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Perceived Fairness of Teacher Selection Process in Turkey

Sedat YAZICI^{a*}, Fatma ÜNAL^b & Mehmet Cem ODACIOĞLU^c

Research Article

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Abstract

This paper uniquely applies organisational justice theory to the teacher selection process and analyses the interview method in a centralised, heavily competitive context, with a non-autonomous selection process. The survey model was benefited in the study. A total of 146 participants determined by criterion sampling were accessed. Data were collected and analysed through the data collection tool used in line with the purpose of the research. Regression analysis indicated that the variables procedural justice, interactional justice, public personnel selection examination score, interview score, being hired, gender, and branch have a significant relationship with distributive justice perceptions. Furthermore, the teacher selection interview method was perceived as unjust and unfair; it is subjective to influential contacts and favouritism, ignores candidates' labour and efforts by simply disqualifying most, and has poor reliability and validity structure. The most significant implication and consequential recommendation of this study is that under conditions of intense competition, in societies in which political conditions become influential, and in collectivist cultures, using interviews for teacher recruitment might be less reliable and less objective compared to other selection methods such as centralised pedagogical examinations or field test results.

Keywords: Teacher selection, teacher recruitment, interview method, organisational justice, Turkish education

Türkiye’de Öğretmen Seçiminin Hakkaniyet Algısı Öz

Bu makale, örgütsel adalet teorisini öğretmen seçim süreci bağlamında inceleyerek mülakat yöntemini merkezileştirilmiş ve oldukça rekabetçi bir eğitim ortamında analiz etmektedir. Araştırmada tarama modeli kullanılmıştır. Ölçüt örnekleme ile belirlenen 146 katılımcıya ulaşılmıştır. Araştırma amacına uygun kullanılan veri toplama aracı ile veriler toplanmış ve analizler yapılmıştır. Regresyon analizi sonuçları prosedürel adalet, iletişimsel adalet, kamu personeli seçme sınavı puanı, mülakat puanı, işe alınma, cinsiyet ve branş değişkenlerinin dağıtım adalet algısı ile anlamlı bir ilişkiye sahip olduğunu göstermiştir. Ayrıca, öğretmen alımında kullanılan mülakat yönetimi hakkaniyetsiz ve adaletsiz bir seçim olarak algılanmıştır. Katılımcıların bu sınavın öznal, kayırmacı ve iltimaslı bir sınav olduğu, adayların emek ve çabalarını görmezden geldiği algısına sahip oldukları görülmüştür. Bu çalışmanın en önemli sonucu ve sonuca dayalı önerisi; yoğun rekabet koşulları altında, siyasi koşulların etkili olduğu toplumlarda ve kolektivist kültürlerde öğretmen alımı için görüşmeleri kullanmanın, merkezi pedagojik sınav veya saha testi sonuçları gibi diğer seçim yöntemlerinden daha az güvenilir ve daha az objektif olabileceğidir.

Anahtar kelimeler: Öğretmen seçimi, öğretmen alımı, görüşme yöntemi, örgütsel adalet, Türk eğitimi.

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INTRODUCTION

Compared to research conducted in other workplaces, applying organisational justice theory in educational settings is insufficiently explored, particularly in teacher selection methods (Klassen & Kim 2019; Engel & Curran 2016; Waldow 2013). However, teacher selection methods are vital, and closely concern educational institutions, policymakers, school districts, teacher candidates, and their families. The primary concern for this issue arises from the central place of teachers in education. Research indicates that teachers' academic backgrounds and job screening test results predict their performance (Jacob et al., 2018) and that student success is significantly dependent on teacher performance (Davies et al. 2016; Ritzema 2016; Taut et al. 2016).

However, how to select successful teachers through reliable, objective, and fair procedures and methods still needs investigation. The most widely used tools in employee selection include interviews, assessment centres, situational judgement tests, self-report measures, and socially desirable responding (Ryan & Ployhart 2014), each with advantages and disadvantages. Selection methods that interest many groups and people may be publicly debatable and objectionable. This is simply because there is no neutral selection method; therefore, the argument and discourse for a value-free selection procedure cannot end the quarrel.

More importantly, selection methods become more imperative and an important question of justice in countries with high unemployment rates. This study was conducted in such a context. With new universities established in the last two decades in Turkey, the number of young adult graduates between 25-34 years old doubled in the last ten years (OECD 2019). This rapid growth, has increased unemployment rates among graduates. From 2005 to 2019, the rate of registered unemployed university graduates increased from 12% to 26%. Despite Turkey being among the countries with the lowest teacher salaries in the Organisation for Economic Co-operation and Development (OECD) countries, teachers' leaving their employment is not an issue in this country. Of the total 907,567 state school teachers in the 2018-2019 academic year, only 1,837 (0.20%) left their jobs for several reasons, including death, and dismissal due to discipline problems (MEB Statistics, 2019).

In this study, we examined the perceived fairness of procedural, distributive, and interactional justice of teacher applicants who took a nationwide teacher selection interview. This study is unique in that it (1) applies organisational justice theory to the teacher selection process, (2) analyses the interview method in a centralised and non-autonomous selection process, (3) studies the selection process in terms of interviewees' perceived perceptions, and (4) investigates the selection procedure in a highly competitive condition.

Literature review

Teacher selection methods

While in some countries, teachers are considered high-status and teacher education programmes are very competitive (O'Doherty & Harford 2018; You, 2014), research indicates that in countries such as the US, teaching is not considered a desirable profession and many selected teachers leave their jobs in their early years (Chang 2009; Lindqvist, Nordänger, & Carlsson 2014). Due to the lack of long-term planning for the teaching profession, many countries are facing serious challenges in teacher recruitment, and an unbalanced distribution in terms of geographic regions, high-and low-income school districts, and subject areas, thereby indicating diversity in terms of teacher supply and demand (Schleicher 2012; Eurydice Report 2018; Garcia & Weiss 2019). While countries like Israel and Sweden still experience teacher shortages (Donitsa-Schmidt & Zuzovsky 2016; European Commission 2019), others like the US and the UK are facing a moderate shortage only in fields like science, mathematics, and special education (White et al. 2006; Berry and Shields 2017, Wan, Pardo, & Asson 2019; Ingersoll & Perda 2010; Peyton et al. 2020). Countries like Germany, Greece, Spain, Italy, Liechtenstein, and Montenegro have both shortages and oversupplies (Eurydice Report 2018); however, in countries like South Korea and Turkey, there is an excessive supply in most subjects (You, 2014; MEB, 2017).

The most widely used teacher selection and recruitment methods by school districts or states are standard test scores, situational judgement tests, pedagogical content and/or field knowledge examination scores, writing a sample, interviews, and auditions (Jacob et al. 2018; Ryan & Ployhart 2014). In European Union (EU) countries, fully qualified teachers are recruited via open recruitment, competitive examination, and candidate list methods (Eurydice Report 2018). However, numerous studies have found striking inconsistencies between the rationale of the proposed selection methods and their actual implementation or practice (Hextall, Mahony, & Menter 2001). More importantly, research reveals that school principals with autonomy in the teacher selection process may follow different strategies (Engel & Curran 2016) and that research-based practices are not followed in actual teacher selection (Kimbrel 2019). For example, in a study of teacher selection for 31 public schools in Chicago,

Engel and Curran (2016) found that the most frequently used strategic hiring practices were referrals from and outside schools, and that some school districts engaged in very few strategic hiring practices.

The interview method is the most widely used selection tool, specifically in small organisations and decentralised selection procedures. This is largely because it has important advantages over other employee selection methods, such as providing in-depth information, encouraging a good fit for the required position, allowing both applicants and schools to exchange information and expectations, and mutual evaluation (Liu and Johnson 2006). Generally, interviews are preferable teacher selection methods by schools and administrators (Schaefer & Terhart 2006; Mertz, 2010; Kimbrel, 2019). However, this method might be unfavourable for decision makers because of disadvantages, such as time consumption, cost, bias of interviewers, and interpretation.

Research findings indicate that although the interview method is a reliable selection technique (Goldhaber, Grout, and Huntington-Klein 2014), there is mixed evidence about its effective implementation and its acquisition of intended results in practice. In a study of 30 teachers in a large urban district in the US, Ebmeier and Ng (2006) found that teacher effectiveness ratings were positively correlated with teacher ratings and explained 28 % of the variance. Based on a meta-analysis of 24 studies of the predictive validity of the Teacher Perceiver Interview (TPI) instrument, which is widely used in teacher selection processes, Metzger and Wu investigated the relationship between the TPI and teaching quality and found a moderate correlation between these two variables. They said that 'the TPI does seem to measure something, but we are not convinced that what it measures relates meaningfully to what matters for teaching effectiveness' (2008, p. 933). Liu and Johnson (2006) studied four states' selection processes in the US and examined the extent to which required skills and expertise, and applicants' and schools' expectations and needs were properly met. They found that the interaction between schools and prospective teachers was based on an information-poor process and that many new teachers were only hired after the school year commenced. The study conducted by Schaefer and Terhart in Germany also demonstrated that a vast majority of the principals and members of the selection committee welcomed the interview method because 'the school has the chance to select among candidates *on the basis of personal impressions!*' (2006, p. 514).

The context of the study

The Turkish education system has a very centralised administrative structure, which is designed and governed by educational programs, the selection of textbooks, selection and recruitment of teachers and principals, their rotation, and salaries by the Ministry of National Education and the central government. School districts or provincial directorates have no autonomy in the teacher hiring process, except for hourly wage hiring of substitute teachers. Moreover, although it changes from time to time, the curriculum and course descriptions of student teacher programmes included at the Faculty of Education and pedagogical programme for graduates from other faculties, are determined by the Turkish Higher Education Board. Therefore, the teacher selection method in Turkey is based on both centrally administered process and product control.

The 'Teacher Proficiency Examination' was held for the first time by the Ministry between 1985-1991. During that period and afterward, the teacher selection method has often been a controversial issue in Turkey, as stated and addressed in government and political parties' programmes and agendas. A frequently stated argument with a populist discourse has been defended over 'unrecruited teachers' by asserting that if these teacher candidates are graduated with sufficient qualification, why we would force them to take that examination? When the major opposition party who declared in its election manifesto that the examination would be abolished during their administration, came into power in 1991, teacher recruitment was conducted randomly (Soydan 2015, p. 590).

With the extension of compulsory education from five grades to eight grades in 1997, more primary school teachers than graduates were needed; however, most teaching vacancies were filled in the following year by the appointment of graduates of different faculties such as agriculture, business, economics, and journalism (Akyüz, 2004). Immediately thereafter, since more teacher candidates joined the teacher pool than vacancies required, the teacher selection examination integrated into the Public Personnel Selection Examination (PPSE) was started again in 1999. This time, objection and criticism focused on the content of the examination, as a disqualifying examination rather than to measure teachers' qualities (Baskani 2001; Arı & Yılmaz 2015; Doğan & Çoban, 2009). Moreover, adding the Teaching Field Knowledge Test (TFKT) to the PPSE in 2013 did not end the debates and objections (Eskici, 2016).

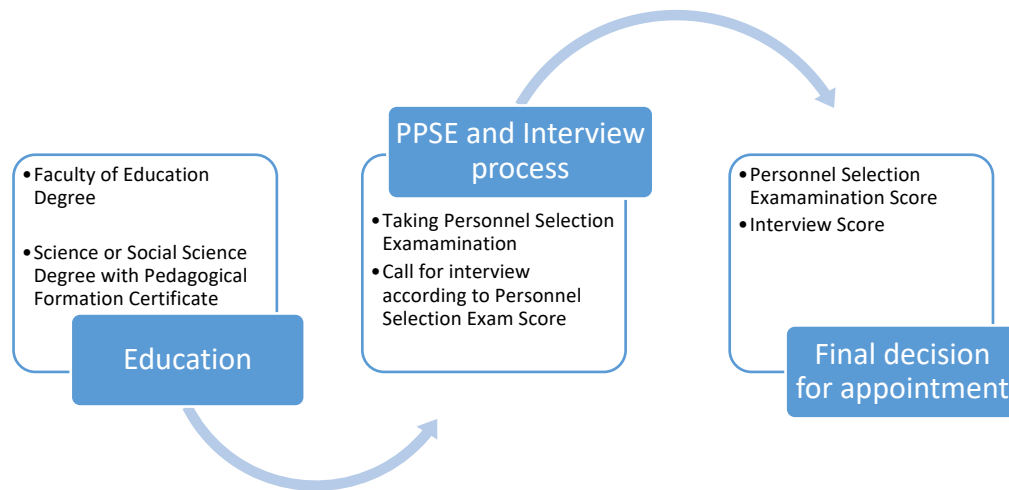


Figure 1. *Current teacher selection process*

For the first time in 2016, the interview method became part of teacher selection. Teacher candidates with test scores of 50 or above were called for interviews, and their total scores were calculated based on composite scores of their PPSE and interview points (MEB 2016). The interview examination was conducted by a five-person delegation appointed by the Provincial/District National Education Directorates. Interview scores of each candidate were evaluated by the delegation on the basis of some criteria such as candidates' ability to understand a topic and summarise it, the ability to express and reason, communication skills, self-confidence, persuasiveness, openness to scientific and technological developments, the ability to represent themselves in society, and the quality of teaching. The delegation scored these criteria on a scale from 1 to 5 and calculated the averages of these scores for each candidate (MEB 2016). Under these regulations, 311,759 candidates took the PPSE examination, a total of 36,876 candidates were called for interviews and 14,873 candidates were deemed successful and recruited across the country by the Ministry of Education (ÖSYM 2016; Tonbul & Ağaçdiken 2018).

Recently, it has been estimated that the total teacher pool of graduates from the Faculty of Education and Faculty of Science and Letters who received a teaching certificate from the Pedagogical Formation Program surpassed approximately one million unemployed teacher candidates (MEB, 2017). Despite this, the number of teachers appointed in the last four years between and 2016-2019 by the Ministry of Education across the country were only 29,699, 23,396, 25,516, and 41,379, respectively. These numbers are sufficient to demonstrate the heavily competitive conditions for teacher selection and the stress and strain that teacher candidates have experienced in Turkey. This situation is worse for some teaching fields such as history, Turkish language, social studies, physics, chemistry, philosophy, and sociology, in which the recruitment possibility is less than two percent.

Having a teaching position in a public school in Turkey provides a powerful sense of job security, which means there is little chance of being dismissed unless a teacher commits a serious professional or general crime. However, getting a teaching position is certainly extremely competitive and pressuring as graduated candidates have spent years studying and preparing for the teacher selection examinations. Further, the improbability of being employed causes them distress, anxiety, stress, hopelessness, and uncertainty. It is not difficult to predict that selecting qualified teachers under such extremely competitive conditions would generate intense criticism and debate closely related to many groups (Eğitim Bir-Sen, 2016; AYÖP, 2020). Thus, the purpose of this study is to examine the perceived fairness of teacher candidates who participated in teacher selection interviews, as part of the recruitment procedure, under the conditions described thus far.

Organisational justice literature

Procedural justice refers to the allocation schema or method through which certain goods, positions, benefits, and burdens are distributed among individuals or parties, affected by the consequences and their side effects (Tyler 1989; Brashear, Mrooks, & Boles 2004). Whether an outcome is just, or fair depends in part on the fairness of the distribution procedure. If the procedure is fair, people get what they deserve, no matter what the consequence is. Procedural justice takes its normative roots from rational decision theory and the concept of fairness. Research has indicated that procedural justice affects people's attitudes and perceptions about institutions, organisations, and authorities (Lind & Tyler 1988; Folger & Konovsky 1989).

Distributive justice is concerned with whether applied allocation rules, principles, norms, or decisions fairly allocate certain goods, positions, costs, and rewards among individuals or group members. In organisational justice

theory, both the conceptions of procedural and distributive justice are related to Adams' (1965) equity theory. Interactional justice, which appeared later in the literature, concerns how people are treated interpersonally and informationally in any situation where questions of justice are relevant. In earlier studies of organisational justice literature, interactional and procedural justice were aggregated in the same way. However, as Mikula et al. suggested, subsuming interactional justice into procedural justice loses predictability and 'it would be difficult and even impossible to distinguish between process of decision-making and interpersonal treatment by decision makers' (1990, p. 142). For the current study, therefore, interactional justice was considered as a separate measure that could provide a better understanding of the teacher selection process. The fairness of a teacher selection method depends not only on procedural rules and regulations of the selection method, but also on how candidates are treated during any stage of the selection process. For a selection procedure to be fair, it is not only necessary that the selection method is reliable, valid, and fair to all applicants, but that it must be '*perceived*' to be fair by applicants (Klassen et al., 2014).

Studies investigating organisational justice theory in educational settings are limited. Smith, Todd, and Laing (2018) analysed the descriptions by 80 students, ranging in age from 16 to 18 years, about fairness in education and found that interactional justice and stake fairness were the primary concerns of students. Gouveia-Pereira et al. (2003) also studied 448 students aged 16-18 years and found a strong correlation between the perception of interactional justice and students' evaluations of their teachers, demonstrating an impact on the legitimization of the authority of teachers. In a university setting, Burger (2017) found that the implementation of different assessment and instruction methods significantly affects students' perceptions of the fairness of the assessment process. Nesbit and Burton (2006) also found a positive correlation between students' perceptions of procedural justice and grade satisfaction.

METHOD

Sample and procedures

Participants of the research consisted of 146 candidate teachers who participated in the interviews carried out by Turkey's Ministry of Education between 10-31 December 2018. Participants were selected using candidate social media platforms and asked whether they would like to participate in the study by completing the scale by e-mail. Data were obtained using a survey e-mailed to teacher candidates just after they received their final scores and recruitment results in February 2019. The *participants were assured that* their replies were confidential and will be used for research purposes only. Of the total 146 respondents, 74 were female and 72 were male. The mean age of the participants was 27 years and 6 months. Table 1 presents the descriptive statistics of the participants.

Table 1. Descriptive statistics for study variables (N = 146)

		(f)	(%)
Gender	Female	74	50.7
	Male	72	49.3
Mean Age	27.6		
Grade level of teaching	Primary school	20	13.7
	Secondary school	80	54.8
	High school	40	27.40
	First time	103	70.55
Number of interviews	2	25	17.05
	3	5	3.5
	4 and more	13	8.9
PPSE score average	77.78		
Interview score average	64.73		
Hiring position	Hired	22	15.1
	Not hired	124	84.9
Total		146	100

Data collection tool

The data collection tool consists of procedural justice, distributive justice, interactional justice, and demographic questions regarding the variables of the research such as age, gender, the number attending the examination, PSSE score, interview score, appointment/non-appointment status, political orientation, and religiosity. Five questions were also asked about the factors that possibly determined their scores in the interview. The final section included one open-ended question for our qualitative analysis, asking participants to reply in written statements about their general evaluation of the interview.

The *Procedural Justice Scale* consists of eight items measuring impartiality, equity, fairness, consistency, relatedness, and global procedural fairness domains, adopted from researchers (Brashear, Brooks, & Boles 2004; Fondacaro et al. 2002; Kravitz et al., 1997; Bauer et al. 2001). The participants were asked to rate each item on a five-point Likert scale ranging from totally agree (1) to totally disagree (5).

The *Distributive Justice Scale* consists of five items measuring responsibility, knowledge and education, experience and skills, time, energy and effort, study, stress, and strains, all of which were adopted from Price and Mueller (1986), Moorman (1991), and Kashhap et al. (2007). Participants responded on a five-point Likert scale ranging from not at all good (1) to very good (5).

The *Interactional Justice Scale* consists of six items taken from Bies and Moag (1986). Participants rated items on a five-point Likert scale ranging from totally disagree (1) to totally agree (5).

The psychometric properties of procedural justice, distributive justice, and interactional justice scale have been extensively measured and found reliable and valid (Bauer et al. 2001; Colquitt 2001; Tyler 1989). The items contained in the three scale are included in Table 2.

Table 2. Mean, standard deviation and item total correlation scores for procedural, distributive, and interactional justice scales

	Mean	SD	Item total correlation
Procedural Justice			
The principles and rules followed in this interview, treat everyone equally.	1.91	1.214	.822
This interview does not favour one group of candidates over another.	2.44	1.419	.432
This interview is a fair examination.	1.73	1.092	.861
This interview examination follows different rules and principles to measure candidates' successes with different knowledge and skills.	1.71	1.044	.736
I find the principles and rules adopted in this interview unfair. (R)	2.47	1.590	.095
This interview is possibly the most just examination under the existent conditions.	1.62	1.005	.684
This interview gives all candidates an equal chance.	1.67	1.051	.839
A person who scored well on this this interview will be successful in the teaching profession.	1.47	.857	.655
Distributive Justice			
To what extent are you fairly rewarded by this interview...			
taking into account the amount of education and knowledge that you have?	1.94	1.182	.921
in view of the amount of experience and skills that you have?	1.88	1.142	.969
for the amount of effort, energy and time that you invested put forth?	1.82	1.127	.969
for study that you have done well?	1.84	1.161	.969
for the stress and strain that you have experienced?	1.75	1.088	.927
Interactional Justice			
The members of the interview committee treated me with respect.	2.76	1.381	.814
The organisers of this interview showed concern about my rights as a teacher candidate.	2.29	1.384	.930
The members of the interview committee treated me fairly.	2.31	1.387	.940
The members of the interview committee were completely unbiased.	2.37	1.424	.910
I believe that the evaluation of this interview committee was correct.	1.89	1.204	.864
My performance in this interview was collected accurately.	1.88	1.242	.831

Data analysis

Quantitative data were analysed using SPSS 22.0 (IBM, 2022), and descriptive and inferential statistics. Multiple linear regression analysis was conducted to measure whether independent variables could predict distributive justice perceptions. To determine whether our data met the required statistical assumptions of linear regression analysis, we examined the independence, normality, and homogeneity of variance. Qualitative data

were first coded separately by researchers. Subsequently, overlapping common codes were decided. Data were interpreted and evaluated using these codes.

Research Ethics

Ethical approval was granted by the Social and Behavioural Sciences Ethics Committee, Bartın University (Reference Number: 2022-SBB-0405).

FINDINGS

In what follows, we provide quantitative results including descriptive statistics of participants, reliability and validity analysis, correlations, means, standard deviations for three justice scale, and regression analysis results predicting the target variable. For qualitative analysis, we also provided frequencies of common coding patterns along with sample statements.

Reliability and validity

Cronbach's alphas for procedural justice, distributive justice, and interactional justice were found to be .849, .983 and .962 respectively. Three scales were subjected to explanatory factor analysis using the principal component method and varimax rotation. *The Procedural Justice Scale* yielded a two-factor structure, with seven items gathering in the same factor and one negative item in a separate factor. Since the scree plot demonstrated a strong one-factor tendency, we conducted a forced one-factor solution. In a one-factor solution, eight items explained 53% and 246 % of the total variance. Factor loadings were found to be between .565 and .932. *The Distributive Justice Scale* indicated a one-factor structure with factor loadings ranging between .949 and .981. Five items explained 93.875 % of the total variance. *The Interactional Justice Scale* also yielded a one-factor structure, which explained 84.388 % of the total variance. Factor loadings were between .866 and .960. Table 2 includes the correlations, means, and standard deviations.

Correlations were assessed to identify associations between the scale and are presented in Table 3. According to the correlation results, there is a fairly strong positive correlation among the three scales, the highest of which, as seen in Table 4, was between distributive justice and interactional justice. Procedural justice was positively related to distributive justice ($r = .75$, $p < .01$), interactional justice ($r = .74$, $p < .01$), and distributive justice related to interactional justice ($r = .82$, $p < .01$).

Table 3. Multiple regression analysis results to predict distributive justice

Variable	B	Std. Error	B	T	p	Bivariate R	Partial r	Tolerance	VIF
Constant	.753	.378	-	1.991	.048	-	-	-	-
Procedural justice	.393	.090	.293	4.385	.000	.752	.350	.418	2.391
Interactional justice	.079	.011	.528	7.107	.000	.828	.518	.338	2.957
PPSE Score (80 \geq)	.073	.119	.033	.611	.542	-.055	.052	.646	1.548
Interview score (80 \geq)	-.036	.194	-.013	-.185	.853	-.463	-.016	.376	2.656
Hired	-.418	.181	-.136	-2.306	.023	-.498	-.193	.537	1.861
Gender (Female)	-.009	.099	-.004	-.093	.926	.182	-.008	.927	1.078
Branch (Primary School Teacher)	.151	.159	.044	.950	.344	.307	.081	.872	1.147
Dependent variable: Distributive justice			* $p < 0.01$						
R = 0.862				p = 0.000					
R ² = 0.742				VIF \leq 2.957					
F ₍₇₋₁₃₈₎ = 56.781				Tolerance \geq 0.376					

Table 4. Correlations among scales

	1	2	3
1. Procedural justice	-		
2. Distributive justice	.752**	-	
3. Interactional justice	.748**	.828**	-

** $p < 0.01$

Regression analysis

For regression analysis, a scatter diagram of standardised predicted values (Z-Prediction) and standardised extreme (residual) values (Z-Residuals) were drawn. It was observed that dots are scattered around 0 (zero) values randomly, and it was found that the error shows a normal distribution ($-1 > \text{skewness}$ and $\text{kurtosis} < +1$), and the assumption that the variations of residual values can be considered a constant, is accurate. Since the political view and religiosity variables did not show a normal distribution, these two variables were not included in the regression analysis. To determine the extreme value, the Mahalanobis distance was examined, and it was found that there was no extreme value. Furthermore, to examine the common effects of all predictive variables on the predicted variable, a standard approach and the enter method were used. Since distributive justice was considered as the outcome of the overall teacher selection method, we assessed which variables have significant effects on distributive justice perception by conducting multiple linear regression analysis. We tested the statistical significance of procedural justice, interactional justice, PPSE score, interview score, being hired, gender, and branch in predicting the perceived fairness of distributive justice perceptions of teacher candidates. Having 80 scores or above in the PPSE and interview examination, being appointed as a contracted teacher, being female, and being a primary school teacher in a branch were taken into consideration in the analysis. Table 3 shows the results of multiple linear regression analysis.

As demonstrated in Table 3, procedural justice, interactional justice, PPSE score, interview score, being hired, gender, and branch variables together indicated a significant relationship with distributive justice ($R = 0.862$; $R^2 = 0.742$). $F(7, 138) = 56.781$; $p < 0.01$). These seven variables together explain 74% of the distributive justice variables. Given the standardised regression coefficients, procedural justice ($\beta = 0.393$) indicated the highest predictive score, followed by interactional justice ($p < 0.01$) and recruitment ($p < 0.05$) variables for distributive justice perceptions. Since the VIF and tolerance were found to be 2.957 and 0.376, respectively, these findings indicate that there are no multiple correlation characteristics in error terms. According to the results of the regression analysis, the regression equation predicting distributive justice is: Distributive justice = $(0.393 \times \text{Procedural justice}) + (0.079 \times \text{Interactional justice}) + (0.073 \times \text{PPSE score}) + (-0.036 \times \text{interview score}) + (-0.418 \times \text{being recruited}) + (-0.009 \times \text{Gender [Female]}) + (0.151 \times \text{Branch [Class teacher]}) + (0.753)$.

Qualitative analysis

To evaluate whether findings from the quantitative analysis are supported by qualitative data, we analysed participants' statements according to the codes we identified. Of the 146 participants, 76 participants provided a specific written comment about their interviews and the teacher selection method in general. Of those who provided feedback, only two participants stated a positive view, one simply responded 'Good' and the other '*I do not believe that there is influential contact in the interview. The test exam (PPSE), rather than the interview score, determined the final score*'. Another participant declared a conditional statement that '*it is really a useful application only if the criteria are obeyed*'. The other 73 participants' perceptions were negative. The most frequently declared statements were unjust/unfair (35), influential contact and favouritism (10), ignoring labour (7), poor reliability and validity (6), unnecessary (4), must be changed/removed (4), ignoring qualification (4), arbitrary/subjective (2), unjust suffering (2), and eliminative (2). Some participants' statements included suggestions about how to modify the selection system and turn it into a more efficient, dependable, and objective one. Selected samples of negative statements are presented in Table 5.

Table 5. Themes, codes and selected samples of negative statements

Theme	Code	Meaning unit
Justice	Unjust/ unfair	'The interview is an injustice, and it is an unjust treatment'. 'I think it is unfair. How did they understand that I could not be a teacher within 2 minutes while I have been studying for the teaching profession all these years?' 'It was never bad for me. But generally, I do not find it right and fair'. 'It is not a fair exam and needs to be removed'. 'It was nothing more than a three-minute [interview] in which our efforts were totally destroyed and ignored'.
	ignoring labour	'High PPSE scores obtained with great efforts were wasted easily. The interview was not fair'. 'I believe that the interview exam is not held fairly in the appointment of teachers and that the efficiency and merit are ignored'.
Subjectivity	influential contact and favouritism	'I think it is a system where candidates' political tendencies are used as a criterion in favouritism and in the results of the interview'. 'In my view, interview means influential contact'. 'Unfortunately, undeserving candidates were appointed'.

	arbitrary			‘The oral exam is an absurd system in which favouritism and influential contact are at the highest level. People are unfairly accused, and their rights are ignored; any scientific and ethical principles are not valid’.
	eliminative/ disqualifying			‘In the interviews, those whose scores are less in PPSE got ahead of high-scoring people who should actually be appointed, via unfair practices’.
Negative Emotions	Frustration/anger			‘We have endeavoured heavily so far. We were eliminated with high scores. The appointments have been realised today. I do not have trust ... anymore’. ‘Teaching skill cannot be measured in a few minutes. And the commissions are in different moods. Which one will hold the exam depends entirely on your luck. People were like lambs to the slaughter, they were very afraid ...’. ‘The interview is unfair and full of injustice. Although I got a high score in my field, a low score was given in the interview even though I know all four questions asked. The interview has become an arbitrary situation. The person is deprived of his/her rights, his/her hopes are left to the temper of the commission members within a period of two minutes. I would like it to be removed immediately’.
Reliability and validity	poor reliability and validity			‘While the written exam has been more objective than the oral exam due to the measurement and evaluation, I think that the validity and reliability of the oral exam are low. After studying for 16 years (primary-secondary-high-school-university) four questions are asked and whether you can be a teacher or not is determined in this way’. ‘It cannot be an accurate measurement and an evaluation technique. This situation hurts the consciences of people. It does not change the fact that this is wrong even if you are appointed. Moreover, the evaluation objectivity is very low, and it is subjective. My opinion is that after the written exam is held, I consider it more accurate to have a final evaluation of the process by recording the performance of the evaluation of the individuals during the candidate teaching period’.
	unnecessary			‘Teaching exam can be held in one session only through field teaching’.
	must be changed			‘Instead of this system, individuals’ PPSE exam results, their university diploma scores, internships and studies that they carried out and security investigation after the appointment must be taken into account’. ‘Absolutely it is based on an unqualified selection. It is processing contrary to its purpose’.

Most participants stated that the interview procedure is unjust, unfair, and unnecessary, and it must be changed and eliminated. In accordance with their perceived fairness of the interview procedure, the participants also said that rather than selecting qualified persons who deserve the position, the interview method allows influential contact and favouritism. Some participants expressed their frustration and anger by saying that the selection system ignores their labours and efforts and simply disqualifies some candidates. They suggested that certain changes in the structure of the selection system were required.

DISCUSSION AND CONCLUSION

This study is the first to provide quantitative and qualitative evidence about teacher candidates’ perceived fairness of procedural, interactional, and distributive justice regarding interview procedures as part of the teacher selection method. Our study supports previous findings that these three justice types are statistically correlated (Colquit 2001; Moorman 1991; Brasher, Brooks, and Boles, 2004) and that they can significantly predict outcome satisfaction (Gilliland 1993). We found statistically significant differences in procedural justice [$t_{(144)} = 4.472$; $p = .000$; $p > .05$], distributive justice [$t_{(144)} = 6.272$; $p = .000$; $p > .05$] and interactional justice [$t_{(144)} = 7.088$; $p = .000$; $p > .05$] perceptions of teacher candidates whose interview scores were above 80 points and below. We also determined a significant difference between perceptions of appointed and unappointed teacher candidates’ perceptions of procedural justice [$t_{(144)} = 4.342$; $p = .000$; $p > .05$], distributive justice [$t_{(144)} = 6.886$; $p = .000$; $p > .05$]; interactional justice [$t_{(144)} = 6.608$; $p = .000$; $p > .05$], with higher scores for the former.

Both quantitative and qualitative evidence demonstrate that teacher candidates have strong negative perceptions and attitudes toward the interview procedure they participated in. Although there is a statistically significant difference between the perceptions of those who were hired and those who were not about the perceived fairness of distributive justice, the vast majority of participants stated that the interview is unjust and unfair; it generates influential contact and favouritism, ignores their labour and effort by simply disqualifying most candidates, and has a poor reliability and validity structure. These findings coincide with the findings of Gürgil (2019), who determined that preservice teachers are mostly against the interview method.

As demonstrated in previous studies, such negative perceptions can be partially explained by some social psychological factors, including high anxiety and depression (Arı and Yılmaz 2015; Eskici 2016), and negative psychological factors that may affect individuals' judgments and perceived fairness (Vermunt & Steensma, 2005). However, more needs to be said to explain the findings of this study. First, it is important to note, once again, that the present study was carried out in a highly competitive condition with a low chance for teacher candidates who spent many years preparing for the examination to get a teaching position. Such a condition of competition, would have a causative effect on the fairness of the selection procedure. What is unjust or unfair is not the selection procedure itself, its rules, or implementation, but the conditions surrounding it. To align the selection conditions within the framework of justice, it is necessary to take certain measures for teacher planning in Turkey. The Eurydice Report states that while forward planning in teacher training and recruitment in EU countries is managed and put into practice by authorities at the uppermost levels, 'many countries still carry out forward planning on a year-by-year basis only' (2018, 23). Such planning is necessary for Turkey, both for qualified teacher education and fair selection. Considering this context, our suggestion is that policy makers in higher education first address these moderating conditions in teacher supply and demand to bring teacher selection procedures to a fair and effective equilibrium. This study supports previous research findings that the solution of the supply demand balance in teacher appointments depends on government policies (See & Gorard 2020).

Second, there are societal and cultural aspects that are closely related to the findings of the study. It is worth noting that Turkey has been identified as a collectivist culture (Triandis 1995; Tekeş et al. 2020; Hofstede 2001) and among the countries with the highest political polarisation (Lindqvist and Östling 2010; Aydın-Düzgit & Balta 2018). Moreover, among the 30 countries examined in the World Value Survey, Turkey has the lowest rate in terms of autonomous individuals (Bavetta & Navara 2012). These social-cultural features are also likely to affect the implementation of the interview process and perceptions arising from it. Empirical studies indicate that social and political polarisation causes less trust in organisations (Grechyna 2016) and is more likely to result in the selection of lower-average-quality candidates (Duell & Valasek 2019). Ordabayeva (2019) found that fairness beliefs mediate the relationship between social similarity and support for redistribution. The findings of this study should nonetheless not be interpreted as evidence that undermines several strengths of interview methods per se, over other selection procedures. Rather, the study points out a certain limitation in that unless properly implemented with necessary ethical commitment and objective and unbiased attitudes, the interview method may cause more problems and become more controversial than its alternatives.

This study has some limitations. First, while we provided both quantitative and qualitative data in support of our results, our findings are based on a relatively small sample size and one general written statement for qualitative analysis. One of the surprising observations in this study is teacher candidates' hesitation or their fear, we feel, in responding to the scales. Even though we provided full assurance that our aim is only to conduct a scientific study and that their replies would be confidential, most candidates refused to reply. Second, as Gilliland and Hale (2005) suggested, the selection process includes a series of stages, such as initial communication, recruiting, screening, interview, and decision making between applicants and hiring organisations, each of which has different justice rules. Although we have used three types of organisational justice in this study, our study is limited to the fairness of the interview process, the most controversial part of the selection system. The study of overall fairness of the teacher selection method in Turkey requires the inclusion of other stages of selection, perhaps beginning with teacher candidate selection, distribution of teacher vacancies each year, and among different fields and the PPSE examination; these are possible areas of future research. The conclusion we have drawn from this study is that using interviews for teacher recruitment under heavily competitive conditions, in politically polarised societies and collectivist cultures might be less reliable and less objective than the other selection methods such as centralised pedagogical examination or field test results.

Statements of Publication Ethics

All procedures used in this study involving participants are in accordance with the ethical standards of the authors' institution and with the 1964 Helsinki declaration and its later amendments.

Researchers' Contribution Rate

All authors contributed equally to this work.

Conflict of Interest

This study has no conflict of interest.

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Examination of The Relationship Between University Students' Alexithymia Symptoms, Personality Types and Internet Use Behaviors

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Research Article

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Abstract

The main aim of this study is to examine the relationship between university students' alexithymia symptoms, personality traits, and internet use attitudes. The predictive power of personality types and internet use behaviors on alexithymia levels was examined. In addition, differences in the scores of alexithymia and personality types according to various demographic variables were examined. The study group consisted of 322 undergraduate students studying at four different universities in Istanbul. The Toronto Alexithymia Scale and the Eysenck Personality Brief Scale were used to collect data. According to the results obtained from the study, there was a significant relationship between alexithymia scores and personality types, while neuroticism and extraversion were found to have significant predictive power on alexithymia scores. Neuroticism and extraversion were found to have significant predictive power on alexithymia scores. Psychoticism, lying, duration of social network use, most used social network, and purpose of internet use variables did not have significant predictive power. It was found that women's alexithymia scale extroverted thinking scores were significantly higher, while men's personality traits lying scores were significantly higher.

Keywords: Alexithymia, Personality Types, University Students, Internet Use Attitude

Üniversite Öğrencilerinin Aleksitimi Belirtileri, Kişilik Tipleri ve İnternet Kullanma Davranışları Arasındaki İlişkinin İncelenmesi

Öz

Bu araştırmada, aleksitimi ve kişilik tipleri arasındaki ilişki, kişilik tipleri ve internet kullanım davranışlarının aleksitimiye yordama gücü ve aleksitimi ile kişilik özelliklerinin çeşitli demografik değişkenlere göre farklılaşıp farklılaşmadığı incelenmiştir. Araştırmada ilişkisel tarama modeli kullanılmıştır. Araştırmanın çalışma grubu, 2019 yılında ikisi devlet ikisi vakıf üniversitesi olmak üzere İstanbul'da bulunan dört farklı üniversitenin sayısal ve sözel bölümlerinde öğrenim gören lisans öğrencilerinden oluşmuştur. Araştırmaya 180'i kadın 142'si erkek olmak üzere toplam 322 kişi katılmıştır. Verilerin toplanması için Toronto Aleksitimi Ölçeği ve Eysenck Kişilik Kısa Ölçeği kullanılmıştır. Araştırmadan elde edilen sonuca göre aleksitimi toplam puanları ile nörotisizm dışadönüklük, yalan ve psikotisizm kişilik özellikleri arasında orta ve zayıf düzeyde, pozitif yönlü anlamlı ilişkiler bulunmuştur. Nörotisizm ve dışadönüklüğün aleksitimi puanları üzerinde anlamlı yordama gücü olduğu bulunmuştur. Psikotisizm, yalan, sosyal ağ kullanım süresi, en çok kullanılan sosyal ağ ve internet kullanım amacı değişkenlerinin anlamı yordama gücüne sahip olmadığı bulunmuştur. Elde edilen bulgular alanyazın çerçevesinde tartışılmıştır.

Anahtar kelimeler: Aleksitimi, Kişilik tipleri, Üniversite Öğrencileri, İnternet Kullanım Tutumu

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INTRODUCTION

Alexithymia, a concept first defined by Sifneos (1977), is defined as the individual's difficulty in recognizing and defining emotions both in themselves and in others, and in distinguishing between bodily sensations, emotions, and cognitions (Parker, Keefer, Taylor, & Bagby, 2008). Alexithymia is a multidimensional personality structure that includes difficulty in identifying one's emotions and distinguishing them from bodily sensations; difficulty in expressing one's emotions to others; and a utilitarian and extroverted cognitive style that does not involve emotional reactions when faced with stressful situations (Li et al., 2023; Taylor et al., 1997; 2016). The concept of alexithymia, which can be found in Turkish sources with expressions such as thought slavery (Dökmen, 2000) and emotional crassness (Şahin, 1996), can also be defined as the lack of emotional awareness. This concept, which causes affect limitation in the individual, is summarized as the alienation of the individual from his/her own emotions (Parker, Keefer, Taylor, & Bagby, 2008). The relationship of alexithymic individuals with their own emotions is examined in four different stages as "difficulty in recognizing, distinguishing, and verbalizing emotions", "imagination, limitation in imagination", "functional, transactional thinking," and "cognitive structure for external-centered adaptation" (Taylor, 2000). Although alexithymia is discussed in four stages, the fact that its nature is still unclear and intertwined with many structures makes it difficult to make a precise definition (Carpenter & Addis, 2000). One of the main debates on alexithymia is whether it is a personality trait or a temporary finding due to stress or trauma (Epözdemir, 2012). Alexithymia is not a separate psychiatric diagnosis; it is observed both in many psychiatric disorders and in the general population (Nayok et al., 2023; Swiller, 1988). Although it was initially discovered to explain the symptoms seen in psychosomatic diseases (Bankier, Ainger, & Back, 2001), it is nowadays referred to as personality traits seen in different pathological groups as well as in the normal population rather than being defined as a disease (Batıgün & Büyüksahin, 2008; Şaşıoğlu, Güllol, & Tosun, 2014; Şener & Köseoğlu, 2019; Taylor, 2000; Zackheim, 2007). From this point of view, this study aims to examine the relationship between alexithymia and personality traits.

Personality can be defined as all of the characteristics that an individual is born with, that he/she acquires as a result of experience, and that distinguish him/her from other individuals (Cüceloğlu, 1993; Kaya, 2003). McCrae and Costa (1989) defined personality as a continuous, interpersonal, emotional, motivational, and experience-based interaction style that explains the behaviors of individuals in different situations. In short, personality is the basic structure shaped by factors such as temperament, physical structure, abilities, social attitudes, interests, values, and character (Baymur, 1978). The five-factor personality theory gathers different views on personality under one roof. These factors have been confirmed in many cross-cultural studies as extraversion, emotional stability/neuroticism, agreeableness, conscientiousness, and openness to experience/culture (Bacanlı, İlhan, & Aslan, 2009). It is thought that examining alexithymia, which has started to be included in the literature as a personality structure rather than a psychiatric disorder, and its interrelated structures will contribute to the literature. Although individuals with alexithymia are able to think, explain, and establish relationships in daily life, they have problems establishing and distinguishing connections between their feelings and thoughts and expressing them (Sifneos, 1988). Therefore, analyzing the personality structures of individuals with alexithymia is expected to contribute to treatment practices in the field of psychotherapy.

When the literature is examined, alexithymia is more common in people diagnosed with a disease in psychiatry (Sayar, Bilen, & Arkan, 2001). However, there are an increasing number of studies suggesting that alexithymia is a personality trait. In a study, a positive relationship was found between alexithymia and neuroticism, the external locus of control, and unrealistic beliefs, and a negative relationship was found between alexithymia and extraversion and the internal locus of control. In addition, alexithymia is also associated with anxiety, anger, depression, and feelings of shame. It is reported that there is a negative correlation between alexithymia and altruism, and the reason for this correlation is that alexithymic individuals lack empathy and are dominated by self-oriented thinking (Zimmermann, Rossier, Stadelhofen, & Gaillard, 2005).

