, students are expected to employ as they perform the activity. The findings are presented in Table 6.

Table 6. Different modes required by speaking tasks in EAP coursebooks

Task	Spoken	Intonation	Body	Written	Visual	Total n of Modes
Compass1	X				X	2
Compass2	X			X	X	3
Compass3	X			X		2
Compass4	X		X	X	X	4
Compass5	X			X	X	3
Prism1	X			X		2
Prism2	X			X		2
Prism3	X			X	X	3
Prism4	X			X		2
Prism5	X	X	X	X	X	5
Prism6	X		X	X		3
Prism7	X	X	X	X		4
Prism8	X			X		2

As presented in Table 6, all 13 speaking tasks analyzed for the present study require students to employ at least one more mode in addition to spoken mode. The additional modes students are expected to make use of as they perform the speaking tasks are stress and intonation, body language, written texts and visuals like graphs, charts, and pictures.

Discussion and Conclusion

The present paper aims at investigating EAP learning objectives in terms of multimodality. With this purpose, the descriptors in the GSE Objectives for Academic English, and 13 speaking tasks from two advanced level EAP coursebooks were analyzed in terms of the modes used for meaning making. According to the findings, in addition to written and spoken modes, the GSE for Academic English expect learners to make use of stress and intonation, visuals and symbols to convey meaning as they achieve the objectives defined for different levels of proficiency. Although the number of descriptors, namely 'Can do statements' requiring multimodality is not very high in receptive skills of Reading (4 out of 115) and Listening (11 out of 91), the number of items was higher for productive skills of Speaking (15 out of 98) and Writing (20 out of 141). Especially for speaking, the use of visuals is encouraged to enrich the meaning conveyed to the counterparts. Another finding of the present paper is that all speaking tasks in two EAP coursebooks analyzed for the present study required multimodality. This finding is an indicator that multimodality is considered a must for academic contexts, as the purpose of EAP is to prepare learners for academia. The instructions given for the tasks in the coursebooks specifically indicate that learners should make use of four or five different modes to achieve the given tasks, but of course, it can be deduced that additional modes not specifically described by the instructions are also expected from learners. For instance, intonation was included in only two of the tasks, and the necessity for the use of body language was stated in only four of the 13 tasks analyzed. Yet, considering that these two coursebooks are targeted at advanced learners of EAP at C1-C2 levels, there is no strict need for a specific statement in the instructions, as they should already be aware of the importance of these aspects in spoken communication.

These findings support the arguments provided above that multimodality is an important aspect of EAP. As Hyland and Hamp-Lyons (2002) stated, since visual and other semiotic resources are claiming more ground in the academic discourse, EAP practitioners are "required to understand and translate the progressively more complex interactions between verbal and non-verbal features of academic texts." (p. 8). Accordingly, it is important that EAP instructors should be aware of this and include multimodality in every part of the courses as they prepare their students for their academic lives. The same goes for EAP course designers and coursebook publishers. In his highly cited textbook, Hyland (2006a) also mentions the need for a more research-informed basis for EAP courses since EAP "textbooks too often continue to depend on the writer's experience and intuition rather than on systematic research." (p. 5). Although Hyland's claim dates back almost two decades, it still seems to have some merit. Therefore, there is a need for further studies focusing on the realization of reflecting the multimodal features of academic discourse on EAP courses and coursebooks so that EAP can function in parallel with its objective in terms of providing learners with readiness for academic discourse.

Ethics committee permission information

Ethical approval is not applicable, because this article does not contain any studies with human or animal subjects.

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Appendix

GSE Academic English Descriptors Requiring the Use of Multiple Modes

Level	Modes	Descriptor
Listening		
a2+	s+w	Can follow the main points in a simple audio recording, if provided with written supporting material. (P)
b1+	s+w	Can take effective notes while listening to a simple, straightforward presentation or lecture on a familiar topic. (P)
b1	s+p	Can recognise emphasis through intonation and stress, if guided by questions. (P)
b2+	s+w	Can follow the main points in a linguistically complex presentation or lecture, if provided with written supporting material. (P)
b2+	s+p	Can recognise the use of emphasis to highlight significant points supporting an argument in a linguistically complex presentation or lecture. (P)
b2	s+p	Can recognise emphasis through intonation and stress. (P)
b2	s+v	Can critically evaluate the effectiveness of slides or other visual materials that accompany a simple presentation. (P)
b2	s+v	Can interpret the purpose of content of visuals (e.g., diagrams, charts) used to support an academic lecture or presentation. (P)
c1	s+v	Can critically evaluate the effectiveness of slides or other visual materials that accompany a linguistically complex presentation or lecture. (P)
c1	s+w	Can compare the content of a linguistically complex presentation or lecture with written materials on the same subject. (P)
c1	s+w	Can take effective notes while listening to a linguistically complex presentation or lecture on an unfamiliar topic. (P)
Reading		

b1+	w+v	Can identify the key points presented in graphs and charts in a simple academic text, if guided by questions. (P)
b1+	w+v	Can understand numerical values in graphs and charts in a simple academic text. (P)
b1	w+v	Can predict the content of a simple academic text, using headings, images, and captions. (P)
b2+	s+w	Can recognise poetic devices such as rhythm, alliteration, or repetition. (P)
b2+	w+v	Can understand details of the use of numerical data in charts and graphs in a linguistically complex academic text. (P)
b2	w+v	Can understand the use of numerical data in graphs and charts in a linguistically complex academic text, if guided by questions. (P)
Speaking		
b1+	s+v	Can discuss illustrations in an academic text, using simple language. (P)
b1+	s+v	Can describe conclusions they have drawn from graphs and charts, using simple language. (P)
b1+	s+v	Can discuss charts and graphs in an academic text, using simple language. (P)
b1	s+v	Can explain key information in graphs and charts, using simple language. (P)
b1	s+v	Can answer basic questions about information presented in graphs and charts. (P)
b2+	s+w	Can effectively use research data in support of an argument. (P)
b2+	s+v	Can discuss the information presented in a complex diagram or visual information. (P)
b2+	s+w	Can refer to reference sources from written academic texts to support a position in a discussion. (P)
b2+	s+w+v	Can discuss diagrams in a text, using linguistically complex language. (P)
b2+	s+v	Can describe conclusions they have drawn from graphs and charts, using linguistically complex language. (P)
b2	s+w	Can paraphrase information taken from several simple academic texts. (P)
b2	s+v	Can explain information in detail in graphs and charts. (P)
c1	s+v	Can discuss illustrations in an academic text, using linguistically complex language. (P)
c1	s+v	Can present a technically complex process in their field of specialisation referring to visual support. (P)
c1	s+v	Can discuss charts and graphs in an academic text, using linguistically complex language. (P)
Writing		
b1+	w+v	Can use pictures and charts to convey basic information in a simple academic text on a familiar topic. (P
b1+	s+w	Can write a transcript of a simple interview. (P)
b1+	s+w	Can summarise information from a simple presentation or lecture aimed at a general audience. (P)
b1+	w+sy	Can write bullet points to summarise key points in a structured text. (P)

b1+	w+v	Can use simple graphs and charts to convey information in academic written work. (P)
b1	s+w	Can take notes on a simple presentation or lecture aimed at a general audience. (P)
b2+	s+w	Can take notes on a panel discussion in their field of specialisation. (P)
b2+	w+v	Can create an academic research poster to present research in their field of study. (P)
b2+	w+sy	Can write bullet points to summarise key points in a linguistically complex academic text. (P)
b2+	s+w	Can take notes on a linguistically complex presentation or lecture in their field of specialisation. (P)
b2	w+v	Can create a simple research poster to present research in their field of study. (P)
b2	w+sy	Can use statistical data, fractions, and percentages in an academic text. (P)
b2	w+sy	Can employ simple time-saving strategies when taking notes (leaving out words, abbreviations etc.). (P)
b2	w+sy	Can write bullet points to summarise key points in an academic text. (P)
b2	w+v	Can make detailed comments about numerical information in graphs and charts. (P)
b2	w+v	Can use a range of chart types (line, bar, etc.) to convey information in an academic text. (P)
c1	w+sy	Can use complex numerical values in an academic text and explain their significance to the reader. (P)
c1	w+sy	Can use citations effectively and appropriately in an academic paper. (P)
c1	s+w	Can summarise information from a linguistically complex presentation or lecture. (P)
c1	s+w	Can write a transcript of a linguistically complex interview. (P)

RESEARCH ARTICLE

Adaptation and Validation of the Responsive Environmental Assessment for Classroom Teaching (REACT): The Dimensionality of Student Perceptions of the Instructional Environment to Turkish for EFL Classrooms

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Abstract
The aim of this research is to adapt The Responsive Environmental Assessment for Classroom Teaching (REACT) scale developed by Nelson, Demers, and Christ (2014) into Turkish for EFL classrooms and to test its applicability in Türkiye on a group of secondary school students studying in the 6th, 7th, and 8th grades. Construct validity of the scale was tested with exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). As a result of the exploratory factor analysis, a structure with 22 items and four factors was obtained. The fit indices of the 4-factor structure as due to CFA show that the model is at a reasonable level. Test-retest method was used for the stability of the scale. A correlation of .910 was obtained between the two applications. To determine the scale reliability, item-total correlations and correlation analysis were used, and Cronbach alpha and composite reliability were calculated. The correlation between the sub-dimensions of the scale ranged between .420 at the lowest, .687 at the highe st, and item factor loads between .51 and .88. Corrected item correlations range from .44 to .67, and the difference between the means of the 27% lower and upper groups is significant for all items. The Cronbach α internal reliability coefficient calculated to determine its internal reliability was found to be .925. The composite reliability coefficient was calculated as .957. As a result, it can be said that the REACT scale is a valid and reliable scale that researchers can use.

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Introduction

Learning environments are the physical and cultural environments where learning and teaching occur (Treagust, 2004). In the classrooms where planned teaching is carried out, “learning environment refers to the social, psychological and pedagogical contexts in which

learning occurs and which affect student achievement and attitudes" (Peer & Fraser, 2015, p.143). Fraser (1986) defines the learning environment, which is the determinant of student learning, as the environment perceived by the student and the teacher in the classroom. The learning environment, which covers the entire teaching process from teacher-student and peer relationships to goal setting, feedback, reinforcement, presentation and classroom control, is much more than physical space (Frenzel et al., 2009).

Positive and meaningful relationships are the basis of a productive learning environment, as learning occurs through the social and cognitive processes between the teacher and the student in the classroom (Nelson et al., 2014). For permanent learning to occur according to effective teaching approaches, a learning environment that is sensitive to students' needs, feelings and ideas is required (Treagust, 2004). While students learn better in a classroom environment that they perceive positively, negative perception can become a barrier between the student and the learning process (Abell et al., 2011; Nelson et al., 2014; Shapiro, 1993; Webster & Hazari, 2009; Wei & Elias, 2011). For this reason, an atmosphere should be created that supports students in the learning process, makes them feel safe, and makes them believe that they will be successful if they make an effort (Gedamu & Siyawik, 2015; Roorda, 2012; Voltz et al., 2010). Students are more interested in learning when they understand what they are about to learn and why these are important (Voltz et al., 2010). In addition, teaching activities and constructive evaluations selected in accordance with students' interests and abilities increase student participation (Abell et al., 2011). The quality of teaching in the classroom (teacher's teaching skills, comprehensible goals appropriate for the student's level, appropriate assessment criteria, and supported learner autonomy) directly affects academic success (Afriliani & Holandyah, 2018; Lizzio et al., 2002; McTighe & Brown, 2005; Muijs & Reynolds, 2017; Treagust, 2004). In this context, the teacher who manages and implements the teaching process is the most important determinant of the teaching quality.

Good teachers are the ones who are competent in their field but admit that they do not know everything and continue their learning journey with their students. In this journey, teachers should take process-oriented evaluations from their students, who are other important stakeholders in the teaching process, in order to improve the teaching process, develop students' skills, and discover their deficiencies (Nelson et al., 2014; Bahar et al., 2017). Evaluating what is happening in the classroom environment from different

perspectives will make it easier to choose the most efficient way to be applied in the classroom. Increasing the quality of the classroom environment, which plays a critical role in the development of students' academic and social skills (Gedamu & Siyawik, 2015; Roorda, 2012; Voltz et al., 2010; Wang et al., 2020), the reflection of the behaviors and practices exhibited by teachers in the teaching process on the students and the evaluation of how effective these behaviors and practices are in reaching the determined goals can be achieved with a reliable measurement tool. In the literature, many scales have been developed to evaluate the learning environment according to teacher or student perception, school type, different courses, and age groups (Fraser & Goh, 2003). That shows how much importance is given to the learning environment to increase the quality of education in the world.