According to the psychoanalytic approach, which bases the view that alexithymia is a personality trait, it is stated that the inadequacy of the symbiotic relationship that an infant establishes with the mother will have a significant effect on the personality of that infant and may also cause alexithymia. Alexithymia is explained as a condition that occurs as a result of developmental failures or psychological traumas, emotional obsession, or regression (Krystal, 1979; Koçak, 2002), and alexithymic traits are triggered (Muller, 2000). In a study, the relationship between psychological symptoms and alexithymia was examined, and it was observed that individuals with high levels of alexithymia scored high in the interpersonal sensitivity, psychoticism, depression, anger hostility, obsessive-compulsive disorder, and phobic anxiety subscales of the SCL-90 test (Demet, Deveci, Özmen, Şen, & İçelli, 2002). In addition, alexithymia is thought to be associated with personality disorders (Coolidge,

Estey, Segal, & Marle, 2013). There is a positive relationship between schizoid, avoidant, dependent, and antisocial personality disorders and alexithymia, and a negative relationship with schizotypal personality disorder (Rick & Vanheule, 2007). Depending on these data, when other studies are examined, it is also stated that alexithymic individuals who cannot regulate their emotions effectively may tend to some emotional impulses and that this impulsivity strengthens the relationship between difficulty in emotion regulation and internet addiction (Akin, 2014). Alexithymia, which has recently started to be examined more intensively, draws attention as a variable that can be considered within the scope of social skills deficiency on the way to problematic internet use. It has been evaluated that alexithymia, which is reported to be associated with having problems in relationships (Besharat, 2010; Spitzer, Siebel-Jürges, Barnow, Grabe, & Freyberger, 2005) and low social support (Fukunishi, Berger, Wogan, & Kuboki, 1999; Tsai et al., 2009), can be understood together with interpersonal problems within the scope of a problematic emotion regulation system (Vanheule, Vandenberg, Verhaeghe, & Desmet, 2010). It has been stated that individuals with high levels of alexithymia prefer online socialization by avoiding face-to-face communication; they can regulate their emotions better due to their increased control since they can control their profiles, the time they enter or leave the internet (Kandri, Bonotis, Floros, & Zaropoulou, 2014). These determinations show that it would be appropriate to investigate alexithymia characteristics together with personality types within the scope of personality traits of internet use behavior.

Alexithymic individuals who have difficulty recognizing and expressing their emotions also have distant social relationships. When the research was examined, it was reported that alexithymia was related to different types of addictions such as substance, gambling, or sex (Parker, Wood, Bond, & Shaughnessy, 2005; Reid, Carpender, Spackmen, & Willes, 2008); this situation attracted the attention of internet researchers. For this reason, it has been observed that it is important to address the relationship between alexithymia and internet addiction in the research on the subject (Craparo, 2011; Dalbudak et al., 2013; Scimeca et al., 2014).

Theories examining the relationship between personality types and internet use attitudes cluster around two different views. According to the social network theory, which categorizes people into introverted and extraverted individuals, extraverted individuals need to communicate more than introverted ones, and using the Internet is a motivational tool for them as it enables them to initiate interaction (Karaut, Kiesler, & Boneva, 2002). Social trade-off theorists, on the other hand, argue that the Internet benefits introverts because it reduces the anxiety of rejection and ridicule and thus increases their self-disclosure behavior (McKenna & Bargh, 2000; Pennebaker, 1989). According to a study using 16-factor personality traits, individuals with Internet addiction are self-confident, enjoy solitary activities, and avoid social activities (Young & Rodgers, 1998). As a result, alexithymic individuals with different personality structures are likely to avoid face-to-face communication and prefer online communication. This study, which was conducted with university students, an important population of society, aims to contribute to the explanation of the relationship between alexithymia, developing personality structures, and the internet use behavior of the young minds of society. In addition, examining the relationship between alexithymia, which is conceptualized as a trait that reflects emotional self-regulation difficulties in humans and is thought to be one of the few possible risk factors for various medical and psychiatric disorders (Taylor et al., 1997), personality traits, and internet use behaviors is expected to make a significant contribution to the literature by serving the field of diagnosis and treatment. Because studies show that alexithymia can be changed with therapeutic interventions (Cameron, Ogrodniczuk & Hadjipavlou, 2013).

Within the scope of the research, based on the literature, it was examined whether alexithymia predicts internet use in individuals, and the relationship between alexithymia, personality type, and internet use according to the variables of gender and field of study of the student was discussed. In line with the stated main objectives and the variables introduced, the questions sought to be answered in the research can be listed as follows:

1. Is there a significant relationship between personality types and alexithymia scores of university students?
2. Do personality types and internet use behaviors of university students have the power to predict their alexithymia levels?
3. Do personality types and alexithymia scores of university students differ significantly according to various demographic variables?

METHOD

In this part of the study, information about data collection tools, study group, statistical methods used in data analysis, and data collection are included.

Participants and Procedure

There are 322 college students in the research study group reached by the convenient sampling method in 2019. The participants consisted of undergraduate students studying at four different universities in Istanbul, two states, and two private universities. To reach the sample, first university administrations were contacted and required permissions were obtained to conduct the study. After this step, on the campuses, participants were approached randomly, informed about the study, and asked to participate voluntarily in the study. Among the participants, 44,1% (142) were male and 55,9% (180) were female. 69,6% of the participants are between the ages of 18-29, 30,4% are between the ages of 30-44, and 59,2% are between the ages of 45-64. 16,5% of the participants were freshmen, 43,2% were sophomores, 21,7% were juniors, and 18,6% were senior students. 19,3% of the participants use the internet for entertainment, 39,8% for social media, 22,2% for information exchange, and 18,3% for other purposes. 5,9% of the participants use Facebook, 41,3% Instagram, 33,9% WhatsApp, 14,9% Youtube, and 4% other social networks the most. 13,4% of the participants use social networks for less than 1 hour, 46% for 1-3 hours, 25,2% for 4-6 hours, and 15,5% for more than 7 hours. 69,9% of the participants do not have alexithymia risk, and 30,1% have alexithymia risk.

Instruments

First, data was collected using a form developed by the researchers. The form was prepared to collect information about the student's age, gender, department of education, purposes of using the internet, duration and social networks they use, etc.

Toronto Alexithymia Scale

Bagby and Taylor (1994) created this scale, which Beştepe (1997) and later by Güleç et al. (2009) translated into Turkish. TAS is a five-point Likert-type scale consisting of twenty items (1: Never, 2: Rarely, 3: Sometimes, 4: Frequently, 5: Always). This scale has 3 sub-factors. Difficulty in Recognizing Emotions factor consists of seven items (1, 3, 6, 7, 9, 13, and 14), the Difficulty in Verbalizing Emotions factor consists of five items (2, 4, 11, 12 and 17), the Extraverted Thinking factor consists of eight items (5, 8, 10, 15, 16, 18, 19 and 20). There are reverse-scored items (4, 5, 10, 18 and 19). In the internal consistency assessment of the scale and subscales, Cronbach's alpha=0,78 for the total scale, while the alpha values for the sub-factors were 0,80, 0,57, and 0,63, respectively. In addition, a cut-off score was determined on the scale. As a result of the study, it was determined that it was appropriate to take 51 as the lower value and 59 as the upper value. In this study, the Cronbach alpha of the total scale was found to be 0,81, while the alpha values for the sub-factors were 0,85, 0,67, and 0,69, respectively.

The Revised Eysenck Personality Brief Scale

It was initially designed as 48 items by Francis et al. (1992), but was then altered and reduced to 24 items. In 2007, the Turkish version of the questionnaire was done by Karancı et al. In addition to the personality sub-factors of extraversion (2, 4, 13, 15, 20, 23), neuroticism (1, 9, 11, 4, 18, 21), and psychoticism (3, 6, 8, 12, 16, 22). In addition, it includes a four-factor structure with the addition of the personality sub-factor of lying (5, 7, 10, 17, 19, 24) in order to prevent bias during the application and to ensure validity. There are 6 items in each factor, and items 3, 5, 7, 10, 15, 16, 17, 19, 20, and 22 are reverse scored. Cronbach's alpha values of the scale are 0,78, 0,65, 0,42, and 0,64 for extraversion, neuroticism, psychoticism, and lying sub-factors, respectively (Dursun, 2018). In this study, Cronbach's alpha values of the scale are 0,84, 0,74, 0,55, and 0,59 for extraversion, neuroticism, psychoticism, and lying sub-factors, respectively.

Data Analysis

Data analysis was done with the SPSS program. Initial analyzes were performed before starting the analyses. In this context, the accuracy of the data, missing values, and outliers were examined. First, the minimum and maximum values and frequency distributions of each variable were examined in order to examine the accuracy of the data. Afterward, normality tests were examined, and it was observed that the data were normally distributed, so it was decided to use parametric tests. Number, percentage, mean and standard deviation, kurtosis, skewness, and Cronbach's alpha values were used in the analysis of descriptive data. To examine the correlation between personality types and alexithymia scores, a Pearson correlation analysis was performed. The predictive power of personality type scores, the purpose of internet use, the most used social network, and the duration of social

network use on alexithymia scores were determined by multiple linear regression. Independent groups t-tests, ANOVA analyses, and the Kruskal Wallis test, for subgroups less than 30, were used to compare personality types and alexithymia scores according to demographic variables. Tukey, Scheffe, and Tamhane T2 post hoc tests were used to determine which groups differed after ANOVA analysis.

Research Ethics

Ethics Committee approval of the study was obtained from the Social Sciences Institute Ethics Committee of the affiliated university with the date of 04.04.2019 and number 2019/5. Additionally, all procedures carried out in research involving human subjects adhere to the 1964 Helsinki Statement and its later revisions or comparable ethical standards, as well as the ethical requirements of the institutional and/or national research committee.

FINDINGS

Table 1. Descriptive Statistics on the Scales Used in the Study

	N	\bar{x}	sd	Skewness	Kurtosis
Difficulty Recognizing Emotions	322	16,58	5,599	,557	,136
Difficulty Expressing	322	14,41	2,587	,176	,136
Extroverted Thinking	322	26,07	4,166	-,046	,136
Alexithymia Total	322	56,65	8,529	,364	,136
Neuroticism	322	17,90	4,543	,336	,136
Psychoticism	322	17,03	3,262	,549	,136
Extraversion	322	18,15	3,232	-,260	,136
Lying	322	14,59	4,371	,778	,136

In Table 1, descriptive statistics about the scales used in the research are given. The Difficulty Recognizing Emotions scale has a mean of 16,58, a standard deviation of 5,599, skewness values of ,557/,136, and kurtosis values of ,141/,271. The mean of the Difficulty in Expressing Scale was 14.41, the standard deviation was 2,587, the skewness values were ,176/,136, the kurtosis values were ,565/,271. The mean of the Extroverted Thinking scale is 26,07, its standard deviation is 4,166, skewness values are -,046/,136, and kurtosis values are ,625/,271. The mean of the Alexithymia Total scale was 56,65, the standard deviation was 8,529, the skewness values were ,364/,136, and the kurtosis values were ,393/,271. The mean of the neuroticism scale was 17,90, the standard deviation was 4,543, the skewness values were ,336/,136, and the kurtosis values were ,165/,271. The mean of the psychoticism scale was 17,03, the standard deviation was 3,262, the skewness values were ,549/,136, and the kurtosis values were 1,756/,271. The extraversion scale's mean was 18,15, the standard deviation was 3,232, the skewness scale was -,260/,136, and the kurtosis values were ,239/,271. The mean of the lie scale was 14,59, the standard deviation was 4,731, the skewness values were ,778/,136, and the kurtosis values were ,768/,271.

Table 2. Correlation Analysis Results for the Relationship Between Personality Type Scores and Alexithymia Scores

	Neuroticism	Psychoticism	Extraversion	Lying
Difficulty Recognizing Emotions	r ,566**	,163**	,087	,200**
Difficulty Expressing	r ,313**	,160**	,025	,133*
Extroverted Thinking	r ,021	,189**	,222**	,056
Alexithymia Total	r ,478**	,256**	,168**	,193**

*p<,05, **p<,01

A correlation analysis of the alexithymia scale and personality type scores are given in Table 2. Accordingly, there is a statistically significant positive association between the neuroticism score and the Difficulty Recognizing Emotions subscale ($r=.566$), the difficulty in expressing subscale ($r=.313$), and the extroverted thinking subscale ($r=.021$). The psychoticism score significantly positively correlates with the Extroverted Thinking subscale ($r=.189$), the Difficulty Expressing Emotions subscale ($r=.160$), and the Difficulty Recognizing Emotions subscale ($r=.163$). The Difficulty Recognizing Emotions subscale and the Extroverted Thinking subscale also had substantial positive correlations with the Extraversion score ($r=.087$, $r=.025$, and

$r=.222$, respectively). The Difficulty Recognizing Emotions subscale ($r=.200$), the difficulty expressing subscale ($r=.133$), and the Extroverted Thinking scale ($r=.056$) all show a strong positive link with the lying score. There was a significant positive correlation between the alexithymia total scale and the neuroticism scale ($r=.478$), psychoticism scale ($r=.256$), extraversion scale ($r=.168$), and lying scale ($r=.193$).

Table 3. Results of Multiple Linear Regression Analysis Established to Examine the Predictive Effect of Personality Type Scores, Purpose of Internet Use, Most Used Social Network, and Duration of Social Network Use on Alexithymia Scores

	Predictors	B	Standard Error _B	β	t	p	Zero-order r	Partial r
Alexithymia	Constant	30,963	3,796		8,157	,000	-	-
	Neuroticism	,817	,098	,435	8,369	,000	,478	,427
	Psychoticism	,191	,142	,073	1,341	,181	,256	,075
	Extraversion	,315	,133	,120	2,374	,018	,168	,133
	Lying	,102	,103	,052	,984	,326	,193	,055
	PIU	-,031	,258	-	-,122	,903	-,043	-,007
				,006				
	MUSN	-,175	,355	-	-,494	,622	-,061	-,028
				,025				
	DSNU	,502	,561	,044	,896	,371	,062	,050
R=,511		$\Delta R^2=.245$	$F_{(7,314)}=15,857$	$p=.000$				

PIU: Purpose of Internet Use, MUSN: Most Used Social Network, DSNU: Duration of Social Network Use

In Table 3, the results of the multiple linear regression analysis established to examine the predictive effects of personality type scores, the purpose of internet use, the most used social network, and the duration of social network use on alexithymia scores are given. First, condition index (CI) values, the tolerance value, the eigenvalue, and the variance inflation factor (VIF) were examined in testing the multicollinearity. Accordingly, it was observed that the tolerance values were between 0,20-1,00 and the VIF values were between 1,00-10,00. However, it was determined that the eigenvalues were lower than 15 and the CI values were lower than 30, and it was determined that there was no multicollinearity. It was observed that the Durbin Watson coefficient was close to 2, and it was determined that the independence of the error terms was fulfilled. Regression analyses were carried out after it was determined that the regression assumptions were satisfied and that the data were appropriate for the study. While constructing the regression model, the 'Enter' method was used. In the established regression model, personality type scores, internet usage purpose, most used social network, and duration of social network usage were taken as predictors of alexithymia scores. The established model was found to be statistically significant ($F_{(7,314)}=15,857$, $p=.000$). Personality types, the purpose of internet use, most used social network, and duration of social network use have a moderately significant relationship with alexithymia scores ($R=.511$, $\Delta R^2=.245$, $p=.000$). Alexithymia scores of the mentioned variables explain 24,5% of the total variance.

The order of the predictor factors' relative weights on alexithymia scores is determined by the standardized regression coefficients (β); Neuroticism ($\beta=.435$, $t=8,369$, $p=.000$), Extraversion ($\beta=.120$, $t=2,374$, $p=.018$), psychoticism ($\beta=.,073$, $t=1,341$, $p>.05$), Lying ($\beta=.052$, $t=.984$, $p>.05$), duration of social network usage ($\beta=.044$, $t=.896$, $p>.05$), most used social network ($\beta=-.025$, $t=-.494$, $p>.05$) and internet usage purpose ($\beta=-.006$, $t=-.122$, $p>.05$). Only neuroticism and extraversion are significant predictors of alexithymia scores, according to the analysis of the t-test results on the significance of the regression coefficients. Psychoticism, Lying, duration of social network usage, most used social network and internet usage purpose variables have no meaningful effect.

Table 4. Independent Sample T-Test Analysis of the Comparison of Alexithymia and Personality Type Scores by Gender

	Gender	N	\bar{x}	sd	t	df	p
Difficulty Recognizing Emotions	Male	180	16,55	5,725	-,111	320	,912
	Female	142	16,62	5,455			
Difficulty Expressing	Male	180	14,61	2,348	1,506	320	,133
	Female	142	14,17	2,851			
Extroverted Thinking	Male	180	25,63	4,103	-2,133	320	,034
	Female	142	26,62	4,193			
Alexithymia Total	Male	180	56,37	8,503	-,676	320	,500
	Female	142	57,01	8,578			
Neuroticism	Male	180	17,91	4,708	,008	320	,994

		142	17,90	4,341			
Psychoticism	Male	180	17,29	3,240	1,601	320	,110
	Female	142	16,70	3,272			
Extraversion	Male	180	17,91	3,289	-1,510	320	,132
	Female	142	18,46	3,143			
Lying	Male	180	15,77	4,401	5,712	320	,000
	Female	142	13,10	3,856			

In Table 4, the results of the independent sample t-test analysis regarding the comparison of the scale scores used in the research according to the gender variable are given. Accordingly, the Extroverted Thinking scores of women are significantly higher ($t=-2,133$; $p=.034$). Men's lie scores were significantly higher ($t=-5,712$; $p=.000$). The results of the other scales did not significantly differ based on gender ($p>.05$).

Table 5. Independent Sample T-Test Analysis of the Comparison of Alexithymia and Personality Type Scores by Age

		Age	N	\bar{x}	sd	t	df	p
Difficulty Recognizing Emotions		18-20	224	16,76	5,563	,863	320	,389
		21-24	98	16,17	5,688			
Difficulty Expressing		18-20	224	14,48	2,633	,677	320	,499
		21-24	98	14,27	2,485			
Extroverted Thinking		18-20	224	26,04	4,062	-,192	320	,848
		21-24	98	26,13	4,416			
Alexithymia Total		18-20	224	56,97	8,706	1,021	320	,308
		21-24	98	55,92	8,106			
Neuroticism		18-20	224	18,11	4,505	1,216	320	,225
		21-24	98	17,44	4,617			
Psychoticism		18-20	224	16,91	3,152	-1,038	320	,300
		21-24	98	17,32	3,501			
Extraversion		18-20	224	18,31	3,174	1,347	320	,179
		21-24	98	17,79	3,350			
Lying		18-20	224	14,59	4,117	-,024	320	,981
		21-24	98	14,60	4,924			

The comparison of the scale scores utilized in the study according to the age variable is shown in Table 5 as a result of the independent sample t-test analysis. According to participant's age, there was no discernible difference ($p>.05$).

Table 6. Independent Sample T-Test Analysis on Comparison of Alexithymia and Personality Scores according to Alexithymia Risk

Scale	Groups	N	\bar{x}	sd	t	df	p
Difficulty Recognizing Emotions	No risk	225	14,42	4,382	-13,048	320	,000
	Risky	97	21,60	4,860			
Difficulty Expressing	No risk	225	13,60	2,216	-9,703	320	,000
	Risky	97	16,29	2,415			
Extroverted Thinking	No risk	225	24,96	3,828	-7,954	320	,000
	Risky	97	28,64	3,778			
Alexithymia Total	No risk	225	52,39	5,526	-21,054	320	,000
	Risky	97	66,54	5,544			
Neuroticism	No risk	225	16,80	4,097	-7,172	320	,000
	Risky	97	20,47	4,503			
Psychoticism	No risk	225	16,65	2,970	-3,249	320	,001
	Risky	97	17,92	3,724			
Extraversion	No risk	225	17,91	3,375	-2,087	320	,038
	Risky	97	18,72	2,809			
Lying	No risk	225	14,09	3,987	-2,930	151,41	,004
	Risky	97	15,76	4,981			

In Table 6, the results of the independent sample t-test analysis regarding the comparison of the scale scores used in the study according to the variable of being in the risk group for alexithymia are given. Accordingly, those in the alexithymia risk group had significantly higher alexithymia total scores, all alexithymia subscales, and all personality type scores.

Table 7. ANOVA Analysis of the Comparison of Alexithymia and Personality Types Scores by Social Media Usage Purpose

Scale		Σ_{rank}	df	\bar{x}_{rank}	F	p
Difficulty Recognizing Emotions	Between Groups	90,40	3	30,135	,961	,411
	Within Groups	9971,99	318	31,358		
Difficulty Expressing	Between Groups	37,26	3	12,420	1,871	,134
	Within Groups	2110,80	318	6,638		
Extroverted Thinking	Between Groups	81,598	3	27,199	1,575	,195
	Within Groups	5490,03	318	17,264		
Alexithymia Total	Between Groups	107,33	3	35,779	,489	,690
	Within Groups	23243,70	318	73,093		
Neuroticism	Between Groups	170,83	3	56,946	2,806	,040
	Within Groups	6453,17	318	20,293		
Psychoticism	Between Groups	11,69	3	3,899	,364	,779
	Within Groups	3403,99	318	10,704		
Extraversion	Between Groups	3,48	3	1,162	,110	,954
	Within Groups	3350,05	318	10,535		
Lying	Between Groups	111,06	3	37,022	1,955	,121
	Within Groups	6020,63	318	18,933		

Table 7 presents the results of ANOVA analysis for the comparison of alexithymia and personality types scores according to the variable of purpose of social media use. Accordingly, a significant difference was found in neuroticism scores, but no difference was found between the groups according to the post hoc test ($F=2,806$; $p=.040$).

Table 8. ANOVA Analysis on the Comparison of Alexithymia and Personality Types Scores by Social Network Usage Duration

Scale		Σ_{rank}	df	\bar{x}_{rank}	F	p
Difficulty Recognizing Emotions	Between Groups	415,193	3	138,398	4,562	,004
	Within Groups	9647,207	318	30,337		
Difficulty Expressing	Between Groups	18,222	3	6,074	,907	,438
	Within Groups	2129,843	318	6,698		
Extroverted Thinking	Between Groups	58,818	3	19,606	1,131	,337
	Within Groups	5512,813	318	17,336		
Alexithymia Total	Between Groups	435,126	3	145,042	2,013	,112
	Within Groups	22915,918	318	72,063		
Neuroticism	Between Groups	178,625	3	59,542	2,938	,033
	Within Groups	6445,391	318	20,269		
Psychoticism	Between Groups	21,488	3	7,163	,671	,570
	Within Groups	3394,202	318	10,674		
Extraversion	Between Groups	17,438	3	5,813	,554	,646
	Within Groups	3336,105	318	10,491		
Lying	Between Groups	94,769	3	31,590	1,664	,175
	Within Groups	6036,936	318	18,984		

Table 8 presents the results of ANOVA analysis for the comparison of alexithymia and personality type scores according to the variable of duration of social media use. Accordingly, the Difficulty Recognizing Emotions

subscale ($F=4,562$; $p=.004$) and Neuroticism ($F=2,938$; $p=.033$) scores were thus significantly different. According to Scheffe's post hoc analysis, those who use social networks for more than four hours have significantly higher Difficulty Recognizing Emotions scores than those who use less than one hour. Neuroticism scores of those who use social networks for 1-3 hours are significantly higher than those who use less than one hour.

Table 9. Kruskal Wallis Analysis on Comparison of Alexithymia and Personality Types Scores by Most Used Social Network Status

Scale	Groups	N	\bar{x}_{rank}	χ^2	df	p
Difficulty Recognizing Emotions	Facebook	19	164,18	1,875	4	,759
	Instagram	133	167,59			
	WhatsApp	109	160,90			
	YouTube	48	146,71			
	Other	13	154,85			
Difficulty Expressing	Facebook	19	146,55	2,108	4	,716
	Instagram	133	163,96			
	WhatsApp	109	155,92			
	YouTube	48	175,14			
	Other	13	154,62			
Extroverted Thinking	Facebook	19	146,89	1,469	4	,832
	Instagram	133	162,51			
	WhatsApp	109	165,55			
	YouTube	48	151,80			
	Other	13	174,38			
Alexithymia Total	Facebook	19	144,79	3,389	4	,495
	Instagram	133	171,27			
	WhatsApp	109	157,14			
	YouTube	48	148,46			
	Other	13	170,62			
Neuroticism	Facebook	19	142,21	2,036	4	,729
	Instagram	133	159,50			
	WhatsApp	109	170,21			
	YouTube	48	156,66			
	Other	13	155,00			
Psychoticism	Facebook	19	118,92	6,403	4	,171
	Instagram	133	159,06			
	WhatsApp	109	170,77			
	YouTube	48	156,83			
	Other	13	188,15			
Extraversion	Facebook	19	153,92	4,461	4	,347
	Instagram	133	172,92			
	WhatsApp	109	156,94			
	YouTube	48	151,76			
	Other	13	129,88			
Lying	Facebook	19	153,61	,408	4	,982
	Instagram	133	164,55			
	WhatsApp	109	158,52			
	YouTube	48	163,07			
	Other	13	160,96			

The results of Kruskal Wallis analysis regarding the comparison of the scale scores used in the research according to the most commonly used social network status are given in Table 9. In addition, there is no difference in scale scores according to the most commonly used social network status ($p>.05$).

DISCUSSION AND CONCLUSION

Identifying the relationship between personality types and alexithymia, the predictive value of personality types and internet usage habits, and whether alexithymia and personality traits differ based on various demographic parameters are the goals of this study.

According to the information gathered from the study group, solutions to the research questions were sought within the parameters of the study. Accordingly, it was determined that there was a weak and moderately positive correlation between personality types and alexithymia. In addition, according to the research problem of whether personality traits predict alexithymia or not, neuroticism and extraversion sub-dimensions of personality traits predict alexithymia, while psychoticism and lying sub-dimensions do not predict alexithymia. Personality traits of alexithymic individuals are defined under four main headings as difficulty in identifying, differentiating, and verbalizing emotions, limitation in daydreaming, operational thinking, and cognitive structure for eccentric adaptation (Lesser, 1981; Sifneos et al., 1977). Neuroticism personality traits include anxiety, fear, low self-esteem, emotional and irrational behaviors (Eysenck & Eysenck, 1975; Karancı et al., 2007), difficulty recognizing, comprehending, and expressing their emotions, and their efforts to adapt to the outside. The coexistence of neurotic personality traits explains the relationship between alexithymia and neuroticism. The study discovered an association between alexithymia and extroverted personality traits. The other of the four basic personality traits explaining alexithymia is the cognitive structure for eccentric adaptation. The efforts of alexithymic individuals to over-adapt to their environment create trouble-free and harmonious relationships, but they do this with the help of external stimuli rather than internal factors and related emotions (İzci; 2016; Taylor et al., 1991). Studies have also found that unawareness and inability to express emotions lead to low self-esteem, psychosomatic symptoms, a lack of success, and depression in individuals (Cooper & Holmstrom, 1984; Taylor et al., 1989). For this reason, extroverted personality traits were found to be associated with alexithymic personality traits. According to this result, it can be said that; while the social adaptation of the individual in normal development is realized with the help of internal factors and the emotions related to them, the extroversion and social adaptation of an alexithymic person do not contain emotions. Psychoticism, on the other hand, defines the characteristics of aggressive, distant, antisocial, and insensitive behavior towards other people, and it is basically incompatible with the characteristics of alexithymic people. Alexithymic individuals have a pragmatic and mechanical mindset, a simple and mechanical life, away from their inner world. Unlike psychotics, they have features that strive to be extremely compatible to the extent that they can relate to their environment (İzci, 2016; Koçak, 2007). Therefore, no relationship was found between alexithymic traits and psychotic personality traits.

Another problem of the study was whether the social networks and internet usage behaviors used predicted alexithymia. Accordingly, it was understood that internet use behaviors did not predict alexithymia. One of the main reasons for this is thought to be the limitation of the study group and the alexithymic participants. The fact that the research has already been conducted on the Z generation, who has grown up with the internet and technology, is thought to be one of the other important reasons why it does not predict alexithymia. Since university youth, who represent today's Generation Z, are born directly into the world of the internet and technology, it is thought that the attitudes of young people to use the internet do not predict alexithymia. In addition, it has been determined that the findings obtained are those of a group that states that the purpose of using the internet by young people is often social media. It can be stated that the fact that access to smartphones is very easy (Özen & Topçu, 2017) is not a distinguishing factor for the Z generation to show alexithymia symptoms. Alexithymia includes features such as difficulty expressing one's feelings to others and limitation in daydreaming. It can be stated that their attitudes towards internet use do not predict alexithymia, since young people who use social media often prefer to experience their emotions through social media, which can even be a facilitator for alexithymic individuals. It is also stated that alexithymic individuals meet their unmet social needs through social media and smartphones due to the difficulties they experience in recognizing and expressing their emotions (Özen & Topçu, 2017).

Findings obtained according to demographic variables showed that women's alexithymia, an extraverted thinking sub-dimension was higher than men's. According to the literature, 80-90% of people with psychosomatic disorders are women (Yunus, 1994). In this study, in accordance with the literature, the extroverted alexithymic dimension of female participants was found to be high. Extroverted thinking, which McDoggal (1982) defines as false normality, and the fact that alexithymia is higher in women than in men (Dereboy 1990; Sifneos, 1977) explains that the effort of alexithymic individuals to be compatible is higher in women than in men.

The important limitations of the study include the fact that the research was collected from a limited sample group and that it was handled with questions created by the researcher instead of using a scale to measure internet

usage tendencies. According to the results of the research, alexithymia and personality traits were found to be related, neuroticism and extraversion personality traits were found to predict alexithymia, while internet use behaviors and psychoticism traits did not predict alexithymia. The above-mentioned research results should be evaluated considering the limitations of the participants in the study, such as the fact that they were not randomly selected and were selected from university students. It should also be taken into account that the cut-off score of the scale, which tests the state of being alexithymic, was not used in the study. It should be considered that the results obtained by selecting a sample that is not only university students, covers a more common age range, and considers the cut-off scores for alexithymic symptoms may be different. In addition, in order to examine internet usage behaviors in a more precise context, examining the relationships between alexithymic symptoms and personality by measuring smartphone, social media usage, or screen addiction attitudes separately will provide more specific results.

Statements of Publication Ethics

Ethics Committee approval of the study was obtained from the Social Sciences Institute Ethics Committee of the affiliated university with the date of 04.04.2019 and number 2019/5.

Researchers' Contribution Rate

Authors	Literature review	Method	Data Collection	Data Analysis	Results	Conclusion	(Other)
Ozlem Sener	☒	☐	☒	☐	☒	☒	☐
Süleyman Kahraman	☐	☒	☐	☒	☐	☐	☒

Conflict of Interest

This study does not have any conflicts of interest.

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The Climate Literacy Levels of Secondary School Students and Their Opinions on Climate Change

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Abstract

Turkey is among the countries which is highly sensitive to climate change on a global scale and under risk. It is predicted that the annual temperature across the country will have increased by 2100. In certain regions, the temperature increase may reach up to 60 °C. Against this risk there, however, are opportunities to improve climate literacy, particularly in schools, on climate change, its impacts and solutions. In this framework, this study intends to scrutinize the climate literacy levels of secondary school students in terms of certain variables and to disclose their opinions on climate change. As a result of the analysis of the data collected in the study in which the survey design was implemented, it was found that the climate literacy levels of the students were not at the desired level, particularly in the climate awareness dimension. This dimension includes items related to minimizing the effects of climate change and taking precautions. Nevertheless, another important result is that some students lead to environmentally unfriendly behaviours and actions to mitigate climate change on the back burner owing to economic concerns and financial problems like unemployment. The most important solution for ecological sustainability and climate action is to legislate and create national educational solutions via government incentives and support. Considering the result that school and family are insufficient in climate literacy education, it is of importance to carry out relevant studies.

Keywords: climate, climate literacy, climate change, sustainability, ecology, geography, geography education.

Ortaöğretim Öğrencilerinin İklim Okuryazarlık Düzeyleri ve İklim Değişikliğine İlişkin Görüşleri Öz

Türkiye, küresel ölçekte iklim değişikliğine karşı son derece duyarlı ve risk altında olan ülkeler arasında yer almaktadır. Ülke genelindeki yıllık sıcaklığın 2100 yılına kadar artış göstereceği tahmin edilmektedir. Bazı bölgelerde sıcaklık artışı 60 °C'ye kadar çıkabilir. Bu riskin karşısında, iklim değişikliği, etkileri ve çözümleri konusunda özellikle okullarda iklim okuryazarlığını geliştirmek için fırsatlar bulunmaktadır. Bu çerçevede çalışmada, ortaöğretim öğrencilerinin iklim okuryazarlık düzeylerini belirli değişkenler açısından incelemek ve iklim değişikliği konusundaki görüşlerini ortaya çıkarmak amaçlanmaktadır. Tarama desenin uygulandığı çalışmada, toplanan verilerin analizi sonucunda, öğrencilerin iklim okuryazarlık düzeylerinin özellikle iklim farkındalığı boyutunda istenilen seviyede olmadığı ortaya çıkmıştır. Bu boyut, iklim değişikliğinin etkilerini azaltma ve önlem alma ile ilgili maddeleri içermektedir. Bununla birlikte, başka önemli bir sonuç da bazı öğrencilerin, ekonomik endişeler ve işsizlik gibi maddi sorunlar nedeniyle çevre dostu olmayan davranışları ve iklim değişikliğini azaltmaya yönelik eylemleri ikinci plana attığıdır. Ekolojik sürdürülebilirlik ve iklim eylemi için en önemli çözüm, yasal düzenlemeler yapmak ve hükümet teşvikleri ve destekleriyle ulusal eğitim çözümleri üretmektir. Okul ve ailenin iklim okuryazarlığı eğitimde yetersiz kalması sonucu dikkate alındığında, buna yönelik çalışmaların yapılması önem arz etmektedir.

Anahtar Sözcükler: iklim, iklim okuryazarlığı, iklim değişikliği, sürdürülebilirlik, ekoloji, coğrafya, coğrafya eğitimi.

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INTRODUCTION

The climate is an essential factor influencing human life. Generally, the average of the measurements made for many years as to the weather and weather events we have been exposed to every day is expressed as the climate. (Kurnaz, 2019). Today, climate change is one of the most critical global issues (IPCC, 2007; Doğan & Tüzzer, 2011; El-Zein et al., 2021; WEF, 2021). Climate change is characterized mainly by a rise in average temperatures, an increase in seasonal anomalies, and an increase in the temperature and severity of extreme weather events (Bernstein et al., 2008). Climate change is the situation in which irregularities and changes are experienced in the climate in the long term as a result of natural processes and human activities disrupting the atmospheric order (UN, 1972; Türkeş, 2008) as well as long-term changes in the average condition and/or variability of the climate regardless of the reason (MGM, 2022).

Nevertheless, it is evident that climate change, unlike natural changes, is also defined as a deterioration in the atmospheric composition due to human activities (Talu, 2015; UN, 2020; MGM, 2020). Normally, nature has a mechanism to ensure its internal balance. Still, due to this bad influence and pressure, nature has become unable to solve the disturbed balance in its internal mechanism (Elverdi, 2017).

According to the Intergovernmental Panel on Climate Change (IPCC) assessment reports (IPCC, 2014), the Earth atmosphere is, on average, 1°C warmer today than before the industrial revolution, equivalent to an increase of 0.2°C per decade. According to the same report, global warming is estimated to reach 1.5°C between 2030 and 2052. Studies also reveal that the most important impacts of global climate change will manifest themselves in the form of temperature increase and decrease in water resources (Varol et al., 2021) and will increase climate-related natural disasters and ecological degradation, such as forest fires, drought, floods, and flood events, desertification, and erosion (Talu et al., 2010; Leaning & Guha-Sapir, 2013; UNCCS, 2019; Chugunkova & Pyzhev, 2020).

In its report published in 2021, the World Meteorological Organization (WMO) specified that the impacts of weather, climate, and water-related hazards continue to negatively affect health, economic status, and social development worldwide, with weather, climate, or water-related disaster occurring on every day for the last 50 years. According to the report (WMO, 2021), over the past 50 years, these events have caused the death of 115 people per day and a daily economic loss of US \$ 202 million. According to the data of the Internal Disaster Monitoring Center (IDMC) on disaster-related migration worldwide between 2008 and 2020, floods and storms are the disasters that cause people to relocate the most (IDMC, 2021). In 2021, while large forest fires occurred in countries in the Mediterranean Basin (Turkey, Greece, Italy, Spain, France, Portugal, Spain, France, Portugal) where extreme temperatures have been effective (Gallagher Re, 2023), the same year was also a year with a high number of meteorological disasters (MGM, 2021). A total of 1024 natural disasters with meteorological character were reported in Turkey in 2021, and this was recorded as the highest value in the 1940-2021 period (MGM, 2021).

Studies on the effects of climate change on national and international security have increased as of the 2000s (Brauch, 2002; Barnett & Adler, 2007; Sindico, 2007; Scott, 2012; Baysal & Karakaş, 2017). Studies focusing on human vulnerabilities caused by climate change, especially food insecurity, health problems, and poverty, are considered environmental safety problems (Detraz, 2011; IPCC, 2014). The limited livelihoods and migration movements due to climate change (IPCC, 2021), increase in food prices, water scarcity, economic contraction, and unemployment (El-Zein et al., 2021), community and mental health problems (Myers & Patz, 2009; Costello et al., 2009; Luber & Prudent, 2009; Stanley et al., 2021, WHO, 2021) have started to come out more. It is stated that the impacts of climate change, or in other words, the climate crisis, can be solved via effective and comprehensive policies and actions to be implemented at global, national, and local levels and that efforts should be developed on two axes: mitigation and adaptation (Balaban, 2017). While prevention activities aim to prevent global warming and fix temperature increases to a certain level (Balaban, 2017), adaptation to climate change is related to risk reduction and management before and after disasters (Lewis, 2020).

In Turkey, among the countries that are highly vulnerable and at risk of global climate change, it is predicted in the climate projection studies that the annual temperature will increase throughout the country until 2100, and temperature increases in some regions may reach up to 6°C (Dalfes et al., 2007; IPCC, 2007; IPCC, 2014; Kovats et al., 2014; Demircan et al., 2017; Varol et al., 2021). Climate events in Turkey in recent years have supported this prediction (OECD, 2019), the areas with extreme precipitation have expanded since 2000, and flood risk areas have increased (Çelik et al., 2017), while drought and desertification have become widespread in some regions (Türkeş, 2012). Bartın Province, located in the Western Black Sea region of Turkey, which was selected as the study area of this research, is one of the provinces with the highest level of vulnerability to floods and overflows

because of excessive rainfall (Sılaydın Aydın & Kahraman, 2022). Especially in the Black Sea Region, where Bartın province is located, it is predicted that it will be under the influence of a more humid and warmer climate in the future compared to today's conditions; there will be an increase in rainfall in the form of torrential rains, and floods, floods and landslides will increase accordingly (Atalay, 2011; Turoğlu, 2014; Demircan et al. 1., 2017; Bolat et al. 1., 2018). A projection study conducted for the Bartın Stream Basin estimated that there would be an adverse change in the land, natural areas would decrease, and construction and land fragmentation would increase by 2050 (Kalaycı Kadak, 2021). All this indicates that Bartın Province is a place that will be very much affected by climate change.

Although many studies have been conducted on the global, national, and local dimensions of climate change (UNCCS, 2019; Chugunkova & Pyzhev, 2020; El-Zein et al., 2021; IPCC, 2021; MGM, 2021; WEF, 2021; WMO, 2021); there is an increase in studies such as climate change awareness (Dal et al., 2014), risk perception (Spence et al., 2010; Tvinnereim & Austgulen, 2014; Tam, 2020), adaptation and mitigation perception (Meehan et al., 2018), individual factors affecting change (Brügger et al., 2015; Capstick et al., 2015; Shi et al., 2016). Education and schools are important stakeholders in understanding climate and climate change and its impacts, as well as in prevention and adaptation efforts to be carried out under the guidance of scientific studies (Coertjens, 2010).

Opportunities to develop climate literacy related to climate, climate change, its effects, and solutions exist in formal educational institutions, such as schools, non-formal educational environments including the media, and the field of informal education (UNESCO, 2010). Studies on climate literacy and climate change, have increased today (Lee et al., 2015; Görgülü Ari & Arslan, 2020; Eckstein et al., 2021). Nonetheless it has become more important to develop climate literacy under the guidance of scientific studies to fulfill the commitments of the Paris Climate Agreement and to achieve the United Nations Sustainable Development Goal "SDG 13: Climate Action" to take urgent action to combat climate change and its impacts (UN, 2023). In Turkey, one of the signatory countries to the Paris Agreement, the "Environmental Education and Climate Change" course was introduced as an elective course in secondary schools in 2021 (Ministry of National Education, 2022), but the subject of climate and climate change at the secondary level is limited to topics in geography courses only. Today, it has emerged that students must make informed decisions and become "climate literate citizens" (Arndt & LaDue, 2008). The purpose of the research conducted in this context is to discuss the climate literacy levels of students studying in secondary education in terms of some variables and to reveal their opinions on climate change. Accordingly, the following questions were sought to be answered in the study.

1. What is the level of students' climate literacy?
2. Is there a significant difference in students' climate literacy levels according to variables (gender, school type, school location, class, mother's education level, father's education level, participation in environmental activities, resources that contribute to understanding climate and climate change, following climate change developments, the degree of climate change exposure, the effects of climate change in the place where you live)?
3. Is there a relationship between students' climate literacy levels and gender, grade, participation in environmental activities following the developments in climate change, and the degree of being affected by climate change?
4. What are the students' opinions on climate change?

METHOD

Research Design

The aim of this study is investigating the climate literacy levels of secondary school students according to some variables and defining the current phenomenon to reveal their opinions on climate change. Hence, the survey design was preferred in this study. Survey researches are studies conducted to express the opinions, interests, attitudes, concerns, etc., of a specific and large group of people on a particular subject (Fraenkel et al., 2011; Büyüköztürk et al., 2011). Cross-sectional survey research (Fraenkel et al., 2011) was preferred since it provides a significant advantage in this study by providing the opportunity to make comparisons as well as collecting data from the target group at a time / in a short time, especially compared to time-consuming research types.

Participants & Study Group

In determining the secondary school students in the study group, the purposive sampling technique was used because it allows for selection among more easily accessible participants from the population and participation in the study is voluntary (Teddlie & Yu, 2007). In this direction, secondary school students studying in Bartın Province of Turkey, one of the critical places affected by climate change due to floods and flood events,

excessive and irregular rainfall occurring every year, were reached. The main reason for determining secondary school students as participants is the assumption that they have acquired basic climate concepts and knowledge at this educational level in schools through educational programs. However as stated in the United Nations World Youth Report (2010), young people, who are an important group affected by climate change, also constitute an essential segment that should take an active role in measures to reduce the impacts of climate change.

Of the 542 secondary school students in the study group, 332 (61.3%) were woman, and 210 (38.7%) were man. 68 (12.5%) of these students study in the village (students coming from the village to the city through transport education), whereas 27 (5%) study in the district center, and 447 (82.5%) study in the provincial center. 348 (64.2%) of the students study in general high schools, 79 (14.6%) study in science high schools, 115 study (21.2%) in vocational high schools; 137 (25.3%) study in 9th grade, 202 (37.3%) study in 10th grade, 84 (15.5%) study in 11th grade and 119 (22%) study in 12th grade. The distribution of students according to their mother and father's education level is indicated in Figure 1.

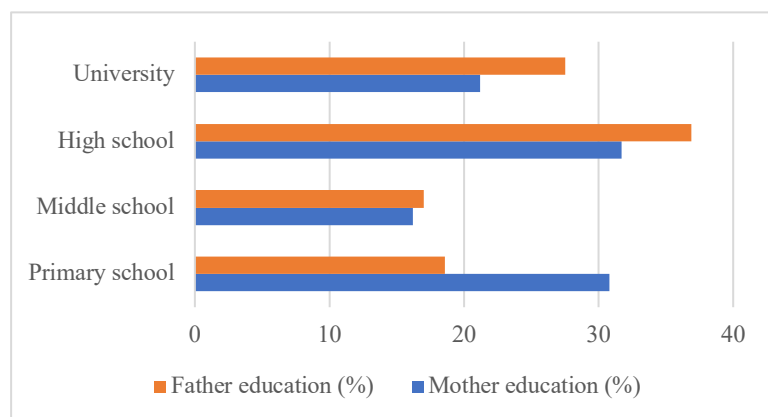


Figure 1. *Mother and father's education level*

As indicated in Figure 1, although the mother's education level is lower than the father's, the highest proportion (31.7% - 36.9%) of both mother and father's education levels is at the high school level.

Data Collection Tools and Implementation

Personal information form, Climate Literacy Scale, and Case Text Form were used to collect data in line with the purpose of the research. Expert (measurement and evaluation faculty member, geography education faculty member, geography teacher, linguist) opinions were obtained for all data collection tools, and they were piloted with ten secondary school students who were not in the study group for comprehensibility and suitability. In the personal information form prepared by the researcher, the following questions were included: Gender of the participants, school type, location of the school, grade, mother, and father education level, participation in environmental activities, resources that contribute to understanding climate and climate change, the status of following the developments in climate change, the degree of being affected by climate change and the effects of climate change occurring in the place where they live.

The Climate Literacy Scale was developed by Görgülü Arı and Arslan (2020). The scale has three dimensions: Climate concept, climate awareness, climate consciousness, and 24 items. The scale categories are scored as “strongly disagree=1”, “partially disagree=2”, “undecided=3”, “partially agree=4”, and “absolutely agree=5” and obtained by collecting the subscales. When the data obtained from the confirmatory factor analysis results of the scale and the fit indices are compared, the model has significant, good, acceptable values ($\chi^2/sd = 1.76$; RMSEA= 0.054; CFI = .95; NFI = .88; IFI = .95; GFI = .88; SRMR = .050) and it was concluded that the reliability value was Cronbachs' Alpha=0.89 (Görgülü Arı & Arslan, 2020). The Cronbachs' Alpha coefficient regarding the reliability of the Climate Literacy Scale was calculated again within the scope of the research. The total reliability of the scale was found to be 0.93. In addition to the good validity and reliability values of this scale, it was preferred to use it because the items consist of statements about the students' climate concept, climate awareness, climate-human interaction, and climate change awareness.

The Case Text Form was applied by taking the expert opinion of the researcher and making corrections after the pilot application. In the form, a single case text about the effect of climate change without a conclusion was given, and students were asked to complete the conclusion of the text and present their justifications for the conclusion. The text focuses on students' climate change sensitivity and the behaviour they will show in a dilemma situation to take a role in measures to reduce the effects of climate change. In the dilemma text presented in the

context of the construction of a mineral processing plant and a thermal power plant in a forested village and the protection of the forested area and olive groves, the issue of climate change was brought to the fore. The researcher applied research data collection tools to voluntary secondary education students in classrooms during one lesson hour after obtaining the ethics committee's permission as well as the that of the institution.

Data Analysis

The SPSS 21.0 program was used to analyse the quantitative data obtained by the data collection tools of the research, and the Excel program was used in drawing the graphs. As a result of the Kolmogorov-Smirnov test conducted on the assumption of normality of the research data, it was found out that the data did not show a normal distribution (Kolmogorov-Smirnov Sig. 0.000). In scale analyses that did not show normal distribution; Mann Whitney-U test, a non-parametric test, was used for independent variables with two categories, Kruskal Wallis H-Test and Spearman Rank Difference correlation test were used for those with three or more categories. If there is a significant difference after the comparisons, the source of the difference was determined using the Mann-Whitney U-Test and Bonferroni correction. In addition, frequencies, percentages, and means were calculated, and the Chi squared test was used to examine the relationship between qualitative variable categories.

In addition to statistical significance, effect size was also calculated in comparisons. To determine the effect size, eta squared (η^2), and r values are calculated. In Kruskal Wallis H-Test, eta squared (η^2) values were calculated to determine the effect of independent variables on each dependent variable. When interpreting the eta squared values it was reported that $\eta^2 = 0.01$ was for small effect size, $\eta^2 = 0.06$ was for medium effect size, and $\eta^2 = 0.14$ was for high effect size (Green & Salkind, 2005). The correlation coefficients (r) effect sizes were determined for the Mann-Whitney U test. In the interpretation, .01 to .09 is a negligible relationship; .10 to .29 is a low relationship; .30 to .49 is a moderate relationship; .50 to .69 is a strong relationship; .70 and above is very strong (Green & Salkind, 2005).

In the analysis of qualitative data obtained from the case text form, one of the data collection tools, it was preferred to use the content analysis method. Content analysis refers to any attempts to reduce and make sense of qualitative data by taking voluminous qualitative material and attempting to identify core consistencies and significances (Patton, 2002). The primary significances found through content analysis were grouped under the research theme, and the qualitative data were analyzed inductively. Expert opinion was taken in creating and analyzing the themes, and the analysis results were presented, in which consensus was provided. Significant differences between the findings were evaluated, and the chi squared test was used. All responses of the participants to the case text were considered. The student's statements were also included in the explanations made in the findings section. All qualitative data are presented according to the themes created. The participants' opinions were coded as K1, K2, ..., E1, E2, ... according to gender.

Research Ethics

Ethics committee and institutional permissions were obtained for the study. Before data collection, all participants were informed regarding the purpose of the research, the process, what is expected of them, and the ethical rights they have (anonymity, volunteering, withdrawal from the study by termination of volunteering, etc.) (Bukova Güzel, 2017) and consent forms were taken.

FINDINGS

Findings related to the research questions are presented in the relevant sub-headings.

Findings on Students' Climate Literacy Levels

In the research, the student's participation in environmental-related activities, the resources that contribute to understanding climate and climate change, the status of following the developments in climate change, the degree of being affected by climate change, the effects of climate change in the place where they live were determined.

While 218 (40.2%) of the students have not participated in any environmental activities yet, 146 (26.9%) of them stated that they actively participated in one environmental activity, 65 (12%) twice, and 113 (20.8%) had three or more environmental activities. It is also observed that about a third of the students (32.8%) are involved in more than one environmental activity. The distribution of students' opinions on the status of following climate change developments and the level of being affected by climate change where they live are presented in Figure 2.

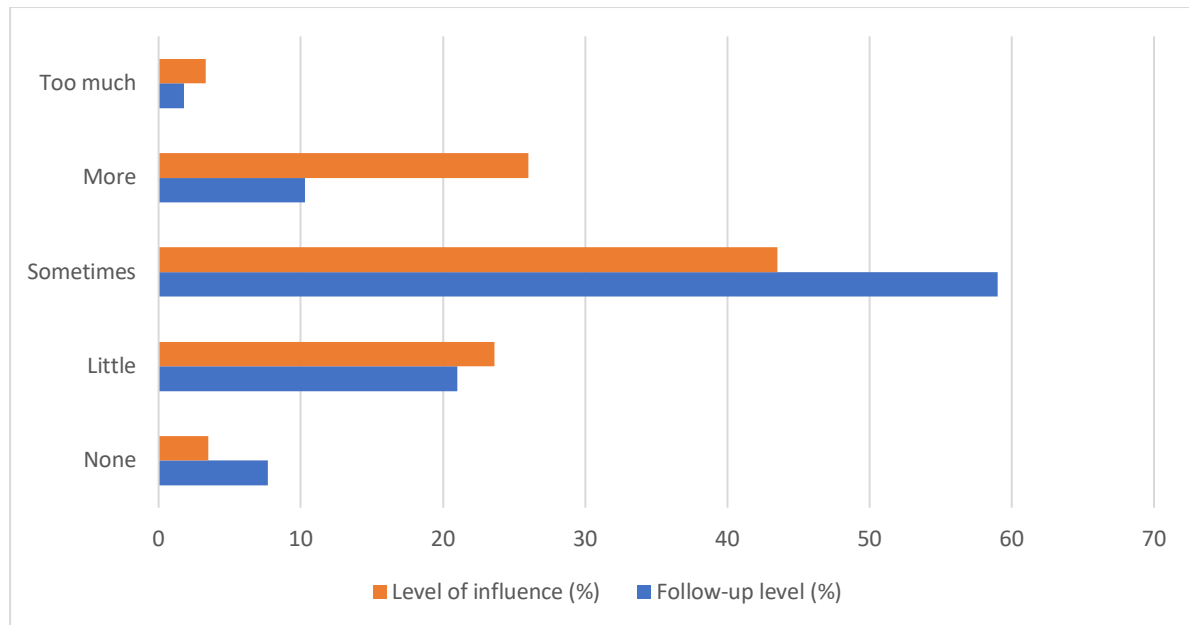


Figure 2. *The level of following climate change developments and being affected by climate change*

As seen in Figure 2, the level of students to follow the developments of climate change and to be affected by climate change in the place where they live is quite high. It is obvious that most of the students (71.3%) follow the developments in climate change; similarly, they think that their level of being affected by climate change is high (72.9%).

The distributions related to the resources that contribute the most to students' understanding of climate and climate change are available in Figure 3.

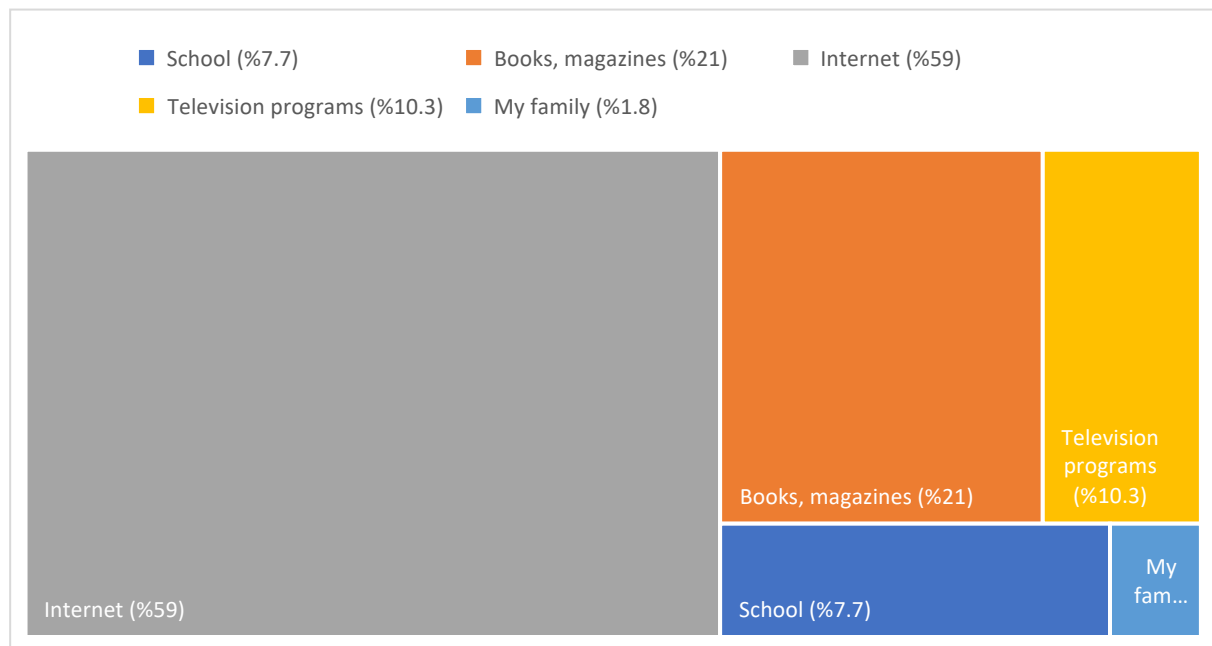


Figure 3. *Resources that contribute to understanding climate and climate change*

As seen in Figure 3, the highest rate among the sources contributing to students' understanding of climate and climate change is the internet (59%). Books, magazines, and television programs follow the internet sources. The findings that students from school and families do not get enough information about climate and climate change are quite remarkable.

The distribution of students regarding the effects of climate change where they live is shown in Figure 4.

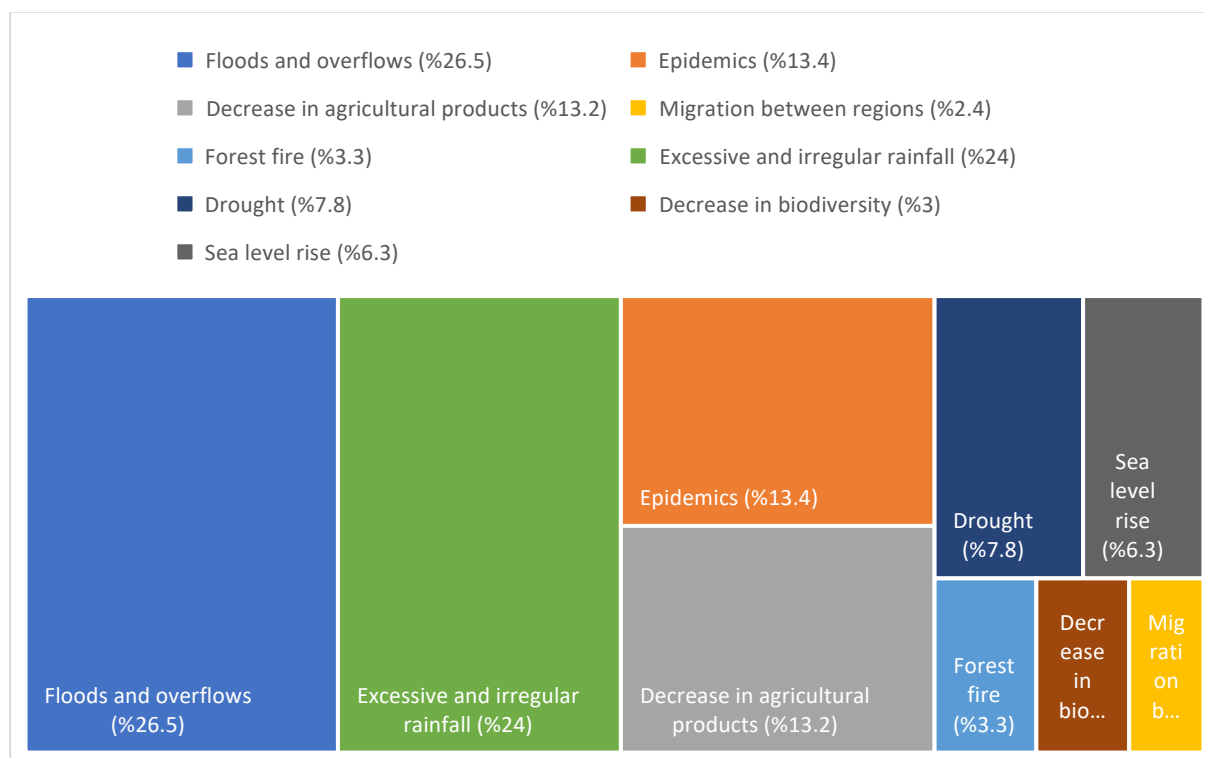


Figure 4. *The effects experienced due to climate change*

As seen in Figure 4, students stated that they are most exposed to floods and overflows due to climate change in their residences (26.5%). This was followed by excessive and irregular rainfall (24%), epidemic diseases (13.4%), and a decrease in agricultural products (13.2%), respectively. Interregional migration, a decrease in the diversity of living things, forest fires, sea level rise, and drought have been expressed as relatively minor climate change effects.

The findings regarding the climate literacy levels of the students are presented in Table 1.

Table 1. The Level of Climate Literacy of Students

Dimension/Scale	N	\bar{x}	ss
The dimension of the climate concept	542	4.18	.635
The dimension of climate awareness	542	4.38	.710
The dimension of climatic consciousness	542	3.45	.960
The climate literacy scale	542	4.07	.611

When the findings related to the Climate Literacy Scale and its sub-dimensions are analyzed in Table 1, it is clear that the highest mean is in the “climate awareness” sub-dimension ($\bar{x}=4.38$), which includes items related to climate change. This is followed by “climate concept” ($\bar{x}=4.18$) and “climate awareness” ($\bar{x}=3.45$). It can be claimed that the overall mean of the Climate Literacy Scale ($\bar{x}=4.07$) is “high”. A remarkable finding is that the highest mean of students’ climate literacy levels is in the dimension of climate change-related awareness items. In addition, the low mean for the “climate awareness” dimension, which includes statements about students’ following developments related to climate and climate change and behaviors to reduce the effects of climate change, is an issue that needs to be considered and improved.

Findings According to Variables in Students' Climate Literacy Levels

The findings regarding the comparison of the climate literacy levels of the students according to gender are available in Table 2.

Table 2. According to Gender, Mann-Whitney U Test Results

Group	N	\bar{X}_{sira}	$\sum sira$	U	Z	p	r
1. Female	332	297.29	98700.00	26298.000	-4.822	.000	.20
2. Male	210	230.73	48453.00				

According to Table 2, there is a significant difference in climate literacy levels between the mean rank of female students (297.29) and the mean rank of male students (230.73), and the effect size is low ($U=26298$; $Z=-$

4.822; $p < 0.05$; $r = -.20$). It is also seen that the significant difference is in favor of female students. This finding also shows that the climate literacy levels of female students are higher than those of boys.

The findings regarding the comparison of students' climate literacy levels according to school type are indicated in Table 3.

Table 3. According to the Type of School, Kruskal Wallis H Test Results

Type of school	N	$\bar{X}_{sıra}$	Df	χ^2	p
1. General High School	348	267.09	2	2.082	.353
2. Science High School	79	294.94			
3. Vocational High School	115	268.74			

As can be seen in Table 3, there is no significant difference between the mean scores for climate literacy levels according to the type of school ($\chi^2_{(2)} = 2.082$; $p = .353$, $p > .05$). The fact that there was no significant difference according to the type of school the students attended is consistent with their opinions that they did not learn enough about the developments and information about climate and climate change at school. This situation can also indicate that students are not getting enough information, especially in schools, about climate change.

The findings regarding the comparison of the students' climate literacy levels according to the location of the school are observed in Table 4.

Table 4. According to the Location of the School, the Kruskal Wallis H Test Results

Location of the school	N	$\bar{X}_{sıra}$	Df	χ^2	p
1. The Village	68	282.66	2	1.094	.579
2. District center	27	245.44			
3. Province center	447	271.38			

As can be seen in Table 4, there is no significant difference between the mean scores for climate literacy levels according to the location of the school ($\chi^2_{(2)} = 1.094$; $p = .579$, $p > .05$). The fact that there is no significant difference according to the location of the school where the students study may be because the same climatic conditions are effective in the village and district and provincial centers where the participants live, as well as the floods and flood events experienced are effective throughout the province.

The findings regarding the comparison of the climate literacy levels of the students according to the class being studied are shown in Table 5.

Table 5. Kruskal Wallis H Test Results by Grade

Grade	N	$\bar{X}_{sıra}$	Df	χ^2	p
1st.9th grade	137	243.86	3	20.418	.000
2.10th grade	202	251.96			
3.11th grade	84	296.65			
4.12th grade	119	318.74			

As can be seen in Table 5, there is a significant difference between the mean scores for climate literacy levels according to the grade, and it was found out that the calculated effect size was small ($\chi^2_{(3)} = 20.418$; $p = .000$, $p < .05$; $\eta^2 = 0.037$). According to the results of the Mann-Whitney U Test conducted to determine between which groups there is a significant difference:

There is a significant difference between the students in the 9th grade in favor of those in the 11th grade, and the effect size is low ($U = 4536$; $Z = -2.641$; $p = .008$; $p < 0.05$; $r = -.11$). There is also a significant difference between the students in the 9th grade in favor of those in the 12th grade, and the effect size is low ($U = 5839.5$; $Z = -3.914$; $p = .000$; $p < 0.05$; $r = -.16$). Furthermore, there is a significant difference between the students in the 10th grade in favor of those in the 12th grade, and the effect size is low ($U = 9228$; $Z = -3.476$; $p = .001$; $p < 0.05$; $r = -.14$). These findings can be said to disclose that there is an increase in students' climate literacy levels, which includes climate and climate change, albeit small, as the grade level increases.

There is no significant difference between the mean scores for climate literacy levels according to the mother's education level ($X^2_{(3)}=2.047$; $p=.563$, $p>.05$). Similarly, there is no significant difference between the mean scores for climate literacy levels according to the father's education level ($X^2_{(3)}=.613$; $p=.894$, $p>.05$). This is consistent with the finding that students see their families at a very low level as a source contributing to understanding climate and climate change. There is no significant difference between the mean scores for climate literacy levels according to the student's participation in any environmental-related activities ($X^2_{(3)}=4.672$; $p=.197$, $p>.05$). This finding is remarkable. In a sense, environmental activities are important opportunities for nature conservation, gaining knowledge and skills, and positively developing behavior change in the context of ecological sustainability. It could also be argued that these opportunities have not been sufficiently emphasized or achieved their objectives.

The findings regarding comparing students' climate literacy levels according to following climate change developments are presented in Table 6.

Table 6. Kruskal Wallis H Test Results According to Following Developments Related to Climate Change

Degree	N	$\bar{X}_{sıra}$	Df	χ^2	p
1. Never	42	111.93	4	94.147	.000
2. Less	114	204.47			
3. Sometimes	320	298.74			
4. Much	56	351.95			
5. Too much	10	383.80			

According to following the developments related to climate change, as clear in Table 6, there is a significant difference between the mean scores for climate literacy levels, and it has been found that the calculated effect size is very high ($X^2_{(4)}=94.147$; $p=.000$, $p<.05$; $\eta^2=0.17$). According to the results of the Mann-Whitney U Test conducted to determine between which groups there is a significant difference:

Students who did not follow the developments related to climate change were at a low level and with a low effect size ($U=1331$; $Z=-4.250$; $p=.000$; $p<.05$; $r=-.11$), against those who did not follow the developments related to climate change, at occasional level and medium effect size ($U=2156.5$; $Z=-7.160$; $p=.000$; $p<.05$; $r=-.30$), at high level and low effect size ($U=252$; $Z=-6.637$; $p=.000$; $p<.05$; $r=-.28$), at a very high level and low effect size ($U=58.5$; $Z=-3.520$; $p=.000$; $p<.05$; $r=-.15$). As in these findings, it has been found out that the level of climate literacy also increases as the level of following developments related to climate change tends to increase. In line with these results, it can be stated that as the frequency of following climate change developments increases, it also shows an increase in climate literacy levels. It can also be said that students are particularly affected by the climate change developments that they follow from the internet and television programs that have appeared in previous findings, which they consider to be the most important sources.

The findings regarding the comparison of students' climate literacy levels according to the degree of being affected by climate change are available in Table 7.

Table 7. Kruskal Wallis H Test Results According to the Degree of Impact of Climate Change

Degree	N	$\bar{X}_{sıra}$	Df	χ^2	p
1. Never	19	148.39	4	18.402	.001
2. Less	128	262.37			
3. Sometimes	236	266.04			
4. Much	141	300.95			
5. Too much	18	307.33			

As clear in Table 7, there is a significant difference between the mean scores for climate literacy levels according to the degree of being affected by climate change, and the calculated effect size was found to be small ($X^2_{(4)}=18.402$; $p=.001$, $p<.05$; $\eta^2=0.03$). According to the results of the Mann-Whitney U Test conducted to determine between which groups there is a significant difference:

Among the students, those who are not affected by climate change are at a low level, and the effect size is low ($U=768.5$; $Z=-2.585$; $p=.010$; $p<.05$; $r=-.11$), at the level of sometimes and the effect size is low ($U=1216.5$; $Z=-3.317$; $p=.001$; $p<.05$; $r=-.14$), at an excessive level and the effect size is low ($U=542.5$; $Z=-4.206$; $p=.000$; $p<.05$; $r=-.18$) level. According to these findings, it can be suggested that as the frequency of exposure to climate change increases, there is also an increase in climate literacy levels. This result can be said to be consistent with previous findings that students associate with climate change, such as floods and overflows,

and excessive and irregular precipitation. Moreover, it can be stated that those who experience the events they attribute to climate change also have higher climate literacy or are more interested in climate and climate change-related issues.

Findings on the Relationship between Students' Climate Literacy Levels and Variables

The study attempted to determine the relationship between students' climate literacy levels and gender, grade, participation in environmental activities, following climate change developments, and the degree of being affected by climate change. In this context, the correlation results showing the relationships between the students' climate literacy levels and the determined variables are available in Table 8.

Table 8. Spearman Rank Difference Correlation Results Showing the Relationship of Variables

Variables	01	02	03	04	05	06
01. Climate Literacy	1.000	-.207**	.182**	.089*	.403**	.141**
02. Gender		1.000	.012	-.064	-.086*	-.012
03. Grade			1.000	.007	.125**	.035
04. Participation in environmental activities				1.000	.175**	.030
05. Following climate developments					1.000	.232**
06. Being affected by climate change						1.000

*p<0.05 ; **p<0.01

As in Table 8, there is a low and negative correlation between students' climate literacy levels and gender ($r = -.207$), a low and positive correlation between grade ($r = .182$), a low and positive correlation between participation in environmental activities ($r = .089$); a moderate and positive correlation between following climate developments ($r = .403$); and a low and positive correlation between being affected by climate change ($r = .141$). It is also observed that there is a low-level and positively significant relationship between following climate developments and being affected by climate change ($r = .232$). According to the research findings, the significant relationship between students' climate literacy levels, particularly the degree of following climate developments and being affected by climate change, is noteworthy and in line with the correlation values.

Findings Related to Students' Opinions on Climate Change

In the research, the students were told, "A village and its surroundings were investigated, and it was discovered that the rocks in the area contained a large amount of gold ore and rich coal reserves. Following this discovery, a thermal power plant and gold mine processing facilities will be built in the region. Especially in the regions where olive groves and forest areas are dense, the local people are taking the situation to court with the start of tree cutting, and the court decides to stop the construction of the facilities. A case text is given in the form stating that "the gold mine and coal investors, who caused the cutting of approximately 6000 olive trees in the region, have been trying to talk the villagers out of their complaints after the court has decided to halt the mining by promising them that the facilities to be opened will provide jobs for the local people and that they will get richer." They were asked to complete this case text according to whether or not they decided to withdraw or not to withdraw their complaints and to explain the reasons for their decision. The distribution of the responses to this case text, which was completed to reveal students' opinions on climate change, is presented in Table 9.

Table 9. Completing the Case Text on Climate Change Chi squared Result

Answers	N (Observed)	Df	x2	p
Yes, I would take the complaint back.	85	1	232.899	.000
No, I would not take the complaint back.	432			

In Table 9, it is apparent that a large part of the students (432 people) stated that they would not withdraw their complaints. According to the results of the single sample chi-squared test, there is a significant difference between the students' answers to complete the case text, and it was found that the calculated effect size is very high ($X^2_{(1)}=232,899$; $p=.000$, $p<.05$; $\eta^2=0.45$).

According to the results of the two-way Chi squared test conducted to determine whether there is a relationship between students' opinions on completing the case text and the grade level they study, there is a significant relationship between the grade level and their opinions on climate change, and it was found that the calculated effect size is small ($X^2_{(3)}=8.625$; $p=.035$, $p<.05$; $\eta^2=0.01$). According to the results of the two-way Chi-squared test conducted to determine if there is a relationship between students' opinions in completing the event text and participation in the environmental activity, it is observed that there is a significant relationship between

participation in the environmental activity and the opinion on climate change, and the calculated effect size was found to low ($X^2_{(3)}=10.044$; $p=.018$, $p<.05$; $\eta^2=0.01$).). Based on the results of the two-way Chi squared test conducted to determine whether there is a relationship between students' opinions on completing the case text and being affected by climate change, there is a significant relationship between being affected by climate change and their opinions on climate change, and it was found that the calculated effect size is small ($X^2_{(4)}=11.240$; $p=.024$, $p<.05$; $\eta^2=0.02$). In line with these findings, it can be said that in the dilemma of deciding on the outcome of the case text about climate change, as the grade level, frequency of participation in environmental activities and the level of being affected by climate change increase, students tend to show more behavior towards reducing the effects of climate change.

Sample sentences of students' opinions on completing the case text are shown in Table 10 according to the themes.

Table 10. Sample Sentences for Opinions on Completing the Case Text on Climate Change

Themes	N	Example Sentences
Yes, I would take the complaint back.	85	<p>“Yes, I would withdraw my complaint. Because: people prioritize job opportunities, that is, earning an income, above everything else. It is more important that we do not withdraw the complaint regarding climate change, but financial income is in people's first plan...” (E115)</p> <p>“... I would take back my complaint because he would give me a job.” (E219)</p> <p>- “Yes, I would take it back because I think gold and coal would be more useful to people than 6000 olive trees.” (K454)</p>
No, I wouldn't take the complaint back.	432	<p>“No, I would not withdraw my complaint. Because the main wealth is nature, I will not let it deteriorate.” (K13)</p> <p>- “No, I would not. Because the damage and exposure of the region to poison in general is much more important than a few job opportunities.” (E108)</p> <p>“I would not withdraw my complaint. I liked the questions very much. I think more studies like this should be done; the necessary channels should be consulted, people should be more aware, climate change impacts all people and living things.” (E274)</p> <p>- “No, I would not, because I am aware of the damage that thermal power plants can cause to nature.” (K460)</p>

In Table 10, most students declare that they will behave sensitively toward the environment and climate change. As seen in the example sentences, economic concerns and financial conditions, such as unemployment problems negatively affect some students' attitudes towards being environmentally friendly and sensitive to climate change, and it can be said that they prioritize individual and social-economic benefits in the shorter term.

DISCUSSION AND CONCLUSION

In this research conducted to examine the climate literacy levels of students studying in secondary education in terms of some variables and to reveal their opinions on climate change, it was found that the majority of students (71.3%) follow the developments related to climate change and think that they are exposed to the effects of climate change (72.9%). While the internet is considered the most essential source of information about climate and climate change, it is followed by books, magazines, and television programs. School and family ranked last as sources of information. Similarly, in the studies conducted, it has been revealed that the two most important sources of information about climate change are television news and the internet, and the participation rates of students in research and projects are very low (Inel Ekici, 2017; Saracoglu & Kahyaoglu, 2018; Okumuş & Yetgil, 2020; Işık & Ulus, 2021; Altınbilek, 2022). In the World Youth Report prepared by the United Nations (2010), the importance of youth's active role in the steps to be taken to reduce the effects of climate change, in which young people create sensitivity to climate change, primarily through media and education, was emphasized. In the studies conducted, young people are the most affected by the effects of climate change, including the consequences that changing climate conditions will have on the food and agriculture sectors (UN, 2021, 2023). The fact that young people in secondary education are one of the most important target groups to raise awareness and take action on climate change should not be ignored.

The students stated that they are exposed to the most floods and overflows and excessive and irregular rains in the place where they live (Turkey-Bartın) and are also affected by epidemics and a decrease in agricultural products. Nonetheless migration, decrease in the diversity of living things, forest fires, sea level rise, and drought have been mentioned to a lesser extent as the effects of climate change. In the studies conducted, it has also been concluded that students are aware of the effects, such as floods and forest fires related to climate change in the place where they live (Kılınç et al., 2008; Aksan & Çeliker, 2013; Aydın, 2015; Eroğlu & Aydoğdu, 2016). These

results imply that climate change awareness is important locally and that solutions should be developed in the context of ecological sustainability appropriate to local conditions.

While the high mean scores of students in the “climate awareness” dimension, where the items related to climate change are included refer to a significant result, the low mean scores in the “climate consciousness” dimension, where the items related to reducing the effects of climate change and taking action are included, are a result that needs to be studied. Although the mean for the “climate concept” dimension is relatively high, it should be considered that students do not see school as an important source of information about climate change. Considering the issue of climate change at the secondary education level in Turkey as an achievement in the geography course curriculum (Gülersoy, 2022), the lack of ecological sustainability issues (Ünal & Kaygın, 2020; Ünal & Ünal, 2023) may be an important reason for this result. In studies on climate, climate change, and related topics, it has also been determined that students have insufficient knowledge and misconceptions (Bord et al. 1., 2000; Demirkaya, 2008; Choi et al. 1., 2010; Coşkun, 2010; Meehan et al., 2018; Arslan & Görgülü Arı, 2021; Kılıçoğlu & Akkaya Yılmaz, 2021; Altınbilek, 2022). Another study concluded that although there are information deficiencies, young people's awareness of climate change is high (Henden Şolt, 2022). In many countries (Canada, USA, Spain, South Africa, Turkey, Germany, Finland, Australia, England, and Sweden), climate and climate change topics are taught in schools with an interdisciplinary or disciplinary approach (Barak & Gönencgil, 2020). Education is of great importance among the measures to adapt to climate change and mitigate its consequences (Dalelo, 2011). Certainly, the inclusion of more achievements in secondary education climate change education programs in Turkey (Kahraman & Şenol, 2018; Türkeş, 2022, Gülersoy, 2022) and the implementation of activities and studies involving climate action related to this issue will play an important role in improving this situation.

The analyses conducted according to variables found that the climate literacy levels of female students were higher than male students. There was no significant difference in the climate literacy levels of students according to the type of school, the location of the school, the educational level of parents, and the frequency of participation in environmental activities. In a study conducted, it was also stated that there is no significant difference in climate change awareness according to age, marital status, education level, welfare level, and place of residence variables other than gender (Ağralan & Sadioğlu, 2021). In a study on ecological sustainability, there was no difference according to the place of residence (Ünal & Ünal, 2023). On the other hand, it was also determined that there was an increase in climate literacy levels as the grade levels, the frequency of following the developments related to climate change and the degree of being affected by climate change increased. In various studies, it has been found that female students and other women are more concerned about climate change, and their awareness is higher (Ağralan & Sadioğlu, 2021; Berker, 2021; Işık & Ulus, 2021).

In contrast to this research, another study indicates that those in rural or low socio-economic positions are disadvantaged in climate change awareness, and their awareness is low (Berker, 2021). This can be explained by the fact that climate conditions and climate change impacts are similar in rural or urban areas in Bartın Province where the research was conducted, i.e., local conditions. Generating solutions suitable for local conditions in adaptation to climate change and mitigation of its impacts will also align with the United Nations “Climate Action” goal. It will provide an opportunity for a more sustainable ecological life locally.

Based on the results of the research, there is a positive and significant relationship between the climate literacy levels of the students and the status of following climate change developments and being affected by climate change. A similar result was found when students' opinions on climate change were evaluated. It was found that as the grade level, frequency of participation in environmental activities, and level of exposure to climate change increased, they tended to exhibit behaviors aimed at reducing the effects of climate change more. However it is also noteworthy that some students tend to put behaviors and actions that are not environmentally friendly and aimed at reducing climate change on the back burner due to economic concerns and financial problems like unemployment. While economic concerns of individuals and problems including unemployment are important obstacles to exhibiting environmentally friendly behaviors, legal regulations and the production of national solutions with government incentives and support are the most critical solutions in ecological sustainability (Eriksen & O'Brien, 2007; UN, 2016; Tarhan et al. 1., 2017; Ünal & Kaygın, 2020; Ünal & Ünal, 2023; UN, 2023) and climate action.

Implications

Although climate literacy and climate change awareness are among young people, there is a need for education and interdisciplinary studies on the subject.

Limitations

This study was carried out in a city in Turkey.

Statements of Publication Ethics

In this study, the principles of publication ethics were followed and necessary permissions were obtained with the approval of Ethics Committee document numbered 022-SBB-0384.

Conflict of Interest

This study does not have any conflict of interest.

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A Comparison of Entrepreneurship of 5th-Grade Gifted and Non-Gifted Students

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Research Article

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Abstract

Developing entrepreneurial skills at all educational levels, but especially in the early years of education is critical for growing individuals that are able to adapt to a world that is rapidly changing and for the development of society at large. In order to stimulate students' entrepreneurial endeavors, educators, policymakers, and scholars need to understand the characteristics of their entrepreneurial behavior. The goal of this study was to investigate a number of variables connected to the relative features of entrepreneurship, such as leadership and leadership responsibility, personal gain, need for achievement, and self-confidence, among gifted and non-gifted fifth graders. The present study employs a descriptive research model in order to reach generalizations by comparing some variables and entrepreneurship between gifted students and 5th-grade students who are not identified as gifted. Additionally, the causal comparison approach was utilized, by examining the research question separately by gender, school type, participation in science activities outside of school, the choice of a career related to mathematics and the perception of competence in mathematics. In terms of the scale, the results of the research show that there is no significant difference between gifted students and students without a diagnosis of giftedness. However, the average for gifted students is higher than the average for non-gifted students.

Keywords: Entrepreneurship, gifted students, non-gifted student

5. Sınıf Üstün Yetenekli ve Üstün Yetenekli Olmayan Öğrencilerin Girişimciliklerinin Karşılaştırılması Öz

Girişimcilik becerilerinin tüm eğitim seviyelerinde, özellikle de formal eğitimin ilk yıllarında geliştirilmesi, hızla değişen dünyaya uyum sağlayabilen bireyler yetiştirmek ve genel olarak toplumun gelişimi için kritik öneme sahiptir. Öğrencilerin girişimcilik özelliklerini teşvik etmek için eğitimciler, kural koyucular ve akademisyenler bu öğrencilerin girişimci davranışlarının karakteristik özelliklerini anlamalıdır. Dolayısıyla bu çalışmanın amacı, 5. sınıf düzeyindeki üstün yetenekli tanısı olan öğrenciler ve üstün yetenekli tanısı olmayan öğrenciler arasında liderlik ve liderlik sorumluluğu, kişisel kazanım, başarı ihtiyacı ve özgüven gibi girişimciliğin görece özellikleri hakkındaki bir takım değişkenleri incelemektir. Bu çalışmada, üstün zekalı öğrenciler ile üstün zekalı olarak tanımlanmayan 5. sınıf öğrencileri arasındaki girişimciliği bazı değişkenler açısından karşılaştırarak genellemelere ulaşmak için betimsel bir araştırma modeli kullanılmıştır. Ayrıca araştırma sorusu cinsiyet, okul türü, okul dışında bilimsel etkinliklerine katılım, matematik ile ilgili bir kariyer seçme ve matematikte yeterlilik algısı tercihlerine göre ayrı ayrı incelenerek nedensel karşılaştırma yaklaşımından yararlanılmıştır. Araştırma bulgularına göre ölçeğin genelinde üstün yetenekli öğrenciler ile üstün yetenekli tanısı konulmayan öğrenciler arasında anlamlı bir farklılık olmadığı fakat üstün yetenekli öğrencilerin ortalamasının üstün yetenekli olmayan öğrencilerin ortalamasından fazla olduğu görülmüştür. Buna rağmen her iki grupta da ortalamaların orta düzeyde olduğu tespit edilmiştir.

Anahtar kelimeler: Girişimcilik, üstün yetenekli öğrenciler, üstün yetenekli olmayan öğrenciler

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INTRODUCTION

In the economic and social development of a country, entrepreneurship plays an important role and the act of construction creates jobs, offers innovative solutions, improves the standard of living, reduces poverty, and ensures the effective use of resources as well as creating economic and social value (Kelley, Singer & Herrington, 2016). An open topic in the study of entrepreneurship is to investigate the willingness of individuals to become entrepreneurs and how their characteristics and outlook toward entrepreneurship influence the decisions they make regarding whether to become entrepreneurs, whether they see entrepreneurship as a good career choice, and how feasible they believe it to be (Che Embi, Jaiyeoba & Yussof, 2019). It has been empirically shown that there was a correlation between the students who were entrepreneurially inclined compared to those who were not entrepreneurially inclined, except for their tolerance for ambiguity and level of self-confidence, all the entrepreneurial traits had a significant difference (Gürol & Atsan, 2006). Frese (2009) argues that achievement attitude, control orientation (self-efficacy), entrepreneurial sense, and risk-taking tendencies are important personal characteristics of entrepreneurial orientation, while experience, mental ability, and expertise are important factors of entrepreneurial orientation as well. An additional research study examined whether the characteristics of the personality can affect an individual's entrepreneurial attitude, and researchers found that the personality traits were beneficial in predicting entrepreneurial intention as illustrated by the results (Karabulut, 2016). As a result, it is necessary to prepare learning environments that will promote entrepreneurship skill development in students, especially within the context of schools, where students have the opportunity to develop these skills as early as possible (Eraslan, 2011). In addition to the aforementioned studies, a number of additional research investigations have studied the association between personality traits and entrepreneurial behavior. Baumgartner, Fisch and Aigner (2018) discovered that persons with high scores on qualities such as openness to experience, conscientiousness, and extraversion were more inclined to engage in entrepreneurial action. Similarly, Li, Lu and Wang (2017) discovered that people with more emotional stability and self-esteem were more likely to establish their own enterprises. In addition, education and prior work experience have been demonstrated to influence a person's desire to become an entrepreneur. According to a study by Kautonen, van Gelderen and Fink (2013), persons with past work experience in small enterprises are more likely to start their own businesses, whereas those with higher levels of education are more likely to pursue careers with established corporations.

Particularly, it is mentioned that students are recommended to gain an understanding of entrepreneurship during the age range of 11-12 years old (Hassi, 2016). A literature review on entrepreneurship indicates there are some positive reports (Bartulović & Novosel, 2014) about the benefits of entrepreneurship for students, however, no research has been published for comparing the performance of gifted students in their fifth-grade year with students who are not considered gifted in their 11-12 years of education.

Literature Review

Entrepreneurship can be presented as a viable alternative to dependent employment through interventions in the educational system (do Paço, Ferreira, Raposo, Rodrigues & Dinis 2015). The evidence supporting a positive link between education and entrepreneurship is strong and compelling (Oosterbeek, van Praag & Ijsselstein, 2010). The consensus is that childhood and early adolescence are the ideal times to develop a positive attitude toward entrepreneurship and to acquire some basic knowledge and information about it (Peterman & Kennedy, 2003). In developing educational programs suitable for fostering entrepreneurial skills and business creation, knowledge of the most influential characteristics of student entrepreneurs can be crucial (Oosterbeek et al., 2010). Therefore, this section will be devoted to presenting the characteristics and skills of entrepreneurial individuals, as well as the entrepreneurial tendencies of gifted students.

Students' entrepreneurial characteristics have recently become a topic of interest in the entrepreneurship and strategy literature (Salamzadeh et al., 2014). Understanding and forecasting entrepreneurial intentions require research into the inspiration and factors that contribute to entrepreneurial intention (Krueger, Reilly & Carsrud, 2000). Entrepreneurs need to take risks and identify new and valuable opportunities in the marketplace by engaging in imaginative thinking, being familiar with available resources, and by using appropriate business plans when implementing entrepreneurial initiatives (Wang, Lai & Lu, 2020). In a study conducted in Indonesia, university students displayed higher levels of controlling behaviors, achievement needs, risk-taking dispositions, creativity, networking, and tolerance for entrepreneurship (Kusmintarti, Thoyib, Maskie & Ashar 2016). Furthermore, researchers have identified six major characteristics that indicate a person's capacity to be successful as an entrepreneur: commitment, determination, autonomy, locus of control, risk-taking, tolerance for ambiguity, and confidence (Gürol & Atsan, 2006).

Entrepreneurship talent is characterized by several specific characteristics associated with it, such as perseverance, optimism, early exposure to challenges, tough character, flexibility, and independence of thought (Shavinina, 2008). As Setiawan (2014) suggested, a successful entrepreneur is one who consistently produces and assembles estimated costs around the appearance of chance. According to different studies, entrepreneurship relies on a range of factors, such as facilitation, innovation, creativity, self-efficacy, calculated risk-taking, etc. which all contributes to successful entrepreneurship (Shakir, 2019). A study puts more emphasis than ever on fostering creativity in the 21st century through education, and invention-gifted education is a good way to promote creativity and develop invention ability (Lee, 2016). This emphasizes the necessity for educational programs that promote and foster the development of entrepreneurial and innovative talents in talented individuals. Gifted students have been identified as those who exhibit a strong sense of reasoning, good memory, good moral judgment, and the ability to use numbers effectively (Maker & Nielson, 1996). Students who are gifted enjoy exploring possibilities for solutions to problems and generating new ideas. In addition to showing a variety of characteristics that are similar to those of successful individuals engaged in entrepreneurship and innovation, gifted students also demonstrate a great deal of initiative and an insatiable desire for discovery and experimentation (Shavinina, 2012). There has been a lot of research into the correlation between giftedness and entrepreneurial success. Many of the qualities prized in successful business owners are also common among the gifted, including originality of thought and the willingness to take risks. According to a study by Maker and Nielson (1996), gifted persons have a strong sense of logic, a good memory, high moral judgment, and the ability to use numbers efficiently, all of which contribute to their entrepreneurial success. Moreover, according to a study by Shavinina (2008), entrepreneurs tend to possess characteristics such as tenacity, optimism, early exposure to adversity, a tough character, adaptability, and intellectual independence, which are also typical of gifted persons. Literature reveals, in conclusion, that gifted individuals exhibit a number of highly valued traits and attributes, including creativity, inventive thinking, and the capacity to take calculated risks. In addition, educational programs that promote and cultivate the development of entrepreneurship and innovation abilities can assist in fostering creativity in gifted individuals.