Studies on the learning environment and its effect on student achievement started with the development of a measurement tool to evaluate the learning environment by Walberg and Moos in the 60s (Fraser, 1986). The "Learning Environment Inventory" developed by Walberg in 1968 and the "Classroom Environment Scale" developed by Moos in 1974 were the basis for the development of learning environment research (Fraser, 1998). However, both scales are suitable for evaluating teacher-centered classrooms. By 1996, Fraser, Fisher, and McRobbie (1996) developed the multidimensional “What's Happening in This Class?” scale, which is thought to be an important predictor of student outcomes. This scale has been adapted to many languages and cultures and has been the basis for the development of new scales for evaluating the classroom environment (Peer & Fraser, 2015). The Responsive Environmental Assessment for Classroom Teaching (REACT) scale developed by Nelson, Demers, and Christ in 2014, unlike the previously developed scales, was prepared on the basis of the changeable characteristics that are under the control of the teacher rather than the deficiencies caused by the student (Nelson et al., 2014).

In Türkiye, first, Tüter (1989) adapted Classroom Environment Scale (CES) into Turkish, and Telli, Çakıroğlu, and Brok (2006) adapted the What's Happening in the Classroom Scale (WIHIC) for the high school level; Örük (2018) adapted the College and University Classroom Environment Inventory (CUCEI) for undergraduate level; and Bahar, Asil, and Davies (2017) adapted the Student Personal Perception of Classroom Climate Scale (SPPCC) for primary school level. Aktan (2019) conducted a validity and reliability study of The Responsive Environmental Assessment for Classroom Teaching (REACT) Scale in

Turkish for the secondary school social studies course. As a result, there was no valid and reliable scale developed or adapted to measure secondary school students' perceptions of the teaching process in English lessons in Türkiye. Considering the close relationship between the perceived teaching environment and academic achievement, it may be beneficial to contribute to the literature with a valid and reliable measurement tool in which secondary school students' perceptions of the teaching environment can be evaluated. In this context, the aim of the present study is to perform the necessary reliability and validity analyses for the adaptation of the REACT scale to Turkish for its use in English lessons. For this purpose, answers to the following questions were sought:

1- What are the exploratory factor analysis results of the REACT scale?

2- What are the confirmatory factor analysis results of the REACT scale?

3- What are the results of the correlation analysis between the items and factors of the REACT scale?

4- What are the results of the item discrimination analysis of the REACT scale?

5- What are the results of the reliability analysis of the REACT scale?

Method

Participants

For the adaptation of the REACT scale into Turkish for middle school students, there are four different sample groups in this study. In order to determine the study groups, the convenience-sampling method was employed. First, the necessary legal permissions and ethical committee approval (2020/10) were obtained.

For the exploratory analysis, data were collected from a group of 300 students studying in the 6th, 7th, and 8th grades taught by five different English teachers, in a middle school in Bandırma, Balıkesir, during the 2019-2020 academic year. When the missing data were removed, the number of samples became 278. Of the study group, 51.4% (n=143) were females, 48.2% (n=134) were males, 34.5% (n=96) were 6th graders, 34% (n=94) were 7th graders, and 32% (n=88) were 8th graders. The average age of the students in the study group was 12.24.

The second sample group consisted of 235 students studying in 6th, 7th, and 8th grades to conduct confirmatory factor analysis. Of the study group, 51.5% (n=121) were females, 48.5% (n=114) were males, 36.2 % (n=85) were 6th graders, 37.4% (n=88) were 7th graders, and 26.4% (n=62) were 8th graders. The average age of the students in the study group was 12.71.

During the translation process of the study, the Turkish and English forms were applied to 32 students (female= 14; male= 18) studying in the 9th grade of Anatolian high school and whose English levels were at B2 and C1 levels.

For the test-retest analysis, the scale was administered to 33 students in a middle school's 6th and 7th grades at a three-week interval.

Measures

The "Responsive Environmental Assessment for Classroom Teaching" scale, which was developed by Nelson, Demers, and Chirst (2014) to determine students' instructional environment perceptions and consists of 27 items, is a 4-point Likert type and consists of six factors. There are five items under the "Positive Reinforcement" factor, six items under the "Instructional Presentation" factor, four items under the "Goal Setting" factor, five items under the "Differentiated Instruction" factor, three items under the "Formative Feedback" factor, and four items under the "Instructional Enjoyment" factor. Scale items are evaluated with "yes, mostly yes, mostly no, no" response options.

Data Analysis

In order to determine the language equivalence during the translation process of the scale, paired samples t-test analysis was performed. The construct validity of the Responsive Environmental Assessment for Classroom Teaching scale was tested with exploratory and confirmatory factor analysis. The test-retest method was conducted to determine the scale stability. The reliability of the scale was determined by Cronbach's Alpha, Compound reliability coefficient, and item-total correlations. Data were analyzed with SPSS 21.0 and Mplus 7 programs.

Translation Process

In this section, the translation process of REACT into Turkish and the way followed in language equivalence are explained. Before starting the Turkish adaptation studies, adaptation permission was obtained from the authors. The relevance of the scale items translated into the target language by the English lecturer-researcher, was scored on a scale ranging from 1 (poor) to 5 (Excellent) by two instructors who are experts in the field of the English language. With the obtained scores, the Kappa coefficient, which is often preferred to test reliability, was calculated by determining the agreement between the raters. The Kappa coefficient, which varies between -1 and +1 and increases as it gets closer to +1, was found to be 0.434 in this analysis. This value shows that there is a sufficient level of agreement between evaluators according to the literature (Bilgen & Doğan, 2017; Cohen, 1960; Landis & Koch, 1977). Afterward, the evaluators discussed the differences and decided on the final form. After an agreement was reached on the Turkish form, a lecturer who is an expert on the Turkish language examined the items in terms of grammar. The items were read to a group of middle school students, and it was determined whether they understood the items as intended. Finally, in order to determine the language equivalence of the scale, the Turkish and English forms of the scale were administered to 32 (female= 14; male= 18) students with an interval of 2 weeks. In order to determine whether there is a significant difference between the scores of the general and sub-dimensions of the Turkish and English forms of the scale, paired samples t-test analysis was performed. Analysis results are shown in Table 1. The adaptation process was approved, and the final form was prepared.

Table 1. Linguistic Equivalence Paired Sample t-Test

	Scales	N	Forms	$\bar{X}$	Sd	t	df	p
R E A C T	Positive Reinforcement	32	Turkish	4.26	.705	-.926	31	.361
			English	4.23	.726			
	Instructional Presentation	32	Turkish	4.34	.386	-1.139	31	.263
			English	4.31	.400			
	Goal Setting	32	Turkish	3.96	.631	.000	31	1.00
			English	3.96	.634			
	Differentiated Instruction	32	Turkish	3.78	.730	-.780	31	.442
			English	3.76	.711			
	Formative Feedback	32	Turkish	4.28	.708	-1.877	31	.070

Table 1. Linguistic Equivalence Paired Sample t-Test

R	Scales	N	Forms	$\bar{X}$	Sd	t	df	p
			English	4.20	.717			
	Instructional Enjoyment	32	Turkish	4.71	.435	.000	31	1.00
			English	4.71	.416			
	Overall Scale	32	Turkish	4.21	.460	1.837	31	.076
			English	4.19	.459			

According to the results of the paired samples t-test analysis, indicated in Table 1, aimed to identify any significant differences between the scores of the Turkish and English forms of the scale. However, the results demonstrated no significant difference in the scores obtained from both the sub-dimensions and the overall scale (t= 1.837; p< .05). Based on this finding, it can be said that the scale adapted into Turkish has language equivalence.

Findings

Findings Regarding the Validity Study

Exploratory factor analysis

Before the exploratory factor analysis, normality assumptions were tested. In this context, the skewness and kurtosis coefficients of the distribution were examined descriptively. The fact that the mode, median, and mean of the distribution are equal or close to each other, and the skewness and kurtosis coefficients are close to 0 in the range of ±2 are seen as evidence for the normality of the distribution (Tabachnick & Fidell, 2013; McKillup, 2012; Wilcox, 2012). Mode, median, and mean values were taken as descriptive statistics of the distribution. Accordingly, the scale was determined as (Mo: 3.95; Med: 4.00; Mean: 3.92). The obtained values were close to each other. The skewness and kurtosis coefficients of the scale were obtained as (skewness: -.760 – kurtosis: .200). Since the obtained values were close to 0 in the range of ±2, it was concluded that the distribution showed a normal distribution. In addition, the Kaiser-Meyer-Olkin coefficient (KMO) and Bartlett sphericity were calculated to examine the data fitness for factor analysis. The KMO coefficient being .927 (>.60) and the Bartlett test being significant (p < .05) showed that the data were eligible for factor analysis. Since the data are normally distributed, and the scale can be accepted as continuous

on a 5-point Likert scale, we used maximum likelihood analysis and the Oblimin rotation method in exploratory factor analysis (Tabachnick & Fidell, 2013; McKillup, 2012; Wilcox, 2012). Exploratory factor analysis is shown in Table 2.

Table 2. Exploratory Factor Analysis Results of REACT/En

Item Number	Item	Factors			
		1	2	3	4
		Differentiated Instruction	Positive Reinforcement	Instructional Enjoyment	Instructional Presentation
DI2	My teacher gives extra review when I need it in English class.	.629			
DI5	There are other learning activities to do when I finish my work early in English class.	.585			
DI4	My teacher helps me pick books or materials that are on my level in English class.	.568			
GS3	My teacher helps me make plans for how I'll do my work in English class.	.536			
GS2	We track how much we learn in class.	.504			
DI3	I have enough time to work on new things I learn in English class.	.451			
DI1	My teacher knows what subjects or skills are easier for me in English class.	.436			
PR2	My teacher uses praise or rewards for good behavior.		.835		
PR1	I am rewarded for doing good work in my class.		.809		
PR4	My teacher tells me when I do a good job.		.747		
PR3	My teacher says nice things about my work.		.745		
PR5	My teacher tells me when		.677		

Table 2. Exploratory Factor Analysis Results of REACT/En

Item Number	Item	Factors			
		1 Differentiated Instruction	2 Positive Reinforcement	3 Instructional Enjoyment	4 Instructional Presentation
	I do well in class.				
IE2	My teacher makes English class fun.			-.943	
IE1	My teacher makes learning English interesting.			-.710	
IE3	I like English class.			-.614	
IE4	My teacher explains things clearly.			-.465	
IP4	We learn tricks, strategies, or shortcuts to learn and remember things in English class.				-.697
IP3	My teacher helps me learn ways to answer different kinds of questions in English class.				-.657
IP5	We learn and practice problem-solving in English class.				-.553
IP1	My teacher tells me what he/she's going to teach before the lesson begins in English class.				-.461
IP2	My teacher explains things in more than one way in English class.				-.422
IP6	My teacher keeps me thinking during the English lesson.				-.310
Total Explained Variance %52.357		%36.471	%7.437	%5.814	%2.636

The total variance covered by the new model formed was 52.36%. The sub-dimension Differentiated Instruction accounted for 36.47%, the sub-dimension Positive Reinforcement accounted for 7.44%, the sub-dimension Instructional Enjoyment accounted for 5.81%, and

finally, the sub-dimension Instructional Presentation accounted for 2.67% of the total variance. In the exploratory factor analysis, a 4-factor structure emerged instead of the original model of the scale, the 6-factor structure. Three items that belong to the sub-dimension Formative Feedback (FF) which is one of the sub-dimensions of the scale were excluded from the scale because they did not comply with the minimum difference (> 0.1) rule that should be between factor loads included in two factors. In addition, two items that belong to the sub-dimension Goal Setting (GS) were also removed because they had cross-loading and were subsequently excluded from the analysis. Two items that belong to the sub-dimension Goal Setting (GS) were included in the sub-dimension Differentiation of instruction (DI). After the adaptation, the final form of the scale consisted of 4 sub-dimensions and 22 items. The first sub-dimension, Differentiated Instruction consisted of 7 items, the second sub-dimension Positive Reinforcement consisted of 5 items, the third sub-dimension, Instructional Enjoyment, consisted of 4 items, and finally, the fourth sub-dimension, Instructional Presentation consisted of 6 items. The scale was adapted in a 5-point Likert type. The items were evaluated with the options listed from 1 (strongly disagree) to 5 (strongly agree). Therefore, the scale's lowest possible score was 22, and its highest possible score was 110.