Purpose of the Study

The purpose of the research is to determine the relative characteristics of entrepreneurship between gifted and non-gifted 5th-grade students in relation to some variables. The study aims to compare the entrepreneurial traits and skills of gifted and non-gifted students and examine any differences between the two groups. Despite the increasing popularity of entrepreneurship education and its positive effects on students, there has been no research published on the performance of gifted fifth graders compared to students who are not identified as gifted in their 11-12th grade years. Hence, the purpose of this study is to fill this gap in the literature and examine the relationship between giftedness and entrepreneurship.

In particular, entrepreneurial education is increasingly regarded as a critical development process that enhances young people's propensity toward becoming entrepreneurs and entails their likelihood to become more entrepreneurial in the future (Imaginário et al., 2016). Given this observation, it comes as no surprise that, during the past decade, a growing number of countries have purposefully introduced or integrated entrepreneurship into their school curricula. The process of entrepreneurship education must reach individuals in a culturally sensitive manner, such that information concerning how to become an entrepreneur must be imparted within the framework of the culture in which they live (Lee & Peterson, 2000). There have been many national strategies developed in recent years in order to make entrepreneurship education a progressive structure in several countries throughout Europe, such as specific strategies for improving entrepreneurship education, education reforms, and lifelong learning (Vilcov & Dimitrescu, 2015). There is a growing awareness in Turkey of the importance of entrepreneurship, and creating a culture in which entrepreneurship is cultivated and valued as a paradigm upon which local and national governments and politicians place increased emphasis every day (Bulut & Aslan, 2014). European countries are increasingly promoting entrepreneurship education, for instance, eight countries have launched specific strategies to promote entrepreneurship education, while another 13 have integrated it into their national strategies relating to lifelong learning including Türkiye (Vilcov & Dimitrescu, 2015). As a point of reference, the new curriculum has interdisciplinary concepts that are correlated with lessons and life skills, and one of the topics included is entrepreneurship (MoNE, 2019). Increasingly, entrepreneurship education has become a popular topic among both young individuals and students in recent years due to the fact that it has been shown to engender a lasting interest in entrepreneurship during the life of the individual and Students who are introduced to entrepreneurial activities at an early age can be instilled with an entrepreneurial spirit by being exposed to entrepreneurial activities at an early age (Torimiro & Dionco-Adetayo, 2005). According to a study analyzing the

entrepreneurship education effects on primary school students, entrepreneurship education seemed to have a positive impact on their non-cognitive entrepreneurship skills (Huber et al., 2014). In the United States, there are several successful examples of entrepreneurship education programs that encourage kids to develop their entrepreneurial skills, including "Mini Society", created by Marilyn Kourilsky to benefit students aged 8-12. It has shown to be effective in stimulating students' interest in the concept of entrepreneurship (Kourilsky & Carlson, 1996). By introducing the "Entrepreneurs in Kentucky Initiative", the Kentucky Council also enhanced children's knowledge and attitude toward entrepreneurship and contributed to developing a sense of entrepreneurial curiosity (Code, 2006). It appears from a review on entrepreneurship education that there are some positive reports about entrepreneurship being beneficial to students, but no research has been published on the performance of gifted fifth graders compared to students who are not identified as gifted in their 11-12th grade years. Thus, the purpose of this study is to determine the relative characteristics of entrepreneurship between gifted and non-gifted 5th-grade students in relation to some variables.

Research Questions

The research problem of this study is determined as "How gifted and non-gifted 5th-grade students' entrepreneurship differ according to some variables?". The sub-problems addressed by the study are as follows:

1. Is there a significant difference between the entrepreneurial abilities of gifted and non-gifted 5th graders?
2. Is there a significant difference between the entrepreneurial abilities of gifted and non-gifted 5th graders based on gender?
3. Is there a significant difference between the entrepreneurial engagement of gifted and non-gifted 5th-grade students based on their involvement in scientific activities outside the regular classroom environment?
4. Is there a significant difference between the entrepreneurial abilities of gifted and non-gifted students of the 5th grade in terms of their choice of mathematics-related profession?
5. Is there a significant difference between the entrepreneurship of gifted and non-gifted 5th-grade students based on their perceptions of math competence?

METHOD

This chapter aims to provide information about the model of the research, the participants, data collection, the analysis, and the process of the study.

Model of the Research

This study employs a descriptive research model in order to reach generalizations by making comparisons of some variables and entrepreneurship between gifted students and 5th-grade students who were not diagnosed as gifted. The causal comparison approach was also employed in this study, as the research question was examined separately by gender, school type, participation in science activities outside of school, the choice of a career related to mathematics and the perception of competence in mathematics. Cohen and Manion (1994) stated that in causal comparison studies, there would be at least two groups that were affected by the same situation differently, or two groups that were affected and unaffected by the assumed situation, and these variables could be compared between these groups.

Participants

In the 2021-2022 school year, 254 students participated in the study, including 91 gifted students and 163 non-gifted students who were not diagnosed as gifted at the fifth-grade level. In this article, it is further stated that data on gifted students have been gathered from a Science and Art Center (SAC) located in the Western Black Sea region, and data on students who are not diagnosed as gifted have been collected from secondary schools within the same province. During this process, attention was paid to select the closest secondary school to the students in SAC in terms of academic success. The reason why students are chosen close to each other in terms of academic success is to examine whether the diagnosis of giftedness among successful students will make a difference in entrepreneurship. In making the selection of the school, the most successful school was determined by taking into account the average placement scores in high schools. As a result, the public school was selected in accordance with the criterion sampling method, one of the purposeful sampling techniques. The gender distribution of the participants is shown in Table 1.

Table 1. The Distribution of Students by Gender

		Gender	f
Gifted Students		Male	52
		Female	39
Students who are undiagnosed as gifted		Male	74
		Female	89

In accordance with the demographic characteristics of students represented in Table 1, 128 female (n=39 gifted, n=89 non-gifted) students (50.4%) and 126 male (n=52 gifted, n=74 non-gifted) students (49.6%) participated in this research.

Data Collection

In the scope of the research, the Entrepreneurship Scale for 5th Grade Students developed by Sontay, Yetim, Karamustafaoglu and Karamustafaoglu (2019) was utilized to assess the entrepreneurial tendencies of the students. There are 29 items on the scale, which are divided into four sub-dimensions. The self-confidence dimension contains ten items, the need for achievement dimension contains seven items, the personal gain dimension contains seven items, and the leadership and responsibility dimension contains five items. It is a 3-point Likert-type scale that is classified as "Always", "Sometimes" and "Never.". There are sixteen items on the scale that contain positive statements, and thirteen items that contain negative statements. A negative statement was coded into the program taking this into consideration. In order to collect data about independent variables, students were asked to put a mark in the appropriate related category for each variable before the scale.

Sontay et al. (2019) found the Cronbach's alpha internal consistency coefficient for the whole scale they developed 0.77, 0.91 for the first sub-dimension, 0.91 for the second sub-dimension, 0.94 for the third sub-dimension, and 0.82 for the fourth sub-dimension. In the data collected within the scope of this research, the Cronbach's alpha internal consistency reliability coefficients of the Entrepreneurship Scale for 5th Grade Students scale determined 0.84 for the whole scale, 0.93 determined for the first sub-dimension, 0.92 determined for the second sub-dimension, 0.94 determined for the third sub-dimension, 0.83 determined for the fourth sub-dimension. According to the data obtained, it can be said that the scale is valid and reliable for this research.

Data Analysis

Students were interviewed in the designated SAC and secondary schools in the city center, and the researchers provided an explanation of the research to the administrators of the institutions, who then applied the scale forms to the students with the support of the administration. A systematic numbering system was employed on the scale forms that emerged from the students in order to facilitate analysis. Analysis of the research data was conducted using the SPSS 23.00 package program.

Before beginning the analysis of the study, it was first determined if the independent and dependent variables were normally distributed in order to determine the distinction status of entrepreneurship according to various variables (Kolmogorow-Smirnow H test). Based on the results of the analysis, since the analysis detected normal distributions in all sub-problems, the unrelated groups' t-test was used to answer the first sub-problem, while the other sub-problems were addressed using one-factor ANOVA. While presenting the findings, they were coded both as gifted students (GS) and as students who were not diagnosed as gifted (NGS).

Research Ethics

All ethical procedures were performed in this study. Ethical permission of the research was approved by Zonguldak Bülent Ecevit University Social and Human Sciences Ethics Committee. Ethics committee document number is 13.05.2022-165623.

FINDINGS

Results Related to The First Sub-Problem

Table 2 presents the results of a comparative analysis of entrepreneurship among gifted and non-gifted fifth-grade students. The results were compared for the overall scale as well as each sub-dimension of the scale (leadership and leadership responsibility, personal gain, need for achievement, and self-confidence).

Table 2. T-test Results based on Mean Scores for Comparing Entrepreneurship of GS and NGS Students in Unrelated Groups

	Type of student	n	\bar{x}	Ss	Sd	t	p
Self-confidence	GS	91	16.81	1.861	252	2.625	0.009
	NGS	163	17.50	2.086			
Need for Achievement	GS	91	18.47	2.244	252	-1.403	0.162
	NGS	163	17.98	2.071			
Personal Gain	GS	91	13.60	1.744	252	0.923	0.357
	NGS	163	13.84	2.064			
Leadership and leadership responsibility	GS	91	10.46	1.798	252	-3.394	0.001
	NGS	163	9.58	1.674			
Entrepreneurship Scale (Overall)	GS	91	59.35	3.944	252	-0.462	0.645
	NGS	163	58.90	4.292			

p < 0.05

The results in Table 2 demonstrate that there was no significant difference ($t = -0.462$, $p > .05$) between gifted students and students who were not diagnosed as gifted. Although there is not a significant difference, it is noteworthy that the average for gifted students is higher than the average for students who were not diagnosed as gifted for the overall scale. In the analysis of the sub-dimensions of the scale, it was found that there was a significant difference between gifted and non-gifted students in the categories of self-confidence ($t = 2.625$, $p < .05$) and leadership and leadership responsibility ($t = -3.394$, $p < .05$). Analyzing the averages, it was determined that the significant difference in the sub-dimension of self-confidence favored students who are not identified as gifted, whereas the significant difference in the sub-dimension of leadership and leadership responsibility favored gifted students. Conversely, the averages for the other sub-dimensions and the scale in general are at a moderate level, with the exception of the Need for Achievement sub-dimension (GS:18.47, NGS:17.98, max:21).

Results Related to the Second Sub-Problem

In Table 3, the entrepreneurial activity of 5th-grade students who were not diagnosed as gifted and gifted was compared by gender.

Table 3. The Results of the One-Factor ANOVA Test Conducted for the Comparison of Entrepreneurship of GS and NGS Students by Gender Variable

Self-confidence	Factors contributing to the difference	The sum of the squares	d	Calculation of the mean square	F	p	The difference
	Groups	39.80	3	13.26	3.302	0.021	NGS F – GS M GS M - NGS M
	In Groups	1004.56	250	4.01			
	Overall	1044.36	253				
	Groups	19.735	3	6.57			
Need for Achievement	In Groups	1137.48	250	4.55	1.446	0.230	
	Overall	1157.21	253				
	Groups	11.68	3	3.89			
	In Groups	955.18	250	3.82			
Personal Gain	Overall	966.86	253		1.020	0.385	
	Groups	41.30	3	13.76			
	In Groups	739.59	250	2.95			
	Overall	780.89	253				
Leadership and leadership responsibility	Groups	44.15	3	14.71	4.654	0.003	NGS F – GS M GS M - NGS M
	In Groups	4343.83	250	17.37			
	Overall	4387.98	253				
	Groups	44.15	3	14.71			
Entrepreneurship Scale (Overall)	In Groups	4343.83	250	17.37	0.847	0.469	
	Overall	4387.98	253				
	Groups	44.15	3	14.71			
	In Groups	4343.83	250	17.37			

p < 0.05 *Male GS M, NGS M / Female GS F, NGS F * Self-confidence \bar{x} : NGS F: 17.51, GS M: 16.48, NGS M: 17.44* Leadership and leadership responsibility \bar{x} : NGS F: 9.53, GS M: 10.44, NGS M: 9.59

As shown in Table 3, the self-confidence ($F: 3.302, p < .05$), leadership, and leadership responsibility ($F: 4.654, p < .05$) sub dimensions were not significantly different by gender for the other two sub- dimensions and the overall scale. A significant difference was found in the sub-dimensions of self-confidence, leadership and leadership responsibility between groups of female who were not diagnosed as gifted and gifted male students, and between gifted and non-gifted males. Although there is a significant difference in the self-confidence sub-dimension in favor of students who are not diagnosed as gifted, when factors contributing to the difference in the Leadership and Leadership Responsibility sub-dimension are examined, they are in favor of the gifted students.

Results Related to The Third Sub-Problem

Table 4 summarizes the entrepreneurial activities of 5th-grade students who were not diagnosed as gifted versus those who were diagnosed as gifted based upon their participation in scientific activities outside of school.

Table 4. The Results of the One-Factor ANOVA Test Conducted in the Comparative Study of Entrepreneurship among GS and NGS Students According to a Variable of Participation in Out-of-School Scientific Activities

Self-confidence	Factors contributing to the difference	The sum of the squares	d	Calculation of the mean square	F	p	The difference
	Within Groups	50.90	3	16.96			
	In Groups	993.46	250	3.97	4.270	0.006	GS Y– GS N
	Overall	1044.36	253				
Need for Achievement	Within groups	10.91	3	3.63			
	In Groups	1146.30	250	4.58	0.793	0.499	
	Overall	1157.21	253				
Personal Gain	Within groups	6.85	3	2.28			
	In Groups	960.00	250	3.84	0.595	0.619	
	Overall	966.86	253				
Leadership and leadership responsibility	Within groups	52.49	3	17.50			
	In Groups	728.39	250	2.91	6.006	0.001	GS Y– NGS Y GS Y– NGS N
	Overall	780.89	253				
Entrepreneurship Scale (Overall)	Within groups	24.89	3	8.29			
	In Groups	4363.08	250	17.45	0.475	0.700	
	Overall	4387.98	253				

$p < 0.05$ *For Yes GS Y, NGS Y / For No GS N, NGS N * Self-confidence \bar{x} : GS Y: 17.70, GS N: 16.47

* Leadership and leadership responsibility \bar{x} : GS Y: 10.45, NGS Y: 10.00, NGS N: 9.35

According to Table 4 it is determined that participation in scientific activities outside of school is significantly correlated with the self-confidence sub-dimension ($F: 4.270, p < .05$). Upon examining the factors contributing to the difference, it was found that there was a significant difference between gifted students who participated in the scientific activity and those who did not (in favor of gifted students who participated in the scientific activity). The sub-dimensions of leadership and leadership responsibility also showed a significant difference ($F: 6.106, p < .05$). In this sub-dimension, the factors contributing to the difference were determined to be the participation of gifted students and students who are not diagnosed as gifted in the scientific activity (to the benefit of gifted students), and the participation of gifted students in the scientific activity and students who are not diagnosed as gifted who do not participate (to the benefit of gifted students). In other sub-dimensions and overall, there was no significant difference observed between the two groups according to the variable of participating in scientific activities.

Results Related to The Fourth Sub-Problem

The entrepreneurial activities of 5th-grade students who were not diagnosed as gifted and gifted students were compared in terms of their choices of profession related to mathematics, as shown in Table 5.

Table 5. Results of One-Factor ANOVA Tests Comparing Entrepreneurial Motivations of GS and NGS Students in Relation to Variables of Profession Selection Related to Mathematics

Self-confidence	Factors contributing to the difference	The sum of the squares	d	Calculation of the mean square	F	p	The difference
	Within groups	31.48	3	10.49			
	In Groups	1012.88	250	4.05	2.590	0.053	
	Overall	1044.36	253				
Need Achievement for	Within groups	37.08	3	12.36			The variances in the two samples are not equal, and there is no difference in the results of the James-Howell test.
	In Groups	1120.12	250	4.48	2.759	0.043	
	Overall	1157.21	253				
Personal Gain	Within groups	5.94	3	1.98			
	In Groups	960.92	250	3.84	0.515	0.672	
	Overall	966.86	253				
Leadership and leadership responsibility	Within groups	37.03	3	12.34			NGS Y - NGS N
	In Groups	743.86	250	2.97	4.149	0.007	
	Overall	780.89	253				
Entrepreneurship Scale (Overall)	Within groups	23.93	3	7.97			
	In Groups	4364.05	250	17.45	0.457	0.713	
	Overall	4387.98	253				

$p < 0.05$ *For Yes GS Y, NGS Y / For No GS N, NGS N

* Leadership and leadership responsibility \bar{x} : NGS Y: 9.52, NGS N: 10.34

Using Table 5, it can be observed that only two sub-dimensions showed significant differences based on 5th grade students' career choices relating to mathematics: need for achievement ($F: 2.759, p < .05$) and leadership and leadership responsibility ($F: 4.149, p < .05$). It is noteworthy that, although there was no significant difference within the groups for the need for achievement sub-dimension, factors contributing to the difference was found among the students who were not diagnosed with giftedness, who would choose a career related to mathematics or not. On the other hand, in leadership and leadership responsibility sub-dimension, the factors contributing to the difference were determined to be among the students who were not diagnosed with giftedness, who would choose a career related to mathematics or not (to the benefit of students' career choices not relating to mathematics).

Results Related to The Fifth Sub-Problem

The following table compares the perceptions of mathematics competence between gifted 5th-grade students and 5th grade students who have not been diagnosed as gifted.

Table 6. Results of the One-Factor ANOVA Test Conducted to Compare Entrepreneurship among GS and NGS Students Based on Perceptions of Competency in Mathematics

Self-confidence	Factors contributing to the difference	The sum of the squares	d	Calculation of the mean square	F	p	The difference
	Within groups	79.57	4	19.89			
	In Groups	964.79		3.87	5.134	0.001	NGS 2 – GS 3
	Overall	1044.36	249				
			253				
	Within groups	141.78	4	35.44			
	In Groups	1015.43		4.07	8.692	0.000	GS 1 – GS 2 GS 1 – NGS 2 GS 1 – GS 3 GS 1 – NGS 3 GS 3 – NGS 2
	Overall	1157.21	249				
			253				
	Within groups	30.63	4	7.65			
	In Groups	936.23		3.76			
	Overall	966.86	249		2.037	0.090	
			253				
	Within groups	49.18	4	12.29			
	In Groups	731.71		2.93			
	Overall	780.89	249		4.185	0.003	GS 3 – NGS 2 GS 3 – NGS 3
			253				
	Within groups	58.98	4	14.74			
	In Groups	4328.99		17.38			
	Overall	4387.98	249		0.848	0.496	
			253				

$p < 0.05$ * "I am not sufficient" GS 1, NGS 1 / "Sometimes I am sufficient" GS 2, NGS 2 / "I am sufficient" GS 3, NGS 3

* Self-confidence \bar{x} : NGS 2: 17.94, GS 3: 16.45 * Need for Achievement \bar{x} : GS 1: 12.33, GS 2: 18.03, GS 3: 18.89, NGS 2: 17.80, NGS 3: 18.16

* Leadership and leadership responsibility \bar{x} : GS 3: 10.62, NGS 2: 9.49, NGS 3: 9.66

The analysis of Table 6 indicates that there is a considerable difference between the sub-dimensions of self-confidence ($F: 5.134, p < .05$), need for achievement ($F: 8.692, p < .05$), leadership, and leadership responsibility ($F: 4.185, p < .05$), based upon the perceptions of competence in mathematics among the 5th-grade students. With respect to the self-confidence sub-dimension, factors contributing to the difference were not diagnosed as gifted students who indicated their mathematical capabilities as "sometimes" as opposed to those who were gifted as "I am sufficient". In relation to the sub-dimension of the need for achievement, it is noted that factors that contribute to the difference generally exist within all gifted groups. In regard to the leadership and leadership responsibility sub-dimension, it was determined that there was a significant difference between gifted students who stated their competencies as "sufficient", compared with students who were not diagnosed as gifted and who stated "sometimes I am sufficient" and "I am sufficient".

DISCUSSION & CONCLUSION

The purpose of this study is to examine a variety of variables related to the characteristics of entrepreneurship, such as leadership and leadership responsibility, personal gain, the need for achievement, and self-confidence, among gifted students and those who are not identified as gifted in fifth grade. The causal comparison method was used to examine the research question in relation to individual characteristics, including gender, school type, participation in science activities outside of school, the educational background of both

parents, assistance sought when struggling with mathematics, choice of a career in mathematics, and the perception of competency in mathematics.

We found that the significant difference in the sub-dimension of Self-Confidence favored students who are not identified as gifted, while the significant difference in the sub-dimension of Leadership and Leadership Responsibility favored gifted students. For example, researchers discovered that talented students are more likely to desire leadership roles, and they believed that leadership was an intrinsic part of their talents, as opposed to non-gifted students (Lee, Matthews, Boo & Kim, 2021). Nonetheless, although the significant difference in the sub-dimension of Self-Confidence favored students who were not identified as gifted, the researchers in a study noted that acceleration had a positive impact on high-ability learners' social-emotional development, which included self-confidence (Steenbergen-Hu & Moon, 2011).

Meanwhile, the other sub-dimensions and the scale generally have moderate averages, except for the Need for Achievement sub-dimension. It is important to emphasize this finding since it may have adverse effects on the self-actualization of students who lack achievement motivation, which can contribute to their underachievement (Desmet & Pereira, 2021). Additionally, the existing research has indicated that educators, parents, and researchers have been concerned for decades about a lack of achievement motivation among gifted students (Reis & McCoach, 2000).

In spite of significant differences in the self-confidence sub-dimension favoring students who are not diagnosed as gifted, factors contributing to the difference in the Leadership and Leadership Responsibilities sub-dimension favor the gifted students. The characteristics of good leaders are similar to those of gifted individuals, according to similar research on the leadership profile of gifted students (Chauvin & Karnes, 1983). These findings are consistent with findings from the literature on the characteristics of gifted students. As an example, the Marland Report (1972), which is credited with defining giftedness for the first time, states that "leadership" is one of six areas of giftedness. It is still surprising how few studies on leadership have included gifted students as participants despite a positive association between intelligence and some aspects of leadership (Bégin & Gagné, 1994). Some differences emerged between gifted and non-identified students when it came to leadership style preferences, such as gifted students favoring the telling leadership style more highly than non-identified students favoring the abdicating leadership style (Lee et al., 2021).

We found that there were significant differences between gifted students who took part in the scientific activity and those who did not (in favor of gifted students who participated in the scientific activity) in terms of self-confidence, leadership and leadership responsibility. According to a recent study, researchers examined the effectiveness of a science camp to increase young gifted children's capacity to comprehend and understand science and based on their findings, the camp was effective in increasing the young children's knowledge about STEM areas and their understanding about science (Mohd Zahidi et al., 2021). In the differentiated model of giftedness and talent, Gagné (2000) explained giftedness as the potential that places an individual in the top 10% of peers his or her own age in a specific domain, whereas he elaborated that for these skills to be developed into talents, formal and informal learning processes are required. Engaging students in activities outside of the school setting will promote their interest in learning science, and one of the best ways to foster this is through exciting and motivating teaching strategies.

Based on the results of such a study, we found that two sub-dimensions showed significant differences with respect to the career choices made by 5th grade students relating to mathematics: Need for Achievement and Leadership and Leadership Responsibility. In addition, the studies found that vocation-related interests and values are strong predictors of educational and career-related decisions (with mathematics/spatial abilities being more important than verbal abilities), that investigative-type interests and theoretical values are beneficial to careers in mathematics and related fields, and that time commitment is critical to success in those fields (McCabe, Lubinski, & Benbow, 2020; Webb, Lubinski & Benbow, 2002).

The results of the analysis indicate that there is a significant difference between the sub-dimensions of Self-Confidence, Need for Achievement, Leadership, and Leadership Responsibility in regard to the perceptions of competence in mathematics among the 5th grade students. Research exploring gifted students' perceptions and skills related to STEM education have similar findings to existing research. Using the STEM education model, the researchers attempted to discover the perceptions and capabilities of gifted middle school students by establishing that the students were able to apply their science knowledge to their engineering problems and developed their mathematical skills through integrating the products they designed with other subjects (Kulegel & Topsakal, 2021). Additionally, STEM education practices play an important role in discovering the perceptions and skills of gifted students, improving students' logical argumentation, scientific investigation, technological inquiry, and creative

thinking skills, and enabling them to make career choices (Kulegel & Topsakal, 2021). These skills are vital for developing entrepreneurial capabilities in a wide range of educational environments.

Implications, And Suggestion For The Future Research

Based on the results of the research, it was found that there was no significant difference between gifted students and students who were not diagnosed as gifted in the scale, however, the average of gifted students was higher than the average of non-gifted students. It was noted, however, that the averages for both groups were at a moderate level. In this regard, it is recommended to organize seminars and in-class/out-of-class activities for families in order to increase and strengthen entrepreneurial skills, which are a crucial part of 21st-century employment. On the other hand, qualitative studies of some variables can be conducted to determine whether there are differences between groups with respect to certain sub-dimensions of the scale. In addition, gifted and non-gifted students for different grade levels need to be compared in terms of their entrepreneurial skills, and necessary precautions should be taken for both groups.

Statements of Publication Ethics

Ethical permission of the research was approved by Zonguldak Bülent Ecevit University Social and Human Sciences Ethics Committee. Ethics committee document number is 13.05.2022-165623.

RESEARCHERS' CONTRIBUTION RATE

Authors	Literature review	Method	Data Collection	Data Analysis	Results	Conclusion	(Other)
Author 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Author 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Conflict of Interest

There is no conflict of interest in the study

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The Matthew Effect in Turkish Education System

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Abstract

Over the past 20 years, Türkiye has transitioned its education system to the massification phase, and schooling rates have reached over 99% at all levels of education, from primary to secondary levels. In addition to increasing the accessibility of education to those from disadvantaged socioeconomic status and facilitating the access of girls to education, this important transformation has also increased the effectiveness of the education system. Furthermore, the period was also characterized by free distribution of textbooks and teaching materials to all students in an effort to increase the equality of education opportunities. The provision of free meals, transportation to school, scholarships, accommodation assistance for students in need, as well as conditional financial support based upon the continuation of education was provided to students. The implementation of many social policies has continued over the past two decades in a consistent manner. With such a large system with approximately 19 million students, it is evident that this approach focuses on increasing equality of opportunity in education as opposed to simply increasing educational access. However, the achievement gap between schools persists despite all these supportive mechanisms, some of which are rooted in the past, some of which have arisen from massification of education. This study discusses the areas or instruments that prevent all students accessing education from receiving the same quality of education, regardless of their socioeconomic status, and areas of higher "Matthew effect" severity. The study reviews the impact of the Matthew effect on diverse aspects of education and uses document analysis method for analyzing the impact of Matthew effect through the recent data-based studies in Türkiye as an addition the literature on educational inequalities. The Matthew effect is particularly strong in four areas: in the Turkish educational system: access to early childhood education, the correlation of socioeconomic status with academic achievement, school tracking, and access to senior teachers. The study also provides suggestions for reducing the severity of the Matthew effect in these four areas.

Keywords: Matthew effect, education, massification, Türkiye, school tracking, socioeconomic status

Türk Eğitim Sisteminde Matta Etkisi

Öz

Türkiye, son 20 yılda eğitim sisteminin kitleleşme evresine geçişini sağlayarak temel eğitimden ortaöğretime kadar tüm eğitim kademelerinde okullaşma oranlarını %99'un üzerine çıkartmıştır. Eğitim sistemini büyütürken ve genişleterek yapılan bu önemli dönüşüm, özellikle dezavantajlı sosyoekonomik düzeyden gelen kesimlerin erişimini artırmış ve kız çocuklarının eğitime erişimlerini kolaylaştırmıştır. Bu atılan adımların yanı sıra dönemin en önemli özelliği, eğitimde fırsat eşitliğini artırmak için ders kitaplarının ve öğretim materyallerinin tüm öğrencilere ücretsiz dağıtılmasından, ihtiyacı olan öğrencilere ücretsiz yemek, okula taşıma, burs desteği, konaklama desteği sağlanmasına ve çocukların eğitime devam etmesi koşulu ile şartlı eğitim yardımı sunulması gibi çok sayıda sosyal politikanın son 20 yılda istikrarlı bir şekilde uygulanmaya devam etmesidir. Yaklaşık 19 milyon öğrencinin yer aldığı böylesi devasa bir sistemde sadece bu sosyal politikaları uygulamanın doğurduğu yıllık maliyet göz önüne alındığında, bu yaklaşımın eğitime erişimi artırmanın ötesinde eğitimde fırsat eşitliğini de artırmaya odaklandığı görülecektir. Tüm bu destek mekanizmalarına rağmen bir kısmı geçmişe dayanan, bir kısmı da eğitimde kitleleşme ile birlikte gelen sorunlar, okullar arası başarı farklarının varlığını sürdürmesine yol açmaktadır. Bu çalışmada, eğitime erişen tüm öğrencilerin sosyoekonomik seviyelerinden bağımsız olarak aynı nitelikte eğitime erişememelerine yol açan alanlar veya enstrümanlar "Matta etkisi" şiddetinin arttığı alanlar olarak tanımlanmaktadır. Çalışma Matta etkisinin eğitimin farklı alanları üzerindeki etkisini değerlendirmek üzere doküman analizi yöntemini kullanmaktadır. Gerçekleştirilen doküman analizinde, genel alan yazın taramasının yanında özellikle Türkiye'de eğitim sistemindeki eşitsizliklere dair güncel veri tabanlı çalışmalar dikkate alınmıştır. Bu bağlamda Türk Eğitim Sistemi'nde özellikle dört alan Matta etkisinin en şiddetli görüldüğü alanlar olarak değerlendirilmektedir: okul öncesi eğitime erişim, sosyoekonomik düzeyi ile akademik başarı arasındaki ilişki, okul ayrıştırması ve mesleki kıdem yılı yüksek öğretmene erişim. Çalışmada ayrıca bu dört alanda Matta etkisi şiddetini azaltmaya yönelik önerilerde bulunmaktadır.

Anahtar Sözcükler: Matta etkisi, eğitim, evrenselleşme, Türkiye, okul ayrıştırması, sosyoekonomik düzey

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INTRODUCTION

It was especially important for countries to make their education systems more inclusive after World War II, ensuring that all individuals of educational age have access to education for increasing the skills and quality of their most permanent asset - human capital. In this way, new concepts such as "growth, expansion, massification, and universalization" have been introduced to education systems. A consequence of this trend has also been a decline in policies that were previously elitist or that encouraged certain social groups to have greater access to education. Having achieved universalization in primary education and secondary education many years ago, most developed countries are now focused on massification in higher education.

Although massification or universalization efforts are able to solve the issue of access to education to some extent, the rapid expansion of education systems has created new challenges: Among these is the issue of those who have access to schools not receiving the same quality education. Second, due to the increasing access to education for all segments of society, inequalities at unprecedented levels have emerged. Almost all countries are now debating issues such as equal opportunity in education, inequalities in education, the relationship between socioeconomic status (SES) and academic achievement, as well as disadvantaged schools and regions.

As these discussions began and spread, there were two major points. Firstly, it is important to recognize the early work of James S. Coleman and his colleagues (Coleman et al., 1966). It was clearly demonstrated for the first time in the report that academic achievement levels are associated not only by factors within the school, but also by a variety of factors outside the school. Even though numerous methodological criticisms have been raised regarding Coleman's studies, these findings have been confirmed in a number of subsequent studies. Secondly, the French sociologist Pierre Bourdieu provided pioneering studies with a conceptual framework for understanding the Coleman report's findings. Studies have indicated that inequalities are led by cultural and social capital that goes beyond SES, and that these relations can even deepen inequalities and facilitate social class reproduction through education (Bourdieu, 1973; 1986; Bourdieu & Passeron, 2000).

In the aftermath of these studies, international large-scale assessments designed to track student achievement -including PISA, TIMSS, and PIRLS-, focused on both out-of-school and in-school factors. Several studies have shown that out-of-school factors are relatively strongly associated with academic achievement, and in many cases, they are more effective than in-school factors. It appears that student's family characteristics and their home opportunities may play an important role in their achievement, and that these characteristics may also contribute to achievement gap among students. In other words, the countries' performance in combating these factors has become evident. Therefore, indicators regarding equality of opportunity in education gained more importance than the indicators regarding equal access to education in contemporary assessments and comparisons.

Furthermore, Robert K. Merton (*Matthew Effect*) introduced the phenomenon by drawing on a verse in the Gospel of Matthew stating that 'to whomever has, more will be given'. Merton (1968) used this verse to explain phenomena in which advantages lead to greater advantages in most social and educational contexts. Therefore, the Matthew effect has been extensively used in education to explain the latent dynamics of academic achievement, beginning with Coleman and continuing with Bourdieu. All areas of life where inequalities exist can be affected by the Matthew effect. The Matthew effect results in significantly skewed distributions of resources, achievements, and rewards (Zuckerman, 1989). This distortion may continue over the course of one's lifetime.

The Matthew effect may also emerges in diverse directions due to its association with out-of-school factors. In other words, if inequalities due to out-of-school factors have a significant potential to enhance the existing advantage, then the Matthew effect has become evident (Hirsch, 2007; Kerchoff & Glennie, 1999; Özer & Perc, 2020; Reschly, 2010; Stanovich, 1999; Suna et al, 2020; Walberg & Tsai, 1983). The Matthew effect can be clearly observed in education when there is a strong correlation between SES and academic achievement. In light of this, Hirsch (2007) used the Matthew effect to explain the educational achievement gap between students from low- and high-SES. Students from higher SES families receive more support throughout the years, are in better equipped environments, and therefore are more successful than students from poor families due to their greater resources in preparing for school. Stanovich (1986, 1999) has shown that a similar effect is also valid in reading skills as well. The Matthew effect operates most prominently in early childhood education and care (ECEC), whose access is directly correlated with SES (Van Lancker, 2021).

Despite the discrepancy among examples, the 'key characteristic is that previous achievement is a determinant of future achievement' as Erdi (2020) states. Therefore, if the dependency is not controlled and necessary precautions for equality are not taken, inequalities in society can perpetually reproduce themselves through education inequalities. The purpose of this study is to briefly examine the massification phase of Turkish

education, then review of the main areas in which the Matthew effect over-quell in the education system and provide recommendations for alleviating these effects for a more egalitarian education system.

Massification in Education

During the 2000s, Türkiye faced serious challenges accessing primary and secondary education. The education system has been surrounded by a complex tangle of new problems such as the headscarf ban and coefficient regulation (a disadvantaged situation on the side of the graduates of VET schools reducing the possibility of entrance to university), as an addition to long-term chronic issues.

During the last 20 years, a number of stable steps have taken place in education that have enabled important transformations. It is evident that these steps are primarily concentrated in three aspects: physical investments, removing antidemocratic practices which limiting access to education, and implementing social policies to increase equal opportunity in education (Özer, 2023a).

The first of these three aspects involves the construction of new schools and classrooms. As a part of efforts to increase and facilitate access to education, the number of classrooms built in the last 20 years has increased from approximately 300 thousand to 900 thousand. Conversely, headscarf bans and coefficients that deepened inequalities have been abolished, and elective course options have been enriched in terms of subject and content to accommodate social demands. Thirdly, textbooks have been provided free of charge in order to enhance equality of opportunity in education in the last 20 years, the number of free meals provided to students has been continuously increased, a free transportation education system has been developed to facilitate students' access to school, as well as conditional financial aid to families in exchange for their commitment to continuing education, especially for girls. There is continuing stability in the implementation of earlier-mentioned social policies.

During the past 20 years, all of these steps have contributed to the massification and eventual universalization of primary and secondary education in Türkiye. For the first time, schooling rates have increased above 99% in primary and secondary education, and practices which limiting to access to education -particularly among girls- have been resolved (OECD, 2023; Özer, 2023a; Özer & Suna, 2023). As a result of the steps taken, the most disadvantaged student groups and regions now have higher chances and investments of gaining access to education.

Emerging of Matthew Effect in Diverse Education Aspects

The Turkish education system has significantly improved access to education, and implemented many social policies to strengthen equality of opportunity in education. However, achievement gaps between schools still persist as a serious concern and have become evident in large-scale assessments. It is evident that there still remains a great deal of area for improvement in order to ensure that all students have access to same level of qualified education. In this study, we define educational aspects in which the Matthew effects is more intense and inequalities are more prevalent. Consequently, we expect that improvements in these areas will mitigate the Matthew effect and increase equality of opportunity for all students.

Over time, the Matthew effect led to minor gaps to deepen, thereby increasing the inequality. Therefore, recognizing these minor gaps, especially during the early levels of the learning path, will significantly alleviate the impact of future solutions. Consequently, these early interventions will contribute to alleviate the long-term Matthew effect, with a minimal investment. Meanwhile, identifying the aspects where the Matthew effect is particularly effective will provide important information for best educational policies and actions to mitigate this effect systemically.

Early childhood education and care

Early childhood education and care (ECE) is a key level based on the fact that achievement gaps have evident in Türkiye. There has long been knowledge about the long-term benefits of ECE education on children's psychosocial, cognitive and emotional development. Inequality in access to ECE has resulted in children who have access to or have received longer-term ECE having a much better position at the start of primary school than children who have not. There are several factors leading to the limitation of access to ECE in Türkiye (Özer and Perc, 2022). The schooling rate for 5-year-olds in the early 2000s' was only 18%, which means that only 18 out of 100 5-year-olds have a competitive advantage over the other 82. As seen in PISA, TIMSS, and PIRLS studies, this gap in ECE access constantly increases in the following stages of educational path.

Using data from the PISA and TIMSS studies, Suna and Özer (2022) examined the relationship between ECE participation and academic achievement. Due to the fact that PISA and TIMSS studies were conducted on different age groups, the study allowed to monitor the effects of ECE on academic achievement at various ages as well. First of all, studies have shown that as SES increases, both the access to ECE and the duration of ECE

programs increase. Alternatively, PISA and TIMSS average scores of students with ECE attendance were significantly higher than those of their peers who did not receive ECE. This relationship is strong for the 10-11 age group (i.e. TIMSS age level), while it is weaker for the 15 age group (i.e. PISA age level). In other words, although ECE access has a positive effect on academic achievement during the initial stages of education, this effect diminishes as education levels increase. A significant finding of this study is that participation in ECE is positively correlated with academic achievement even when SES is statistically controlled. Based on this finding, despite increases in SES significantly correlated with participation in ECE, the benefits of ECE are significant for students from diverse SES.

Socioeconomic status and academic achievement

In Türkiye, the Matthew effect is most evident in the strong correlation between SES and the academic achievement. To put it another way, academic achievement increases as SES increases. According to Suna et al. (2021), a comprehensive study that investigated the factors influencing academic achievement in Türkiye based on the data of all students participating in the 2020 LGS (secondary school entrance exam) found that the school SES has the strongest correlation with student achievement. The seniority of the teacher, the size of the school, and the size of the class are the other factors following the school-SES. It is noteworthy that the simultaneous change in school-size and class-size that leads to increases in academic achievement at the same time and in the same direction. In Türkiye, it is common to expect that students' academic achievement will increase in classes with fewer students (low-sized classes). Contrary to popular belief, these research findings indicate the opposite: higher interaction and academic competition, particularly in relatively crowded classes, may increase average academic achievement.

Another study, conducted by Suna and Özer (2021), examined how SES impacted students' TIMSS scores and how the gap between schools changed in the last three TIMSS cycles. SES has been shown to have relatively low effects on Türkiye's TIMSS scores over the last three cycles, from 2011 to 2019. However, the study indicates that the achievement gaps between schools increased the most in the fourth and eighth grades in 2019.

The first study of its kind in Türkiye has examined, the relationship between academic achievement and not only the SES, but also the SES of the school (school-level SES) (Özer & Suna, 2022). As the SES affects academic achievement at the individual level, the SES of schools (institutional level) also effective on academic achievement. This study shows that students' academic achievements are significantly influenced by their own and their peers' SES. Meanwhile, it appears that families' total years of education are much more strongly associated with academic achievement than their income level. Therefore, more educated families are more likely to emphasize and support the education of their children, resulting in a significantly higher level of academic achievement for their children. Even though this finding is valid for academic high schools, the level of parents' education is more effective than the level of family income; both variables are effective on achievement for students in vocational education.

School tracking

There have been different transition systems used in Türkiye for years in order to segregate high schools. This exam enables to sort students into different high school types (*school tracking*), including science high schools, Anatolian high schools, vocational high schools, and Imam Hatip (providing predominately religious education) high schools. During the period 2010-2019, Türkiye has been continuously seeking new opportunities in the transition from secondary schools to high schools, to SBS and TEOG and LGS (other transition systems). Gur et al. (2021) examined the effects of changes to the transition systems (OKS, SBS, TEOG and LGS) between 2010 and 2019 on students' mathematics achievement one year later than the examination period. Following each change, there was a significant decline in student achievement, however, the greatest decrease has been found with a relation to TEOG system.

Education systems with a strong and early track of students may deepen the impact of the Matthew effect on student outcomes (Kerchoff & Glennie, 1999). Tracking students based on academic achievement, particularly at an early age, actually divides students into different school types based upon their SES. It is therefore recommended to delay school tracking until as late as possible to mitigate the Matthew effect (Özer and Perc, 2020).

Educational inequalities are exacerbated by school tracking practices at an early age. These practices led to a clustering of students within the same schools who have similar academic achievement levels as well as similar SES. The PISA and TIMSS studies, which were discussed previously, indicate that Türkiye has one of the highest rates of school tracking and academic clustering. Due to tracking practices, competition increases in schools with

high academic achievement clusters, while peer education contributions decrease and teachers' expectations of students' achievement decrease, particularly in schools with clusters of students with low academic achievement. Due to tracking practices, schools are deprived their potential and contributions to the development of students.

In a study conducted by Suna and Özer (2021) the effects of school tracking were examined in the comparative context of vocational high schools. The comparison included SES clustering in vocational high schools compared to academic high schools over the last 10 years (2010-2019). Findings indicated that vocational high school students' SES has a significant disadvantage in all indicators: family income, family education levels, and family employment status, as compared to their peers in other high schools during 10 years. Thus, school tracking functions similarly to SES tracking, in which students are homogeneously grouped in different high schools based on their SES. Similarly, Suna et al. (2020) demonstrate that the income levels of the parents' in science high schools are significantly higher than those of their peers in other types of high schools. Another study has revealed similar findings and yielded additional evidence on the significant association with the school tracking and SES (Özoğlu & Gür, 2023).

The study also investigated how pre-academic achievement affects post-achievement after school tracking, and showed that pre-achievement and SES had a direct and significant impact on future academic achievement (Suna & Özer, 2021). Thus, SES influences the academic achievement of students before school tracking and become effective on the type of high school attended; and the high school type affects post-academic achievement, resulting in an even stronger Matthew effect cycle. Zuckerman (1989) described this situation as an accumulation of advantages and disadvantages. As in the American and British education systems, there is also a strong cycle of cumulative positive or cumulative negative effects on student achievement as a result of the school tracking (Kerchoff & Glennie, 1999).