Confirmatory Factor Analysis

Confirmatory factor analysis was performed to test the construct validity of the scale. For this purpose, we used a polychoric correlation matrix and the unweighted least squares mean-and-variance adjusted (ULSMV) estimation method in the CFA. The data set was checked in terms of the analysis assumptions. As a result of CFA, it was observed that the model data fit was achieved (Hu & Bentler, 1998; Maccallum et al., 1996) (RMSEA: 0.06[0.05-0.07], $p<0.05$, CFI: 0.96, TLI: 0.95, Chi-Square [df]]: 393.286 [203]). Factor loadings were in the range of 0.604- 0.890. The four-factor structure of the scale was validated as a result of the CFA. CFA path diagram is shown in figure 1.

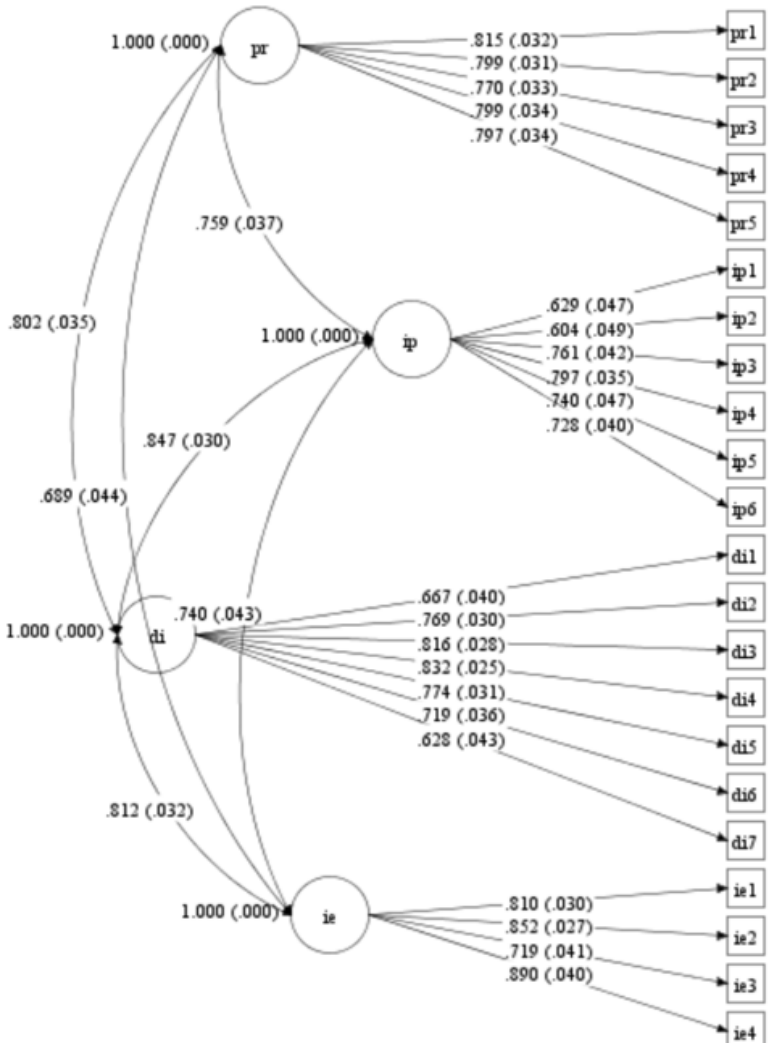

Figure1. REACT CFA path diagram obtained after adaptation study

PR: Positive Reinforcement, IP: Instructional Presentation, DI: Differentiated Instructions, IE: Instructional Enjoyment

Correlations Coefficient between Items and Factors

For the final form of the scale, the relationships between the items were examined with the Pearson product-moment correlation coefficient (r), and the data obtained are presented in Table 3. The correlations between the items on the scale ranged between .156 and .731. The p-value of all items was statistically significant ($p < .05$).

The relations between the factors were examined with the Pearson product-moment correlation coefficient (r), and the data obtained are presented in Table 4.

Table 4. Bivariate Correlations among the Factors of REACT/En

	Positive Reinforcement	Instructional Presentation	Differentiated Instruction	Instructional Enjoyment
Positive Reinforcement	1			
Instructional Presentation	.470*	1		
Differentiated Instruction	.539*	.687*	1	
Instructional Enjoyment	.420*	.508*	.605*	1

The correlations between the sub-dimensions are as follows; PR and IP (r= .470, p< .05), PR and DI (r= .539, p< .05), PR and IE (r= .420, p< .05), IP and DI (r= .687, p<.05), IP and IE (r= .508, p< .05) and finally DI and IE (r= .605, p< .05). Considering that the correlation was evaluated as moderate between .40-.60 and good between .60-.80, there is a moderately good correlation between the sub-dimensions (Taylor, 1990)

Table 3. Bivariate Correlations Among the Items of REACT/En

	PR1	PR2	PR3	PR4	PR5	IP1	IP2	IP3	IP4	IP5	IP6	DI1	DI2	DI3	DI4	DI5	DI6	DI7	IE1	IE2	IE3	IE4
PR1	1																					
PR2	.73*	1																				
PR3	.60*	.67*	1																			
PR4	.54*	.62*	.68*	1																		
PR5	.48*	.61*	.61*	.68*	1																	
IP1	.24*	.33*	.25*	.26*	.24*	1																
IP2	.31*	.34*	.33*	.27*	.29*	.35*	1															
IP3	.30*	.33*	.33*	.36*	.31*	.37*	.39*	1														
IP4	.15*	.23*	.28*	.23*	.21*	.40*	.38*	.55*	1													
IP5	.22*	.23*	.24*	.20*	.21*	.38*	.33*	.40*	.43*	1												
IP6	.28*	.29*	.36*	.27*	.26*	.33*	.35*	.38*	.31*	.41*	1											
DI1	.29*	.35*	.42*	.35*	.40*	.32*	.37*	.44*	.46*	.37*	.46*	1										
DI2	.25*	.40*	.40*	.37*	.38*	.36*	.40*	.42*	.43*	.38*	.38*	.58*	1									
DI3	.32*	.37*	.40*	.35*	.37*	.33*	.33*	.45*	.35*	.31*	.43*	.48*	.45*	1								
DI4	.25*	.30*	.28*	.28*	.28*	.27*	.32*	.38*	.50*	.25*	.31*	.49*	.54*	.55*	1							
DI5	.16*	.29*	.33*	.25*	.25*	.19*	.21*	.19*	.26*	.20*	.22*	.35*	.38*	.35*	.42*	1						
DI6	.27*	.35*	.40*	.36*	.35*	.37*	.39*	.34*	.38*	.29*	.42*	.45*	.49*	.48*	.48*	.33*	1					
DI7	.26*	.36*	.43*	.36*	.36*	.34*	.35*	.40*	.45*	.37*	.42*	.52*	.59*	.45*	.45*	.42*	.50*	1				
IE1	.23*	.26*	.24*	.27*	.30*	.23*	.37*	.29*	.39*	.28*	.31*	.49*	.37*	.48*	.48*	.29*	.44*	.32*	1			
IE2	.27*	.26*	.30*	.29*	.28*	.21*	.33*	.30*	.47*	.30*	.42*	.45*	.38*	.43*	.43*	.25*	.39*	.39*	.73*	1		
IE3	.26*	.29*	.30*	.29*	.29*	.22*	.18*	.17*	.20*	.18*	.28*	.25*	.30*	.30*	.30*	.18*	.40*	.25*	.49*	.57*	1	
IE4	.33*	.34*	.40*	.36*	.31*	.25*	.30*	.33*	.30*	.30*	.39*	.43*	.45*	.44*	.44*	.30*	.40*	.43*	.47*	.59*	.57*	1

Findings Regarding the Reliability Study

In order to determine the degree of discrimination of the items in the scale, item-total correlations were calculated in terms of the feature they measure. The results are shown in Table 5. In this method, firstly, the total scores obtained from the measurement tool were ranked from the highest to the lowest. Lower and upper groups were determined by taking 27% of the students with the highest and lowest mean scores. The significance of the difference between the item scores of the higher and lower 27 percent groups defined by the total score was then determined using a t-test. In the literature, when the item discrimination index is 0.40 and above, the item is considered to be very well discriminated (Clark& Watson, 1995).

Table 5. t-test Results Between Corrected Item Total Correlations of REACT/En Items and Scores of Upper 27% - Lower 27% Groups

Item Number	Item Total Correlations	t within items (Upper 27%-Lower 27%)	Item Number	Item Total Correlations	t within items (Upper 27%-Lower 27%)
PR1	.51	10.37*	DI1	.67	13.42*
PR2	.61	13.68*	DI2	.67	14.40*
PR3	.63	12.48*	DI3	.63	15.00*
PR4	.58	11.70*	DI4	.61	13.14*
PR5	.57	11.44*	DI5	.44	8.18*
IP6	.47	7.52*	DI6	.64	14.18*
IP7	.52	10.08*	DI7	.44	12.17*
IP8	.56	11.06*	IE1	.58	11.79*
IP9	.56	11.73*	IE2	.62	11.97*
IP10	.47	8.61*	IE3	.48	8.56*
IP11	.55	11.13*	IE4	.63	10.47*

n=278, n1=n2=75 *p<.001

The item-total correlations for all items on the scale varied between .44 and.67, according to the results of the analysis, and the t-values were significant (p<.001). These findings suggest that the scale's items have a good level of validity, and they identify students in terms of methodological competence.

The scale's stability was determined via test-retest analysis. In Test-Retest reliability, it is aimed to determine the reliability by the correlation between the scores obtained by applying the same measurement tool to the evaluators at different times. The correlation coefficient is a value between -1.00 and +1.00. If the test is reliable, there will be a high positive relationship between the scores. A correlation coefficient of 0.60 and above can be considered sufficient for reliability (Taylor, 1990). The scale was applied to these 33 students with an interval of 3 weeks. Alpha α internal reliability and composite reliability coefficient were calculated to determine the scale internal reliability. The results of the analysis are shown in Table 7.

Table 7. REACT/En Results of Reliability Analysis

Factors	Cronbach Alpha	Composite Reliability	Retest Reliability
Positive Reinforcement	.893	.894	.799
Instructional Presentation	.792	.794	.738
Differentiated Instruction	.858	.861	.745
Instructional Enjoyment	.839	.848	.777
Overall	.925	.957	.910

When Table 7 is examined, according to the results of Pearson Correlation analysis, a high level and significant positive relationship was found between the first and second application of REACT in its sub-dimensions and overall, r (33)= .910, p< .001. The correlation between measurements made at three-week intervals shows that REACT is stable. The Alpha value of REACT was calculated as .925. The first sub-dimension, Differentiated Instruction, was found to have an alpha coefficient of .858; Positive Reinforcement alpha coefficient, which is the second sub-dimension, was .893; the third sub-dimension, the alpha coefficient of Instructional Enjoyment, was found to be .839; and finally, the fourth sub-dimension, the alpha coefficient of Instructional Presentation, was found to be .792. These results show that the reliability of the scale is at an acceptable level. The composite reliability coefficient of the overall REACT was .957. The composite reliability coefficient of the factors of the scale is respectively calculated as .894, .794, .861, and .848. These findings show that

REACT is a reliable measurement tool (Peterson& Kim, 2013; Şimşek& Noyan, 2013).

Discussion and Conclusion

The Turkish adaption, validity, and reliability of the " Responsive Environmental Assessment for Classroom Teaching" scale developed by Nelson, Demers, and Chirst (2014) were investigated in this study in order to reveal students' classroom environment perception in an English lesson.

To investigate the validity and reliability of the Turkish form of the scale, first of all, the consistency and reliability between the evaluations of the two instructors who evaluated the Turkish translation of the scale were tested with the Kappa coefficient (0.434), which shows that there is a sufficient level of agreement between evaluators (Bilgen & Doğan, 2017; Cohen, 1960; Landis & Koch, 1977). In order to determine the language equivalence, the Turkish and English forms of the scale were administered to 32 ninth-grade students with an interval of 2 weeks. There was no statistically significant difference between the applications according to the paired samples t-Test results (t= 1.837; p= .076).

The KMO coefficient and Bartlett sphericity with the data obtained from the scale were tested, and then the normality of the data was tested. Exploratory Factor analysis was conducted with the data determined to meet the required conditions (Tabachnick & Fidell, 2013; McKillup, 2012; Wilcox, 2012).; and a structure with 22 items and four factors was obtained, unlike the original form of the scale. The total variance covered by the new model was found to be 52.36 percent. The correlation between the four sub-dimensions that emerged as a result of EFA was significant and at a moderate-good level. As a result of confirmatory factor analysis, fit indices showed that the model is good (Taylor, 1990). In addition, when the CFA results showed the model data fit was achieved and the item factor loads were at the desired level (Hu & Bentler, 1998; Maccallum et al., 1996).