Using three different transition systems (SBS, TEOG, and LGS), Suna et al. (2020) examined the relationship between SES and academic achievement in diverse school types. The study shows that private schools, which are more advantageous in terms of SES, maintain their advantages under all three tracking systems, but TEOG offers the greatest advantage. The correlation between SES and academic achievement peaked in the TEOG system. It is important to note that prior to TEOG, number of schools were scored with student achievement; while with TEOG, all schools are scored and the hierarchy among schools has strengthened. The results of the study indicated that private school students' scores decreased significantly when the effect of SES was controlled across all three tracking systems.

In a new study conducted by Özoğlu and Gür (2023) examined the effects of labeling the schools used during the TEOG period according to their scores on students, educators and administrators. Findings demonstrated that educators' expectations of student achievement increased in schools with higher achieving students; however it decreased in schools with low achieving students, with more disadvantaged SES. Thus, educators and administrators in schools with low-achieving students cannot well-establish a sense of belonging to schools. The study also found that the curriculum coverage varied a school to another as a result of the additional disciplinary problems caused by clustering of SES.

Teachers with high seniority

As the Turkish education system continues to grow, a significant number of new teachers are joining each year in order to reduce the average number of students per teacher and to keep up with OECD averages. Since the 2000s, the number of teachers in the education system has grown from approximately 500 thousand to more than 1 million 250 thousand. Although the average number of students per teacher in primary education has approached the OECD average, it has improved significantly in secondary education (OECD, 2023). Due to this rapid increase in the number of teachers, teachers in the education system are relatively young and have a relatively low level of professional experience. Furthermore, Türkiye is among the countries with the lowest average teacher age and seniority in the TALIS research..

Furthermore, TIMSS results indicate that student academic achievement in Türkiye is strongly associated with the teacher seniority (Özer, 2021). The achievement gap between students in schools whose teachers with at least 20 years experience and teachers with less than 5 years' experience corresponds to an average of over 50 points compared to the TIMSS average (less than 10 points). In contrast to most developed countries, there is a very strong correlation between teachers' years of seniority and students' academic achievement in Türkiye.

This Matthew effect is evident in regions where teachers with low professional seniority are assigned to a high density of students. In Türkiye, approximately 50.4% of new teachers or those with a few years of experience work in the most disadvantaged regions and schools (OECD, 2023; Özer, 2021). Consequently, students from

lower socioeconomic backgrounds are mostly unable to access teachers with higher seniority. As a result, a new disadvantage perpetuates the existing disadvantage due to diversity in access to senior teachers. Since teachers are able to work in SES-advantageous regions and schools after the years of seniority, the advantages of SES-advantageous regions and schools are preserved.

METHOD

This study is designed within the qualitative research perspective with a systematic review on the Matthew effect and its reflections on education. Since the first studies about the Matthew effect, major studies on this subject with a relation to educational context are considered. The study used document analysis to cover a comprehensive concept as the Matthew effect focusing on literature lasting its foundations and founders. Document analysis is suitable for the extensive review of the Matthew effect in education context based on the fact that it allows researcher(s) to evaluate the elaborative scientific studies and current materials on related subject(s) (Morgan, 2021). In this manner, the study began with an introduction and foundation to the Matthew effect, then discusses the aspects and reflections of the Matthew effect. Afterwards, data-based studies focusing on the equality in education and aspects which the Matthew effect is particularly effective in Türkiye. To reflect the contemporary data about the indicators of access and equality in education in Türkiye, recent technical reports and studies were included in analyses.

DISCUSSION AND CONCLUSION

It has long been known that the Matthew effect is the tendency for small gaps among individuals and groups to become larger in all spheres of life, i.e., advantages lead to new advantages. This effect constantly enhances the advantage of those who are privileged and perpetuates the disadvantage of those who are disadvantaged. The Matthew effect, therefore, contributes to the deepening and perpetuation of inequalities in societies. As a result, the Matthew effect in education has a significant role in perpetuating societal inequalities. There are almost no studies on the Matthew effect in education in Türkiye despite the fact that it has been the subject of extensive research globally. As a result, this study discusses the aspects which the Matthew effect has prevailed in the Turkish education system based on research on educational inequalities.

A very significant increase in enrollment rates has been achieved in Türkiye's primary and secondary education, particularly due to the major steps taken in the last 20 years. In this context, in the education system, schooling rates in 5-year-old ECEC, primary school, lower-secondary school and upper-secondary school have exceeded 99% for the first time. In this way, the education system has been strengthened in terms of equality of opportunities for children and girls from disadvantaged families.. The Matthew effect in the education system continues to pose critical problems, despite this rapid transformation that has improved access to education. The education system will be more egalitarian if improvements are made in order to alleviate the cumulative problems of the Matthew effect.

A particular area of the Matthew effect that is experiencing a significant increase is ECEC. The fact that access to ECEC has been influenced by SES for many years has been one of the primary reasons for inequalities within the education system. Though access to ECEC has been highlighted in all National Development Plans in Türkiye, it has been one of the most challenging areas until recent years. By the end of 2021, Türkiye had 2,782 ECE education institutions, and the 3-year-old schooling rate was 9%, the 4-year-old schooling rate was 16%, and the 5-year-old schooling rate was around 65%. By May 2023, after the campaign to increase access to ECEC had been launched, 6,700 new ECEC institutions had been established, and the number of kindergartens had increased from 2,782 to 9,482. The schooling rate among 3-year-olds increased by 21%, the rate of 4-year-olds to 42%, and among 5-year-olds to 99.9%. Türkiye's educational system is experiencing most significant breakthrough in recent years in alleviating the Matthew effect. Thanks to the improvements in schooling rates at the age of 5, ECEC participation is no longer dependent on SES (Özer, Aşkar & Suna, 2023; Özer, 2023). Despite significant improvements in schooling rates at ages 3 and 4, further improvement is still needed. The Matthew effect will be minimized if the necessary importance is given to ECEC in the coming period as ECEC has potential to mitigate inequalities.

Among the most important instruments that increase the intensity of the Matthew effect in the Turkish education system is school tracking, which allows students to be placed in different high schools. School tracking in Türkiye has been exacerbated by continuous system changes that have increased the Matthew effect. Using the TEOG system, the Matthew effect is maximized and categorized students according to their SES (Suna et al., 2020; Özoğlu & Gür, 2031). With the introduction of TEOG, the most dangerous cycle - the sustainability of

inequalities in society- accumulated realized (Zuckerman, 1989). Between 2013 and 2017, the implementation of TEOG caused permanent damage to the Turkish education system. For the first time in the history of education in Türkiye, allowing all schools to be ranked both among high school types and within the same type. As a result, both high schools and also students were labeled with labels such as “successful” or “unsuccessful”. Schools with negative labeling have lowered teachers' expectations of students' achievement, which has adversely affected school climate and belonging. The clustering of students with similar achievement and SES into the same school types minimized peer learning due to the low heterogeneity, but increased discipline problems, absenteeism, and school dropouts, particularly in schools with low SES. The impact of school tracking is greatly mitigated with the abolition of TEOG in 2018 and the initiating of LGS, where the Matthew effect is less evident. According to residential region, GDP, and attendance status, the majority of students can be placed in the type of high school without the need to have a central exam score. As an indicator of satisfaction, the rate of students placed in high schools in their first choice exceeds 50% and that this rate increases every year. In both cases, however, there is a need to reduce the number of schools with achievement standards to less than 10%.

As in other countries, the foundational indicator that increases the severity of the Matthew effect is the SES. The studies mentioned in this study demonstrate that academic achievement is still directly related to SES. Making ECEC accessible to all students -especially for children aged five and under- has resulted in a significant improvement in this area. By switching from TEOG to LGS, inequalities led by school tracking may be mitigated in the long run. On the other hand, social policies implemented in the last 20 years to strengthen equality of opportunity in education (free course resources, free meals, free support and training courses [DYK], remedial education programs in primary education [İYEP], scholarship and hostel supports, free transportation for education, etc.) have contributed to minimize the gap (Özer, Gencoğlu & Suna, 2020). It is important to continue taking these steps, to increase their efficiency, and to support them with new initiatives.

Among the major negative consequences of SES disadvantage is the lack of access to educational resources. Therefore, free distribution of course textbooks will be alleviate the Matthew effect to some extent, as well as the impact of SES on academic achievement. In recent years, the Ministry of National Education (MoNE) has placed a great emphasis on such projects. '1,000 Schools Project in Vocational Education and Training' (Özer, 2021; 2022), '10,000 Schools Project in Primary Education' and '10,000 Schools Project in Secondary Education' are multi-dimensional projects designed to enhance the educational environments by providing positive discrimination to the schools with diverse disadvantages (OECD, 2023; Özer, 2023b). Furthermore, the most critical step in this context is to send all schools a particular budget to meet their unique needs (OECD, 2023).

Finally, the Matthew effect has increased in intensity in Türkiye due to a lack of access to teachers with high professional seniority in regions and schools with low SES. Teachers in Türkiye are relatively young, especially when compared to their counterparts in continental Europe. Therefore, there is a high percentage of teachers with fewer than five years of experience. The chronic problem of initial teacher training (in higher education level) contributes to the strong correlation between the seniority of the teacher and the academic achievement of the students. Verified by data, new teachers have began teaching with fewer qualifications than their counterparts in other developed countries, while they may increase their qualifications and skills with experience. This plays a significant role in deepening educational inequalities in education in Türkiye. It is therefore necessary to make comprehensive improvements in initial teacher training. A standard rate of senior teachers to new teachers in schools will may assist new teachers in improving their qualifications and ensuring access to highly qualified teachers, particularly in schools with a high concentration of students from low SES.

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Exploring Children's Coding Process Through ScratchJr in Early Childhood

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Abstract

Technology integration has become an essential part of education, and educational technology has incorporated with coding and programming even in early childhood. Even though there is research about early childhood teachers' perceptions about coding, there has been a lack of resources on how to explore young children's coding process. Therefore, this study aims to explore children's coding process through ScratchJr. This study was designed as qualitative research. Data was collected from 52 students through ScratchJr and observation form in public kindergartens in Burdur. Each child had a 30-minute session to complete the coding project. Afterward, these data were analyzed by applying descriptive analysis and found seven themes: 'proceed with the purpose', 'interests towards the application', 'usage period of application', 'ability to follow the instructions', 'curiosities during the application use', 'non-instructional activities', 'exploring the detail features of the application'. As a result, it has been observed that preschool children have a high interest in practice. Most children used their time sessions in full. In fact, some children wanted to extend it. Only six children wanted to finish the application much earlier than their time. In addition, the majority completed the process efficiently based on their purpose by discovering the details of the application and associating it with real life, without losing their sense of curiosity from the first instructions until the end of the process. Finally, it was revealed that some children discovered new features and exhibited their creativity in non-instructional practice.

Keywords: Early childhood education, coding process, ScratchJr.

Okul Öncesi Dönem Çocuklarının Kodlama Sürecini ScratchJr Aracılığıyla Keşfetmek

Öz

Teknoloji entegrasyonu eğitimin önemli bir parçası haline geldi ve eğitim teknolojisi erken çocukluk döneminde bile kodlama ve programlama ile bütünleşti. Erken çocukluk öğretmenlerinin kodlama konusundaki algıları hakkında araştırmalar olmasına rağmen, küçük çocukların kodlama sürecinin nasıl keşfedileceği konusunda detaylı bir çalışmaya rastlanmamıştır. Bu nedenle bu çalışma, çocukların kodlama sürecini ScratchJr üzerinden keşfetmeyi amaçlamaktadır. Bu çalışma nitel araştırma olarak tasarlanmıştır. Veriler Burdur ilindeki devlet anaokullarında ScratchJr ve gözlem formu aracılığıyla 52 öğrenciden toplanmıştır. Veriler her çocuğun kodlama projesini tamamlaması için 30 dakikalık oturumlarda toplanmıştır. Daha sonra bu veriler betimsel analiz uygulanarak analiz edilmiş ve bulgular 'amaca uygun hareket etme', 'uygulamaya yönelik ilgi', 'uygulamanın kullanım süresi', 'talimatları takip etme becerisi', 'uygulama kullanımı sırasındaki meraklar', 'eğitim dışı etkinlikler', 'uygulamanın detay özelliklerini keşfetme' olmak üzere yedi tema altında verilmiştir. Sonuç olarak, okul öncesi dönem çocuklarının uygulamaya ilgilerinin yüksek olduğu gözlemlenmiştir. Çoğu çocuk sürelerinin tamamını kullanmış, hatta bazı çocuklar süreci uzatmak istemiştir. Sadece altı çocuk, başvuruyu zamanından çok daha erken bitirmek istemiştir. Ayrıca çoğunluk, uygulamanın detaylarını keşfederek ve gerçek hayatla ilişkilendirerek, amacına göre süreci verimli bir şekilde, ilk talimattan sürecin sonuna kadar merak duygusunu kaybetmeden tamamlamıştır. Son olarak, bazı çocukların yeni özellikler keşfettikleri ve yaratıcılıklarını öğretim dışı uygulamalarda sergiledikleri ortaya çıkmıştır.

Anahtar kelimeler: Okul öncesi eğitim, kodlama süreci, ScratchJr.

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INTRODUCTION

Researchers, educators, and practitioners agreed on the importance of developing students' critical thinking, problem-solving, communication, collaboration, creativity, and innovative skills and preparing them for the 21st century. These skills can be taught and learned most effectively by integrating technology. Therefore, the rate of using technology has been increasing throughout the world. Even after COVID-19 has spread worldwide, technology usage has reached the highest level ever. According to the TUIK (2021), household information technologies usage survey results, 92.0% of the households had access to the Internet from home in 2021, while this rate was 90.7% in 2020. This has inevitably increased children's access to technology and the Internet.

Educational systems should focus on utilizing technology instead of how much it is used. Considering taking advantage of technology is a necessity for the acquisition of the 21st-century skills. Gaining these skills is an excellent priority in terms of solving problems individuals may encounter (Ramazanoğlu, 2021; Yıldız et al., 2017). The significance of using computers and tablets in educational environments is seen when individuals overcome problems. Developed and developing countries have taken action to raise a generation produces technology within the framework of a logical approach; by aiming to disseminate education such as coding (Demir & Seferoğlu, 2017).

Programming, often known as coding, is the act or process of planning or developing a program that enables a machine to complete the desired task (Lee, 2020). Coding is also defined as all or part of a sequence of commands written to operate on devices created by a computer or electronic circuit and a mechanism (Kalyenci, 2021). Whether coding is simple or advanced, it is a cognitive process. Even though the term "code" is still relatively new in early childhood education, children already utilize and experience coding in their everyday routines and activities, such as learning to tie their shoes by following a set of steps (Lee & Junoh, 2019). Early childhood coding incorporates a variety of methods for locating and categorizing each step needed to complete a task (Lee, 2020).

According to Piaget's Preoperational Period in Cognitive Development Theory, Operations are the internalization of situations that the child accepts mentally before acting (Bayhan & Artan, 2007). Thanks to coding education, children improve their knowledge and skills in theoretical lessons and applications throughout their education life. Accordingly, they enable them to achieve success in the following periods. Marian and Gonea (2015) stated children who took coding education compared to children who did not can overcome problems in more creative ways, and their high-level skills such as analysis, synthesis, and evaluation are more developed.

The Constructionism framework stresses that kids learn best when they can design, develop, program, and build physical things on their own while they play (Harel & Papert, 1991; Papert, 1980). In addition, the theoretical frameworks of constructionism (Harel & Papert, 1991; Papert, 1980) and positive technological development (PTD) are currently heavily influencing the design, implementation, and evaluation of educational coding programs (Bers, 2012; Bers, González-González & Armas-Torres, 2019). Even though it is essential to give age-appropriate coding education, these theoretical frameworks have not addressed how to construct coding curriculums based on the developmental phases of young children (Bers, 2012; Demetriou et al., 2018; Gadanidis et al., 2017; Grover & Pea, 2013).

Coding literacy has become a crucial skill that all children should know today (Ergin & Ercan, 2022). The choice of technological tools and interactive media that are sensitive to the child's age and developmental stage, individual readiness, and interest, and what is appropriate within the context of the family, culture, and community will determine how effective and appropriate technology is (Geist, 2016). The purpose of coding education for young children is to teach them more about coding than how to program like adults. One goal of early coding education is to promote the development of computational thinking, which refers to the comprehensive ability to design systems, solve problems, and analyze human behaviors by drawing on the concepts fundamental to computer science (Wang et al., 2022). Children's coding skills are defined as the capacity to manipulate actual items to address issues utilizing techniques and concepts from programming (Wang et al., 2021).

Coding without a computer refers to an approach that deals with many topics such as the concept of algorithms, human-computer interaction, data compression, and encryption, by taking a broader perspective beyond teaching programming with "computer science unplugged" activities (Kalelioglu & Keskinkilic, 2017). There are four main techniques for teaching coding when the literature is evaluated. These methods include computer-free coding, text-based, visual, and robotic programming (Bower & Folkner, 2015). Text-Based

Programming is created by writing command lines with classical computer programming languages (C++, Fortran, Cobol, VBasic, Java, etc.) (Ergin & Ercan, 2022). Robotic coding teaches sophisticated robot design, programming, flow diagrams, artificial intelligence, sensors, and humanoid robot technologies in these workshops. These workshops contain activities appropriate for all age groups, from preschool to university (Ince, 2018). Visual Programming such as Code.org and Scratch allows young learners to write applications without learning the complex code structures of traditional programming languages (Sayin & Seferoglu, 2016). In this study, since the aim is to explore young children's coding process, we will use ScratchJr to understand how they code.

Children under the age of eight typically lack the cognitive maturity to utilize Scratch because they have too many possibilities and words (Bers, 2018). Therefore, the "ScratchJr: Coding for Children" program was initiated by MIT in 2003 through a project to address this problem. Since its release, it has had 9.5 million downloads and is currently being utilized in every nation (except North Korea and Western Sahara) (Bers, 2018). ScratchJr allows children to produce animations by supporting their creativity as it is located on a colorful platform. This enables young children between the ages of 5-7 to learn programming concepts, see mistakes, and create digital content in parallel with their development by living and experiencing (Bers, 2018). This app is free for kids. The ScratchJr application can be downloaded on various platforms, including iOS and Android. ScratchJr is a coding program that creates interactive projects, stories, and games for children's purposes (Strawhacker et al., 2018). In this way, children will be able to become not only users of technology but also producers, and they will be able to perform applications related to computational thinking, which are thought to be gained by individuals. This program has also been used in the United States (U.S) (Strawhacker & Bers, 2018).

Ari, Arslan-Ari, and Vasconcelos conducted a study in the U.S in 2022 and asked about early childhood teachers' perceptions of coding and its integration into teaching. According to the results, the teachers were generally neutral about using coding in early childhood education. Also, some participants believed learning to code will help kids develop practical problem-solving skills in everyday life and make wise job decisions in the future. On the other hand, Ergin and Ercan researched to get preschool teacher candidates' opinions about coding in Turkey in 2022. Unfortunately, it shows candidates lacked the necessary coding knowledge, abilities, and experience, and they lacked enthusiasm for coding teaching. However, early childhood teachers are expected to integrate technology as an educational tool in advance (Özel, 2019).

Measuring children's ability to use technology as an educational tool in preschool education plays a highly critical role in preparing a plan in this regard. Overall, recent studies have shown that starting concepts and training such as 'coding,' 'artificial intelligence, and 'robotics' at an early age will yield much more productive results (Sullivan & Bers, 2018). While extensive research has been conducted to describe learning progressions and stages in early childhood mathematics and literacy, little work has been done with early childhood computer science (Bers, 2019). While the results of these studies showed children aged 5-6 may have limited ability to comprehend coding, other studies have also argued that age is not related to performance in conditional and repeated programs (Elkin et al., 2016; Strawhacker & Bers 2015). When the scientific studies in Turkey are examined, fewer studies focus on the process of children's coding education in the 0-6 age period (Altun, 2018; Atabay & Albayrak, 2020; Metin, 2020; Öztürk & Dütükçü, 2019). Therefore, it is aimed to explore children's coding process through ScratchJr in early childhood, and the answer to the following question was sought. "How are the children's coding process in early childhood?"

METHOD

Design

This study was designed as a qualitative study because qualitative research focuses on the details of the information and expressing the phenomenon in the best way (Connelly, 2016; Marshall & Rossman, 2014). Since this study aims to explore children's coding process through ScratchJr in early childhood, a qualitative research method would fit this study.

Participants

The data of this study was collected from 52 children aged 5-6 years who received preschool education in public schools affiliated with the Ministry of National Education in Burdur. All children have similar funds of knowledge, socio-economic status, and technological background. Qualitative research, which argues that knowledge's depth and originality are more important than generalizations, focuses on deep and specific data from smaller study groups rather than large samples (Baltaci, 2019). Therefore, 52 students would create comprehensive

data for this study. Participants were selected based on the convenience sample method. A convenience sample is defined as choosing participants from a readily available source for the researcher (Etikan et al., 2016). Because of the ethical process, children were coded as C1, C2, C3..., and C52.

Data Collection Tool

For data collection, 'ScratchJr Coding for Young Children' was used for students to explore and code. In addition, observation was another data collection tool to find children's processes while they are coding in ScratchJr. An in-depth and awareness of an event, circumstance, or place, as well as the behavior of those in it, is fostered by observation (Merriam, 2002). An observation form was created by the researcher and used during data collection.

ScratchJr

"ScratchJr was designed to support children in engaging with seven powerful ideas of computer science that are developmentally appropriate for young children" (Bers, 2018, p.4). The goal of ScratchJr was to create a virtual coding environment (Bers, 2018). Children are exposed to a variety of options for play at the playground. They are free to roam around, use the swing, slide, or sandbox. They can build imaginary worlds, ride bikes, and play with sticks. Also, young users can get involved in a variety of non-coding activities. They can use the paint editor to design and alter characters, record their own voices and sounds, and even add pictures of themselves using the camera feature.

Data Analysis

For the data analysis, descriptive analysis was applied for this study. Saldana (2009) stated "Descriptive Coding is appropriate for virtually all qualitative studies...and studies with a wide variety of data forms e.g., interview transcripts..." (p.71). After completing data collection process, all observation forms and ScratchJr projects were analyzed, then, seven themes: 'proceed with the purpose', 'interests towards the application', 'usage period of application', 'ability to follow the instructions', 'curiosities during the application use', 'non-instructional activities', 'exploring the detail features of the application' were revealed.

Validity and Reliability

The definition of "validity" in qualitative research proposed by Yıldırım and Şimşek (2005) is portraying the existing world with all its actuality objectively. The most crucial way of validation is explaining how a researcher arrived at the results and detailing those outcomes (Okuyan & Kapçak, 2016). For validity, the stages of analysis and themes were thoroughly addressed in this study. To obtain reliability about the research topic, variation, participant confirmation, or colleague confirmation can be used (Yıldırım & Şimşek, 2005). To ensure variation for this study, two expert remarks were taken once the observation form was prepared by the researcher.

Research Ethics

Ethics committee permission required for the study was obtained from Burdur Mehmet Akif Ersoy University Non-Interventional Clinical Research Ethics Committee with the decision numbered GO 2021/388. Then, parents were asked to sign the consent form. After receiving permission from 52 children's families, the data collection process started. Data was collected individually, and each child had 30 minutes to explore and create projects on ScratchJr. Children were allowed to quit earlier or postpone their time based on their decisions. During that time, the children's progress in practice was recorded in the observation plan. Also, each project on Scratch was saved to analyze.

FINDINGS & DISCUSSION

Proceed with The Purpose

According to the results, 41 out of 52 kids pressed icons on the app randomly to explore at first. These 41 children chose their themes, painted as they wished, picked their characters related to the theme, painted, coded their characters, and added sounds. Most of the coding done was associated with real life. For example, C5 chose a horse by mistake when choosing the theme of the sea, deleted the horse, and chose a crab by saying that "no horse can live in the sea". Also, C6 picked a rabbit character and said, "the rabbits jump", and coded the rabbit to jump. Once the children completed their first coding, they could control their progress based on their purposes. During their second coding and further, they were intentional during coding progress. This showed younger

children can code through apps as Sullivan and Bers (2016) stated robotic structure materials can be used as useful and instructional tools in pre-school settings.

Only 11 out of 52 children progressed by pressing random keys instead of consciously doing the movement coding; they did it to do it without knowing what they were doing. This random coding continued throughout the process. While some random coding children used all their time, others used little of their time. For instance, while C3 worked for 10 minutes, C4 completed the project in 30 minutes. They used coding movements very little or randomly during this time, but they worked very devotedly while painting.

The child advancing towards his goals, C7, whose coding is below, selected different characters, coded, and painted them. Then he completed the process by creating a specific story.



Figure 1. C7's final project

The child who could not progress towards his own goals; take the coding below C8. He randomly selected the character selection and the theme selection and made random coding. It has no specific purpose or plot.



Figure 2. C8's final project

These findings supported what Bers (2018) said coding as a literacy encourages new ways of thinking, and it has the potential to create an item that is independent of its creator and has its significance. He claimed while coding, there is a producer who wants to transmit something with an aim, passion, and desire. During the study, most children produce by proceeding their purposes, coded, and painted.

Interests towards the Application

Ten children out of 52 reported that they were bored during the session. From these ten kids, some stated that they were exhausted in the last minutes of their time, while some children said they were bored in the first 5 minutes. Among the children who used their time until the last minute, some spent their time productively and those who were distracted. Since these children had a chance to discover the application, they got bored in the first few minutes and wanted to go to their classes. Similarly, the experiences of 5- to 6-year-old preschool students with programming on the Kodable platform were examined in the study by Gedik, Cetin, and Koca (2017). It was found that while the students were generally happy and excited, they encountered challenges, felt a sense of failure, and became bored during repetitive tasks.

42 children out of 52 took great interest in the coding application they made, and they progressed by discovering the application in the process. Although they were very interested in the application, some children were more interested in painting while others were more interested in coding. For instance, C9 painted the characters she chose in pink mainly because she likes pink, which is illustrated on Figure 3.



Figure 3. *C9's final project*

Since C10 wanted to code his voice, he coded voices and added movement to each of his characters. Although the time was up, the kid asked for a little more time. He gave feedback like, 'I love coding, come to the application again, I want to install this application on my tablet at home.' He compiled their coding according to its final form and finished it. He coded his work in a meaningful way and completed the process.



Figure 4. *C10's final project*

The child who was not interested in coding; C11, whose coding is below, did not do any coding in the process and drew random shapes because he was not interested in coding. Completed the process inefficiently.

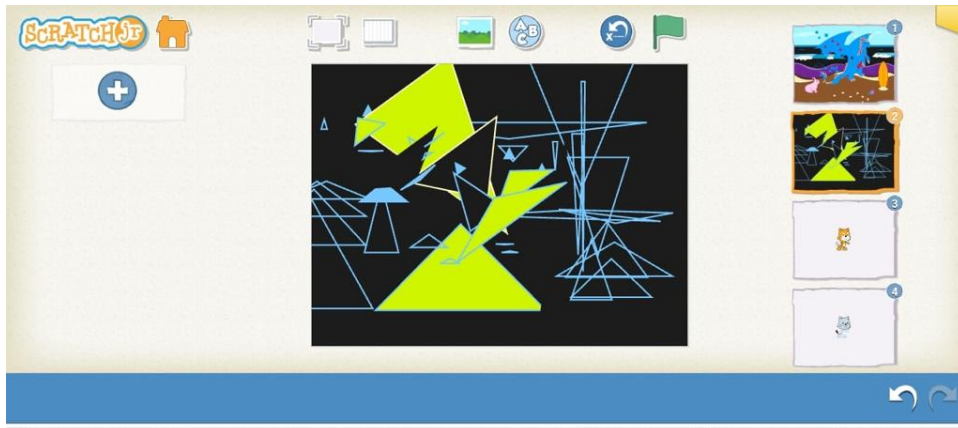


Figure 5. *C11's final project*

Usage Period of Application

26 out of 50 children actively used the application until the end of the 30-minute session. Four exceeded their time session limit; 2 kids engaged with it for 35 minutes and two for 32 minutes. Other children's application usage periods are three children 28 minutes, three children 25 minutes, five children 24 minutes, three children 22 minutes, one child 20 minutes, one child 18 minutes, two children 15 minutes, two children 10 minutes, one child 8 minutes, one child 5 minutes.

The child who uses his time actively until the end, C12, whose coding is given below, created different themes by coding more than one character. He associated these themes with real life and completed the process efficiently by using his time to the fullest.



Figure 6. *C12's final project*

The child (C14) who stopped the application at the beginning of his session, was distracted at the beginning of the process, chose a random character that was not suitable for his theme, and completed the process without coding.

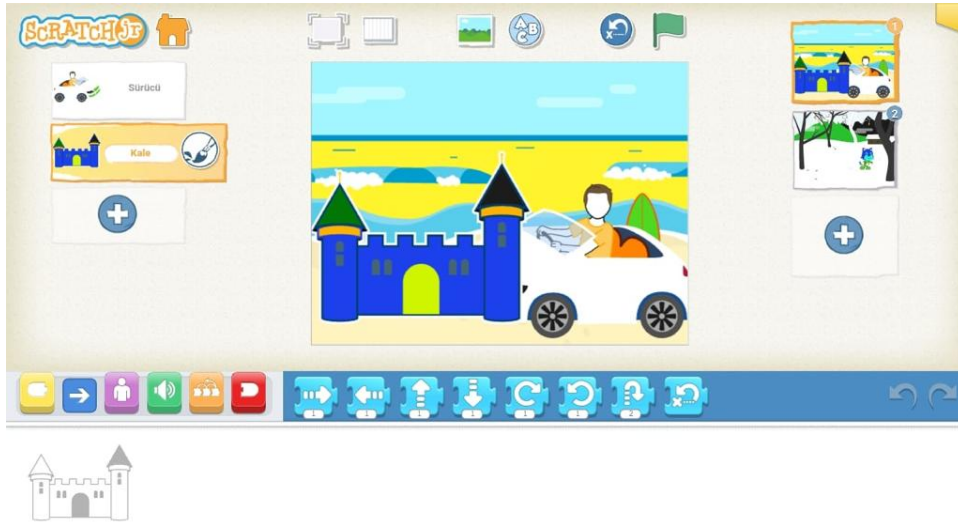


Figure 7. *C14's final project*

In the literature, there could not be found any of research related to time while children coding. Gedik et al., (2017) claimed children were generally happy and excited during coding. This could be a clue children can use application for expected time. This finding reinforced this statement either.

Ability to Follow the Instructions

8 out of 52 children progressed with the instructions from the beginning to the end of the process. They hesitated to press the keys and waited for confirmation. They showed a timid attitude throughout the process. They waited for feedback by constantly asking questions while choosing a theme, character, or coding. They also needed the instructions given at the beginning of the process at the end. In the process, sometimes the children needed instructions for character encoding, which was not required. Even though it was told, they asked again, and needed instructions for character encoding by saying "I forgot". Children who followed directions were generally distracted.

After understanding the first instructions at the beginning of the process, 44 children out of 52 completed their coding by asking infrequent questions during the process. Some of these children preferred to explore independently rather than ask questions. They were pressing the keys and making sense of what they did. However, when they made an unsolicited encoding, they asked for help. Some of them proceeded on their way without needing help until the process's end. While some children asked and learned questions in the first character encoding, they progressed without asking any questions in the later character encodings.

In the study conducted by Saxena, Lo, Hew and Wong (2020), Bee-Bot problem situations were presented to three different groups as K1 (3-4 years old), K2 (4-5 years old) and K3 (5-6 years old). Students were asked to design algorithms. In this direction, while most of the K2 and K3 students were successful in solving problem situations, it was observed that K1 students, on the contrary, were not successful in solving some problems because they did not fully understand the words/instructions (turn left, turn right, etc.). However, in this study, most children were able to follow the instructions. In the same way, Bers, Flannery, Kazakoff and Sullivan (2014) did not note this issue with the introduction of pertinent terminology and instructions either.

The child (C21) whose coding is given below followed the instructions and completed coding until the end of the process.



Figure 8. *C21's final project*

The child (C16) who did not follow the instructions has completed the process by acting according to his wishes and desires without accepting directives from the beginning till the end.



Figure 9. *C16's final project*

Curiosities During the Application Use

Theories have suggested many "types" or aspects of curiosity; therefore, it may be said that curiosity is multidimensional. However, it can also be complex because it can involve affective, cognitive, motivational, physiological, and expressive processes (Jirout et al., 2022). As it is known, curiosity enhance learning, thus, it is crucial for children to be curious during the coding. While some children wondered and questioned many things during the process, some children completed the process by speaking very rarely or not at all. In general, the curious children had a productive time. However, among the children who proceeded without asking questions, there were children eager to progress by self-discovery, and the process was also fruitful for them. Questions from the children who were applied during the process:

- ☐ Why did you choose us?
- ☐ What does this button do?
- ☐ How do they move with these keys?
- ☐ What do the buttons on the coloring page do?
- ☐ Can I choose the character I want?

- ☐ What does coding mean?
- ☐ How can I fix it when I do something wrong?
- ☐ Can I enlarge or shrink these characters?
- ☐ Can I make a new theme?
- ☐ Can I draw the faces of the characters myself?
- ☐ What's the name of this game?
- ☐ Is this game paid?
- ☐ Can I play this game at home?
- ☐ Can I add my picture to this character?

According to Bers (2018), the design process in ScratchJr begins with a youngster posing a query that sparks an idea and concludes with the creation of a finished product that can be shared with others. In addition, there are multiple processes in the iterative coding process: ask, imagine, plan, produce, test, improve, and share. The method is open-ended since there are numerous potential answers to a given issue. Therefore, asking these kinds of questions take a significant role while coding since it shows children's' design process.

Non-Instructional Activities

As they attempt to manage many activities, discover the right commands in the app, and make decisions throughout the exercise, kids may feel overburdened (Papavlasopoulou, Giannakos, and Jaccheri, 2019). On the other hand, in this study, three out of 52 children wanted to create projects according to their own interests and imaginations instead of the themes and characters provided in the application. The children whose projects are below transferred the themes or characters they did not like in the application to the plot, and they created by making them completely on their own. They completed the process by adding something different to the application.

C1 chose a character without a face because he did not like the facial expression or hair given in the ready-made characters and making facial expressions or hair on himself.



Figure 10. *Cl's final project*

Since C2 did not like the basketball court in the themes, he entered the coloring page and created a new basketball court. He painted according to his own interest and desire, using existing shapes.

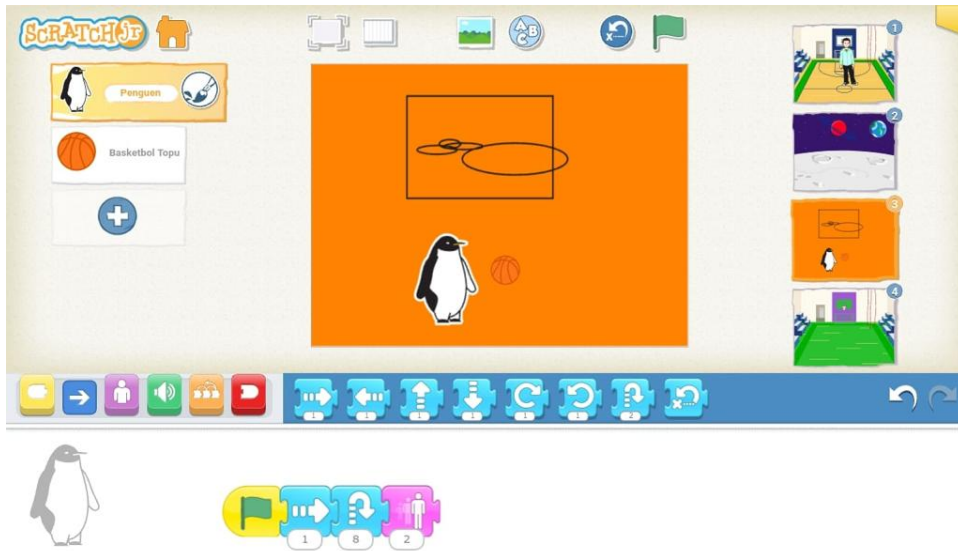


Figure 11. C2's final project

C23 did not like any of the characters and themes in the application and wanted to create a new theme himself. He advanced this process by drawing. He then opened the camera and took a picture of himself, which the researcher hid because of ethical issues, placing it as a character in his project.

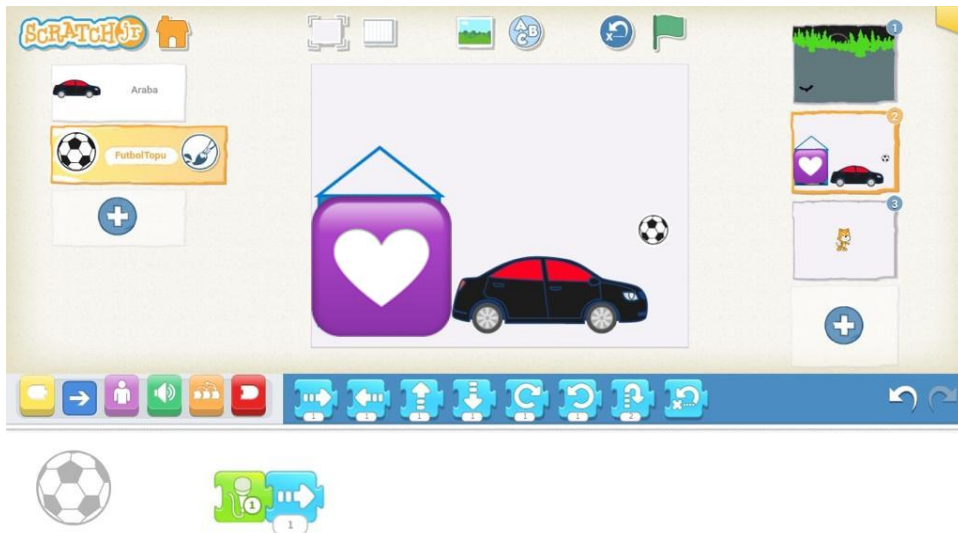


Figure 12. C23's final project

Exploring the Detail Features of the Application

ScratchJr allows users to create four projects once. Some children created four projects very well. Even though they exceeded their time session, they would like to continue work on it. All the four themes and characters of the projects were real-life encodings. The process for these children was quite productive, and they learned how to code. For some children, the situation was a little different. For example, C32 coded and deleted characters many times on a single project and then re-coded them. In this case, he was as productive as the child who did four practical projects. This situation is associated with the encodings of the characters. These children completed the process with the highest efficiency by coding until the end of their time.



Figure 13. C32's final project

However, although some children used four projects, the coding in this project was randomly chosen and complete. These children chose a single character in each project and only painted it or coded it with a single move. For instance, C44 created four projects, but he picked the characters randomly and did not explore the app's details. Although the process for these children was not productive, they got bored and wanted to get up immediately.



Figure 14. C44's final project

In addition, the children completed their time by being content with painting or coding only one or two projects in all four projects. Using his time completely or creating four projects does not show his progress, so the priority to look at is, did he paint on every project he did? To what extent did he use coding gestures? How was the sense of curiosity about the process? Was he conscious of coding? For example, C51 created, coded, and painted two projects, but he was very engaged and productive during his session. Also, he used many different features of the app.



Figure 15. *C51's final project*

Even though Bers (2018) stated they observed that children had trouble grasping the connection between the programming blocks and the activities they produced because movement occurred too quickly. These results showed children can manage their projects by exploring new features of the application and achieve their goals without getting lost.

CONCLUSION & RECOMMENDATIONS

In this research, the findings were reported under seven themes. As mentioned in the themes, 41 children out of 52 could follow the instructions. The results showed that most children proceed with their purposes while using the application. They were aware of what they wanted to create and code. Only a few kids did not move with their goals and randomly pressed the icons and designed their projects. In addition, only ten children got bored during the process and left the application halfway. Most of the practiced children used their time well and productively spent the process. They also utilize their 30-minute session while only a few of them wanted to stop coding and left before the session ends. In the process, the children tried to discover the application, and in this direction, they tried to make sense of the application by asking quite different questions related to the application. Among these children, some did not like the themes of the application and created new pieces, and some painted and changed the existing articles. In addition, only some of the children discovered other features of the application; although this is not very important, they found different pages and features.

44 out of 52 children participated in the application, from the first instructions to the end of the process; without losing their sense of curiosity, they completed them efficiently by exploring and associating them with real life. Meanly, most children were eager to use the application. They were excited to explore and create the projects and expressing their feelings confidently. In addition, the fact that they only code unaided after the first instructions show that their readiness level is in good condition. When we look at the result, the ScratchJr application enables and supports children to create a problem situation on a specific event and to develop appropriate solutions for that problem. In this case, it reinforces that children's readiness for coding education is at a reasonable level. Overall, children's process of coding is very interactive, creative, interested, and fruitful.

Based on the study, it could be suggested to examine the relationship between the socioeconomic levels of the families and the children's coding process since it could affect children's technology usage. The numbers and places of this study are limited so that other researchers could conduct research in various locations. In addition, the participants' age group was five to six, and different age groups in early childhood can be included. Since the findings showed children's coding process is very fruitful, coding education should be included in the curriculum in early childhood education by the Ministry of National Education.

Statements of Publication Ethics

I declare that this study has no unethical problems and ethics committee approval was obtained from Burdur Mehmet Akif Ersoy University Non-Interventional Clinical Research Ethics Committee with the decision numbered GO 2021/388.

Conflict of Interest

This study has not any conflict of interest.

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The Influence of Virtual Professional Learning Networks on Pre-service Teachers' Professional Learning and Growth

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Abstract

This qualitative case study examines how pre-service teachers engage in virtual professional learning networks and how this engagement influences their professional learning and growth. The study used online surveys and group interviews to collect data from 41 participants, which were then analysed thematically. The results showed that pre-service teachers were able to successfully engage in virtual professional learning networks in various ways, using different social media platforms and establishing different online connections. The study also found that engagement in virtual professional learning networks supported the participants' professional learning and growth by helping them acquire new knowledge and skills, shaping their teacher identities, and transforming their perceptions and beliefs about teaching and learning. Additionally, the virtual professional learning networks provided a sense of security and support to the participants, creating a more comfortable and safe social space.

Keywords: Virtual professional learning networks, pre-service teachers, teacher identity, teacher professional development

Sanal Mesleki Öğrenme Ağlarının Öğretmen Adaylarının Mesleki Öğrenme ve Gelişimi Üzerindeki Etkisi

Öz

Bu araştırma öğretmen adaylarının sanal mesleki öğrenme ağlarına nasıl katıldıklarını ve bu ağların onların mesleki öğrenmelerini ve gelişimlerini nasıl etkilediğini incelemeyi amaçlamaktadır. Bu çalışmada nitel araştırma yöntemlerinden durum çalışması deseni kullanılmıştır. Türkiye’de eğitim fakültesinde öğrenim gören öğretmen adaylarından (n=41) toplanan çevrimiçi anket ve grup görüşmesi verileri tematik olarak analiz edilmiştir. Çalışmanın sonuçlarına göre öğretmen adaylarının çoklu sosyal medya alanlarında çeşitli çevrimiçi bağlantılar kurarak sanal mesleki öğrenme ağlarını farklı şekillerde oluşturdukları ve kullandıkları belirlenmiştir. Ayrıca, katılımcıların oluşturdukları sanal mesleki öğrenme ağlarının mesleki öğrenmelerini ve gelişimlerini çeşitli şekillerde desteklediği görülmüştür. Özellikle, katılımcı öğretmen adayları sanal mesleki öğrenme ağları sayesinde yeni pedagojik ve dijital bilgi ve beceriler edindiklerini, var olan ve gelecekte sahip olacakları öğretmen kimliklerini şekillendirdiklerini ve öğretme ve öğrenmeye ilişkin algılarını ve inançlarını yansıttıklarını ve dönüştürdüklerini belirtmişlerdir. Bunların yanında sanal mesleki öğrenme ağlarının öğretmen adaylarına rahat, güvenli ve destekleyici bir sosyal ortam sunmasının mesleki öğrenme ve gelişimlerine olumlu katkı sağladığı görülmüştür.