The test-retest method was conducted to determine scale reliability. A correlation of .910 was obtained between the two applications (Taylor, 1990). Moreover, the item discrimination feature of the resulting structure, the item total score correlation, and the t-test results between the scores of the lower 27% and upper

27% groups were examined, and the item discrimination levels were found at the desired level (Clark& Watson, 1995). The Cronbach α internal reliability coefficient calculated to determine its internal reliability was found to be .925. The composite reliability coefficient was calculated as .957 (Peterson& Kim, 2013; Şimşek& Noyan, 2013).

As a result, the final version of the adapted scale consists of four factors. The first factor consists of seven items under the name of Differentiated Instruction, the second factor consists of five items under the name of Positive Reinforcement, the third factor consists of four items under the name of Instructional Enjoyment, and finally the fourth factor consists of six items under the name of Instructional Presentation. The lowest score that can be obtained from the scale adapted in the 5-point scale is 22, and the highest score is 110.

The REACT was adapted to Turkish to measure students' perceptions about the unique teaching and activity-oriented aspects of the classroom environment in the English class. The REACT scale, which focuses on the variables of the classroom environment that can be changed and kept under control by the teacher, can help educators, researchers, and teachers who want to learn the reflections of the work done in the classroom on the students to obtain healthy data (Nelson et al., 2014).

Studies in the field provide solid evidence of a positive relationship between a quality classroom environment and students' success, attitude, self-efficacy, and course engagement (Ching-Tse, 2013; Daemi et al., 2017; Gedomu & Siyawik, 2014; Kurt, 2019; Patrick et al., 2007; Wei & Elias, 2011). For this reason, teachers and researchers who want to increase student success and self-efficacy and develop positive attitudes towards school and courses need a scale whose validity and reliability have been tested in order to develop and improve the instructional environment perceived by students and to obtain healthy data from students. The existing scales in the literature measure variables that are not under the control of the teacher, such as student characteristics and classroom physical characteristics, rather than instruction (Bahar et al., 2017; Fraser, 1998; Fraser et al., 1996; Peer& Fraser, 2015; Örük, 2018; Telli et al., 2006; Tüter; 1989). In addition, in Türkiye the majority of the scales developed or adapted into Turkish to measure students'

perceptions of the instructional environment are aimed at university or high school students (Bahar et al., 2017; Örük, 2018; Telli et al., 2006; Tüter; 1989). There are not enough scales to measure the perception of the instructional environment at the middle school level, and the English form of REACT can meet an important need in the field.

Ethics Committee Permission Information

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional research committee at Balıkesir University. It has the Ethics Committee Certificate with the Decision of Balıkesir University Institute of Social Sciences Publication Ethics Committee Dated 12.01.2021 and Numbered 522899066/ 302.08.01/ 47791.

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Appendix

Turkish Version of REACT Scale for EFL Classrooms

MADDELER	Hiç Katılmıyorum	Katılmıyorum	Kısmen Katılıyorum	Katılıyorum	Tamamen Katılıyorum
Olumlu Pekiştirme (Positive Reinforcement)					
1. İngilizce dersinde, iyi bir çalışma yaptığımda öğretmenim beni ödüllendirir.(I am rewarded for doing good work in my class.)	1	2	3	4	5
2. İngilizce dersinde, öğretmenim iyi davranışlarımı över veya ödüllendirir.(My teacher uses praise or rewards for good behavior.)	1	2	3	4	5
3. İngilizce dersinde,öğretmenim çalışmalarım için güzel sözler söyler.(My teacher says nice things about my work.)	1	2	3	4	5
4. İngilizce dersinde, iyi bir çalışma yaptığımda öğretmenim bunun iyi bir çalışma olduğunu bana söyler. (My teacher tells when I do a good job.)	1	2	3	4	5
5. İngilizce dersinde, sınıfta başarılı olduğumda öğretmenim bunu bana söyler.(My teacher tells me when I do well in class.)	1	2	3	4	5
Öğretim Sunumu (Instructional Presentation)					
6. İngilizce dersinde, öğretmenim, ders başlamadan önce ne öğreneceğimizi söyler. (My teacher tells me what he/she's going to teach before the lesson begins)	1	2	3	4	5
7. İngilizce dersinde, öğretmenim, konuyu farklı farklı şekillerde anlatır. (My teacher explains things in more than one way.)	1	2	3	4	5
8. İngilizce dersinde, öğretmenim, farklı türdeki sorulara nasıl cevap verileceğini öğrenmemize yardım eder.(My teacher helps me learn ways to answer different kinds of questions.)	1	2	3	4	5
9. İngilizce dersinde, öğretmenim, konuları öğrenip hatırlamamız için ipucu, taktik veya kestirme yollar öğretir. (We learn tricks, strategies or shortcuts to learn and remember things.)	1	2	3	4	5
10. İngilizce dersinde problem çözmeyi öğrenip alıştırma yaparız. (We learn and practice problem solving in class.)	1	2	3	4	5
11. İngilizce dersinde, öğretmenim, beni sürekli düşündürür. (My teacher keeps me thinking during the lesson.)	1	2	3	4	5
Öğretimin Farklılaştırılması (Diffirentiated Instruction)					
12. Ders süresince neyi, ne kadar öğrendiğimi takip edebilirim.(We track how much we learn in class.)	1	2	3	4	5
13. İngilizce dersinde, öğretmenim, ödevlerimi nasıl yapacağım konusunda bana yardım eder. (My teacher helps me make plans for how I'll do my work.)	1	2	3	4	5
14. İngilizce dersinde, öğretmenim, hangi konu ve becerileri daha kolay öğrenebileceğimi bilir.(My teacher knows what subjects or skills are easier for me.)	1	2	3	4	5
15. İngilizce dersinde, öğretmenim, ihtiyacım olduğunda çalışmalarımla ilgili bana bilgi verir. (My teacher gives extra review when I need it.)	1	2	3	4	5
16. İngilizce dersinde, öğretmenim, yeni öğrendiğim konular üzerine çalışmam için yeterince zaman verir.(I have enough time to work on new things I learn.)	1	2	3	4	5
17. İngilizce dersinde, öğretmenim, seviyeme uygun kitap veya materyal seçmemde yardımcı olur.(My teacher helps me pick books or materials that are on my level.)	1	2	3	4	5
18. İngilizce dersinde, öğretmenim, sınıftaki çalışmamı erken bitirirsem yeni çalışmalar verir.(There are other learning activities to do when I finish my work early.)	1	2	3	4	5
Öğretim Sürecinden Hoşlanma (Instructional Enjoyment)					
19. Öğretmenim İngilizce dersini ilginç hale getirir. (My teacher makes learning interesting.)	1	2	3	4	5
20. Öğretmenim İngilizce dersini eğlenceli hale getirir.(My teacher makes class fun.)	1	2	3	4	5
21. İngilizce dersini seviyorum.(I like this class.)	1	2	3	4	5
22. Öğretmenim konuyu anlaşılır şekilde anlatır.(My teacher explains things clearly.)	1	2	3	4	5

REVIEW ARTICLE

A systematic approach to critical multiculturalism and teacher education in EFL context: An integrative research review

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Abstract
Critical multicultural education (CME) challenges power imbalances in society and calls for the equitable distribution of power. It aims to address biases based on gender, class, and race, and improve social, economic, and educational opportunities for all individuals. While there have been several studies conducted on CME in relation to teachers and teacher training, there is a need to examine its broader implications for teacher education. This study aims to investigate the implications of CME on teacher education by analyzing different studies on this subject and their findings in various contexts. 14 relevant articles were compiled, categorized, and coded based on their context and findings, and descriptive data analysis was conducted. The study compared and contrasted the findings of the different studies and made generalizations about the implications of CME on teacher education and how it can be applied in the EFL context. The study highlights the importance of understanding the potential impact of CME on teacher education and provides insights for educators to effectively integrate CME principles into their teaching practices.

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Keywords
Critical multicultural education, critical pedagogy, critical theory, EFL context, teacher education
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Introduction

In recent years, globalization and migration have led to increasingly diverse societies, emphasizing the importance of equality and justice in education. While many countries have implemented anti-racist policies, minorities continue to experience marginalization in educational contexts (Gerber et al., 2010). The critical multicultural education (CME) approach addresses these issues by questioning and reshaping established power balances and emphasizing the need for more equitable distribution of power in societies. CME challenges prejudices against gender, class, and race to improve social, economic, and educational issues for all people, not just those in positions of power.

One significant way to promote the principles of CME is to integrate it into teacher education programs at universities. As teachers play a critical role in shaping students' perspectives and attitudes, they are essential in creating a more just and equitable world. The role of teachers has been defined in various studies, but recent discussions have highlighted the need for educators to be agents of social change and contribute to the creation of a more humane and egalitarian world (Dally & Suggs, 2010).

To fulfill this role, teachers need to teach in ways that enable students to create knowledge based on their unique characteristics and perspectives. Critical multicultural education emphasizes the importance of considering culture in education, allowing students to establish connections between their own lives and the facts presented to them (Archer & Francis, 1994). By doing so, students can create knowledge and meaning using their own cultural backgrounds and perspectives, rather than relying solely on prescribed norms and values (Ladson & Billings, 2006).

While there is a growing body of literature on CME and its implications for teacher education, there remains a need to synthesize the available research and develop a comprehensive understanding of how CME can be effectively applied in the English as a foreign language (EFL) context. Therefore, this study aims to investigate the implications of CME on teacher education by analyzing various studies on the subject, comparing and contrasting their findings, and drawing generalizations about how CME can be applied in the EFL context. Through this analysis, this study aims to contribute to the development of effective strategies for integrating CME into teacher education programs and promoting a more equitable and just educational system.

Defining Critical Multiculturalism

Critical multicultural education (CME) is a theory that emphasizes the need for change and transformation in education. It seeks to empower students to create knowledge and meaning by encouraging them to critically examine the norms that shape our world, challenge power imbalances, and work towards a more equitable and just society. According to Banks (2019), CME is an approach that values diversity, promotes social justice, and recognizes the importance of cultural differences. The theory has evolved over time and has come to encompass a range of issues, including oppression, equity, equality, racism, gender, and social justice.

In the current mainstream teacher education system, there is a lack of emphasis on creating a democratic, equitable, and just world. This is where CME comes in, providing an approach that informs teacher education programs and EFL contexts to create a transformation in society. CME is not just about creating awareness of diversity and cultural differences, but also about challenging power dynamics and inequalities that exist in society. By emphasizing the need for a more just world order, critical multicultural education acts as a redistributor of power, giving voice to all individuals, from minorities to the marginalized.

Critical pedagogy is one of the most important theories that form the basis of CME. According to Giroux (2020), critical pedagogy emphasizes the need to develop students' critical thinking skills in a manner that challenges the fact that knowledge is imposed by those in power. Critical pedagogy encourages teachers to be aware of the influence of power holders in every aspect of life, and to help students approach information sources critically and challenge them. Thus, critical multicultural education integrates critical pedagogy to bring a critical perspective on the concept of multicultural education.

There are several studies on critical multiculturalism that deal with teacher education and EFL contexts, including studies by Acuff (2018), Gorski (2009), Kim (2019), Kim and Choi (2020), and Liggett (2011). However, there is a need to synthesize the findings of these studies to better inform teacher education policies, curriculum, teacher educators, and their practices. Through an integrative research review, this article aims to fill the gap in the literature by analyzing and synthesizing relevant studies on the implications of critical multiculturalism on teacher education and its links to EFL context. This research is based on the critical theory of multicultural education, and extends research from the concept of critical pedagogy to the issues of teacher training and EFL context. By conducting this review, it is aimed to contribute to the literature on CME and provide practical implications for teacher educators, policymakers, and practitioners in the field of EFL education.

Research Problem and Questions

The purpose of this integrative research is to investigate current teacher education practices that incorporate critical multiculturalism in EFL contexts. In other words, the study aims to identify the specific practices and strategies used in teacher education to promote CME and explore how these practices can be adapted to EFL contexts by synthesizing the findings of relevant studies. The ultimate goal of this research is to provide insights that can

inform teacher education policies and EFL practices with respect to CME. To achieve this aim, the study seeks to address the following research questions:

1. What are the implications of critical multiculturalism for teacher education practices?
2. How can critical multiculturalism be effectively applied in the EFL context to promote social justice and equity?

Methodology

This integrative research study follows a systematic approach to examine and analyze the findings of relevant articles. Integrative research is an important method to gain a critical perspective and provide a synthesis of relevant literature with different frameworks (Torraco, 2016). The process of conducting an integrative research review involves several stages, as outlined by Cooper (1998): problem formulation, literature review or data collection stage, evaluation of data, analysis of the data obtained, and interpretation and explanation of the findings.

For this study, relevant articles were obtained through a systematic search of academic databases. Studies conducted in various settings were tabulated and categorized based on their findings. The data sets were analyzed to synthesize the results, and research questions were addressed individually. The study's discussion and conclusion sections present the findings and their implications for teacher education policies and EFL practices, and the parallel and conflicting aspects of the results with the relevant literature were identified.

The study's findings provide insights into how critical multicultural education theory can inform teachers and teacher education. This integrative research study contributes to a broader understanding of this subject and has implications for future research in this area. Thus, some generalization can be made about how critical multicultural education (CMC) theory can inform teachers, and teacher education, and this subject may be understood in depth from a broader perspective.

Selection of the Studies

To ensure a comprehensive review of the literature, a systematic approach was used to select relevant articles for this integrative research. The search was conducted in the following databases: Google Scholar, ResearchGate, and Eric, using the keywords "critical multicultural education", "teacher education", "teacher training", "EFL context", "critical pedagogy", and "critical theory". The time frame for the search was set between 2010 and 2023 to ensure that recent studies were included.

The inclusion criteria for the studies were as follows:

- Studies published between 2010 and 2023 were included.
- Studies must have focused on critical multicultural education as a theoretical framework for teacher education.
- Studies must have examined the application of critical multicultural education in EFL contexts.
- Studies must have included discussions on teacher training, teacher experiences, or teacher education.

The exclusion criteria for the studies were as follows:

- Studies that did not meet the inclusion criteria were excluded.
- Studies that focused solely on multicultural education without incorporating critical theory or critical pedagogy were excluded.

A total of 14 articles were selected for this integrative review. This integrative review rather focused on identifying key studies that provide a comprehensive understanding of the topic of interest. The selected articles were chosen based on their relevance to the research questions and their contribution to the understanding of critical multicultural education in EFL contexts.

Material

The present study includes a selection of articles that were found to be relevant to the research questions and the purpose of the integrative review. The articles were selected based on their content and quality, and their potential to contribute to the overall analysis and

synthesis of the literature. The inclusion criteria were carefully applied to ensure that only articles that met the research objectives were included.

The articles included in this study were published between the years 2010-2023, with a focus on recent publications that reflect the latest developments in the field. The selected articles cover a range of topics related to critical multiculturalism and its implications for teacher education and EFL contexts. They include both empirical and conceptual studies that provide different perspectives on the subject. The studies are diverse in terms of their methodology, research design, and sample size, allowing for a comprehensive understanding of the research area.

In total, 14 articles were selected for this integrative review. They were critically analyzed, and the findings were synthesized to answer the research questions. The articles were organized according to their relevance to the research questions and themes that emerged from the analysis.

The materials for this study went through a systematic and rigorous process that aimed to ensure the inclusion of relevant and high-quality studies. The articles included in this study represent a broad and diverse range of perspectives on critical multiculturalism and teacher education in EFL contexts, providing a comprehensive understanding of the research area.

Table 1. Articles Selected for the Integrative Research Study

Studies (n=14)	Context	Setting	Methodology
Kurtuluş and Arsal (2023)	CME and Pre-service Teachers	Turkey	Quantitative
Ong, P. A. L. (2022)	CME and Children's Literature	Culturally Diverse Children's Literature	Qualitative: A Multi-Layered Analysis
Mambu, J. E. (2022)	CME & ELT Curriculum	Indonesia	Qualitative: Triangulated Design
Acar-Çiftçi (2016)	CME and Preschool Teachers	Turkey	Quantitative: Survey Model
Acar-Çiftçi (2019)	CME and Teacher Training	Multidirectional Overview	Qualitative
Arsal (2019)	CME and teachers' multicultural attitudes	Turkey, Language Teacher Education Program	Quantitative Pretest–Posttest Quasi-Experimental Design
Beard (2016)	CME and Educators	United States, Medical Education Program	Quantitative: Pretest-Posttest Design
Gorski (2009)	CME & Teacher	Overview of Related	Qualitative Content

	Education and Syllabus	Syllabi	Analysis
Gorski and Parekh (2020)	CME & Teacher Education	Canada, Teacher Education Program	Quantitative: Survey
Acuff (2018)	Being a critical multicultural educator in the classroom	United States, Art Class	Qualitative Action Research
Kim (2019)	Critical Multicultural Approach and Language Education	South Korea, Language Class	Qualitative
Kim and Choi (2020)	CME and Teacher Training	South Korea, Teacher Education Program	Qualitative Case Study
Liggett (2011)	CME and Teacher Sense of Agency	Local and Global Overview	Qualitative
Ukpokodu (2003)	CME & Challenges and Dilemmas	United States	Qualitative

Data Analysis

In this study, data analysis was carried out to systematically examine, identify, and categorize data from articles related to the research questions. The aim is to find answers to the research questions, and to specify conclusions and implications that can lead to generalizations using the constant comparison method.

The constant comparison method is a widely used method for qualitative data analysis. It involves comparing data that have been collected and analyzed in a systematic manner to identify patterns and relationships in the data. This method allows the researcher to develop a theory based on the data that have been collected (Glaser & Strauss, 1967).

To ensure a rigorous analysis, the steps of the constant comparison method were followed. These steps include data reduction, data display, data comparison, conclusion drawing, and verification (Miles & Huberman, 1994). In the data reduction phase, the data were summarized and condensed to a manageable level. In the data display phase, the data were organized in a way that allows for easy comparison and analysis. In the data comparison phase, patterns and relationships in the data were identified. In the conclusion drawing phase, the data were used to draw conclusions that can lead to generalizations. In the verification phase, the conclusions drawn from the data were checked against the original data to ensure that they are accurate and reliable.

To ensure the reliability and validity of the data analysis, two independent researchers reviewed the data extracted from the selected studies. Any discrepancies in the categorization and analysis of the data were discussed and resolved through consensus. The inter-rater reliability coefficient, measured using Cohen's Kappa, was κ=.85, indicating a high level of agreement between the two researchers (McHugh, 2012). In addition, to ensure intrarater reliability, the lead researcher independently re-analyzed the data from a randomly selected sample of 20% of the articles. The intraclass correlation coefficient (ICC) was calculated and found to be 0.92, indicating a high level of agreement (Cicchetti, 1994). Triangulation of the data was also done by comparing the results of the analysis with those of previous studies in the literature, and the findings were consistent with the existing research.

The aim of the data analysis is to gain a deeper understanding of the concept of critical multicultural education in teacher education. By analyzing the cases in different contexts and settings, it will be possible to draw conclusions and make generalizations about teacher education. The results of the data analysis will be presented in the findings section of the study.

Findings

This section presents the synthesis of research studies on critical multicultural education, teacher education, and English as a foreign language (EFL). The aim of this integrative review is to analyze the implications of critical multicultural education in teacher education and its application in EFL contexts. The studies included in this review have been analyzed to identify the commonalities and variations among them.

The reviewed studies were initially divided into two categories: critical and non-critical multicultural education, based on the inclusion of the critical dimension of multicultural education. Further analysis was carried out on the studies under each category based on the identified themes and implications. While the literature on multiculturalism is vast, there are limited studies that explore the critical dimension of multicultural education, making this review particularly significant.

Table 2 is provided below to present a summary of the studies compiled for this integrative review. The table includes contextual information, study settings, and conclusion

and implication details of each study. This summary aims to provide an overview of the reviewed studies before analyzing the findings in detail.

Table 2. Research Studies Regarding the Major Conclusions and Implications of CMcEd

Studies (n=14)	Context	Setting	Conclusions and Implications
Kurtuluş and Arsal (2023)	CME and Pre-service Teachers	Turkey	CME applied in experimental group had significant and positive effects on preservice teachers' multicultural attitudes and efficacy
Ong, P. A. L. (2022)	CME and Children's Literature	Culturally Diverse Children's Literature	Multicultural literacy provides new perspectives to teachers by informing about diversity and cultural experiences.
Mambu, J. E. (2022)	CME & ELT Curriculum	Indonesia	Prospective teachers may be encouraged to co-constructure critical elements into the curriculum by making changes on lesson plans, materials and learning objectives.
Acar-Çiftçi (2016)	CME and Preschool Teachers	Turkey	Native language, ethnicity, age and gender cause significant influences on teachers' perceptions.
Acar-Çiftçi (2019)	CME and Teacher Training	Multidirectional Overview	In order to find solutions to a number of challenges faced by immigrant students, teacher educators and policymakers may consider and adapt the newly emerged approaches based on the findings of the research
Arsal (2019)	CME and teachers' multicultural attitudes	Turkey, Language Teacher Education Program	Teacher education program designers should integrate critical multicultural material and content in order to promote the multicultural attitudes of prospective teachers.
Beard (2016)	CME and Educators	United States, Medical Education Program	Critical multicultural education may inform policies that intend to promote diversity and inclusion and in this way the learners' needs may be met.
Gorski (2009)	CME & Teacher Education and Syllabus	Overview of Related Syllabi	Although designed educational programs equip teachers with pragmatic skills, they do not prepare them in accordance with the principles of critical multicultural education and action must be taken for this.
Gorski and Parekh (2020)	CME & Teacher Education	Canada, Teacher Education Program	Examining the approaches of teacher educators in terms of designing multicultural teacher training programs, it was concluded that criticality led to less institutional support.

Acuff (2018)	Being a critical multicultural educator in the classroom	United States, Art Class	The action research study shows that critical multiculturalism in art education classrooms is not a concept to be completed, but a continuous way of thinking.
Kim (2019)	Critical Multicultural Approach and Language Education	South Korea, Language Class	From the perspective of the media and English language portrayed in Korean society, it is concluded that the integration of critical multicultural education, which can reshape education, will create a socially just consciousness.
Kim and Choi (2020)	CME and Teacher Training	South Korea, Teacher Education Program	Although the participants understood the importance of multicultural education, they regarded it only as diversity and ignored racial privilege and political underpinning, thus implications that give critical and reflective dimensions to international teacher education were mentioned.
Liggett (2011)	CME and Teacher Sense of Agency	Local and Global Overview	Research shows that it is necessary to incorporate critical multicultural education into departments in tertiary education in order to strengthen the sense of agency of prospective teachers.
Ukpokodu (2003)	CME & Challenges and Dilemmas	United States	Integrating critical multiculturalism in teacher education practices is a great necessity in the face of increasing population diversity and prospective teachers need to empower students for a better future.
Mambu (2022)	CME & ELT Curriculum	Indonesia	Prospective teachers could raise their critical awareness of unfairness or inequalities experienced by ELLs while co-constructing components of a critical ELT curriculum.

Implications of Critical Multiculturalism on Teacher Education

The review of the selected articles indicates that the implementation of critical multiculturalism in teacher education is essential for the preparation of future teachers who can effectively address the needs of culturally diverse students. The studies reveal that critical multicultural education is a necessary approach in teacher education that facilitates the understanding of the complexities of culture, diversity, and social justice issues. Critical multicultural education empowers teachers to critique oppressive systems and practices and incorporate diverse perspectives into their teaching. However, the articles also reveal that the implementation of critical multiculturalism in teacher education faces challenges and dilemmas that require careful consideration.

One of the main implications of critical multiculturalism on teacher education is the need for teachers to recognize and challenge their biases and assumptions about diverse students. The study by May and Sleeter (2010) emphasizes that teacher education should promote the development of a critical consciousness that allows teachers to question their own biases and assumptions and develop a deep understanding of how culture shapes their perceptions of students. This understanding is crucial for the development of culturally responsive teaching practices that are sensitive to students' cultural backgrounds and experiences.

Another implication of critical multiculturalism on teacher education is the importance of recognizing the intersectionality of students' identities. The study by Acuff (2018) highlights the need for teacher education programs to provide opportunities for preservice teachers to explore their identities and the intersections of race, class, gender, sexuality, and other social identities. By understanding the complexities of intersectionality, teachers can develop inclusive teaching practices that recognize and value the diversity of their students.

The implementation of critical multiculturalism in teacher education also requires a commitment to social justice and equity. The study by Beard (2016) emphasizes the importance of teacher education programs incorporating social justice pedagogy that promotes the understanding of the historical, cultural, and political contexts that shape students' experiences. Teachers who are knowledgeable about social justice issues can facilitate critical conversations about power, privilege, and oppression in their classrooms.

The findings from Kim and Choi's (2020) study suggest that international learning experiences can provide opportunities for preservice teachers to develop an understanding of multicultural education. However, the study also reveals that preservice teachers need to critically examine their own racial privilege and consider the historical and socio-political underpinnings regarding racism in both their home country and the country of their international experience. This finding highlights the need for teacher education programs to provide critical and reflective learning opportunities that support future teachers in developing an anti-oppressive stance.