Anahtar Sözcükler: sanal mesleki öğrenme ağları, öğretmen adayları, öğretmen kimliği, öğretmen mesleki gelişimi

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INTRODUCTION

It is crucial for pre-service teachers (PSTs) to participate in a professional development process through which they can adopt new student-centred instructional methods and acquire a wide range of skills, such as innovation, critical thinking, and collaboration. Although teacher education programs are primarily responsible for equipping PSTs with the fundamental knowledge and skills to succeed in the profession, even the most effective programs cannot guarantee that all PSTs will fully grasp every aspect of teaching and learning (Carpenter & Morrison, 2018). Most teacher education programs offer PSTs only a limited amount of practical experience, which often leads to a gap between what they learn in theory and what they encounter in practice (Flores, 2016). Since PSTs typically have only one teaching practicum, they often depend on the guidance of just one or two mentor teachers. However, this support may not be sufficient to address the multifaceted and unique requirements of each individual PST (Carpenter et al., 2017).

Given such limitations, it is increasingly recommended that PSTs should establish and develop a virtual professional learning network (V-PLN) to explore new informal learning opportunities in the digital realm through social media platforms (Carpenter et al., 2021). The creation of a V-PLN is considered crucial for the professional development of both pre-service and in-service teachers since it provides a new perspective on professional learning that is tailored to their individual needs, available anytime and everywhere, connectivist and collaborative (Trust et al., 2016). V-PLNs present a flexible online learning environment that motivates teachers to take ownership of their professional development (Tsiotakis & Jimoyiannis, 2016). Being collaborative in nature, V-PLNs provide teachers with the opportunity to share and explore professional ideas and resources, build collective knowledge around topics of interest, while also connecting and working with peers and experts from all over the world who share similar interests (Carpenter & Krutka, 2015). Furthermore, establishing and nurturing a V-PLN can provide PSTs with access to a virtual mentoring community, where experienced educators can guide and assist them in implementing theoretical knowledge and skills into real classroom situations, and help them smoothly transition to becoming full-time teachers (Luo et al., 2017).

The significance of V-PLNs has sparked a growing interest among researchers to investigate its features and impact on teachers. Although, several studies have examined the experiences of in-service teachers in V-PLNs and provided evidence of its positive impact on professional development (e.g., Davis, 2015; Trust et al., 2016), scant attention has been paid to whether and how PSTs establish, engage in, and derive benefits from V-PLNs (Kearney & Maher, 2019). In addition, a search conducted in well-known databases (e.g., Scopus, Web of Science) and academic journals indicates that the majority of studies related to V-PLNs have been carried out in Western settings (e.g., Carpenter, 2015; Kearney & Maher, 2019; Luo et al., 2017). This article seeks to fill the gap in the research by reporting the results of a study that examined the attitudes and practices of Turkish PSTs in V-PLNs. Hopefully, this research will shed light on the role of V-PLNs in the professional development of PSTs and their potential to support their transition into full-time teaching roles.

Literature Review

V-PLNs for teacher professional development

Learning how to create and utilize V-PLNs is increasingly considered as a 21st-century skill for all teachers. Krutka et al. (2017, p.247) present a typical definition of a professional learning network (PLN) as unique “systems of interactions made up of people, spaces, and tools that support learning and professional growth”. While the PLNs of teachers traditionally include a small number of face-to-face connections and resources, such as other teachers in their schools, former colleagues and university classmates, books, and local media (Curran & Wetherbee, 2014; Whitaker et al., 2015), with the proliferation of social media and Web 2.0 technologies, it is increasingly becoming popular for many teachers also to create and cultivate PLNs in virtual spaces. Being a complex and multifaceted system (Trust et al., 2016), which dynamically grows and evolves over time as a result of a collective effort (Whitaker et al., 2015), creating a V-PLN involves building online professional connections (e.g., Twitter followers, LinkedIn connections, Facebook friends) and utilizing a variety of virtual spaces (e.g., Twitter, Google+, LinkedIn) and digital resources and tools (e.g., online journals, curation tools) (Kelly & Antonio, 2016; Trust et al., 2016; Visser et al., 2014).

A V-PLN offers pre-service and in-service teachers a new, personalized, collaborative, global, and connectivist professional learning environment (Trust et al., 2016; Whitaker et al., 2015). By presenting a bottom-up approach to professional development (Xerri, 2017), it respects the professional agency of teachers and empowers the teaching profession conventionally characterized as lonely and isolated (Curran & Wetherbee, 2014). As it supports anytime, anywhere learning without temporal or spatial restrictions, teachers can take control

of their own professional learning (Tsiotakis & Jimoyiannis, 2016) and personalize learning experiences based on their unique individual interests, needs and expertise (Carpenter & Krutka, 2014). Its open, social and participatory nature allows pre-service and in-service teachers to connect and collaborate with a network of educators worldwide, who share similar interest, inspiration, passion and talent (Whitaker et al., 2015). By engaging in V-PLNs, teachers can find, share and exchange ideas, knowledge and digital resources globally (Carpenter & Krutka, 2015; Visser et al., 2014), reflect on teaching and learning (Macià & García, 2016; Trust et al., 2016), and feel emotionally and professionally supported by peers, academics and other educators around the globe (Carpenter & Krutka, 2014; Davis, 2015; Kelly & Antonio, 2016).

Previous research on V-PLN of PSTs

In recent years, while some studies have been conducted to investigate the characteristics and effects of V-PLNs on teachers' professional learning and growth, the previous research has mostly focused on in-service teachers (e.g., Carpenter & Krutka, 2015; Ekoç, 2022; Nochumson, 2020; Trust, 2017; Visser et al., 2014; Yildirim, 2019). There has been lack of research focusing on PSTs' use of V-PLNs apart from a few studies, the majority of which have only focused on PSTs' perceptions on and experiences of using Twitter as a PLN in the Western contexts. Carpenter (2015), for instance, examined PSTs' experiences and perceptions of the professional use of Twitter during and after taking a teacher education course in a private university in the United States (US). His findings suggested that the majority of PSTs maintained a positive perception of Twitter in terms of its educational potential, and indicated several benefits of using Twitter, including resource sharing, communication, and connecting with educators inside and outside of the class. In a recent comparative study, Tur, Marín, and Carpenter (2017) investigated PSTs' use and perceptions of Twitter from two universities in the US and Spain. Their findings indicated that most of the PSTs from both universities appreciated the educational benefits of Twitter. At the same time, there were differences in terms of the ways they utilized Twitter and perceived its educational value. For instance, the US participants pointed out Twitter's interactive and collaborative uses, whereas many Spanish PSTs considered Twitter valuable in finding and sharing information. In a study conducted at a Midwestern University in the US, Luo et al. (2017) examined PSTs' perceived benefits and challenges of participating in Twitter live chats, and the influence of prior experience with Twitter on their live chat experiences. Their analysis indicated that PSTs had no previous experience with an educational Twitter live chat. After participating, most of them held a positive perception towards these live chats, considering it enjoyable and rewarding, and indicated intentions to participate again in the future. In addition, in a recent study conducted in a university from the Mid-Atlantic region of the US, Colwell and Hutchison (2018) explored PSTs' perceptions regarding their experiences in participating in and cultivating a Twitter-based PLN about disciplinary literacy. Their findings suggested that while some PSTs held some negative perceptions of using Twitter, most of them reported positive experiences in participating in the PLN via Twitter, as they were encouraged to reflect on and consider the information and resources posted to Twitter and supported to build their knowledge on disciplinary literacy.

In addition to the studies that specifically focus on Twitter, Kearney and Maher (2019) recently examined final year Australian PSTs' experiences of using multiple social media platforms (e.g., Facebook, Twitter, Pinterest, LinkedIn) as a PLN. Their study indicated that most of PSTs enjoyed high levels of agency in engaging in ubiquitous personalised learning, participated in valuable collaborative learning conversations, and captured and shared multimodal resources, particularly during professional experience lessons, while some of the participants were also identified being reluctant to share and collaborate via their PLNs.

In summary, while most of the previous studies have focused on in-service teachers, there has been also several attempts to investigate PSTs' perceptions on and practices in V-PLNs, but mainly with a focus on only a microblogging platform, Twitter, as well as participants from the Western contexts, especially the US. Hence it appears that further research is needed to understand PSTs' V-PLN experiences across multiple social media platforms and tools as well as across different socio-cultural and educational contexts in order to have a more complete and comprehensive understanding of how PSTs develop, utilise and benefit from V-PLNs. In addressing this gap, this article sought to investigate Turkish PSTs' perceptions on and practices in V-PLNs. It specifically addresses the following questions:

1. How did PSTs participate and engage in V-PLNs?
2. How did PTSS perceive their V-PLN activities influence their learning and professional growth?

METHOD

Research Design

In this research, a qualitative case study research approach (Yin, 2011) was utilised, since the aim was to explore and understand in-depth participants' perceptions on and practices in their V-PLNs through using multiple sources of data (Uçan, 2019). The study design consisted of a group of second-year undergraduate students studying at the primary education department at a state university in Turkey as a case. They were enrolled in a compulsory course on educational technology in which they were first time introduced to the concept of V-PLN. The primary objective of this course was to familiarize PSTs with current trends and issues related to educational technology and to facilitate their acquisition of knowledge and competencies in employing digital technologies for educational purposes. From a class of 50 PSTs, 41 (aged 19 to 23) agreed to participate in the study. Among those, 31 PSTs (75.6%) were female and 10 (24.3%) were male.

At the first week of this course, as one of the course topics, the PSTs were encouraged to create and actively engage in a V-PLN to support and enhance their learning across all their teacher education courses. To get them familiarised with the creation and use of V-PLNs, firstly, the PSTs were provided with an overview of social media platforms (e.g., Twitter, Facebook, Instagram, Pinterest, Edmodo) and shown how influential educators utilise these platforms for professional purposes. Next, they were asked to set-up new social media accounts or professionally use existing ones to start connecting and interacting with peers and educators to further expand their knowledge and understanding of the topics they were learning in their teacher education. To facilitate this process, they were given a list of recommended educators, social media learning groups, hashtags (e.g., #egt, #edchat, #ilkokul) and blogs to follow. In addition, as an after-class activity, they were asked to read and reflect on two articles about the importance of using V-PLNs and their effective use by educators.

Data Collection

An online survey was administered to the participants at the end of the term. The survey was designed with open-ended and closed-ended questions to gather information on the participants' perceptions of and practices in their V-PLN (see Appendix A). The participants were asked to describe their V-PLN, provide feedback on how it supported their professional development and growth, and explain the significance of creating and engaging in a V-PLN as a prospective teacher.

Following the survey completion, PSTs were invited to participate in a semi-structured group interview, and 16 volunteered to be interviewed in one of five groups. All the interviews were audio-recorded and subsequently transcribed in full. These interviews were designed to complement the online survey data by further exploring participants' perceptions of and experiences with their V-PLNs (see Appendix B).

The existing literature on V-PLNs (e.g., Carpenter, 2015; Trust et al., 2016) informed and facilitated the questions' design in the online survey and semi-structured group interview. These questions were also discussed and revised with two teacher educators actively using social media for professional purposes.

Data Analysis

Online survey and semi-structured group interview data were analysed thematically via NVivo 12 software to identify and describe patterns and themes to explore the research questions. Following a six-phase procedure recommended by Braun and Clarke (2006), firstly, the participants' responses to the online survey questions and the interview transcripts were read and reread carefully to get familiar with their content. Initial codes were developed inductively for the participants' responses in the subsequent phase. A statement or statements of a participant represented the unit of coding during this phase. The next phase involved sorting these initial codes into the potential themes, which were subsequently discussed, reviewed, and refined iteratively with a teacher educator via both concerning the coded data extracts and the whole data set. After defining and naming each of the themes, the entire data set was comprehensively analysed and coded again in relation to the all themes (see Table 1 and 2 for the final coding schemes).

Table 1. Research Question 1 Coding Scheme

Themes	Description
Social media spaces	Respondent described a social media or digital tool he/she utilised as a part of his/her V-PLN.
Online connections	Respondent described the people or online communities or organisations he/she connected with in his/her V-PLN.
Participation types	Respondent described how he/she interacted with online connections or engaged in his/her V-PLN.

Table 2. Research Question 2 Coding Scheme

Themes	Description
New Professional Knowledge and Skills Acquisition	
Pedagogical knowledge	Respondent described acquiring knowledge about teaching and learning in his/her V-PLN.
Digital knowledge and skills	Respondent described acquiring knowledge and/or skills about digital technologies and tools in his/her V-PLN.
Increased Sense of Security	Respondent described that his/her V-PLN offered them a comforting, secured and/or supportive social space facilitating his/her online interactions.
Reflection on Teaching and Learning	Respondent described reflecting upon, questioning, reconsidering and/or changing his/her perceptions and beliefs about teaching and learning.
Professional Identity Formation	Respondent described shaping his/her current (actual) teacher identity and/or envisioning a future teacher identity.
Challenges	
Feeling not ready to share own ideas and perspectives	Respondent described that he/she was not willing to share own ideas and perspectives in his/her V-PLN.
Lack of English language skills	Respondent described his/her low level of English language skills as a challenge in his/her V-PLN participation.
Lack of digital skills	Respondent described his/her low level of digital skills as a challenge in his/her V-PLN participation.

Considering its interpretive, qualitative nature, in order to reduce the risk of bias, created by dependence on only one researcher, and enhance the reliability of the process of coding and analysis, an educational researcher was invited to code independently 20% of the data set by using the final coding scheme. A high level of inter-coding agreement (92%) was achieved between the coders and any remaining disagreements were resolved via discussion, which did not result from a need for adding or modifying any of the themes and codes. Both the discussions that took place during the review and refinement of the candidate themes as well as the inter-coding reliability process that the coding and analysis process was transparent, credible, and understandable for other researchers.

Research Ethics

In line with the British Educational Research Association [BERA] Ethical Guidelines (2011), before the data collection process began, all participants were asked to sign a consent form for their participation and given comprehensive verbal and written information about the goals and procedures of this research. They were also provided assurances of confidentiality and anonymity.

FINDINGS

This section first describes how the PSTs in this study engaged in their V-PLNs and then explicates their perceptions of how V-PLN activities influenced their learning and professional growth.

How did PSTs engage in V-PLNs?

Concerning the first research question, the analysis indicated that the PSTs utilised several social media spaces in cultivating and engaging in their V-PLNs. As Table 3 illustrates, the were Twitter, Instagram, YouTube, Edmodo and Facebook. Other platforms, such as Google+, Snapchat, Pinterest, LinkedIn and Tumblr were less popular. Furthermore, the majority of the PSTs (98%) mentioned a variety of connections both from Turkey and abroad as part of their V-PLNs. The participants cited specific types of individuals (e.g., expert educators), in-service teachers, field experts, academics, peers within and outside their university and professional online groups (see Table 4), whom they decided to connect, network, and interact based on individuals' specific expertise and/or their own needs and interest. For example, one PST shared:

In Twitter, I primarily followed the people who could contribute to me professionally, share up-to-date information, are experts in the field of education and have high level of EdTech knowledge. For example, @yavuzsamur (digital game design), @devrimakgunduz (stem education), @borasinc (educational technology), and @yenilikiegitim (current educational news) are among the Twitter users I follow and benefit from. On Facebook, I am a member of a group which mainly consists of primary school teachers from Turkey and also have recently joined another group, called "Eğitimhane".

Table 3. Social Media Platforms and Tools Utilised by PSTs

Platform	n	%
Twitter	41	100
Instagram	28	68
YouTube	27	66
Edmodo	27	66
Facebook	21	51
Blogs	13	32
WhatsApp	12	29
Prezi	6	15
Google+	4	10
Snapchat	2	5
Pinterest	1	2
LinkedIn	1	2
Tumblr	1	2

Table 4. Online Connections Established within PSTs' V-PLNs

Online connection	n	%
Expert educators	38	93
In-service teachers	36	88
Field experts	35	85
Academics	30	73
Professional online groups	30	73
PST peers	25	61
Authors	7	17
Friends / family	3	7

The respondents also stated diverse forms of participation and interactions in their V-PLN, as illustrated in Table 5. Like most of the PSTs, one participant, for instance, stated a variety of ways she participated in and benefited from her V-PLN:

To be aware of world-wide educational innovations, I look at #edchat and #comments4kids tags, though not often. Locally, I check the #tags, such as #guncelegitim, #egitim and read the sharings made through these tags. Within the PLN I created, I can express myself freely, communicate with my target audience and get very quick feedbacks. Moreover, I learn the opinions of academics and field experts, and have the opportunity to have a dialogue with them.

Table 5. Types of Participation and Interactions within PSTs' V-PLNs

Participation	n	%
Accessing and/or sharing ideas and resources	32	78
Checking hashtags	28	68
Exploring ideas	19	46
Communication	14	34
Seeking, providing and/or receiving support	11	27
Asking and/or answering questions	9	22
Commenting	6	15
Personal growth	6	15
Collaboration	5	12
Communication with friends/family members	5	12
Entertainment	4	10
Socialising	4	10
Content curation	3	7

Overall, the analysis shows that the PSTs created and engaged in V-PLNs in diverse ways for many purposes via utilising multiple social media spaces as well as establishing a variety of online connections, which, as will be illustrated in the following section, influenced their learning and professional growth in several ways.

How do PSTs perceive their V-PLN activities influence their learning and professional growth?

In addressing the second research question, this section explicates the PSTs' perceptions of how their V-PLN activities influence their learning and professional growth. Within the analysis of the dataset, five themes were identified: (1) new professional knowledge and skills acquisition, (2) professional identity formation, (3) reflection on teaching and learning, (4) increased sense of security, and (5) challenges. Each of these themes is elucidated below, along with illustrative examples.

New professional knowledge and skills acquisition

Stating ubiquitous, personalised and social learning experiences, majority of the PSTs (93%) reported new knowledge and skills acquisition (i.e. pedagogical, digital) via accessing to a wide range of perspectives and resources as well as practices of successful educators within their V-PLN. 86% of the respondents stated an increase in their pedagogical knowledge as they learned about new emerging trends in education (e.g., STEM education, learn-to-code movement, virtual reality learning), contemporary instructional ideas (e.g., differentiated instruction, student-centered learning, personalised learning), strategies (e.g., flipped classroom, blended learning, gamification, inquiry learning) and various other topics, such as child psychology, classroom management strategies, educational systems, innovations, policies, curriculums and the teaching profession. One participant, for instance, shared, "one contribution of my PLN was learning about innovative technology-enhanced teaching methods. I can give 'flipped classroom' as an example. Learning these methods has helped me on my way to becoming a versatile and effectual teacher". Another respondent commented that her V-PLN helped her to "gain knowledge on many issues, such as children's psychological problems, specific types of behaviors that children exhibit at different ages, and how to best provide education to children considering their age." Similarly, one PST shared that:

Within my PLN, it is possible to follow the educational innovations not only in our country but also around the world. For example, in England, 3D VR (virtual reality) glasses are used in history lessons in order to ensure the permanence of learning. Students have the opportunity to observe historical events, wars or migrations via 3D VR glasses, as if they are presently living those events. Even if this kind of practice is not yet taking place in our country, I can access to this kind of information by means of my PLN.

More than a third of the respondents (37%) mentioned an increase in their digital knowledge and skills as they learned about using a variety of web 2.0 tools and apps, including game-based learning platforms (e.g., Kahoot, Zondle), interactive video creation tools (e.g., Adobe Acrobat, Playposit, Videoscribe, PowToon), presentation tools (e.g., Prezi, Padlet) and other innovative classroom tools (e.g., Classdojo, Blendspace, Voki). One PST, for example, stated, "one of the most useful things I have learned via my PLN is a website called 'PowToon' through which I was able to create my own video and share it with the world on YouTube."

Professional identity formation

More than two thirds of the participants (68%) reported shaping and/or projecting their professional identity as a result of their engagement with V-PLNs. Some participants identified their current roles and characteristics as teacher candidates in terms of who they are and who they are not, while most of them projected a future identity stating what kind of teacher they would like to be based on their own and/or other expectations. In their responses, they used several descriptions to explain their current and/or future roles and identity, such as “innovative”, “active”, “visionary”, “intellectual”, “creative”, “well equipped”, “open-minded”, “open to constant development and change”, “open to learning”, “facilitator”, “life-long learner”, “knowledgeable and skillful”, “21st-century educator”.

In terms of shaping current identity, one PST, for instance, mentioned how her V-PLN helped her “achieve a teacher candidate profile that is well equipped, more active and continuously self-improving”, while another participant shared, “my PLN has reminded me that I need to be constantly open to development and improvements as a teacher candidate.”

Furthermore, many of these respondents used future-oriented discourse, envisioning a future identity that they wanted to attain with the help of their V-PLNs. In their responses, these PSTs considered their own goals and expectations, the changing and evolving educational landscape, societal expectations, and the needs and characteristics of their future students. For example, one respondent described what kind of teacher she wanted to be based on her own goals and expectations, saying:

The reason why I am using my PLN now and will use it in the future is that I want to be a teacher who goes beyond the ordinary, is different and informed of current knowledge. I will use my PLN for a long time because I want to be a productive and knowledgeable teacher instead of being someone who just adopts a traditional view of education.

Considering the evolving nature of education, another PST mentioned, “I am using my PLN to create a teacher profile who keeps up with the changing times and has knowledge and skills required by the changing and developing educational systems”, while one participant described her aim of using her PLN as “becoming a more helpful, innovative and different teacher of the next generation children.”

Reflection on teaching and learning

42% of the PSTs stated that as a result of their V-PLN engagement, they reflected upon, questioned, reconsidered and most of the time changed and transformed their perceptions and beliefs about teaching and learning. One respondent, for instance, mentioned:

I began to think that teaching can no longer happen only in a class with traditional methods. In the future, I will try to utilise innovative approaches and allow my students learn by hearing, seeing, feeling and applying. I think about turning my future class into a place where students feel good about themselves, and right now, there is a platform (her V-PLN) where I can get an idea of how to do it.

Another PST commented that due to her learning within her PLN, “I realised that we must adopt modern methods in teaching rather than traditional ones, and teaching needs to be done considering the characteristics of new generation students.” Similar to these respondents, one PST shared how learning about instructional strategies, such as blended learning and flipped classroom, within his PLN changed how he thinks about the role of teachers and students, saying, “I started to think that students should be as active as teachers, and teachers must share control and responsibility with students in the class.”

Overall, their participation in V-PLNs helped the respondents to recognise the value and importance of student-centred, innovative instructional approaches for their teaching in the future, mentioned the changing role of teachers and students, and as a result, extend their understanding of teaching and learning processes in new ways.

Increased sense of security

Almost one third of the PSTs (29%) described their V-PLNs as providing them a sense of security by presenting a more comforting, secured, and supportive social space, increasing their interactions with their online connections. In their responses, these participants indicated feeling more confident and safer in terms of asking questions, receiving feedback, seeking help, thinking or expressing own opinions freely. For example, one PST stated, “sometimes, I ask questions in my PLN which I cannot even ask the lecturers, as I feel more comfortable there and find a chance to express myself more easily. We, teacher candidates, feel more free within PLNs.” Another respondent commented, “one thing my PLN contributed to me is that I can express myself more

comfortably and have my voice heard by many people”, while another PST used “family” as a metaphor for describing her V-PLN, saying:

You don't fear it, you do not think you make it feel bored, you just feel comfortable with it and you can ask any question anytime you want. It will not leave you unanswered. In real life, it is not possible to ask any question to every teacher, but through V-PLNs, we can communicate with educators who are miles away.

Challenges

Apart from pointing out multiple benefits of their V-PLN, more than a fourth of the PSTs (27%) reported several challenges, which appeared to diminish their effective use of V-PLNs. 22% of the PSTs stated that they felt not ready to share their own ideas and perspectives as they perceived that they had a lack of deepened knowledge, expertise and/or insight concerning their profession. For instance, one PST shared that “If I will share something, I believe I should do it properly. But I don't find myself so knowledgeable or well enough to share. So, If I come across something I like, I just retweet it”, while another one mentioned, “I think that my thoughts are still immature. I don't think that I'm at a level to be able to share. So, I must still develop myself.”

Moreover, a few participants (7%) considered that their lack of English language skills impeded fully benefiting from their V-PLNs, while some of them also tried to overcome this challenge by using online translation tools. One participant, for example, explained that “sometimes, I check sharings of my connections with a hope that I can utilise them in some way. Unfortunately, if they are in English, it makes it hard for me to understand them”. Lastly, only one PST mentioned lack of her digital skills hindering the contributions of her V-PLN, saying:

Because I don't get along well with technology, at this stage, I cannot say that my PLN has made a lot of contributions. At the moment, I am facing the fact that I need to reduce the wall between myself and technology or destroy it completely. This can actually be the biggest contribution of my PLN.

DISCUSSION & CONCLUSION

This current study provides insight into Turkish PSTs' use of V-PLNs and elicits their perceptions concerning the influences of V-PLN activities on their professional learning and growth. Considering the important role of V-PLNs in supporting teacher learning (Trust et al., 2016; Visser et al., 2014) and the possible cultural influences on PSTs' use of V-PLNs across different contexts (Tur et al., 2017), this study makes a timely and important contribution to the literature by increasing our understanding of how Turkish PSTs construct, engage in and benefit from V-PLNs.

This study showed that the PSTs successfully cultivated and participated in V-PLNs in diverse ways, although, only a one-time instruction about the creation and use of V-PLNs was presented to them. The analysis showed that they used various social media platforms and digital tools to connect with a range of people and communities both locally and globally online and to engage in a variety of interactions, including exploring and exchanging ideas, asking and responding to questions, and seeking and offering support. These results support earlier study that described teachers' PLNs as a distinctive system of interactions made up of people, places, and tools (Krutka et al., 2017; Trust et al., 2016).

This study also revealed that PSTs understood the value and numerous advantages of V-PLNs for their professional development. First, the majority of the participants reported that their involvement in V-PLNs had improved their pedagogical and digital knowledge and skills. The PSTs mentioned engaging in informal learning about a range of topics, such as recent instructional ideas, strategies, educational systems, innovations, policies, and web 2.0 tools and apps, most of which were also included in the syllabus of their courses, especially the educational technology course. This finding points out the crucial role V-PLNs can play in supporting and enriching learning of PSTs across their teacher education courses, as both forms of their learning seems to be interconnected, going hand-in-hand. It also supports and builds on the previous studies that have showed that teachers mostly utilise virtual professional networks and communities to explore, share and construct professional knowledge and skills (Macia & García, 2016; Trust et al., 2016; Visser et al., 2014; Xerri, 2017).

Secondly, the results indicated that engaging in V-PLNs offered PSTs valuable chances to both discover and build their teacher identities. The participants shared that they shaped and communicated their professional identities by defining their strengths and weaknesses as teacher candidates, expressing their desired teaching style, taking into account their own goals and expectations, anticipating the needs of their future students, considering societal expectations, and adapting to the ever-changing educational environment. This finding supports and extends Trust et al.'s (2016, p.31) study that identified PLNs allowing in-service teachers to acquire “new conceptions of their professional identities”. It also supports the existing literature on teacher identity that suggests

that teacher can have multiple sub-identities which can co-exist simultaneously and be related to both their actual (or existing) and future (or expected) selves (Beauchamp & Thomas, 2009). Given this finding, the current study highlights the key role V-PLNs can play in contributing to PSTs' formation of current and future professional identities, which is often considered as a complex and multi-dimensional process (Livingston, 2016; Ó Gallchóir et al., 2018).

Thirdly, akin to the previous studies that identified online communities and networks stimulating teacher reflection (Davis, 2015; Trust et al., 2016), this study also identified that V-PLNs serve as a precious space for participants to analyse, probe, re-evaluate, alter, and transform their understandings and beliefs about teaching and learning. Participation in their V-PLNs helped PSTs recognise the value and importance of student-centred, innovative approaches for their future teaching, the changing role of teachers and students, and develop new mind-sets concerning teaching and learning processes. This finding may suggest that V-PLNs activities can offer opportunities for PSTs to become critically reflective teachers, who can easily address and adapt to constant changes in educational landscape during their teacher education years and throughout their future careers.

Moreover, this study indicated that V-PLNs created a comforting, secured and supportive social space for PSTs, which facilitated their online interactions. A number of the participants stated that compared to face-to-face settings, they felt more confident and safer in terms of asking questions, seeking help, receiving feedback and expressing their own opinions freely. This finding aligns with Carpenter et al. (2017, p.56) who identified "PSTs who were typically reticent to participate in traditional large-group, face-to-face classroom discussions, but willingly share their opinions and analyses via Twitter." This finding suggests that V-PLNs can be a supporting space for the professional growth of PSTs who lack confidence in interacting with others in face-to-face settings. It also supports and extends the previous research that has presented evidence concerning the affective benefits of V-PLNs, such as reducing feelings of isolation (Carpenter and Krutka, 2015) and increasing teacher confidence (Trust et al., 2016).

Lastly, the analysis identified several challenges impeding PSTs from fully participating in their V-PLNs. Although, this study found V-PLNs creating a comforting, secure, and supportive social space which facilitated PSTs' online interactions, several PSTs also felt not ready to share their ideas and perspectives with their online connections, as they perceived that they had a lack of deepened knowledge, expertise and insight concerning teaching profession. This finding is consistent with the recent case study by Kearney and Maher (2019), which identified some of the (master level) PSTs from an Australian university being reluctant to share and collaborate in their PLNs as they were feeling pressured to be perfect or scared of being judged by others. Moreover, in the current study, a few PSTs saw their low level of English language skills as a barrier for benefiting from their V-PLNs, which some of them attempted to overcome by utilising online translation tools.

Overall, this current study presents researchers and teacher educators new understanding of how V-PLNs provide PSTs with vital opportunities to support various aspects of their professional growth. As this study evidences, active engagement in V-PLNs offer valuable opportunities for personalised professional learning, identity development, critical reflection, networking, and staying current with advancements in education. In particular, by connecting with experienced teachers, mentors and peers over their V-PLNs, PSTs can gain exposure to different educational contexts and perspectives, foster a global outlook on teaching and learning, as well as develop a supportive community that extends beyond their immediate teacher education program. Considering these benefits, this study points out the importance of integrating V-PLNs into teacher education programs to enhance the professional development of PSTs. This implies that starting from the beginning of their teaching education programme, PSTs should be encouraged and provided with opportunities to create and cultivate their own V-PLN. Given that the creating and maintaining V-PLNs can be a challenging process (see Carpenter et al., 2021; Krutka et al. 2017), it is also important to offer PSTs ongoing support, feedback and encouragement to develop essential skills for establishing and nurturing their V-PLNs. In this respect, teacher education programs should look for the effective and innovative ways of integrating V-PLNs into their curriculum and assessment process, which can better prepare PSTs for the complexities of the classroom.

Limitations of the study and future research

One limitation of the present study is that it was conducted with the sample of second-year undergraduate PSTs who were all studying to be primary school teachers in a Turkish state university, and hence the results may not be generalised to other PSTs in Turkey or beyond. Nonetheless, this study can allow naturalistic generalisation where the relevance of the research findings can be assessed to new circumstances or analytic generalisation in which the findings can inform and support the theoretical concepts under consideration in this research (Yin 2011). Considering this, the future research should focus on PSTs from other subject areas (e.g., Maths, Science, Visual

Arts) in order to explore if similar findings can be identified or different patterns of behaviour may exist specific to other PSTs.

Furthermore, this study is limited by reliance on self-report online survey and group interview data. The actual V-PLN activities of the participants were not subject to in-depth analyses and was beyond the scope and focus of this study. Thus, future studies that collect and analyse PSTs' actual V-PLN interactions can be fruitful in revealing more details concerning the effects of V-PLNs on their professional learning and growth.

Moreover, since the participants of this study had not started their teaching practicum yet at the time of this study, this study was unable to reveal how PSTs' learning via V-PLNs could help bridging the gap between theory and practice in their teaching practices or have an influence on their students' learning outcomes. Hence further research should be undertaken that specifically examines how V-PLN engagement can enrich and contribute to PSTs' teaching practicum experiences and students' learning.

In addition, this study focused on PSTs' V-PLN participation only during one academic term. Since the creation of V-PLNs is viewed as a process that constantly expands and evolves over time (Whitaker et al., 2015), future studies that involves longitudinal data collection over a longer time period should be undertaken, such as during teacher education and beyond. This type of research can provide a valuable insight into changes PSTs' V-PLNs undergo over time, as well as the types and levels of support that they may need both during teacher education courses and after their transition to full-time teaching.

Statements of Publication Ethics

BERA Ethical Guidelines (2011) were followed in every stage of this study. The ethical approval was also obtained from İstanbul Medeniyet University Humanities and Social Sciences Research and Publication Ethics Committee. All sources used in this article were cited in accordance with APA standards.

Conflict of Interest

No potential conflict of interest was reported by the author.

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APPENDIX

Appendix A

Online survey

- 1) Could you please describe your V-PLN?
- 2) Which social media platforms do you use and how do they contribute to your professional learning?
- 3) Could you please describe two to three things you have learnt via your V-PLN?
- 4) Did what you have learnt via your V-PLN have an influence on your professional growth as a teacher candidate?
 - a) If yes, what effect or changes do you think has taken place?
 - b) If no, why did not it happen?
- 5) Why do you think it is important for you to create and engage in a V-PLN as a teacher candidate?
- 6) Will you use your V-PLN in the future? If so, for what purposes will you use it?

Appendix B

Semi-structured group interview protocol

- 1) What do you do within the V-PLN you have created?
- 2) Does what you learn within your V-PLN have an influence on your professional growth as a teacher candidate?
 - a) If yes, what effect or changes do you think is taking place?
 - b) If no, why does not it happen?
- 3) Do you think that pre-service teachers should create and engage in a V-PLN?
 - a) Why and how?

Unpacking The Role of Ideal L2 Self and Growth Mindset in Explaining EFL Learners' DMCs

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Abstract

In the field of second language learning motivation, recent trends call for studies that scrutinize Directed Motivational Currents (DMCs). Yet, there remains a paucity of evidence on the individual difference variables that induce DMCs. In particular, research to date has not yet determined the role of ideal L2 self and mindset in explaining variations in the DMC disposition. This quantitative study aims to fill these gaps in the literature by exploring the role of ideal L2 self and growth mindset in explaining EFL Learners' DMCs. The current study was conducted with a total of 176 preparatory class students enrolled in the department of English Language and Literature or English Language Teaching at various state universities in Turkey. The data were gathered using a composite survey instrument that includes the DMC Disposition Scale, the Mindset Instrument, and the Ideal L2 Self Scale. The findings of the multiple linear regression analysis indicated that growth mindset explained 32% of the variance in EFL learners' DMCs whereas ideal L2 self-contributed to the prediction of DMCs, explaining 24% of the variance in participants' DMC disposition. The results offer new insights into how EFL teachers could exploit such intense motivational experiences to promote learning in L2 classroom contexts.

Keywords: Directed motivational currents, ideal L2 self, growth mindset, EFL learners

İngilizceyi Yabancı Dil Olarak Öğrenen Öğrencilerin Hedefli Motivasyonel Akımlarını Açıklamada İdeal Yabancı Dil Benliği ve Zihniyet Rolünü Ortaya Çıkarmak

Öz

İkinci dil öğrenme motivasyonu alanındaki son eğilimler, hedefli motivasyonel akımları inceleyen çalışmaların artmasına yol açmıştır. Ancak, hedefli motivasyon akımlarını etkileyen bireysel farklılık değişkenleri ile ilgili çalışmalar yetersiz kalmıştır. Özellikle de ideal yabancı dil benliği ve gelişen zihniyetin dil öğrenenlerin hedefli motivasyon akımlarını yordamadaki rolü henüz belirlenmemiştir. Bu nicel çalışma, İngilizceyi bir yabancı dil olarak öğrenenlerin hedefli motivasyon akımlarını açıklamada ikinci dil benliği ve gelişen zihniyetin rollerini inceleyerek literatürdeki bu boşluğu doldurmayı amaçlamaktadır. Bu çalışma, Türkiye’de çeşitli devlet üniversitelerinde İngiliz Dili ve Edebiyatı ya da İngilizce Öğretmenliği bölümlerine kayıtlı 176 hazırlık sınıfı öğrencisi ile yürütülmüştür. Veriler Hedefli Motivasyonel Akımlar Ölçeği, Zihniyet Ölçeği ve İdeal Yabancı Dil Benliği ölçeğinden oluşan karma bir anket aracılığı ile toplanmıştır. Çoklu doğrusal regresyon analizi sonuçları gelişen zihniyetin katılımcıların hedefli motivasyonel akımlarındaki değişimin %32’sini açıklar iken, ideal yabancı dil benliğinin ise bu varyansın %24’ünü yordadığını göstermiştir. Çalışma sonuçları, öğretmenlerin yabancı dil öğrenme ortamlarında öğrenmeyi teşvik etmek için bu motivasyon dalgalanmalarından nasıl yararlanabileceklerine dair yeni bilgiler sunmaktadır.

Anahtar Sözcükler: Hedefli motivasyonel akımlar, ideal yabancı dil benliği, gelişen zihniyet, yabancı dil olarak İngilizce öğrenenler

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INTRODUCTION

L2 motivation, a significant predictor of second/foreign language (L2) achievement according to Dörnyei (2006), stands out as one of the most extensively studied individual difference (ID) variables (Dörnyei, 2005; Ushioda, 2008). Since Gardner and Lambert's research in 1959, there has been considerable exploration into the role of motivation in L2 learning, with the past decade witnessing a growing interest in examining "the situated nature of L2 motivation" (Boo, Dörnyei, & Ryan, 2015). In line with this current emphasis, a fresh motivational concept known as "Directed Motivational Currents" (DMCs) has emerged in the field of L2 learning psychology. DMCs, characterized by their lasting nature and strength, refer to a sustained engagement in tasks that are primarily rewarding because they lead individuals toward a highly cherished objective (Dörnyei, MacIntyre, & Henry, 2015, p. 98). Put simply, DMCs represent a motivational experience where individuals are deeply involved in activities fueled by the pursuit of a personally significant and valuable goal, utilizing a clear and supportive pathway (Ibrahim, 2017, p. 25). A DMC differs from traditional motivation in that it possesses an inherent energizing capacity. Once a DMC is established, the initial motive itself becomes a part of the energy source, as emphasized by Dörnyei, Henry, and Muir (2016).

According to Dörnyei and colleagues (2016), Directed Motivational Currents (DMCs) encompass three essential components, without which they cannot be considered true DMCs: goal-orientedness, a salient facilitative pathway, and positive emotional loading. The first component involves the learner personalizing a goal by imbuing it with their envisioned experience of achieving it (Dörnyei & Chan, 2013, p. 454). DMCs are inherently directional and aimed at a specific ultimate goal, such as becoming a proficient second language learner. A clearly defined objective guides behavior towards tasks that increase the likelihood of reaching the goal (Henry, Davydenco, & Dörnyei, 2015).

The second element of DMCs is a salient facilitative pathway, acting as a map that outlines the route towards achieving the ultimate goal. This pathway is accompanied by a series of subgoals that serve as progress checks, ensuring alignment with the learner's vision and providing opportunities for feedback.

The third crucial aspect of DMCs is positive emotionality, representing the sense of enjoyment experienced during task performance, which also brings the individual closer to their goal (Henry et al., 2015). According to Dörnyei and colleagues (2016), this positive emotional experience arises because individuals are actively engaged in actions that contribute to their ultimate goal.

Although Directed Motivational Currents (DMCs) hold significant promise as a research area for L2 (second/foreign language) researchers, our understanding of this unique motivational phenomenon is still in its early stages, leaving gaps to be addressed. Notably, little attention has been given to exploring individual difference variables that influence individual-level variations in DMCs. While some studies have explored the connection between DMCs and affective factors, such as personality traits, buoyancy, evaluation apprehension, personal best, self-confidence, autonomy, self-efficacy, self-concept, and willingness to communicate (e.g., Jahedizadeh et al., 2021; Pietluch, 2018, 2019; Sak, 2021; Zarrinabadi et al., 2019), no research has specifically examined the extent to which an EFL (English as a Foreign Language) learner's ideal L2 self and growth mindset can predict the variability in their DMCs.

The concept of ideal L2 self, a component of Dörnyei's (2005) L2 motivational self-system, represents an individual's L2-specific goals, hopes, and aspirations regarding their future use of the language. It has been identified as a crucial predictor of L2 motivation (Papi & Teimouri, 2012; Ryan & Dörnyei, 2013; Taguchi et al., 2009). Learners with a strong ideal L2 self attach personal significance to learning the language, leading them to internalize their motives for studying it. This construct is seen as a dynamic interplay between integrativeness and instrumentality, as suggested by Dörnyei (2009).

Mindsets, which are alternatively called lay/implicit theories, pertain to a person's personal convictions about the changeability (growth mindset) or unchangeability (fixed mindset) of their own traits (Lou & Noels, 2019). In relation to acquiring a new language, a growth mindset indicates the belief that language skills can be enhanced through diligence, whereas a fixed mindset suggests that language proficiency remains constant and cannot be altered (Dweck & Leggett, 1988). Language mindsets have been found to be strong predictors of L2 motivation (Lou & Noels, 2017; Waller & Papi, 2017), as they influence how L2 learners think, feel, and act during their learning journey. Research has consistently shown that learners with a growth mindset display higher motivation levels and are more willing to embrace challenges, whereas those with a fixed mindset tend to avoid challenging tasks and show lower motivation levels due to a belief that academic obstacles cannot be overcome (Dweck, 2006). Additionally, growth mindset overlaps with the construct of ideal L2 self (Lan et al., 2021).

The complex nature of DMCs necessitates an exploration of individual difference variables that may impact this construct. Investigating these learner variables can provide valuable insights into facilitating the pedagogical use of DMCs. Thus, the present study aims to contribute to this emerging field of research by examining the roles of ideal L2 self and growth mindset in explaining EFL learners' experiences with DMCs.

Research Questions

The following research question was addressed based on the aim of the current study:

1. To what extent can EFL learners' ideal L2 self and growth mindsets explain the variability in their DMC dispositions?

METHOD

Research Design

In this quantitative study, the adopted research design was a cross-sectional survey-design in which a representative sample of participants was included. A quantitative approach was employed intentionally as it is well-equipped to contact a large number of participants at a time and then generalize the results to the whole population (Creswell, 2005). The present study is descriptive in its nature as the aim of this study is to describe the role of the ideal L2 self and mindset in explaining EFL learners' DMCs in explaining EFL learners' DMC dispositions via some surveys. In order to capture their role a survey-design was thus deemed appropriate.

Setting and participants

The study was conducted at various state universities in Turkey. The research respondents were a total of 176 preparatory class students studying in the department of English Language and Literature or English Language Teaching and receiving compulsory English preparatory class education.

Table 1. Demographic Information about the Participants

		F	%
Gender	Female	135	76.71
	Male	41	23.29
Department	English Language Teaching	53	30.11
	English Language and Literature	123	69.89
L2 Proficiency Level	Pre-Intermediate	127	72.15
	Intermediate	41	23.29
	Upper-Intermediate	8	4.54

Research respondents, ranging in age from 19-23 ($M=20.1$), were chosen via non-random convenience sampling method (Female: 135, 76.71%; male: 41, 23.29%). The survey sample size was considered appropriate, considering the number of independent variables examined in the current study ($n=2$) (Tabachnick & Fidell, 2013). Table 1 provides demographic information about the participants.

The selection of the true-DMC cases (namely the participants of the present study) was performed in two steps. First, a brief description of DMCs and core features of DMCs through two archetypical examples were given to 876 respondents who were asked to fill in the composite-survey. In the initial stage, individuals who self-reported having undergone (or currently undergoing) a DMC with a comparable level of intensity in their history of L2 learning were chosen as DMC cases for this study. Subsequently, individuals who reported not having experienced a DMC to a similar degree of intensity were excluded from further analysis. In the second step, the analytical procedures were carried out based on the data collected from those respondents who self-reported having experienced this type of intense motivation ($n=176$). Muir in her 2016 PhD Dissertation guided such a stepwise approach to isolate the true-DMC cases. She (2016) noted that:

The step of isolating participants who had experienced this type of motivation to a similar level of intensity was a key to distilling true DMC experiences, and participants who self-selected as to a similar level of intensity were earmarked for inclusion in the DMC group (p. 137).