Finally, the implementation of critical multiculturalism in teacher education faces challenges and dilemmas that require careful consideration. Ukpokodu (2003) discusses the

challenges and dilemmas associated with teaching from a critical multicultural perspective, such as addressing resistance from preservice teachers who are not comfortable with critical pedagogical stances. Teacher education programs must work to address these challenges and dilemmas by creating supportive learning environments that foster critical and reflective learning.

The findings suggest that the implementation of critical multiculturalism in teacher education is crucial for preparing future teachers who can effectively address the needs of culturally diverse students. Teacher education programs must provide opportunities for preservice teachers to develop a critical consciousness, recognize the intersectionality of students' identities, commit to social justice and equity, and critically examine their own racial privilege. However, teacher education programs must also address the challenges and dilemmas associated with teaching from a critical multicultural perspective.

Application of Critical Multiculturalism in EFL Context

The studies reviewed suggest that the application of critical multiculturalism in EFL contexts is an important and necessary approach to promote diversity, equity, and social justice in language teaching and learning. In these studies, critical multiculturalism is conceptualized as an approach that values diversity, challenges power imbalances, and promotes critical thinking and social action among EFL teachers and learners. The findings highlight several key themes related to the application of critical multiculturalism in EFL contexts, including the importance of teacher preparation, the role of curriculum and materials, and the need for critical pedagogy in EFL classrooms.

Firstly, Kurtuluş and Arsal (2023) emphasize the importance of teacher preparation for the effective implementation of critical multiculturalism in EFL contexts. Teacher training programs should provide opportunities for EFL teachers to reflect on their own cultural backgrounds, biases, and experiences, as well as to develop a critical consciousness about issues of diversity and social justice. EFL teachers need to be prepared to navigate cultural differences, challenge stereotypes and biases, and create inclusive learning environments that recognize and value the diversity of EFL learners.

Secondly, Ong (2022) indicates that curriculum and materials play a crucial role in promoting critical multiculturalism in EFL classrooms. Curriculum should be designed to promote cultural understanding and appreciation, as well as to challenge dominant cultural

narratives and perspectives. Materials should be diverse, inclusive, and culturally relevant, representing a range of cultures, languages, and experiences. The studies suggest that culturally responsive and critical EFL materials can support learners' language development and promote their critical thinking skills and intercultural competence.

Moreover, Kim and Choi (2020) emphasize the need for critical pedagogy in EFL classrooms as a means of promoting critical multiculturalism. Critical pedagogy involves empowering learners to question dominant social structures, cultural assumptions, and linguistic ideologies. The studies suggest that EFL teachers can use critical pedagogy to create opportunities for learners to critically examine and challenge power dynamics, cultural biases, and linguistic hierarchies. Critical pedagogy can promote social justice and create spaces for learners to develop their voices and engage in social action.

In addition, Kim (2019) suggests that the implementation of critical multiculturalism in EFL contexts can present challenges and obstacles. EFL teachers may face resistance from learners or encounter opposition from dominant cultural narratives and perspectives. They may also face challenges related to language proficiency, lack of resources, and limited institutional support. However, the studies highlight the importance of perseverance and resilience in the face of these challenges and suggest that EFL teachers can collaborate with learners, colleagues, and community members to overcome obstacles and promote critical multiculturalism.

Finally, Acuff (2018) indicates that the application of critical multiculturalism in EFL contexts can have positive outcomes for learners, teachers, and communities. Learners can develop their language proficiency, intercultural competence, critical thinking skills, and social awareness. Teachers can develop their professional knowledge and skills and feel empowered to challenge dominant cultural narratives and perspectives. Communities can benefit from increased cultural understanding and appreciation and the promotion of social justice and equity.

Discussion and Implications

In this integrative research study, relevant findings were extracted from multiple studies to investigate the potential of critical multicultural education (CME) in English Language

Teaching (ELT). The analysis reveals that ELT is a suitable subject area to include CME, as it provides a conducive environment for adopting critical thinking skills and exploring topics such as multiculturalism, social justice, equality, and identity. The study further highlights the significance of CME in shaping the future, emphasizing the role of teachers and students in creating an inclusive and equitable society.

One important implication of this research is the need to incorporate critical multicultural education approaches in teacher education programs at universities. While the importance of challenging inequity is emphasized in theory, it is not applied in practice. Thus, practical approaches beyond advocating the critical multicultural approach in education need to be implemented, and support should be provided to prospective teachers to ensure the successful integration of CME into their pedagogical practices. To this end, compulsory courses on CME should be included in undergraduate teacher education curricula, and a variety of internet resources such as blogs, videos, podcasts, news portals, and student e-portfolios should be utilized to support emancipatory activities.

Furthermore, the study suggests that critical multicultural education is an ongoing process that continues throughout life, rather than a goal, and the practices of prospective teachers reflect the pedagogical approaches of CME. Therefore, it is crucial to increase the awareness and understanding of the importance of criticality among policymakers and teacher educators in university departments, who play a significant role in shaping the future. By empowering students and providing them with a voice, successful students can be educated in a free environment, and inequalities can be challenged.

In the context of Turkey, the study recommends that critical multicultural education should be explicitly included in tertiary-level curricula to ensure the successful implementation of CME practices. While some seminars on multiculturalism are held at the national level within the Ministry of National Education, more efforts should be made to promote the integration of CME into teacher education programs at universities. The implications of this research highlight the potential of critical multicultural education in ELT and emphasize the need to incorporate practical approaches to promote inclusive and equitable societies.

Conclusion

The coexistence of diverse ethnic, linguistic, religious, and cultural groups has become increasingly prevalent worldwide, making critical multicultural education an essential foundation for empowering students in culturally diverse settings. Through this approach, students are raised to be mindful of different languages, races, classes, and genders, and equipped with a critical perspective that challenges societal norms and power imbalances.

This integrative research has demonstrated that critical multiculturalism is particularly relevant to EFL contexts and should be emphasized not only in teacher education programs but also in all culturally diverse settings. It is crucial to unlearn cultural norms and adopt emancipatory actions to create equitable and fair environments in classrooms. Teacher candidates can be educated to use culturally diverse materials, conduct projects that question the hegemony of power holders, and create activities and presentations that raise students' awareness of power balances that have shaped culture since the past.

By incorporating sections of students' own lives into education, critical multicultural education creates a more relatable content for learners and encourages critical thinking in the classroom. This approach enables students to live peacefully and equitably in culturally diverse environments at every stage of their lives, paving the way for a more egalitarian society.

In summary, critical multicultural education is a vital approach for building inclusive and equitable communities, and its implementation in culturally diverse settings can facilitate the empowerment of all students. This research underscores the importance of this approach in teacher education programs and its potential to create more just and democratic societies.

Limitations

This integrative research focuses on studies that investigate critical multicultural education (CME) from the perspective of teacher education, with a specific emphasis on the implications of CME in EFL contexts. However, it is important to acknowledge that not all studies in this area are solely focused on teacher education or EFL contexts, and relevant findings from these studies were extracted and synthesized to inform the conclusions of this research.

Furthermore, it is important to note that the majority of studies included in this research are from Western countries, and there is limited empirical research on CME in non-Western contexts, including Turkey. While efforts have been made to fill the gap regarding multiculturalism in Turkey, the lack of detailed studies on CME in this context suggests that future research is necessary to arrive at a more robust generalization.

In addition, this systematic analysis only examines the teacher education issue of the critical concept of multicultural education. Therefore, the conclusions presented here can only inform the literature about teacher training. Further research is needed to explore other aspects of CME, such as its impact on student learning and achievement, or its implications for educational policies and practices.

While this integrative research provides valuable insights into the role of critical multicultural education in teacher education and EFL contexts, it is important to recognize its limitations and the need for further research to fully understand the complexities of this topic.

Ethics committee permission information

Ethical approval is not applicable, because this article does not contain any studies with human or animal subjects.

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Appendix

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RESEARCH ARTICLE

A bibliometric analysis of digital storytelling in language education

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Abstract

This study provides a comprehensive overview of the research in digital storytelling and identifies the key themes and trends in this area. Digital storytelling is an emerging field that has gained significant attention in recent years. In this study, we conducted a bibliometric analysis of the digital storytelling literature to examine this field's growth and development. The data collected from the Web of Science database was analyzed quantitatively, revealing a significant growth in digital storytelling as a field in recent years. The analysis revealed that the number of publications in this area has noticeably increased. The field's most productive authors, journals, and institutions were identified, and the key themes, trends, and challenges in digital storytelling research were identified. The analysis revealed that the most frequent keywords in the literature were "technology," "literacy," "education," language," "students," "learning-motivation," "pedagogy," "English," and "stories." The key themes that emerged from the literature were the use of digital storytelling in education, the role of technology in digital storytelling, and the use of digital storytelling for social change. The co-occurrence of keywords revealed strong connections between the themes of education, learning, and technology in digital storytelling research. The analysis also revealed that the field of digital storytelling had grown rapidly in recent years, with a significant increase in the number of publications. The number of publications in digital storytelling has increased exponentially in the last decade, and this trend is expected to continue. The analysis also revealed that the majority of publications in digital storytelling are in the subfields of education and English. The analysis revealed that the field of digital storytelling is still in its early stages, and there is a need for more research in this area.

Keywords
Digital Storytelling; Education; Bibliometric Analysis

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Introduction

Presenting stories through digital media is a relatively new practice which has received a lot of attention in recent years. The practice of creating, sharing, and disseminating stories using various digital tools and technology is referred to as "digital storytelling" (Robin, 2008, p. 222). Digital storytelling is interdisciplinary and

involves a wide range of fields, including education, communication, media studies, sociology, psychology, and computer science, among others (Sadik, 2008).

Many studies have been conducted on digital storytelling practices in educational settings. Digital storytelling is widely regarded as a practical technological application that uses user-generated content to remove barriers preventing educators from using technology effectively in educational settings. This goal can be accomplished by combining user-generated content with digital storytelling (Robin, 2008). When digital storytelling is included in students' educational experiences, they can participate in more personally relevant learning experience thanks to technology use (Kabaran & Duman, 2021).

Digital storytelling is a method that can be favored in education due to its capacity to appeal to multiple senses through the use of a multimedia environment (Ozkaya, 2020). This ability to appeal to many senses makes digital storytelling preferable in education. Since it incorporates both “text-based” and “audio-based” components, it can consequently help to enhance linguistic abilities (Rance-Roney, 2008, p. 30). In addition, it may be utilized to engage some different senses by incorporating animated and interactive graphics into the presentation. Students' writing skills can be engaged during the construction of a story's text, which is the first stage of digital storytelling (Papadaki et al., 2023) while students' listening skills can be engaged during the stage in which the story is shared, and students' oratory skills can be engaged during the stage when the shared story is interpreted (Sembiring, & Simajuntak, 2023).

Digital storytelling is a multi-stage process that can activate students’ creativity in diverse ways. When viewed in this light, we can say that digital storytelling is a method that has multiple dimensions because it can appeal to each student's ability to comprehend (listening, reading), as well as their ability to express themselves (speaking, writing) (Arrobaa & Acostab, 2020; Al Khateeb, 2019; Ertan-Ozen, 2020; Lanszki & Kunos, 2021). Using digital storytelling in the classroom can improve learning outcomes, student engagement, and motivation (Kasami, 2020). Storytelling in digital form can also assist in developing 21st-century skills, such as critical thinking (Yang & Wu, 2012), problem-solving, and digital literacy (Ozen &

Duran, 2019). The use of digital storytelling, which is increasing in various contexts, can provide not only educational settings but also the whole society with enormous benefits (Schmier, 2019).

The apparent potential of digital storytelling reveals that reviewing the relevant literature on that technique may give a more comprehensive understanding of how and why it could be integrated into education programs. Bibliometric analysis is a technique that may be utilized to examine and quantify academic literature that is associated with a specific area (Pritchard, 1969). This kind of analysis can give helpful insights into a field's history and current state. It can also uncover essential players and trends (De Bellis, 2009). The literature on digital storytelling lacks a comprehensive bibliometric analysis of the current state of research and practice, despite its growing popularity. An analysis of this nature could provide valuable insights into identifying trends and patterns in the field and insights into the most influential authors and publications. By providing a comprehensive overview of the state of research on digital storytelling, a bibliometric analysis could help inform future research and practice in this field and aid in developing effective strategies for using digital storytelling in education. Thus, this bibliometric analysis aims to provide a complete overview of the research in digital storytelling and highlight the important topics, trends, and issues in this area.

Despite the growing interest in the topic, there is not yet a review covering all aspects of digital storytelling in educational settings. Some evaluations have been written on digital storytelling, but education is not one of the critical problems these reviews address. For instance, De Jager et al. (2017) looked into the use of digital storytelling as a study approach. Among these was an empirical study that strictly adhered to established scientific norms. However, the vast bulk of the study concentrates on something other than education; consequently, the review is only marginally relevant to the topic at hand. Relevant research reveals that only a limited number of studies have been conducted investigating the growth of research trends for digital storytelling through bibliometrics. That is a significant gap in the body of knowledge. In light of this, the present investigation's purpose was to conduct a search that investigated the Web of Science (WoS) database. Academics interested in working on this topic in educational settings would find a thorough analysis of the worldwide pattern of studies published on the use of digital storytelling in educational

settings a helpful reference. This analysis focuses on the pattern of studies published on the use of digital storytelling in educational settings.

The following research questions have been raised:

1. Which documents, authors, institutions, and countries are most influential in terms of citation counts?
2. What are the most frequent keywords in terms of digital storytelling in education?

Method

Data Selection

We acquired data from WoS, which is one of the most well-known and commonly utilized library resources available today, in order to carry out a complete bibliometric analysis of the research on digital storytelling (Roemer & Borchardt, 2015). When searching for relevant literature, we utilized the following keywords: "digital storytelling," "digital storytelling in education," and "digital storytelling for learning." In the analysis, we only included articles published between 2002 and 2022, and we restricted our search only to include items that had been indexed in the WoS database.

Data Analysis

Afterward, the data was imported into reference management software, cleaned up, and structured by us before being exported again. After that, bibliometric software was utilized to analyze the data. It was possible to glean information from the program, such as the total number of publications, authors, journals, institutions, and countries, as well as citations. In addition, we utilized tools to determine the authors, publications, and institutions in the field of digital storytelling that have produced the most work. After that, we analyzed the data to determine the primary topics and developments in digital storytelling research. In order to conduct an in-depth analysis of the themes, we used qualitative and quantitative research approaches. Biblioshiny (version 2.0) tool, which Biblioshiny designed, assisted data visualization such as journals, researchers, and individual articles. This tool was also utilized to discover the connections between citations, bibliographic coupling, co-citation, and co-

authorship. We analyzed the number of publications that were produced over a certain period in order to determine the expansion of the discipline. In addition, we evaluated the distribution of publications throughout the several subfields of digital storytelling, including education, business, advertising, and social change, among others. Our bibliometric study, taken as a whole, gives an in-depth summary of the research conducted in digital storytelling and identifies the most important topics and developments in this field. Based on the number of times that two different articles were cited together, this network would be able to determine which articles are most closely associated with one another. Analyzing that network would allow us to determine the writers and publications that had the most impact in the digital storytelling field in the time of the study.

Results

Research Productivity

In terms of the number of articles published each year, Figure 1 illustrates the level of research production in the field of digital storytelling in educational settings. Research output on the use of digital storytelling in education has steadily increased since the first publications on the topic appeared in the early decades of the 20th century. Significant growth was between 2015 and 2022, when most publications were generated. 2016 and 2022 (N = 55) were the years when the most academic publications were made on that topic, each with 57 totals, respectively. It was determined that the annual growth rate was 22.19%.

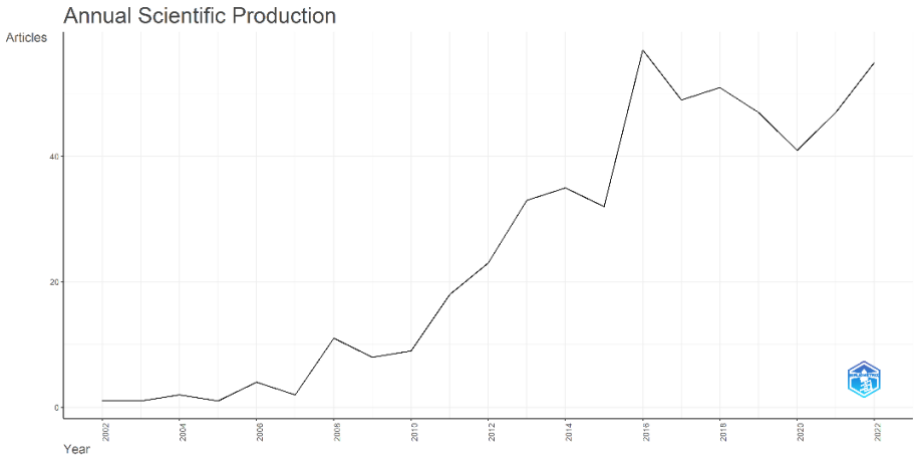

Figure 1. The level of research production in the field of digital storytelling in educational settings

The number of publications about digital storytelling in education featured in WoS is displayed in Table 1. There has been a consistent rise in the number of digital storytelling examples seen in educational publications since the year 2002, according to WoS. That finding implies a potentially more significant rise in the total number of publications of this kind soon. We also noticed that the total number of publications has grown over the years, particularly after 2016. According to these data, the subject has steadily grown throughout the years, but in 2016, it began to garner more attention in terms of publication.

Table 1. The number of the digital storytelling articles

Year	N
2002	1
2003	1
2004	2
2005	1
2006	4
2007	2
2008	11
2009	8
2010	9
2011	18
2012	23
2013	33
2014	35
2015	32
2016	57
2017	49
2018	51
2019	47
2020	41
2021	47
2022	55

Figure 2 displays the specific number of citations received in one year. The year 2008 saw the greatest total number of citations (*M*= 86.18), while 2016 saw the greatest number of documents published (*N*= 57), with an average of 86,18 citations

per piece of writing. The highest number of documents published was in 2016 (*N*= 57). The patterns of publishing suggest that there has been a discernible rise in the amount of investigation into the use of digital storytelling in educational settings as time has progressed. The number of citations that are typically included in each article that is cited is 10.98.

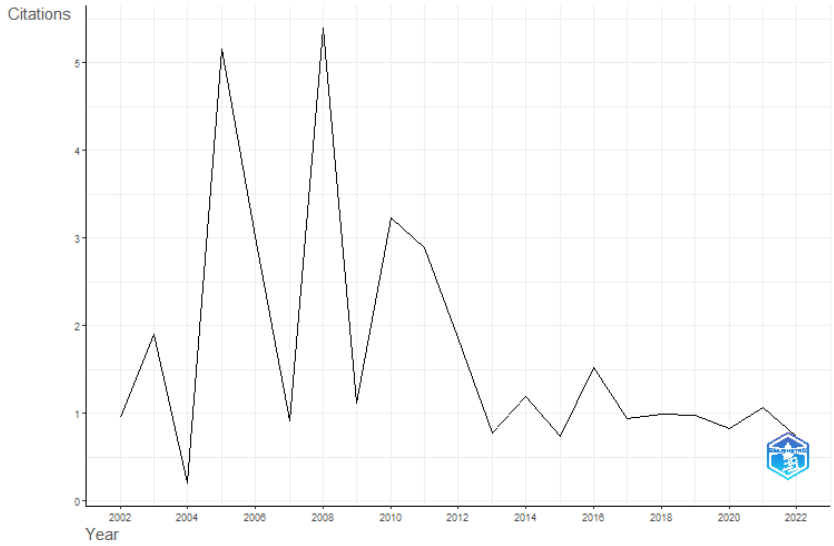

Figure 2. Avarage citations per year

Leading Countries and Institutions

The top ten countries and organizations for digital storytelling in education research productivity are summarized in Figure 3. This productivity is measured in terms of publications, citations, and the effect of citations. The United States (*N* = 143 publications), China (*N* = 67 publications), and Türkiye (*N* = 67 publications) were the top three countries with the largest total number of publications. South Africa, which occupied the last spot on the list, was responsible for 24 publications. Publications originating in the United States received 2415 citations and an impact score of 16.88. The total number of citations for China was 801, and the country's citation impact was 24.2. Türkiye had the same number of articles as China, but China had a higher number of citations (239), while Türkiye had fewer citations that had an impact (5.6). Even though Italy has a lower publishing rate than other countries, its works have been mentioned 130 times and have a citation impact of 6.2. Among the top 10 countries, Italy had the weakest influence based on the number of citations it received. Oman is the third most-cited country, with a total of 282 citations per year

and an impact score of 8; even though it is not among the top 10 countries, Oman is the most-cited country overall.

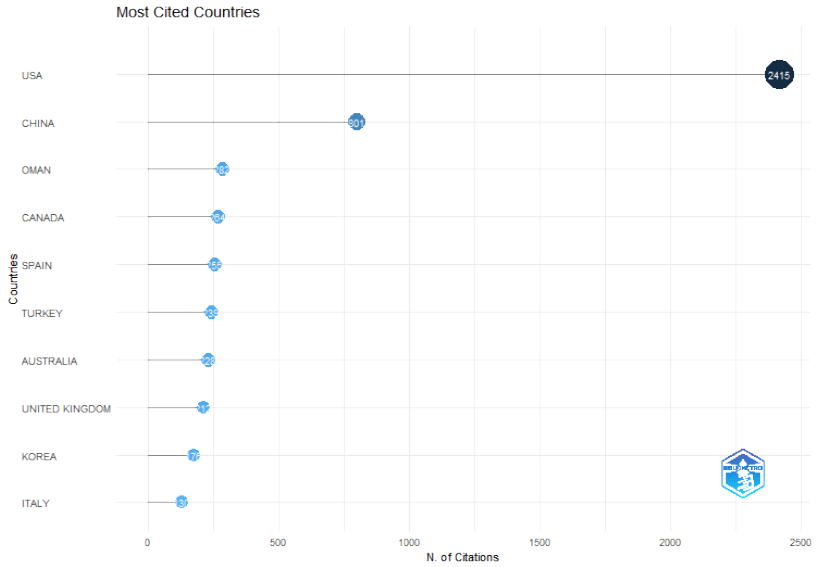

Figure 3. Top ten countries and organizations for digital storytelling in education research productivity

Among the top 10 institutions contributing to the literature on digital storytelling in education, the University of Goldsmiths of London is at the top of the list with 19 publications. That places the institution at the top of the list. The University of Salerno is in third place, followed by the University of Valencia and Cape Peninsula University. Each of these universities has 15 publications to its name (11 publications). The three organizations each contributed ten publications. The Alberta University produced ten papers, which collectively received 123 citations and had a citation impact of 24.6. The number of papers produced by the Universities of Barcelona and Oviedo was the same. The impact of 17 publications by the Goldsmiths University of London has been scored as 4 with 68 citations. Several factors could lead to higher contributions from institutions in industrialized nations. For example, there is a growing interest in digital education and tools in such countries, so educational institutions in industrialized countries may have more opportunities to include digital storytelling in their curriculum.

Table 2. Top 10 institutions contributing to the literature on digital storytelling in education

Organization	Articles
Goldsmiths University London	19
Cape Peninsula University of Technology	15
Unıversity of Salerno	11
University of Valencia	11
University of Alberta	10
University of Barcelona	10
University of Oviedo	10
National Central University	9
University of Helsinki	8
Nanyang Technological University	7

Most Productive Authors

The most productive authors in digital storytelling in education research are presented in Figure 4. The author, Macleroy V., has a total of 9 publications, and those articles have been referenced 54 times, giving the author a citation impact of 6, and the author's H index is 4 (the most in the list). Anderson J, Gachago D., and C. Liu authored seven publications, which gives them the second place on the list.

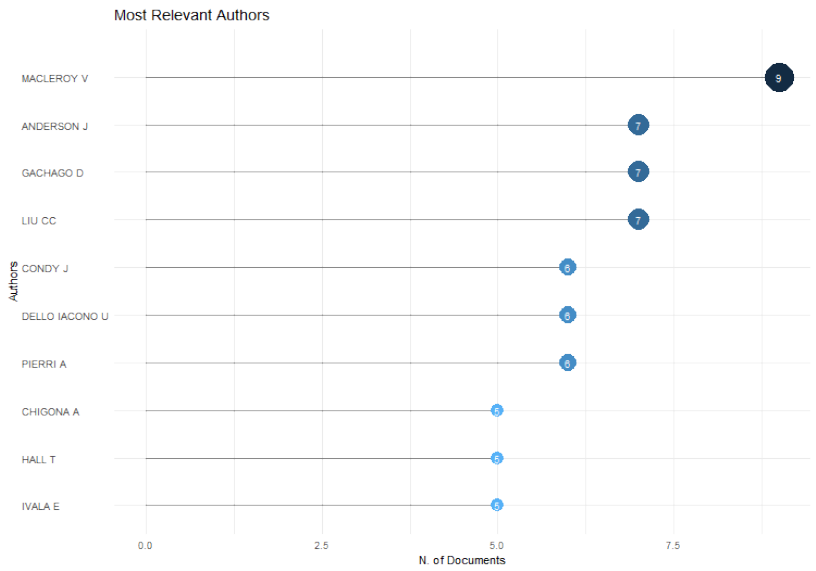

Figure 4. Most productive authors in digital storytelling in education research

Condy J., Dello Iacono U., and Pierri A. share the third place with a total of six publications each, while five authors (Chigona A., Hall T., Ivala E., Perez Med, and Robin Br.) have a total of five papers each.