In the present study, this reasoning was also followed. Initially, the potential DMC group was identified and then the data came from this group of participants.

Instruments

In line with the aims of the current study, an online composite survey consisting of the DMC Disposition Questionnaire, the Mindset Instrument, and the Ideal L2 Self Scale was used. In the first part of the composite-survey, the respondents were asked to provide information on their gender and age, then this part also included a brief description of DMC and core features of DMCs through two archetypical examples provided to the respondents to report whether they have experienced a DMC to a similar level intensity or not. Those respondents who self-reported having experienced a DMC to a similar level intensity in their L2 learning history were asked to provide information on these three instruments. The second part of the survey was made up of Muir (2016)'s DMC Disposition Scale which includes 12 items based on a 5-point Likert type response format. The internal consistency of Muir (2016)'s scale was high ($\alpha=.84$). The third part of the online survey included the ideal L2 self-subscale adapted from Taguchi, Magid, and Papi's (2009) questionnaire. Dörnyei and Chan (2013) has also adopted the scale and they reported high internal consistency ($\alpha=.78$). In the last part of the online survey, the respondents were asked to fill in the subscale of Dweck's Mindset Instrument (2000) consisting of sixteen items focusing on their views of their own intelligence and success. Mindset is defined by (Dweck, 1995, p. 269) as a construct with a simple unitary theme. Also, he has further stated that in order to form shorter versions of the scale, their items can be utilized alone (Dweck, 2000). In this study, the growth mindsets statements (i.e. 3, 5, 7, 8, 11, 13, 15, and 16) were provided to the respondents to reflect their beliefs and core assumptions about their success and intelligence. The internal consistency of the instrument was found to be quite high ($\alpha= 0.94$ to 0.98) (Dweck, 1999).

The reliability coefficient for all the scales of the present study was analyzed with Cronbach's alpha. $\alpha= 0.89$ for the DMC Disposition scale, $\alpha= 0.90$ for growth mindset subscale of the Dweck mindset instrument, and $\alpha= 0.902$ for the ideal L2 self subscale. The reliability coefficients of the DMC Disposition scale, growth mindset subscale of the Dweck mindset instrument, and ideal L2 self subscale were found to be quite high.

Data Collection and Analysis

Using a convenience sampling method, the data collection was performed during the fall term of 2018-2019 academic year with a composite survey in the Google Forms format. The completion of the composite survey lasted up to about 15 minutes. IBM SPSS 24 software was utilized to analyze the collected data descriptively. The descriptive statistics of the scale scores were obtained, and to assess the assumptions of linearity, normality, and absence of outliers, the skewness and kurtosis values were examined. Subsequently, a multiple linear regression analysis was performed, and the assumptions of linearity, normality, independence, and homoscedasticity of residuals were tested to understand if EFL learners' growth mindset and ideal L2 self scores could predict their DMCs. Besides, in the data, no multicollinearity and multivariate outlier biasing the model were identified. Comparisons were made at the $p<.05$ significant level for statistical analysis.

FINDINGS

The multiple linear regression analysis was conducted to find out whether growth mindset and ideal L2 self scores could predict variability in the participants' DMC disposition. There are assumptions for this multivariate statistical method, which is parametric. For multiple linear regression analysis, the predicted (dependent) variable should be normally distributed and continuous, while continuous predictive (independent) variables should also be normally distributed. The skewness and kurtosis values were examined for the normality of the scores, and if these values are between ± 2 , the score distribution is normal. See Table 2 for the normality scores.

Table 2. Descriptive Statistics

Scales	Skewness	Kurtosis
DMC	0,391	-0,964
GM	-0,175	-1,049
IL2S	-1,31	1,807

As seen in Table 2, accordingly, the distribution of the three scale scores was found to be normal.

In addition, there should not be a multicollinearity problem between the independent variables in the model (Pallant, 2007). Tolerance and VIF values are examined in multi-connection problem. In the absence of multicollinearity, VIF values below 10 and tolerance values above 0.10 indicate that there is no significant issue (Tabachnick & Fidell, 2013). There is no multicollinearity according to the tolerance value and the VIF value. In other words, there is no significant ($r>0.90$) relationship between the independent variables (See Table 3).

Table 3. Multicollinearity Problem Table

	Tolerance	VIF
GM	0,855	1,17
IL2S	0,855	1,17

Since the independent variables are the same for all models, the multicollinearity problem is provided for all models. An important assumption in regression analysis is whether there is autocorrelation between residuals and it is expected to be between 1.5 and 2.5 when examined with the Durbin Watsan coefficient (Tabachnick & Fidell, 2013). The Durbin Watson value was obtained as 2.106. Thus, the assumption was held true for the regression model.

Table 4. Multiple Linear Regression Analysis and Coefficients

Independent Variables	B	Standard Error	β	t	p
Fixed	2,539	0,255		9,975	,000
GM	0,02	0,005	0,32	4,41	0
IL2S	0,195	0,059	0,242	3,331	0,001

F(2,173)=12.948; p<0,001
R=0,469; R²=0,22

As seen in Table 4, the multiple linear regression model, which was established to test if growth mindset and ideal L2 self could predict variability in explaining EFL learners' DMC dispositions, is statistically significant (F(2,173)=2.539, p<.01). The R square value indicates to what extent the variance (variability) in the predicted variable is explained by the independent variables (Pallant, 2007). 22% of the variance in the DMC scores is explained by the variables included in the regression model. Growth mindset scores ($\beta=0.32$, t=4.41, p<.05) and ideal L2 self ($\beta=0.242$, t=3.331, p<.05) statistically positively and significantly predict EFL learners' DMC disposition scores. When there is a 1-unit increase in each of the growth mindset and ideal L2 self-scores, there is an increase of 0.320 and 0.242 units in the DMC disposition scores, respectively, and growth mindset was found to be stronger predictor of DMCs than their ideal L2 self.

DISCUSSION AND CONCLUSION

The aim of the present study was to understand whether EFL learners' growth mindset and ideal L2 self scores could predict their DMC dispositions. The following paragraphs will discuss the findings with regard to our current knowledge base on L2 motivation research, mindset, and ideal L2 self. This is of high importance as thus far the relation between DMC experience and the aforementioned ID factors were not investigated. For this reason, considering the strong relationship between L2 motivation and DMCs, the discussion will have to be grounded on the L2 motivation literature. In this study, this is not expected to cause deficiency.

As regards the research question, the regression model with all predictors, established to test if growth mindset and ideal L2 self could predict variability in explaining EFL learners' DMC dispositions, accounted for a significant proportion of the variance in EFL learners' propensity to experience DMCs (22%). In light of the past literature on the relation of these predictors (growth mindset and ideal L2 self) with L2 motivation, this finding was expected. It was not thus surprising to obtain growth mindset and ideal L2 self-scores statistically positively and significantly predict EFL learners' DMC disposition scores. By receiving the greatest weight in the model, growth mindset was identified as the most potent predictor of EFL learners' DMC dispositions. These findings therefore provide some of the initial insights into an ID variable that explains such variability in EFL learners' L2 DMC dispositions, which corroborated the arguments of the DMC researchers who have proposed that certain ID variables may explain the variance in L2 learners' propensity to experience DMCs (e.g., Peng & Phakiti, 2020; Selçuk & Erten, 2017; Muir & Gümüş, 2020; and Dörnyei et al., 2016). The possible reason for this predictor may rest on the common view that people with growth mindset are more persistent in their mastery goals and adaptation of effort attribution which in turn leads them to achieve better academic results (Dweck, 2006). The strong link might also be ascribed to the fact that people holding a growth mindset acknowledge that challenges should be embraced as an opportunity like steppingstones for the learning process and effort is essential and regarded as a path to mastery, leading them to extend exerting effort until the final achievement (Dweck, 2006). As DMCs represent goal-driven motivational orientations which doubtless bring about EFL learners toward being achievement-oriented, this result is conceivable. Thus, striving persistently in a disciplined way with an

achievement-oriented mindset implies the goal-directed nature of DMCs. What this tells us is that people with fixed mindset may suffer from a lack of motivational investment and behavioural inhibition, thus most probably leading them not to be caught up in DMCs.

The regression analysis also found ideal L2 self as a significant predictor for EFL learners' DMC dispositions, corroborating the findings of a large number of previous research (Murray, 2013; Kormos & Csizer, 2014; Dörnyei & Kubanyiova, 2014; Dörnyei & Chan, 2013). The mental imagery capacity was found to be a precursor for generating clear visions of desired future selves, or in other terms ideal L2 self (e.g., Kim & Kim, 2011, 2014; Dörnyei & Chan, 2013; Yang & Kim, 2011). Thus, EFL learners who have strong imagery capacity might be able to generate more vivid visions of their ideal L2 selves. Dörnyei and his colleagues (2013, 2014) have also supported the significant role of imagination capacity (or vision) in instigating learners' efforts. Besides, learners with strong images of their desired future selves would be more prone to exert greater amount of effort into their L2 learning process to accomplish them in their actual lives with positive emotions (Kormos & Csizer, 2014; Muir & Dörnyei, 2013), finally leading to stronger motivation. The relation of the ideal L2 self might also be attributed to the fact that a clear goal or vision is a primary cornerstone of all DMCs which align diverse tasks that learners must undertake en route in their L2 learning process until the achievement of the final goal (Dörnyei et al., 2016). Thus, it was revealed that learners with a high level of ideal L2 self may have a dispositional advantage to be caught up in DMC experiences in an EFL context. This finding also documented evidence for the significant role of the ideal L2 self in explaining the individual probability of engaging in DMC practices. This finding corroborates the ideas of Dörnyei and associates (2015), who suggested that engaging in some self-in-future imaginations can trigger and propel DMCs. This may further imply that the learners who visualize their ideal future situations (namely, they have accomplished their end-states) are more likely to excel in the DMC practices. Moreover, the deprivation of a well-developed ideal L2 self, as Dörnyei (2014) emphasizes, may give cause for amotivation. It can therefore be assumed that learners with low levels of ideal L2 self may suffer from the deficiency of motivational energy needed to engage in DMC practices.

Overall, the results implying the supremacy of EFL learners' ideal L2 selves and growth mindsets to generate a more conducive environment for their dispositions to experience DMCs in the L2 learning process, suggest that ID factors or psychological variables might contribute to the efficacy of DMC experiences. By extensions, if EFL learners are guided to engage in practices reflecting their growth mindsets and ideal L2 selves, it might be the case that all EFL learners may be able to be more highly disposed to experience DMCs than others and obtain more motivational gains when they are caught up in DMCs. Although the findings of the present study have documented evidence for the dispositional advantage of a subset of people who have a high level of ideal L2 self and growth mindset, any learners may be able to experience DMCs irrespective of their ID factors if suitable environment and opportunity are provided (Dörnyei et al., 2016).

Implications for the individual-level DMCs

In the present study, the insights offered by the above discussion may provide some pedagogical implications to enhance EFL learners' L2 motivational dispositions. First and foremost, the results seem to suggest that deliberate ideal L2 self and growth mindset-informed pedagogical decisions may serve a useful purpose in maximizing EFL learners' motivational dispositions which might in turn enable them to be caught up in DMCs. Thus, it is of great importance for teachers to understand that having higher levels of ideal L2 self and growth mindset have an impact on EFL learners' tendency to experience intense motivational surges. L2 teachers should adopt strategies that enable their EFL learners to enhance and strengthen their L2 self-imagery and growth mindset which will, in turn, enhance their propensity to experience DMCs. Then, by enabling EFL learners to imagine the future situation in which they use the L2 and visualize themselves as L2 speakers in the future, this set of strategies thus may promote their DMCs. Creating learning environments which will engage learners' L2 self-imagery will also help them to build up and retain such visions. The importance of such visions in DMCs lies in their key role to generate substantial motivational energy and maintain it during the whole experience. Also, to develop and strengthen their growth mindsets, mindsets interventions implementing growth mindset practices into L2 classroom settings and curriculum could prove useful in stimulating EFL learners' DMCs.

Last but not least, it is also essential to consider the wider potential implications for assessment, instruction, and curriculum design in L2 learning settings. If sustained professional development sessions regarding L2 self-imagery and growth mindsets are intentionally incorporated into teacher training, it may result in stimulating L2 learners' intensive and long-term learning motivation. Moreover, from a motivational perspective, it could prove to be useful to employ testing and assessment methods that navigate ideal L2 self and growth mindsets for fulfilling the needs of intense motivational commitment.

Limitations and Future Directions

The present study was conducted with tertiary level EFL learners in a Turkish context. Therefore, it is advisable to exercise caution when extending the findings of this study, as the data was obtained through non-random means. The scope of the present study was confined to analyzing the quantitative data collected using a composite survey instrument. Documenting qualitative evidence could provide more useful insight into the links between EFL learners' DMC experiences and ID variables. It would be promising for future studies to investigate how other individual difference (ID) variables on EFL learners' propensity to experience DMCs. Another fruitful area of future research could be to document any possible long-term effects of ID factors on EFL learners' individual and/or group DMC experiences. A further fruitful future avenue will be to carry on the exploration of the longitudinal stability of ID variables (self-efficacy, self-regulation, growth mindset, ideal L2 selves, and WTCs) in those learners who have been caught up in DMCs. Issues of interest might also include the extent to which ID variables might explain the variation in individual and group DMC experiences. The importance of exploring such questions lies in the potential to provide a more effective toolkit that might help practitioners to purposefully facilitate their EFL learners' individual or group DMCs in L2 classroom settings.

Statements of Publication Ethics

As the authors of this research, we affirm that there were no ethical issues in the study. We strictly adhered to research and publication ethics, as well as ethical principles and regulations, throughout the entire research process, including planning, data collection, analysis, and reporting. Participants who willingly participated in the study were requested to provide their consent by signing a consent form. Confidentiality and anonymity were meticulously maintained during data analysis and reporting to safeguard the participants' privacy.

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Translanguaging Realities: The Use of First Language in Microteaching Practices vs. Young Learner Classrooms

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Abstract

This study focuses on language teacher education and adopts the microanalytic lens of conversation analysis to analyze the use of L1 (students' first language) in microteaching and real classroom teaching practices of pre-service English teachers (PSETs), specifically in young learner classrooms. The use of L1 is approached from a translanguaging perspective. Translanguaging refers to the use of the entire linguistic repertoire without separating languages, promoting multilingualism and leveraging students' linguistic resources for deeper comprehension and enhancing meaning-making (Canagarajah, 2011, Garcia & Wei, 2014, 2015). The research design involves three groups of participants: pre-service English teachers, in-service preschool teachers, and young learners aged from 4 to 6. Data consists of the video recordings of micro-teaching sessions at a state university in Turkey and video recordings of actual classroom teaching sessions by the same PSETs in a young learner classroom. The video-recorded data is transcribed using the Jefferson system of transcription. The analysis shows that in microteaching, where students have advanced English proficiency, L1 is rarely used and activities progress smoothly in the target language. However, in real young learner classrooms, students tend to use L1 more often which leads to disruption of the progressivity of the activities. The findings suggest the need for teachers to make principled decisions regarding their use of L1 and their acceptance of students' L1 use. Teacher education programs should address the differences between microteaching and real classroom contexts to prepare teachers for managing translanguaging practices effectively.

Keywords: Translanguaging, L1 use, microteaching, teacher education, young learners

Dillerarasılık Gerçekliği: Mikro-öğretim Ortamlarında ve Çocuklara Yabancı Dil Öğretimi Sınıflarında Anadil Kullanımının Karşılaştırılması

Öz

Bu çalışma, dil öğretmeni eğitime odaklanmakta ve İngilizce öğretmeni adaylarının (İÖA) mikro öğretim ve gerçek sınıf öğretimi uygulamalarında, özellikle de erken dönem öğrenci sınıflarında öğrencilerin ana dili kullanımını analiz etmek için konuşma analizinin mikroanalitik merceğini benimsemektedir. Dil öğretimi sınıflarında anadil kullanımına translanguaging perspektifinden yaklaşmıştır. Translanguaging, dilleri ayırmadan tüm dil repertuarının kullanılması, çok dilliliğin teşvik edilmesi ve daha derin anlama ve anlam oluşturmaya geliştirmek için öğrencilerin dilsel kaynaklarından yararlanılması anlamına gelir (Canagarajah, 2011, Garcia & Wei, 2014, 2015). Araştırma tasarımı üç katılımcı grubunu içermektedir: İngilizce öğretmen adayları, hizmet içi okul öncesi öğretmenleri ve yaşları 4 ile 6 arasında değişen erken yaş öğrenciler. Veriler, Türkiye'deki bir devlet üniversitesinde gerçekleştirilen mikro-öğretim oturumlarının video kayıtları ile aynı öğretmen adaylarının erken yaş öğrencilerin sınıflarında gerçekleştirdikleri gerçek sınıf içi öğretim oturumlarının video kayıtlarından oluşmaktadır. Videoya kaydedilen veriler Jefferson transkripsiyon sistemi kullanılarak yazıya dökülmüştür. Analiz, öğrencilerin ileri düzeyde İngilizce yeterliliğine sahip olduğu mikro öğretimde, anadilin nadiren kullanıldığını ve etkinliklerin hedef dilde sorunsuz ilerlediğini göstermektedir. Bununla birlikte, gerçek erken yaş öğrenci sınıflarında, öğrenciler anadili daha sık kullanma eğilimindedir ve bu da etkinliklerin ilerlemesinin bozulmasına neden olur. Bulgular, öğretmenlerin anadil kullanımına ilişkin ilkeli kararlar almaları gerektiğini göstermektedir.

Anahtar Sözcükler: Translanguaging, anadil kullanımı, mikro öğretim, öğretmen eğitimi, genç öğrenciler

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INTRODUCTION

Translanguaging is a relatively new concept first introduced by Williams (1994) rooted in the Welsh word, *trawsieithu*. Williams (1994) used the term to refer to systematically alternating between languages in Welsh classrooms to achieve various purposes. Translanguaging shifts the traditional way of perceiving languages and thus it presents a new understanding of second language learning and teaching. Canagarajah (2011) defines translanguaging as a phenomenon that refers to using the entire linguistic repertoire that one possesses by engaging in dynamic language use without separating languages in monolingual modes. Garcia & Wei (2014) defines translanguaging as the use of full linguistic repertoires by both individuals and communities for meaning-making and communicating. Creese & Blackledge (2010) also emphasize that translanguaging embraces language hybridity, fluidity, and richness.

It is essential to distinguish between code-switching and translanguaging. Codeswitching emphasizes the differences between languages by accepting borders between them, and it treats each language as a different linguistic system. Additionally, codeswitching might imply that switching between languages is not desirable for language learners and receives criticism in language classrooms. From a translanguaging perspective, on the other hand, language is a social practice, and it is “an assemblage of meaning-making resources” (Tai & Dai, 2023, p. 7). As such, switching between languages is a genuine practice for the speakers, and it is encouraged if it will provide more opportunities for language learning and meaning-making.

Tai & Dai (2023) emphasize that translanguaging goes beyond alternating between languages and it involves multilingual resources, such as dialects, styles, or registers as well as multimodal resources, which include “switching between speaking and writing, or coordinating gestures, body movements, facial expressions, and visual images for shaping their verbal talk” (Tai & Dai, 2023, p.7). In a similar vein, Wei (2018) refers to translanguaging as “using one’s idiolect, which is one’s linguistic repertoire, without regard for socially and politically defined language names and labels” (p. 19).

In the twenty-first century, language classrooms are moving from a setting where monolingualism is encouraged to a translingual setting where students’ prior linguistic knowledge is acknowledged and employed as a resource for teaching foreign or additional languages (Wang, 2016). Language teachers must be well-prepared to use translanguaging practices most effectively in language classrooms. This study will highlight the importance of including education on translanguaging practices in teacher education by demonstrating the differences between microteaching practices and real classroom teaching experience of a PSET in a young learner classroom using the micro-analytic lens of conversation analysis.

Translanguaging in Language Classrooms

Using L1 in language classrooms has generated much debate over a long period. Initially, it was argued that L1 should be excluded entirely from L2 classes (Turnbull, 2001; Turnbull & Arnett, 2002). This approach was widely acknowledged based on what Phillipson (1992) refers to as the ‘monolingual fallacy’, which implied that using L1 in language classrooms would limit the exposure to the target language and hinder output opportunities (Lightbown, 1991; Liu, 2008). As such, L2 should only be taught in the target language. More recently, the exclusion of L1 from language classrooms has been challenged. There have been many studies that suggest that L1 inclusion in L2 classrooms can be helpful for teachers, students, and teaching and learning activities (Canagarajah, 2013, 2018; de la Campa & Nassaji, 2009; Forman, 2010, 2012; Pennington, 1995; Üstünel & Seedhouse, 2005). Translanguaging can be seen as a ‘theoretical lens’ that presents an alternative perspective on bilingualism & multilingualism as a pedagogical strategy for teaching languages that value and use learners’ varied and dynamic language usage (Vogel & García, 2017). Conez and Gorter (2021, 2022) state that educational translanguaging aims to promote multilingualism and underlines the merits of using the entire available linguistic repertoire of the students and the teachers in classrooms for both input and output. They further argue that permeable borders among languages enable students to use their previous knowledge while learning a second language by utilizing their entire linguistic repertoire which has two vital benefits for the language learning process: (1) Learners can comprehend language learning materials better than when they can use their linguistic background, and (2) The ability to use many languages allows learners to access more information as they can use their entire linguistic repertoire.

Similarly, Fang and Lui (2020) argue that translanguaging in educational contexts helps teachers explain complex concepts and ideas. Teachers can use translanguaging to ensure that complicated ideas, essential concepts,

and grammar are clarified and explained clearly. They further claim that translanguaging can enhance the bond between the teachers and students while at the same time it can be employed for classroom management purposes.

Chicherina and Strelkova (2023) also emphasize that translanguaging-based approaches allow students to utilize their mother tongue knowledge, making challenging language materials more accessible. Putrawan (2022), on the other hand, claim that translanguaging can be beneficial in problem-solving tasks or during brainstorming before a group activity or a writing task by facilitating understanding, preventing confusion, clarifying complex concepts, and providing a more pleasant learning environment in the classroom.

In her research which explores Swedish multilingual classrooms, Torpsten (2018) shows how students' language abilities improve as a result of translanguaging practices. Galante (2020) has found that learners' metacognitive awareness increases through translanguaging practices. Creese & Blackledge (2015) investigate translanguaging practices in classroom settings in the United Kingdom. The research demonstrates that classroom translanguaging practices foster deeper understanding and sociopolitical engagement, foster critical thinking and cross-linguistic flexibility, and enhance metalinguistic awareness.

Tai and Wong (2022) emphasized that translanguaging can be a source for providing scaffolding for the students, and it will also enhance students' well-being as their bilingual identities will be acknowledged and appreciated. In line with these findings, Nyimbili & Mwanza (2021) highlights that translanguaging practices yield "increased learner classroom participation, multiliteracy development, cultural preservation and learners' identity affirmation" (p.1).

METHOD

Research Design

This study adopts the micro-analytical tools of conversation analysis. Conversation Analysis (CA) is a methodology and a theory of social interaction developed by Harvey Sacks and his collaborators, Emanuel Schegloff and Gail Jefferson, in the late 1960s and 70s (see, e.g. Sacks 1995; Sacks, Schegloff & Jefferson, 1974; Schegloff & Sacks, 1973; Schegloff, Jefferson & Sacks, 1977, for early seminal CA papers). CA research focuses on the systematic analysis of naturally occurring talk and other social actions. Thus, one of the principle objectives of CA is "to discover and explicate the practices through which interactants produce and understand conduct in interaction" (Drew, 2005: 75). Conversation analytic research requires very detailed transcriptions of spoken interaction. Detailed transcriptions of the video-recorded data from both the micro-teaching corpus and the actual teaching corpus were transcribed using the Jefferson transcription system (see Appendix 1).

Each transcription has three lines: the first line in bold presents the original Turkish data; the second line is a word-by-word gloss, which provides word-by-word translations as well as grammatical information in some cases; the third line aims to translate the overall meaning of the original sentence into English as closely as possible. Transcripts also include numbers linking spoken interactions with multimodal features such as gesture and facial expression, as indicated in the accompanying figures.

Data Collection

Data were collected following the teacher education model developed for university teacher education by Sert (2015). The study had 128 preservice English teachers (PSETs) in total. PSETs were initially introduced to the theoretical concepts in TEYL in the first semester. Then, they were briefly introduced to the Classroom Interactional Competence concept (CIC) (Walsh, 2011, 2013). Students were each assigned a unit from the course book, *Tiny Talk*, published by Oxford Publishing. Each PSET carried out a 12-minute micro-teaching session for the assigned unit which was video and audio recorded. This step's video recordings constitute the first data set (the microteaching corpus).

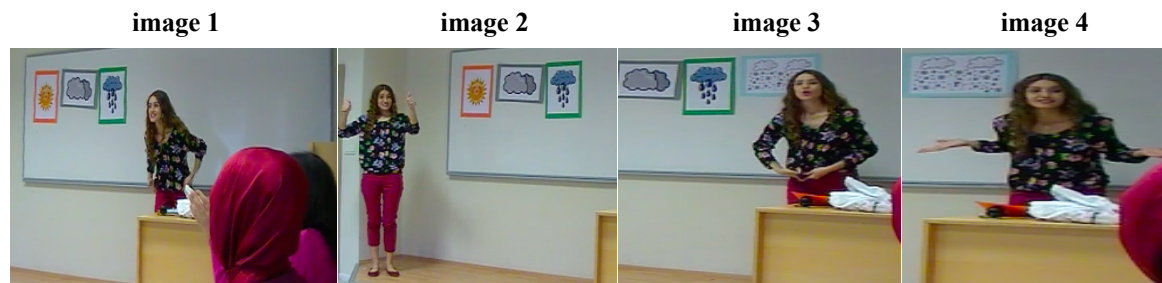
25 hours of video-recorded data were collected for the microteaching corpus. After this step, reflective practice was carried out, however, as this data is separate from this study the details of reflective practice will not be elaborated on. After reflective practice, PSETs taught their assigned unit (with the revisions made in their lesson plans based on the dialogic reflection) in a real classroom environment. Real teaching sessions lasted for 20 minutes and were video-recorded, constituting the second data set for this study (the actual teaching corpus). 42 hours of video-recorded data were collected in the actual teaching corpus. For this study, only one case will be analyzed. It should be noted that this case is very similar to the other microteaching and real classroom teaching corpus.

Data Analysis

Data analyzed in this paper were recorded during one specific classroom activity called “What is missing”? The main objective of this activity is to provide practice of newly learned vocabulary items. The teacher presents flashcards with pictures of newly learned vocabulary items in the activity. The flashcards are placed on the floor in front of the learners, who are asked to close their eyes. While students’ eyes are closed, the teacher takes one flashcard and hides it. Then the students are asked to open their eyes and answer ‘what is missing.’ The analysis of the same activity in a microteaching practice and real classroom teaching is compared.

The following excerpt shows how the activity ‘what’s missing’ unfolds in the microteaching data.

Excerpt 1



- | | | |
|----|-----|---|
| 1 | T1: | ¹ open your eyes |
| 2 | | (0.8) |
| 3 | T1: | °what's missing° |
| 4 | | (0.2) |
| 5 | Ss: | °sno[wy° |
| 6 | S2: | [SNOWY:: |
| 7 | T1: | ² snowy yes: g↑reat thank you |
| 8 | | (1.0) |
| 9 | T1: | ³ close your eyes |
| 10 | | (0.7) |
| 11 | T1: | close your eyes |
| 12 | | (4.5) |
| 13 | T1: | open your eyes↓ |
| 14 | | (0.6) |
| 15 | T1: | ⁴ °what's missing° |
| 16 | | (0.3) |
| 17 | Ss: | sunny |
| 18 | T1: | sunny (.) ² yes <u>great</u> ↑ close your eyes |

This excerpt demonstrates that this activity unfolds without any need to resort to L1 by the teacher or the students in microteaching. Classroom interaction during this activity shows that the students can follow the instructions given by T1 without any problems. In line 1, an instruction ‘open your eyes’ is given, and students follow this instruction even before T1’s turn is completed. Following a 0.8-second pause, T1 moves on to the next instruction, ‘what’s missing’. After a very short pause (0.2 seconds), some of the students start answering the question and in an overlap with the the students’ answer, one student in line 6, shouts the answer ‘SNOWY::’ while elongating the utterance. In a latched turn, T1 repeats the answer and provides some positive feedback, displaying that she has received the expected answer and that they are ready to move on to the next part of the activity (image 2). This pattern is followed throughout the activity: T1 gives an instruction that is followed successfully by the students and T1 provides positive feedback, which signals the successful completion of one part of the activity. Excerpt 1 is an example of a typical progression of teaching activities during microteaching. There is no disruption in the progressivity of the activities, and L1 is used neither by T1, nor the students.

The following excerpts show us how the very same activity with the same PSET unfolds in a real young learner classroom.

Excerpt 2



1. (5.5) ((T1 is preparing))
2. T1: ¹close your eyes
3. (.)
4. Ss: close your eyes
5. T1: close your ²eyes
6. Ss : close your eyes
7. ³(0.8) ((T kneels down closing eyes with her hand))
8. T1: ^oclose your eyes^o
9. (.)
10. T1: ⁴CLOSE your ↓eyes
11. (0.2)
12. Sx: close your eyes
13. (.)
14. T1: ^okapatin gozlerinizi kapatın!^o
15. (3.2)
16. T1: ^o>kapat kapat kapat kapat<

In line 1, T1 puts the flashcards on the floor (as there is no whiteboard in YL classrooms). During T1's preparation, students are talking among themselves. T1 gives her first instruction in the target language while turning her back to the students, holding the flashcards in her hands (image 1). Following a very short pause, the students repeat the instruction in L2 (line 4). While repeating the first instruction, students do not follow the instruction. Their repetition in lines 4 and 6 shows a lack of understanding of the instruction. Instead of following the instruction, students follow the pattern they learnt in the previous vocabulary teaching activity (repeat after T1). There is a mis-match between what the teacher would like students to do (close their eyes) and what they actually do (follow what they perceive to be a drill).

In overlap with Ss' repetition, T1 walks towards the students and repeats her initial instruction in L2 (image 2). At the end of her turn, T displays the instruction by covering her eyes with one hand and kneeling down to the same level as the learners (image 3). While she is kneeling down and closing her eyes, one student repeats the instruction in English. T1's second attempt in giving the same instruction accompanied with embodiment is treated differently by the Ss as only one student repeats the instruction while the other students watch T1's movements. The moment she kneels, only one student (with the white top) closes his eyes with his hand (image 3).

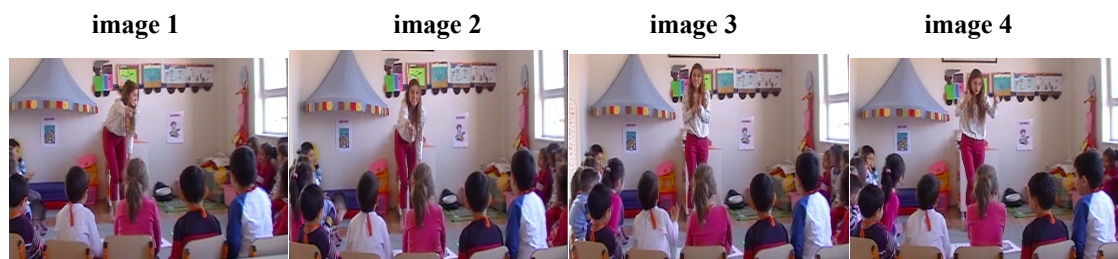
In her third repetition of the same instruction in L2, T1 is kneeling and closing her eyes with both hands (image 4). This time, about half of the class (7 students) close their eyes with their hands, while one student in line 12 repeated the instruction once more.

Following a minimal pause, T1 instructs Turkish in line 15 using a quiet voice (indicated as °kapatın gözlerinizi kapatın!°). At the start of her turn, she opens her eyes and checks whether all the students could follow her instructions. The moment T1 has completed her instruction in Line 15, all students, except student Z, close their eyes with their hands. Only when she provides the instruction in Turkish do all students follow the instructions.

In the following 3.2 seconds, T1 lays the flashcards on the floor. During this pause, T notices that SZ is not closing her eyes, leading to an instruction in line 17. T produces her instruction differently than the previous instructions as she repeats the word ‘kapat’ (close) four times, delivered in a lower voice and very quickly.

Excerpts 1 and 2 demonstrate that instruction-giving sequences unfold differently in microteaching and the real YL classroom. In the first example, T1 only uses English and she repeats the same instruction in the target language. In contrast, in the actual young learner classroom, she uses repetition, changes her intonation, changes her embodied display of the instruction, and eventually, she translates the instruction to L1 and repeats the instruction in L1. The comparison made between the microteaching corpus and the real teaching corpus in terms of instruction-giving sequences confirms that in the microteaching sessions, students follow the instructions without any difficulty in understanding. In some cases, pre-service teachers repeat the instruction in L2 accompanied by very similar embodied instructions in each repetition to get all of the students’ attention. However, in real young learner classrooms, following instructions can be challenging for the students. The analysis shows that problems in following instructions are due to problems in understanding the instructions. As such, PSETs need to use different strategies to convey their intended meaning. These strategies include 1. repetition of the instruction in L2, 2. The use of a range of embodied resources (such as hand gestures, body orientation, gaze), 3. Instruction-giving in L1.

Excerpt 3



1. SP: [GUNES YOK
2. T1: ¹ (0.4)
3. SP: [gunes
4. SX: ²[°gunes yok
5. T1: [SUNNY (0.2)SUNny³
6. (.)
- T1: ⁴thank you great

Excerpt 3 is the continuation of Excerpt 2. In contrast with SZ’s attempt to answer the question, SP answers line 1; however, the answer is provided in L1. T1 acknowledges this answer by pointing to the student and snapping her finger (image 1). In the following lines, we can see that other students repeat SP’s answer which is previously treated as the correct answer by T1. In line 6, T1 gives the English equivalent of the answer in a louder voice and after a minimal pause, she repeats the answer while clapping her hands (image 3). It is important to note that none of the students repeat the answer in English. However, T1 still gives them positive feedback ‘*thank you great*’ and thumbs up (image 4). Then, T1 changes the missing flashcard, which leads to the following excerpt.

Excerpt 4

image 1



image 2



image 3



image 4



1. T1: ¹open your eyes (.) ²what's mis[sing]^o
2. s : [[<]KAR YOK[>]
3. Ss : <kar yo:k> kar [yok
4. T1: ³ [in ↑English
5. (0.2)
6. s : °kar yok°
7. T1: <snow>
8. s : GUNES VA:R
9. s : [GUNES VA:R
10. T1: ⁴[<snowy>
11. Ss : gunes va::R gunes va::R
12. T1: s↑nowy:: ((thumb up))(.) ye:s
13. >what's missing< snowy aAA::
14. [snowy is here ((showing the pic))

In line 1, T1 has changed the flashcard, and she asks, 'What's missing?' As this is the third flash card, the students can follow the instructions without long pauses. In overlap with T1's question, one student provides the answer in Turkish with a high intonation in line 2. This answer is then repeated by the other students again in L1. It is important to remember that in the previous part of this activity (see Excerpt 2), T1 acknowledged students' answers in L1, and she provided some positive feedback, displaying that this answer is accepted as the correct answer. Students are following the same pattern. T1 asks the question and they provide an answer in their L1 telling which flashcard is missing. However, in Excerpt 4, instead of accepting their answer, T1 gives a new instruction in L2: 'in English'. Through this instruction in line 4, T1 is doing 'language policing', which aims to generate an answer in L2 (see Amir, 2013; Amir & Musk, 2014; Hazel, 2015). Following a 0.2-second pause, one student repeats the answer in L1 in a quieter voice. T1, then, provides the expected answer in Line 7, which is delivered slowly. However, students do not show any uptake. Instead of repeating the answer provided by T1, the students modify their initial answer. One of the students changed the answer from 'kar yok', which translates as 'snow is missing' to 'gunes var' which translates as 'sun is there' in a very loud voice repeated by other students in the class. Following the next turn proof procedure, we can claim that students do not understand the meaning of 'in English' as they modify their answers in Turkish instead of answering in English.

In lines 10 and 12, T1 gives the correct answer in English. She delivers the answer at a very slow pace in line 10 and increases her intonation and elongates the answer in line 12. However, the students do not repeat the answer in English. In line 13, T1 provides the question-answer sequence and brings the missing flashcard.

There are two focal points regarding the use of L1 in the corpus: 1) L1 use by the students and 2) how the teacher treats it. Excerpts 3 and 4 demonstrate examples of the use of L1 by the students. In Excerpt 3, the answer is given in L1 by one of the students and T1 treats it as the correct answer. Excerpt 4, however, shows how accepting an answer in L1 can project further problems in the progressivity of the activity. In Excerpt 4, the students can easily follow the instructions and provide the correct answer in L1. However, instead of receiving positive feedback as in the previous example, they encounter a different and new instruction that they have yet to hear during the activity. As seen in the excerpt, the students need to follow this new instruction which hinders the progression of the activity. The underlying reason for this trouble in the progression of the activity is a need for

established rules/ways of using L1 in the classroom. T1 initially (Excerpt 3) accepts the answer in L1 as the expected correct answer.

When we compare the examples in real young learner classrooms with the microteaching data, it can be seen that T1 has yet to have the experience or training to tackle L1 use by the students. As such, interactional and pedagogical problems arise at different stages of classroom activities.

DISCUSSION AND CONCLUSION

Previous research has mostly focused on the L1 used in language classrooms by teachers (see, for example, Hall and Cook, 2012). However, in this study, we focus on students' use of L1 as the PSET mostly avoids using L1. Of particular relevance are the ways in which teachers respond to L1 use; in Excerpt 2, for example, students provide the answer in Turkish which the PSET then acknowledges as the correct answer (by giving embodied positive feedback). In the following part of the activity, the students follow the same pattern: the PSET asks the question and students provide the answer in Turkish. However, the PSET does not display an acknowledgment but instead gives a new instruction doing 'language policing' (i.e. insisting on L2 use) which subsequently hinders the progressivity of the activity. In both excerpts, the pedagogical objective of the activity (getting students to identify the missing flashcard in English) is not achieved. The following table compares the two data sets in terms of L1 use.

Table 1. A Comparison of L1 Use by the Students And How it is Responded to in Microteaching vs. Young Learner Classroom

Microteaching	Young Learner Classroom
PST: Question in L2	PST: Question1 in L2
Ss: Answer in L2	Ss: Answer in L1
PST: positive feedback	PST: Answer in L2 □Positive feedback
PST: Next instruction	PST: Question 2 in L2
	Ss: Answer in L1
	PST: Language Policing
	Ss: A different answer in L1
	PST: Answer in L2□Positive feedback

As shown in Table 1, in the microteaching data, question-answer adjacency pairs are produced in L2 and the pedagogical aim is achieved without resorting to L1; hence, we can say that the progression of the activity is not interrupted. In the real young learner classroom, on the other hand, we can see that students prefer to answer the questions in L1. The PSET accepts the first answer in L1, but in the second question, she does not accept it as the correct answer which subsequently leads to more confusion and hinders the progression of the activity. PSET eventually follows the same pattern, provides the answer in L2 herself, and then gives positive feedback. In both questions, the students did not produce the expected answer. As such, it can be claimed that the pedagogical aim of the activity is not achieved. Indeed, we might even go as far as to say that language use and pedagogical goals are incompatible, and that the teacher's acceptance of L1 obstructs learning opportunities (Walsh 2002). There is then a case to be made within the construct of CIC for teachers to make principled decisions concerning both their use of L1 and their acceptance of students' use of L1. We use the term 'principled' here to suggest that there are times, when L1 use, might be appropriate, but, equally, there are times when only L2 use is acceptable. Student teachers need opportunities to identify how their language use may create or restrict 'space for learning' (Walsh and Li, 2012).

Based on the evidence presented in this article, it is obvious that there are enormous differences between the classroom practices which can be developed through micro-teaching and those that can be developed in real classrooms. While the aim is not to suggest that micro-teaching should be removed from teacher education programs, more work is needed, to highlight the differences between the two contexts. Teachers in training need to be made aware of these differences to avoid the false sense of security which might be engendered through micro-teaching practices. This is especially acute with translanguaging practices; what options are available to teachers, for example, when learners persistently use L1 in their responses?

There are several ways in which the differences between micro-teaching sessions and real classroom teaching might be demonstrated. There is, today, enormous scope for the use of video in teacher education and this has huge potential for raising awareness and promoting more reflective approaches to teacher education. Making a video recording and using that as the basis for reflection and change is relatively easy. Walsh and Mann (2015) make the case for using reflective tools to help teachers in training and more experienced practitioners to develop and learn from their everyday classroom experiences. There is a clear and pressing need for beginning teachers to be trained in using appropriate tools and reflective practices to help them understand their local context more fully and develop translanguaging practices suited to that context. While micro-teaching may not offer such potential, comparing micro-teaching sessions with real classrooms would enhance understanding of classrooms and increase a teacher's repertoire of suitable practices.

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APPENDIX

Adapted from Hutchby and Wooffitt (2008)

- (1.8) Numbers enclosed in parentheses indicate a pause. The number represents the number of seconds of duration of the pause, to one decimal place. A pause of less than 0.2 seconds is marked by (.)
- [] Brackets around portions of utterances show that those portions overlap with a portion of another speaker's utterance.
- = An equal sign is used to show that there is no time lapse between the portions connected by the equal signs. This is used where a second speaker begins their utterance just at the moment when the first speaker finishes.
- :: A colon after a vowel or a word is used to show that the sound is extended. The number of colons shows the length of the extension.
- (hm, hh) These are onomatopoeic representations of the audible exhalation of air)
- .hh This indicates an audible inhalation of air, for example, as a gasp. The more h's, the longer the in-breath.
- ? A question mark indicates that there is slightly rising intonation.
- . A period indicates that there is slightly falling intonation.
- , A comma indicates a continuation of tone.
- A dash indicates an abrupt cut off, where the speaker stopped speaking suddenly.
- ↑↓ Up or down arrows are used to indicate that there is sharply rising or falling intonation. The arrow is placed just before the syllable in which the change in intonation occurs.
- Under Underlines indicate speaker emphasis on the underlined portion of the word.
- CAPS Capital letters indicate that the speaker spoke the capitalized portion of the utterance at a higher volume than the speaker's normal volume.
- ° This indicates an utterance that is much softer than the normal speech of the speaker. This symbol will appear at the beginning and at the end of the utterance in question.
- ><, <> 'Greater than' and 'less than' signs indicate that the talk they surround was noticeably faster, or slower than the surrounding talk.
- (would) When a word appears in parentheses, it indicates that the transcriber has guessed as to what was said, because it was indecipherable on the tape. If the transcriber was unable to guess as to what was said, nothing appears within the parentheses.
- £C'mon£ Sterling signs are used to indicate a smiley or jokey voice.

The Effect of Action-Oriented Approach on Low-Performing Students' Achievements

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Abstract

Teaching a foreign language to low-performing students necessitates thinking multi-dimensionally. It is not only to convey the knowledge to the students, but also it is to be able to take into consideration their needs, expectations, interests, and backgrounds. Thus, educators use some approaches as a base and apply a lot of teaching methods to provide learning in the best way according to their students. However, it is not easy to reach all of the students. Thanks to the CEFR (Common European Framework of Reference)'s Action Oriented Approach (AOA), educators can reach the objectives of their curriculum even by considering Inclusive Education and increasing the active participation of low-performing students. In this study, it is aimed to determine how an AOA is effective in low-performing students' achievements. This study was conducted during 4 weeks with a 1-hour duration of 12 classes. A quasi-experimental method with one pretest-posttest group and the sequential explanatory pattern was employed to explain and narrate quantitative results of the effect of the AOA on low-performing students' achievements. There were 9 students 3 girls, and 6 boys who were in 8th grade (13-14 years old). They were chosen according to their cumulative grade point average (GPA) in English lessons the previous year. All of the students had a standardized achievement pretest and posttest. The data were supported by a parental questionnaire which was prepared by taking an expert opinion. At the end of the study, it was observed that there is a significant difference between the previous and current achievements of the students. Moreover, according to the parents' interview forms, it was understood that there has been a positive change in the attitudes of students toward English lessons and learning English.