The article "Digital storytelling: A strong technology tool for the 21st-century classroom" was written by Robin Br. and published in 2008 in the journal Theory into Practice. It is now at the top of the list of articles that have received the most citations worldwide. It has 414 citations, an impact factor of 11, and the author's H-index is 7.

Most Influential Journals

The top ten research journals that produced material on digital storytelling use in educational settings are presented in Figure 5 and Table 3. The total number of articles produced by these ten journals came to 36%, with four of the journals producing 91 total publications. Digital Education Review (Q2), which is a journal that features both theoretical and practical works on the use of digital technology in education, and Multilingual Digital Storytelling (Project, article) emerged as top sources with a total of 26 publications and 181 citations, followed by the Educational Technology and Society, which is a journal that continues to maintain its focus on how learning, teaching, and evaluation are affected by long-term technology applications, with nine publications.

The three journals, namely, Arts and Humanities in Higher Education, International Journal of Emerging Technologies in Learning, and Learning Media and Technology contributed equally to producing eight articles. They garnered a combined total of forty-six citations for their work. The next two on the list had seven publications: Computer Assisted Language Learning and the Journal of Adolescent and Adult Literacy. According to the findings of the current bibliometric study, over 83% of the research that has been done in the field of digital storytelling has been conducted in the field of education or educational research. England was responsible for five journals, and the United States was responsible for two. Taiwan, Spain, and Germany each published one journal. That demonstrates that the research conducted in this field has a greater potential to be published in journals with a high impact factor. In addition, most of their indices are SSCI.

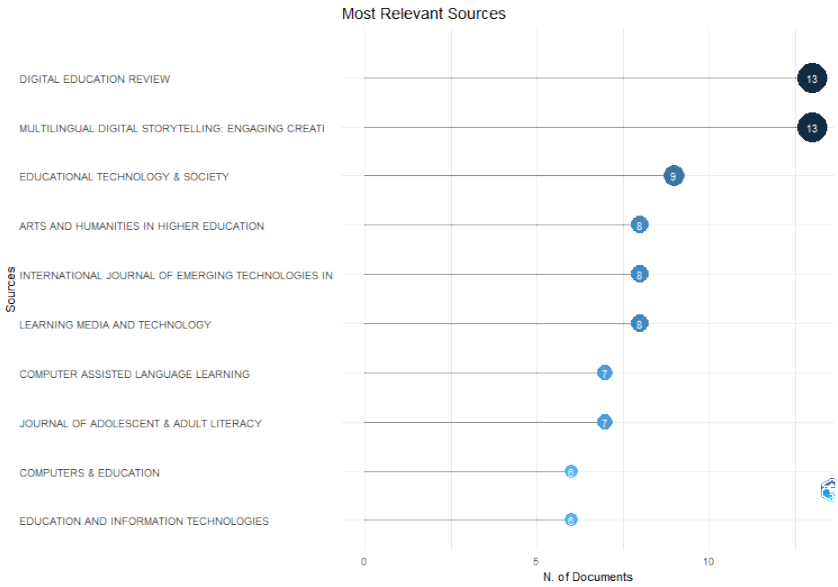

Figure 5. Most influential journals

Table 2. Most influential journals on digital storytelling in education

Rank	Journal	TC	IF	Q	Publisher	Country
1	Digital Education Review	340	1.8	Q2	Universitat de Barcelona	Spain
2	Multilingual Digital Storytelling	-	-	-	Taylor&Francis Online	UK
3	Educational Technology & Society	92679	3.5	Q1	National Taiwan Normal University	Taiwan
4	Arts And Humanities in Higher Education	5187	1.6	Q1	SAGE	UK
5	International Journal of Emerging Technologies in Learning	2916	2.5	Q2	Kassel University Press	Germany
6	Learning Media `nd Technology	21072	4.6	Q1	Routledge	UK
7	Computer Assisted Language Learning	-	4.7	Q1	Taylor and Francis Ltd	UK
8	Journal of Adolescent & Adult Literacy	348	1.1	Q2	Wiley-Blackwell	USA
9	Computers & Education	9202	11.1	Q1	Elsevier Ltd.	UK
10	Education and Information Technologies	3477	5.2	Q1	Kluwer Academic	USA

Keyword Analysis

Using the keyword analysis helped to discover a total of 416 keywords. In the abstract sections of the authors' articles, they offered up a total of 416 keywords for consideration. The keywords are displayed in Figure 6.

Figure 6. Keyword analysis word cloud

The most frequently used keywords were literacy (31), education (30), language (27), students (27), learning-motivation (25), pedagogy (20), English (19), stories (18), and knowledge. The most frequently used keywords were technology (42), literacy (31), and education (30). (15). The word "technology" is the one that sticks out the most whenever the green color is spoken in connection with anything at all. Some of the other terms that are associated with this keyword include "media literacies," "new literacies," "literacy," and "case study." The most important organizing element behind the keywords appears to be the concept of "literacy." The fact that the concept of "digital" is being brought to the forefront here illustrates the significance of "digital literacy" in this particular case. The word "education" is the one that stands out the most as a use of this particular keyword across this picture. Some of the different keywords related to it include "educational technology," "classroom," "interactive digital storytelling," "teaching," and "learning." Both concepts seem to coincide within the framework of the contributions that storytelling makes to both better engagement in educational settings and the use of multimedia

formats. The word "story" is the first one that springs to mind when I think of this. The most important idea connected with the red cluster seems to be summed up with the term "learning motivation." Other terms that are associated with it include "skills for the 21st century," "collaborative learning," "linguistic learning," "project-based learning," "engagement," and "web 2.0." That could be because digital storytelling is considered a motivational component of the learning process, as indicated by the clustering of the keyword "learning-motivation." This image contains several other keywords, some of which are "multimodality," "multiliteracies," "mobile learning," "blended learning," "participation," and "student involvement." It would appear that the element shared by the keywords that make up this cluster is the capability of digital stories to be applied in contexts that involve multiple types of media. Other terms that can be discovered in the figure are "design," "professional development," "creativity," and "technology-enhanced learning." The concepts discussed in this article shed light on the fact that the exploitation of digital storytelling is intricately connected with professional development and reflection.

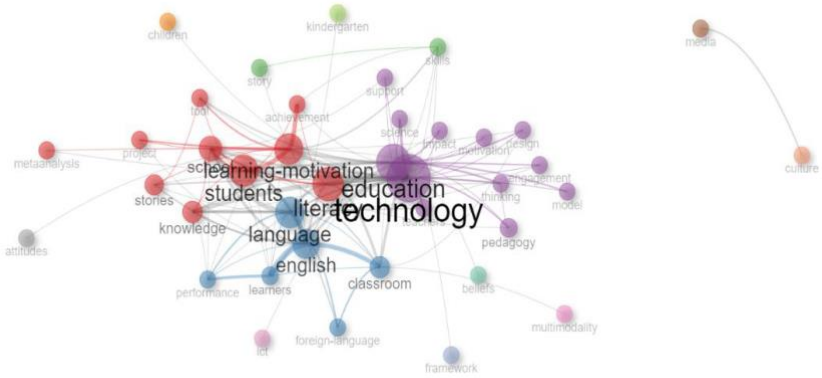

Figure 7. The most frequently used keywords

Major Themes in Digital Storytelling in Education

The sixteen different focuses of digital storytelling in education are presented in Figure 8. The total number of publications is organized into 16 categories. The second most common topic, literacy, comes in front with 42 publications, followed by technology. The years 2016–2021, which encompass a total of 73 articles, are the ones in which these two topics show the most significant progress in terms of time. Education is the theme that occurred as the third one in this graph for 30 publications.

However, the language theme only has 27 publications despite having the same number of publications as the theme language.

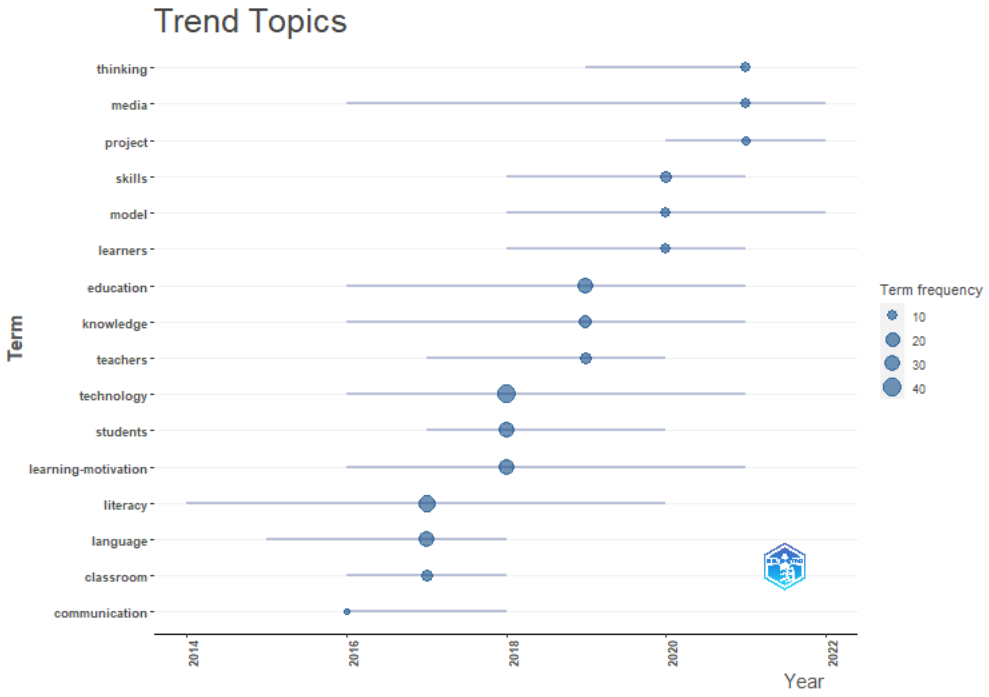

Figure 8. Different focuses of digital storytelling in education

Discussion and Conclusion

Bibliometric analysis examines patterns and trends in the literature associated with a specific subject area through quantitative data (Chang, et. al., 2015). In this investigation into the subject of digital storytelling, we utilized bibliometric methods in order to gather information. This study's objectives included determining the most influential authors, publications, and research topics on the subject, as well as investigating the field's expansion and development during its existence. The present study utilized the bibliometric approach to describe patterns and shifts in digital storytelling over the previous 20 years. The publications, sources of publications, authors, research institutions, and research topics were analyzed using citation information. In the realm of digital storytelling, we anticipated that the results of our bibliometric research would disclose numerous important conclusions. We set out to determine which writers and papers were the most important in the discipline and which journals were the most influential overall. In addition, we investigated the

subject's expansion and development throughout time, as well as the most significant research topics being pursued within it now.

Based on the findings of recently conducted research, it is possible to conclude that using digital storytelling as a teaching method is the most effective approach. In light of these findings, additional research could be conducted on using digital storytelling in English language teaching contexts and developing English language skills, as in all areas of education. Researchers should be encouraged to publish studies in journals listed within databases recognized by the scientific world as well-founded and authoritative resources of academic literature. In addition, the use of digital storytelling in English language teaching contexts and the development of English language skills could also be studied. Researchers interested in working on this topic in the English language education research area or any other field of education may find it helpful to examine the global trend of studies published on digital storytelling in education. It is because doing so is thought to provide a valuable guide for such researchers. As a result, there is room for expansion in the number of studies investigating these tendencies.

Moreover, it was discovered that the United States was the nation that provided the most significant contribution to the field of digital storytelling. It was discovered that Türkiye ranked second in the number of publications contributed to the field, while it ranked seventh in the number of citations. When Türkiye's role in the development of the trend in WoS is analyzed, it can be seen that out of Türkiye's 67 articles, the one with the highest number of citations ($N = 29$) was the article titled "The effect of digital storytelling on visual memory and writing skills," which was written by two researchers from Türkiye, Cral-Sarca and Kocak-Usluel (2016). When the general citation data of the 67 Turkish articles on digital storytelling in WoS were examined, it was found that 26 of the articles had at least one citation. In contrast, 17 of the articles had not yet been cited at all. The articles that had not yet been cited were those that had not been published. In this scenario, increasing the number of citations to works sourced from academics affiliated to Turkish universities is likely to increase Türkiye’s authority in the field.

Ethics committee permission information

Ethical approval is not applicable, because this article does not contain any studies with human or animal subjects.

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