Keywords: CEFR, low performing students, action-oriented approach

Eylem Odaklı Yaklaşımın Düşük Performanslı Öğrencilerin Başarıları Üzerindeki Etkisi

Öz

Düşük performanslı öğrencilere yabancı dil öğretmek çok boyutlu düşünmeyi gerektirir. Öğrencilere sadece bilgiyi aktarmak değil, aynı zamanda onların ihtiyaçlarını, beklentilerini, ilgi alanlarını ve geçmişlerini de göz önünde bulundurabilmektir. Bu nedenle, eğitimciler bazı yaklaşımları temel alır ve öğrencilerine göre en iyi şekilde öğrenmeyi sağlamak için birçok öğretim yöntemi uygular. Ancak öğrencilerin tamamına ulaşmak kolay değildir. CEFR'nin (Avrupa Ortak Referans Çerçevesi) Eylem Odaklı Yaklaşımı (AOA) sayesinde eğitimciler, Kapsayıcı Eğitimi dikkate alarak ve düşük performanslı öğrencilerin aktif katılımını artırarak bile müfredatlarının hedeflerine ulaşabilirler. Bu çalışmada, AOA'nın düşük performanslı öğrencilerin başarılarında ne kadar etkili olduğunu belirlemek amaçlanmıştır. Bu çalışma 4 hafta boyunca 12 derste 1'er saatlik sürelerle yürütülmüştür. AOA'nın düşük performanslı öğrencilerin başarıları üzerindeki etkisinin nicel sonuçlarını açıklamak ve aktarmak için tek ön test-son test gruplu yarı deneysel bir yöntem ve sıralı açıklayıcı desen kullanılmıştır. Çalışmaya 8. sınıfta (13-14 yaş) öğrenim gören 3'ü kız, 6'sı erkek 9 öğrenci katılmıştır. Öğrenciler, bir önceki yıl İngilizce derslerindeki genel not ortalamalarına (GPA) göre seçilmiştir. Tüm öğrencilere standartlaştırılmış bir başarı ön testi ve son testi uygulanmıştır. Veriler, uzman görüşü alınarak hazırlanan bir veli anketi ile desteklenmiştir. Çalışma sonunda öğrencilerin önceki başarıları ile şimdiki başarıları arasında anlamlı bir fark olduğu görülmüştür. Ayrıca veli görüşme formlarına göre öğrencilerin İngilizce dersine ve İngilizce öğrenmeye yönelik tutumlarında olumlu yönde bir değişim olduğu anlaşılmıştır.

Anahtar Sözcükler: Avrupa Ortak Dil Çerçeve Programı, düşük performanslı öğrenciler, eylem odaklı yaklaşım

INTRODUCTION

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The acquisition of a foreign or second language has long been recognised as a significant objective for nations and regions. Numerous approaches, methods, and approaches have been employed throughout the instructional sessions in order to effectively attain these objectives by catering to the diverse needs, interests, and backgrounds of students, who exhibit varying learning styles and proficiency levels. The Grammar Translation Method, Direct Method, Audio Lingual Method, Total Physical Response, Silent Way, and Communicative Approach are well-recognised and influential methodologies in language teaching. Over time, the significance of effective communication in practical contexts has come to the forefront, superseding the emphasis on grammatical structures, precision, and rote memorization. When engaging in the process of teaching and learning, it is of utmost importance to be abreast of current advancements and updates. The field of language instruction has undergone significant transformations with the advent of the communicative approach. This approach places considerable emphasis on authentic communication in real-life situations, while also incorporating the introduction of new vocabulary and grammatical structures within certain contexts or themes. The current methodology incorporates a sociocultural dimension that promotes greater participation and encourages students to assume an active role in their educational process. The approach has undergone a transformation into an action-oriented methodology, wherein pupils are regarded as active contributors to society who are required to fulfil many responsibilities, encompassing not just linguistic objectives but also those within a wider social framework. The Council of Europe (2001) asserts that language instruction and acquisition should encompass not only linguistic exercises but also incorporate socio-cultural and pragmatic elements of interpersonal communication, wherein language is viewed as a means to achieve objectives beyond linguistic proficiency (Kaliska, 2016). Current research in language education indicate that the AOA (Approach-Oral-Aural) has brought about major changes in traditional foreign language teaching strategies or procedures. The statement proposes directing one's focus towards actions referred to as tasks, which necessitate completion either as a collective endeavour or on an individual basis. According to Coşkun (2017), language learners engage in the process of language acquisition through the use of language. During the instructional session, there exists variability in the rate and efficacy of student learning. The presence of pupils with varying levels of proficiency in a classroom poses a challenge in ensuring comprehensive learning opportunities. In the context of English language instruction, certain students exhibit reticence in verbal expression, hesitancy in engaging in exercises, or apprehension stemming from concerns with adherence to grammatical conventions and limited lexical repertoire. To facilitate inclusive instruction and promote engagement among all students, educators should employ diverse instructional methods or approaches within their classes. This includes strategies that cater to the needs of low-performing students. In this study, the term "action-oriented approach" is employed to differentiate the social action viewpoint from both the communicative method and task-based language training (Acar, 2020b). In Turkey, there is a significant body of research dedicated to the study and enhancement of English language acquisition. Nevertheless, a deficiency persists in effectively engaging and supporting all students in achieving academic excellence and fostering their active involvement. The objective of this study is to assess the efficacy of the Common European Framework of Reference for Languages (CEFR) action-oriented strategy in enhancing the academic performance of students with low proficiency in English.

An answer is tried to be given to the question “ *Is there a significant difference between the achievement pre-test and post-test scores of the students' success whose English levels are lower than their peers in the English course where the "Action-Oriented Approach" teaching is applied?* ”

Literature Review

Teaching English to Low-Performing Students

According to Carman (2015), those who face challenges in their academic performance or fail to meet the expected level of competency are classified as low achievers. According to Nath et al. (2017), a low-achieving student refers to an unclassified student who is encountering academic difficulties or demonstrating substandard performance. Educators have identified a subset of students, sometimes referred to as low achievers, who need academic assistance. This designation is not solely based on their performance on examinations or in-class activities. Additional attributes exhibited by students with low academic performance include consistently earning grades below the average and demonstrating minimal or negligible advancement in their academic pursuits. While it is not universally applicable, it is worth noting that certain low achievers, commonly referred to as LA, may have learning difficulties. Students who demonstrate low academic performance and meet specific criteria, such as a discrepancy between their intellectual abilities and actual achievements, are eligible to receive specialised educational support (Carman, 2015). In the realm of education, it is imperative for educators to use a personalised approach when instructing students, seeing each learner as a unique individual. These entities exhibit distinct

characteristics and possess varying requirements. High-achieving students have the ability to derive knowledge and skills from a wide range of instructional methods or pedagogical approaches. In addition, individuals have the capacity to acquire knowledge and skills independently. Nevertheless, certain students require individualised attention and care. Students should experience a sense of security and freedom during the learning process. English lessons should not be seen as formal settings. Educators must recognise the significance of offering increased support to their students through the provision of comprehensive feedback, while refraining from exhibiting any prejudices towards students who perform at different levels (Hendrickson, 1978). Students perceive that their academic performance, whether it is high or low, is influenced by internal factors, implying that they believe they have the ability to impact their grades. Furthermore, they perceive this relationship to be unstable, suggesting that grades can fluctuate over time. Additionally, students believe that they have control over the amount of effort they invest in their learning endeavours. According to Rosito (2020), individuals who attribute their success or failure in the learning process to their level of effort perceive that their academic outcomes could be enhanced by increasing their exertion. Therefore, instructors have the ability to capture the attention of their pupils by employing various instructional strategies. Educators should refrain from discontinuing instruction or disregarding students during sessions; instead, they ought to actively seek out the underlying factors contributing to their subpar academic performance. Consequently, the implementation of this approach can lead to enhanced engagement and increased enjoyment among students during instructional sessions.

What is CEFR?

The CEFR, or Common European Framework of Reference for Languages, is widely recognised as a comprehensive guidebook for language acquisition, pedagogy, and evaluation. The development process of the Council of Europe (CoE) was extensive, leading to the eventual release of the Common European Framework of Reference for Languages (CEFR) in 2001 (Council of Europe, 2001). According to the Council of Europe (2018, p. 25), the objectives of the CEFR's development encompass the advancement of a constructive articulation of educational objectives and results across various educational levels, the establishment of transparent and well-defined benchmarks for assessment to guide curriculum reform and pedagogical practices, and the provision of support to students, teachers, course designers, examining bodies, and educational administrators in order to align and harmonise their endeavours. The introduction of the Common European Framework of Reference for Languages (CEFR), which prioritizes an action-oriented approach and learner-centered education, has resulted in significant changes in the field of language learning. The objective of language acquisition is to effectively utilise a target language in many contexts and domains encountered in everyday life. This objective is comprised of three key components: accuracy, appropriateness, and naturalness. According to Běrešová (2019), The spectrum of linguistic proficiency encompasses six levels, denoted as A1 through C2. Levels A1 and A2 are classified as belonging to the Basic Users category, while Levels B1 and B2 are categorised as Intermediate Users. Levels C1 and C2, on the other hand, are classified as Proficient Users. Learners experience improvement in both communication skills and language proficiency. The Common European Framework of Reference (CEFR) facilitates the acquisition of effective learning strategies and progression from basic to advanced proficiency levels. This framework empowers learners to effectively use their newly learned knowledge and skills. According to Zaki and Darmi (2021), a skilled learner attempts to employ the language in a manner that is both natural and fluent, while also ensuring its acceptable usage within specific contexts.

The current era is characterised by a globalised society. The current state of affairs is characterised by a quick pace of change. Therefore, it is imperative to stay abreast of the requirements associated with this transformation. The acquisition and utilization of a foreign or second language is crucial in facilitating a comprehensive understanding of the global landscape. The users of a foreign language must address and resolve some crucial inquiries, such as "Do I possess a comprehensive understanding of my language skills?" or "Am I capable of accurately assessing my proficiency, particularly when I venture abroad?" Undoubtedly, individuals possess the capacity to employ a language; nonetheless, a crucial aspect is in the ability to articulate one's proficiency level. One may assert their proficiency in reading, listening, writing, or speaking; nonetheless, this alone does not serve as a definitive criterion. It is imperative that individuals possess a uniform degree of proficiency as universally recognised by all individuals and institutions across many domains. The CEFR provides a comprehensive response to the aforementioned inquiries. This tool is widely utilised on a global scale to facilitate language proficiency assessment and monitoring for students and educators alike. Therefore, individuals can utilise this tool to enhance their metacognitive abilities and assume accountability for their educational pursuits, thereby fostering a constructive approach to lifelong learning. The process of acquiring knowledge might be likened to embarking on an extensive expedition.

The Common European Framework of Reference (CEFR) provides an assessment of our current position in this endeavour. The CEFR should not be regarded as a valid assessment framework. Furthermore, it should be noted that this approach cannot be classified as a teaching technique, as it does not provide a specific instructional framework or methodology for teaching. In contrast, it can be regarded as a comprehensive descriptive framework applicable to all languages. It generates a pathway for the student. The individual possesses knowledge of the final destination to be reached upon completion of said voyage. There is a lack of explicit "can do" assertions pertaining to grammar or vocabulary. The purpose of this design is to elucidate the mechanisms through which language users engage in communication and comprehend written and spoken situations. The CEFR for Languages: Learning, Teaching, and Assessment, published by the Council of Europe (CoE) in 2001, is widely recognised as the authoritative benchmark for language instruction and acquisition. It places particular emphasis on fostering communicative competence and facilitating the sharing of knowledge (Little, 2007). The CEFR places significant emphasis on several important concepts. These include the encouragement of coherence and transparency within the language profession, the utilisation of a common metalanguage, the prioritisation of communicative language use or "language for a social purpose" rather than mere linguistic proficiency, the ability to effectively employ all linguistic repertoires to convey meaning in specific contextualised conversations, and the recognition of partial language competences or uneven language skills. In alignment with the actions taken by various European countries in modifying their educational programmes to address the instruction and acquisition of a second or foreign language, the Ministry of National Education (MoNE) has elected to revise the English as a Foreign Language (EFL) curricula and instructional resources in Turkey, in accordance with the Common European Framework of Reference for Languages (CEFR). Therefore, starting from 2004, the Ministry of National Education (MoNE) recognised the Common European Framework of Reference (CEFR) as a benchmark for making adjustments to our English as a Foreign Language (EFL) curricula (Zorba & Arikan, 2012).

Action-Oriented Approach in CEFR

In the field of second or foreign language studies, there has been a shift in focus from linguistic inputs and mental information processing to the observation and analysis of language users' behaviours and expressions during their engagement in meaningful activities (Lier, 2007). The Common European Framework of Reference for Languages (CEFR), which has implemented the action-oriented approach, has been increasingly prominent in the formulation of curricula for English language instruction (ELT) in European Union countries and other nations such as Turkey (Acar, 2020a). The authors of the Common European Framework of Reference for Languages (CEFR) adopt a novel approach in their publication. The approach employed in this context is primarily focused on action, as it considers users and language learners as "social agents" that are part of a society and have duties to accomplish in certain situations, environments, or domains, which extend beyond language-related activities. Acts of speech are an integral component of language activities; yet, a comprehensive understanding of these behaviours necessitates consideration of their broader social framework (Puren, 2021). The primary focus of the action-oriented strategy lies in the role of language within the context of communication (Supunya, 2022).

The action-oriented method encompasses four distinct domains of language use, namely public, personal, occupational, and educational. Additionally, this approach provides educators with a range of activities, tasks, and tactics that can be employed in their action-oriented training. According to Curriculum Service Canada (n.d.), the CEFR aims to surpass the communicative approach by placing emphasis on active language utilisation that fosters the development of five language competencies, namely spoken production, spoken interaction, listening, reading, and writing, which encompasses the necessary skills for interactive writing. Action-oriented assignments are designed to meet the many situational communication requirements of learners on a regular basis. According to the Council of Europe (2018), the activities are perceived as open-ended and require students to employ their knowledge and skills in order to complete specific tasks within a specific social context, utilising various tactics. Pragmatism posits that educational theory and practice are founded upon two fundamental concepts. One perspective posits that education ought to serve a social purpose, while another viewpoint suggests that education should provide children with practical experiences in the actual world (Sharma et al., 2018).

The objective of this approach is to remove the learner from the confines of the educational setting and encourage them to perceive language acquisition as a customary endeavour akin to a daily regimen. When engaged in a task, students will utilize their individualised knowledge and skills, linguistic proficiencies, learning strategies, as well as their distinct interests and objectives, in order to develop a solution that is tailored to their particular circumstances. The consideration of the learning environment and the reference world or domain is essential for teachers when designing activities. The instructor should thereafter direct their attention towards a more specific aspect of the situation and develop a task that is customised to address it. During the course of the assignment, the

students will employ their acquired knowledge to devise a resolution to the problem or formulate a response to the given task. Subsequently, the researchers will proceed to offer their empirical observations or proposed resolution to a pre-established demographic, necessitating the delivery of a presentation that is contextually suitable. According to Fischer (2020), The action-oriented approach prioritises the use of language in communication over the rote memorization of isolated linguistic components that may have limited practical uses. Therefore, it is imperative for language educators to adopt this method as a fundamental strategy in their instructional practises. The Council of Europe (2018) has identified various communication applications. An action-based approach to teaching and learning encompasses various methodologies, including task-based, project-based, and content-based approaches. Rather than being structured around a particular curriculum, the agency assumes the role of the central construct. (Lier, 2007) conducted a study on this topic. Action-based teaching is an instructional approach that places a high emphasis on the role of human agency. According to Ahearn's (2001) "provisional" definition, agency can be broadly understood as the socioculturally mediated capacity to engage in purposeful action. The introduction of the action-oriented approach by the CEFR has led to a shift in the objective of language teaching. This shift involves moving away from the mere transmission of information and instead focusing on engaging in collaborative activities both within and outside the classroom. Consequently, the emphasis has moved from training individuals to be effective communicators to training them to be active participants in social contexts (Acar, 2020b).

METHOD

Research Design

This study aims to incorporate the four fundamental language skills, namely reading, listening, writing, and speaking, in accordance with the Common European Framework of Reference for Languages (CEFR), with the objective of enhancing learners' linguistic proficiencies. A mixed methods approach, integrating both quantitative and qualitative methodologies, was employed in order to address the stated problem statement. The study employed a quasi-experimental methodology with a one-group pretest-posttest design, following a quantitative research approach. The decision to not include a control group in the study was made based on practical considerations, as it was deemed more convenient to work solely with the researcher's class. A comprehensive understanding of the class was possessed, during the preceding academic year. Furthermore, we anticipated the opportunity to witness the progress of my students during the instructional sessions and exercises associated with the action-oriented approach. Studying alongside classmates in that particular class proved to be beneficial due to our role as their class counsellor. If a control group had been selected, the process of observing the students within that group would have presented challenges.

Therefore, the decision to carry out the study using a sample of students with whom we had prior familiarity with is made. A quasi-experimental design is employed by researchers in situations where a true experimental design is not viable due to various factors. These factors may include the formation of intact groups in clinical settings, the inability to withhold treatment from a particular group, or the unavailability of suitable control or comparison groups (Dawson, 97). The study employed an explanatory sequential design. The mixed-methods sequential explanatory design is comprised of two discrete phases, namely a quantitative phase followed by a qualitative phase. In this study, the researcher initially collects and analyses quantitative (numeric) data. The initial phase generates quantitative outcomes, which are afterwards elucidated by the qualitative (textual) data. These qualitative data are collected and analysed in the second part of the study. The intermediate stage of the study serves as a bridge between the initial quantitative phase and the subsequent qualitative phase, with each phase building upon the other (Ivankova et al., n.d.). In order to gather comprehensive data pertaining to the study, a semi-structured interview protocol was administered to the parents of the student. The utilisation of this particular approach for data collection is deemed appropriate due to its ability to identify various features of the phenomena by drawing upon existing information. The second rationale is the efficacy of semi-structured interviews in exploring individuals' viewpoints and ideas (Barriball & While, 1994). Interviews are considered helpful for qualitative research due to their reliance on fewer ongoing observations, which may reduce participant reluctance to engage. Additionally, interviews allow the researcher to have more control over the direction of questions (Zhang, 2010). The third element is to the subjects' limited understanding of the research topic. Furthermore, employing this method enables the interviewer to maintain concentration on the topic under discussion, while affording the participants increased chances to express significant ideas and observations (Kallio et al., 2016). A lesson plan spanning a duration of four weeks was developed for the action-oriented approach lessons, incorporating insights from an expert in the field. The lesson plan is prepared with the help of A Guide to

Reflective Practice for Core French Teachers: The Action-Oriented Approach, module 3 and Sarı, (2020). The lesson plan is depicted in Table 1 (in Appendix). The achievement tests pertaining to the tasks were generated using the MoNE (Ministry of National Education) EBA Education Informatics Networks Portal for the pre-test and post-test sessions. In the final stage of the study, the viewpoints of the student's parents were collected using a semi-structured parental questionnaire.

Research Samples

In the study, there were 9 students including 3 girls and 6 boys who were in 8th grade (13-14 years old) in a state middle school in Konya province in Türkiye. They were chosen according to their cumulative grade point average (GPA) in English lessons. Their achievement levels were low compared to their peers. As a result, they were called "Low-performing students" during the study.

Data Collection Procedure and Instruments

The themes "In the Kitchen" and "On the Phone" for the assignments were selected from the course book titled "Mastermind Ortaokul ve İmam Hatip Ortaokulu İngilizce 8 Ders Kitabı" authored by Assoc. Prof. Dr. İltis et al. in 2019. The method of data collection was carried out in four distinct phases. The initial pre-test phase was implemented to assess the students' level of knowledge pertaining to the subject matter of the work. The tests were acquired from the MoNE (Ministry of National Education) EBA Education Informatics Networks Portal. The selection of tests was based on specified subjects. The initial topic of examination was to the domain of culinary activities, specifically within the confines of a kitchen setting. The assessment encompassed a total of 16 inquiries. Following the administration of the test, the obtained results did not demonstrate satisfactory levels of performance. Commencing promptly, the lessons were initiated as the second element of the study. In every instructional session, the activities pertaining to the thematic content were implemented. On occasion, the students assume the roles of clients or waitstaff within a dining establishment, while at other times they adopt the position of chefs, imparting culinary instructions. Following the initial theme, a post-test was administered to the pupils. The second theme, "on the phone," underwent the same procedural application as the first theme. During the activities pertaining to the assigned topics, the students alternated between assuming the role of callers and recipients. The educational component of the study had a duration of four weeks, during which a diverse range of assignments were implemented to enhance students' language proficiency. There were three weekly lessons, with each lesson having a duration of one hour. During the last stage of the study, data was gathered through the utilisation of open-ended questions within a written semi-structured interview format, which was administered to parents. To ensure the content validity of the interview questions, the perspectives of an expert in the field of special education and a professional in the field of English Language Teaching (ELT) were sought. Based on their perspectives, two specific questions were excluded from the study due to their lack of relevance to the research objectives. The revised and acceptable inquiries are:

- 1- What are your views on the increase in your child's success in learning English with English language teaching using the "Action Oriented Approach"?
- a- What are your views on your child's attitudes toward learning English (her/his love and willingness towards the lesson, her thoughts...)?
- b- What are your views on your child's willingness and motivation to do his/her homework while learning English?
- c- What are your views on your child's participation in English lessons enthusiastically, answering questions, and raising his/her hand?
- d- What are your views on whether your child spends special time in English lessons or learning English?

Data Analysis

According to (Creswell, 2014), there were six processes in the data analysis: acquiring the data, preparing the collected data for future analyses, reading through the data thoroughly, coding the data, establishing themes, and interpreting the themes. The test results were analyzed by SPSS Programme.

Research Ethics

The ethical issues were taken into account. The students were informed about the purpose and conditions of the study, and they were asked if they would participate voluntarily by the researcher. A consent agreement was made because it was certain that the students would take part. Students and their parents were also informed of discussions and responsibilities, and the researcher assured them that information would remain confidential.

FINDINGS

The purpose of this section is to give the analysis and interpretation of the data that has been gathered on the effect of the action-oriented approach on the achievements of low-performing students in English lessons. Based on statistical calculations, this study will be analyzed and explained.

Pre-Test and Post-Test Results

Table 2. Unit ‘in the Kitchen’ and ‘on the phone’ Pre-Test / Post-Test Results

		PRE-UNIT 1		POST-UNIT 1
		Correct Answers- Number of questions		Correct Answers- Number of questions
In The Kitchen	Student 1-GZÜ	5/16	Student 1	5/16
	Student 2-ŞNC	8/16	Student 2	9/16
	Student 3-HTO	2/16	Student 3	8/16
	Student 4-MÇ	5/16	Student 4	8/16
	Student 5-AT	5/16	Student 5	8/16
	Student 6-NEA	6/16	Student 6	10/16
	Student 7-YD	5/16	Student 7	5/16
	Student 8-EB	3/16	Student 8	2/16
	Student 9-NEŞV	6/16	Student 9	6/16
On The Phone	Student 1-GZÜ	6/12	Student 1	6/12
	Student 2-ŞNC	6/12	Student 2	9/12
	Student 3-HTO	3/12	Student 3	8/12
	Student 4-MÇ	4/12	Student 4	8/12
	Student 5-AT	5/12	Student 5	5/12
	Student 6-NEA	4/12	Student 6	6/12
	Student 7-YD	3/12	Student 7	5/12
	Student 8-EB	3/12	Student 8	8/12

Student 9-NEŞV 2/12

Student 9 6/12

As is seen in table 2 there are score differences of the students' pre-post test results. Only 3 students finished then process with equal correct answers and only one student decreased his/ her correct answers. Other students increased their correct answers in 2 units after a training process with Action-Oriented Approach.

Table 3. Normality Test Results

	Mean	Std. Deviation	Min-Max	Skewness	Std. Error	Kurtosis	Std. Error
In The Kitchen Pre Test	5,0000	1,85164	2,00-8,00	-,180		,350	
In The Kitchen Post Test	6,7778	2,48886	2,00-10,00	-,739	,752	,178	1,481
On the Phone Pre Test	4,0000	1,41421	2,00-6,00	,341		-1,089	
On the Phone Post Test	6,7778	1,48137	5,00-9,00	,188		-1,670	

When the Skewness and Kurtosis values of the scales are examined, it is concluded that these values are smaller than -1,500 and +1,500 (as a result of Skewness / Std. Error and Kurtosis / Std. Error). The fact that these values are less than -1,500 and +1,500 explains the normal distribution of the scales (Tabachnick & Fidell, 2013).

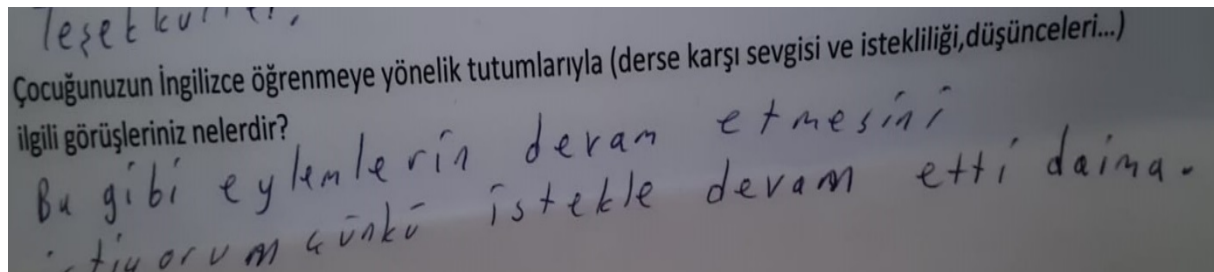
Table 4. Paired Sample t-test Results

		N	Mean	Std. Deviation	t	P
In The Kitchen	In The Kitchen Pre Test	8	5,0000	1,85164	-2,366	,050
	In The Kitchen Post Test	8	7,0000	2,56348		
On the Phone	On the Phone Pre Test	8	3,7500	1,28174	-5,118	,001
	On the Phone Post Test	8	6,8750	1,55265		

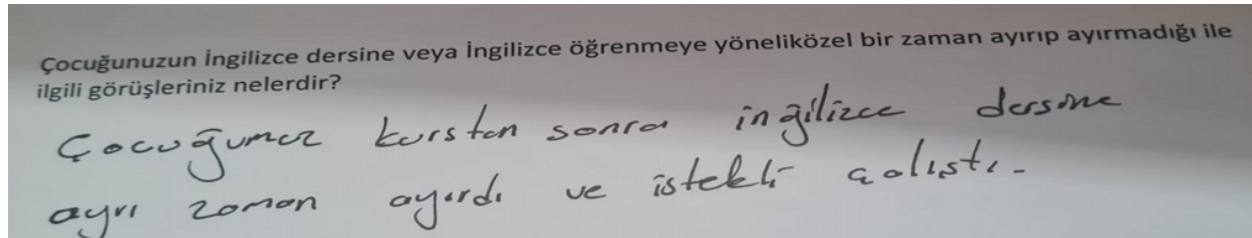
As a result of the Dependent T-Test, it is concluded that there is a significant difference ($p \leq 0.050$) between the pre-test results and the post-test results. When the average scores are examined, it is seen that the post-test values increase compared to the pre-test values. In this case, it can be said that the training/ education applied on the students is successful.

Interview Results

There were 9 parents in the study. The questions in the semi-structured parent forms were answered and their opinions were taken by the researcher. One of the students was a child of an immigrant family. He didn't come to school after examinations. He didn't attend 2 AOA lessons, either. Therefore, one of the forms couldn't be filled. However, despite one missing form, all of the parents presented positive views. Besides, they said that their children developed positive attitudes toward the lessons and the English language. The reply of student GZÜ's parent to the question "*What are your views on your child's attitudes towards learning English (her/his love and willingness towards the lesson, her thoughts...)?*" was *I want approaches like this to continue because my child has always been willing to go to class.*



The reply of student NEA's parent to the question "What are your views on whether your child spends special time in English lessons or learning English?" was *After the course, our child had a separate time for the English lesson and worked willingly.*



CONCLUSION AND DISCUSSION

From this study, it is concluded that no matter at what level students are, the action-oriented approach (AOA) and its real-life related tasks are so fruitful. Furthermore, this study demonstrates that using AOA as an intervention to the lesson given allowed all of the participants except one student to improve to varying degrees. That student didn't have any improvement in her level of knowledge. The students appreciated the lessons when AOA was used, finding it useful and joyful to use to fulfill the tasks. Numerous nations around the world, including Turkey, have embraced the CEFR. To provide a fuller picture of the application of the CEFR framework and, more significantly, its underlying action-oriented methodology in classrooms, additional thorough research is needed (Suaykratok et al., 2019).

A study focused on on teachers' perceptions of the benefits and drawbacks of implementing CEFR-informed practice in FSL classrooms. This province-wide survey included 943 primary and secondary school students and 93 FSL teachers. The CEFR and activities and materials based on the CEFR were introduced to the participating instructors. After that, teachers used the materials in their classrooms for around three months. After this time, teachers took part in focus groups and interviews to discuss how they felt about the action-oriented approach of the CEFR. Teachers claimed that lessons based on the CEFR improved students' motivation (Faez et al., 2011).

After the conventional grammar-translation method, a study aims to redraft the theoretical underpinnings of translation in language learning and to dissect the underappreciated role of translation in the emerging methodologies during the second half of the twentieth century up to communicative and action-oriented approaches. The study's goal is to reintroduce translation-based learning in line with the action-oriented methodology, which is founded on the incorporation of intercultural communication competence into language teaching. In this qualitative phenomenographic study, the researcher looked at information gathered from ten specialists and identified three broad groups. The core theme, which was broken down into three areas (role, impact, and awareness through translation), was the influence of translation on intercultural communicative skills. It has been determined that translation is a method for bridging cultural gaps in language instruction and that the function of translating is akin to mediation. Translation is a complex process that involves interfering with language, culture, and inter-subjective pragmatic interactions in addition to being a transcoding activity (Aydinalp et al., 2020).

Limitations and Suggestions

Several shortcomings were identified in the study. The time frame of four weeks designated for this study proved to be inadequate for many students to sufficiently engage in practise and familiarise themselves with the assignment requirements. As individuals engage in practise and develop proficiency in their responsibilities, they

will encounter a multitude of potential possibilities. A more extensive investigation can be undertaken using the identical subject.

Another constraint that was encountered was to the individuals that took part in the study. The investigation was conducted using a single group consisting of nine students. A study employing both a control group and an experimental group can be expanded to include a larger sample size of students.

The present investigation was carried out with a sample of middle school students. A research could be conducted involving students at the primary, secondary, or tertiary education levels. Conducting a study involving both young learners and adults would yield valuable insights.

This study may be of value to future scholars as they engage in comprehensive investigations of the vast range of teaching practises facilitated by AOA on a worldwide scale.

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APPENDIX

Table 1. The Four-Week Lesson Plan Prepared According to the Tasks in An Action-Oriented Approach.

UNIT 3 IN THE KITCHEN (2 weeks) (5 hours)		
LEARNING GOALS	AUTHENTIC SITUATION	ACTION-ORIENTED APPROACH
STUDENTS	In what circumstances would you come across this situation?	-What is the purpose of the task? -What will be acquired and accomplished at the end of the task? TEACHER
1-Describing ingredients of a recipe 2-Describing simple processes 3-Giving information about a traditional food -I will be able to ask for and give information about the ingredients of a recipe. -I will be able to describe the steps of a recipe. -I will be able to ask and talk about traditional food.	1) When somebody asks for a recipe for a tasty dish. 2) When you tasted a dish and wonder about its ingredients and process. 3) In a restaurant or a café, when a customer wonders about the ingredients of an unknown dish in a foreign country. 4) When you wonder about a different cuisine.	1) The teacher has the students watch a video related to kitchen tools, food, cooking methods, and processes. (Vocabulary and listening activity) 2) The teacher shows some flashcards about different food and asks the students to guess what they are. (Speaking activity) 3) The teacher wants students to sit in groups, gives each group the steps of a different recipe mixedly, and wants the students to put them in order. The groups exchange the recipes. (Collaboration) 4) Each student chooses a dish from the flashcards and asks their peers questions about it. (Speaking activity) 5) The teacher makes a salad and tells the process of it in front of the students. 6) The teacher wants the students to make a salad and talk about how to make it. (Speaking activity) 7) The teacher has the students listen to the process of a recipe. Then, the teacher gives each student a fill-in-the-gap worksheet about the recording and wants the students to fill in the gaps. 8) The teacher wants the students to write the salad recipe. (Writing activity)

UNIT 4 ON THE PHONE (2 weeks) (5 hours)

LEARNING GOALS	AUTHENTIC SITUATION	ACTION-ORIENTED APPROACH
STUDENTS	In what circumstances would you come across this situation?	What is the purpose of the task? What will be acquired and accomplished at the end of the task? TEACHER
1-Following phone conversations. 2- Stating decisions taken at the time of speaking. -	1) When you introduce yourself in a phone conversation. 2) When somebody calls you and asks if his/her friend or one of your family members is there. 3) When you want to leave a message for the person you couldn't reach. 4) When you are a secretary, and somebody wants you to connect him/her to the doctor or the manager.	1) The teacher has the students watch a cartoon about a phone conversation. (Listening activity) 2) The teacher shows some flashcards about the structures used during a simple phone conversation and wants the students to repeat them. (Speaking activity) 3) The teacher gives each group a different phone conversation mixedly and wants the students to put them in order. The groups exchange phone conversations. (Collaboration) 4) The teacher chooses a student and wants him/her to choose a flashcard. Then, the teacher wants the student to guess what to say after that statement. 5) The teacher wants the students to make a phone conversation with their peers. 6) The teacher wants the students to write the phone conversation they made with their peers.

Investigating EFL Teachers' Coursebook Dependency: A Convergent Mixed-methods Study

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Abstract

Exploring English language teachers' attitudes towards coursebooks is important as there is a connection between teachers' attitudes, beliefs and practices. In this regard, this study aims to examine English as a foreign language (EFL) teachers' coursebook dependency and how their dependence varies according to their years of experience, the type of school they work at, program and degree of graduation. Data were collected out of 99 EFL teachers working at primary, secondary and high schools. The study follows a convergent mixed methods design that includes both quantitative and qualitative data sources. Quantitative data were collected through the "Coursebook Dependency Scale" and analyzed on the SPSS 26.0 program. Qualitative data, on the other hand, were gathered through an open-ended questionnaire developed by the researcher that invites the respondents to provide metaphors for coursebooks and analyzed with content analysis. Findings revealed that majority of the teachers are moderately dependent on coursebooks and that their years of experience, school level and academic background do not have a statistically significant effect on their level of coursebook dependency. However, there appears to be a significant difference in the sub-dimension 'practicality-based dependence' in favor of those with an experience of 15 to 20 years. Furthermore, majority of the teachers' metaphorical images fell under the categories of Support and Guidance that were in line with the finding indicating the moderate level of teachers' coursebook dependency. Exploring teachers' attitudes towards coursebooks might provide insights into the way they use materials in their teaching and help teachers become more aware of their practices and critical of their dependence on coursebooks, which might well contribute to develop in-service training programs.

Keywords: English language teaching, EFL teachers, coursebooks, coursebook dependency

İngilizce Öğretmenlerinin Ders Kitabı Bağımlılığının Araştırılması: Bir Yakınsak Karma Yöntem Çalışması

Öz

Öğretmenlerin tutumları, inançları ve uygulamaları arasında bir bağlantı olduğu gerçeği göz önüne alındığında İngilizce öğretmenlerinin ders kitaplarına yönelik tutumlarını incelemek önem arz etmektedir. Bu bağlamda, bu çalışma yabancı dil olarak İngilizce (EFL) öğretmenlerinin ders kitabı bağımlılığını ve bu bağımlılıklarının yıllara, çalıştıkları okul türüne, mezuniyet programına ve mezuniyet derecesine göre nasıl değiştiğini incelemeyi amaçlamaktadır. Araştırma verileri ilkökul, ortaokul ve liselerde görev yapan 99 İngilizce öğretmeninden toplanmıştır. Bu çalışma, hem nicel hem de nitel veri kaynaklarını içeren yakınsak karma yöntem desenini benimsemiştir. Nicel veriler "Ders Kitabı Bağımlılık Ölçeği" ile toplanmış ve SPSS 26.0 programında analiz edilmiştir. Nitel veriler ise araştırmacı tarafından geliştirilen ve çalışmaya katılan öğretmenleri ders kitapları için metafor oluşturmaya davet eden bir anket aracılığıyla toplanmış ve içerik analizi ile analiz edilmiştir. Bulgular, öğretmenlerin çoğunluğunun ders kitaplarına orta düzeyde bağımlı olduğunu ve deneyim yılı, okul düzeyi ve akademik geçmişlerinin ders kitabı bağımlılık düzeyleri üzerinde istatistiksel olarak anlamlı bir etkiye sahip olmadığını ortaya koymuştur. Ancak 'uygulamaya-dayalı bağımlılık' temelli bağımlılık alt boyutunda 15-20 yıl arası deneyime sahip olanlar lehine anlamlı bir farklılık olduğu görülmektedir. Ayrıca, öğretmenlerin metaforik imgelerinin büyük çoğunluğu, öğretmenlerin ders kitabı bağımlılığının orta düzeyde olduğuna ilişkin bulguyla uyumlu olarak, Destek ve Rehberlik kategorilerinde yer almaktadır. Öğretmenlerin ders kitaplarına yönelik tutumlarını araştırmak, materyalleri nasıl kullandıklarına dair fikir verebilir ve öğretmenlerin kendi uygulamalarının daha fazla farkına varmalarına ve ders kitaplarına bağımlılıkları konusunda eleştirel olmalarına yardımcı olabilir, bu da hizmet içi eğitim programlarının geliştirilmesine katkıda bulunabilir.

Anahtar kelimeler: İngiliz dili eğitimi, İngilizce öğretmenleri, ders kitabı, ders kitabı bağımlılığı

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INTRODUCTION

Although technology and digital tools are widely used in education, it can be said that coursebooks are still widely used, especially in school environments because they meet many needs (Knight, 2015). The answer to why we cannot give up coursebooks can be sought in the work of some scholars who question and examine the benefits of coursebooks (Allwright, 1981; Cunningsworth, 1995; Hutchinson & Torres, 1994; O'Neill, 1982; Ur, 1996). As coursebooks are "providers of input into classroom lessons in the form of texts, activities, explanations, and so on" (Hutchinson & Torres, 1994, p. 317), they have many advantages both for teachers and learners. First of all, teachers cannot prepare materials from scratch for every lesson and class they teach and they need effective language teaching materials that present variety and choice in terms of the language use and activities, and address learners' needs. Thus, coursebooks present linguistic and cultural materials, and instructional activities for practice and interaction (Cunningsworth, 1995). Secondly, they provide a carefully planned selection of language content that both teachers and students can easily follow, which enables teachers prepare and students review the course content outside the classroom. As McGrath (2002) states "a coursebook is a map. It shows where one is going and where one has been" (p. 10). This also contributes to learner autonomy. Last but not least, when teachers follow a coursebook, the content and the methodological support given in the activities help to achieve consistency and continuation, which might well be regarded as "a support for less experienced teachers who have yet to gain in confidence" (Cunningsworth, 1995, p.7).

Although much has been written about the advantages of coursebooks, scholars have also warned us against potential disadvantages of coursebook-based teaching (McGrath, 2002; 2006; Ur, 1996). Since the coursebooks are produced for a general market, they cannot cater for the diverse learning needs of every classroom. Furthermore, as Ur (1996) suggests, "a coursebook is confining: its set structure and sequence may inhibit a teacher's initiative and creativity, and lead to boredom and lack of motivation on the part of the learners" (p. 185). This de-skilling of teachers might result in teachers' losing control over their work and considering the coursebook as the syllabus and "they might find themselves functioning merely as mediators of its content instead of as teachers in their own right" (ibid, p. 185). Allwright's (1981) seminal article sought to answer the question "What do we want teaching materials for" through an analysis of what needs to be done to manage language learning. In this article, Allwright (1981) discusses two main approaches to the role of materials in education. The *deficiency* view sees the role of coursebooks as making up for teachers' shortcomings, while arguing that good teachers can produce their own material because they will not need any printed books. On the other hand, the *difference* view argues that the role of the coursebook is not due to the lack of teachers but to the different expertise of coursebook writers and teachers. In other words, the assumption is that a different kind of expertise is required to develop materials. Both views may have valid arguments for teachers' coursebook dependency. However, it would not be correct to assert that these two views are comprehensive enough to explain the role of coursebooks in education. It might also be unrealistic to claim that teachers will have sufficient resources and time even if they have the necessary expertise and skills to prepare their own materials. Similarly, we cannot state that material developers can develop materials that will address the specific needs of different classes. As Allwright (1981, pp. 7 – 8) suggests, materials may contribute in some way to both goals and content, but they cannot determine either. What is learned in the lesson emerges as a result of the interaction of the student, the teacher and the material. Crawford (1995) argues that if the goal is to incorporate materials into the learning process, it is important to have a balanced view of the role assigned to the coursebook in classroom dynamics rather than deciding whether to use the coursebook. Cunningsworth (1995) also agrees with this idea and underlines the importance of establishing a balanced interaction between language teachers and coursebooks since "heavy dependence is far from ideal as it reduces the importance of individual contributions that good teachers make at all levels in the learning process. It can stifle innovation and it severely limits flexibility" (Cunningsworth, 1995, p. 10).

When we look at the studies investigating how coursebooks are used in education, it can be said that inexperienced teachers and teacher candidates have a more positive attitude towards the use of textbooks than experienced teachers (Allen, 2015; Grossman & Thompson, 2008; Tsui, 2003). Allen (2015) investigated Swedish EFL teachers' attitudes towards coursebooks and their dependency on ELT coursebook packages in the digital age when teachers have a lot of alternative digital tools and resources. In this study, the term coursebook package referred to all elements associated with a coursebook, including accompanying websites and digital resources. Data were gathered both from pre-service and in-service EFL teachers and the results indicated that pre-service Swedish EFL teachers were more dependent on the coursebook than in-service teachers in the study while designing their lessons during their practice teaching, despite being a generation more involved with technology in a technologically advantageous country. However, it was also found that more experienced in-service EFL

teachers were increasingly avoiding the coursebooks in favor of independent digital sources and considering coursebooks as a potential contingency plan and as a “fall-back position” (Allen, 2015, p. 249). The difference in coursebook dependency among teachers with varying degrees of experiences is also supported by Grossman and Thompson’s (2008) longitudinal study conducted with beginning teachers in their first three years of teaching after graduation. Grossman and Thompson (2008) argue that “new teachers begin by sticking close to the materials they have at hand. Then, over time, as they learn more about both students and curriculum, they adapt and adjust their use of the materials” (p. 2014).

Kütük and Su-Bergil (2021) reported on a survey of Turkish EFL teachers’ opinions towards the coursebooks they used in state schools. 102 EFL teachers participated in the study and the results showed that participants considered the coursebooks provided by the Ministry of National Education (MoNE) to be inadequate in terms of design, layout, activities and skills while the subject, content and language type in the coursebooks were found to be appropriate. Having analyzed the data collected from EFL teachers working in twenty-five high schools through a questionnaire with ninety-four teachers and interviews with forty teachers, Kayapınar (2009) argued that the coursebook packages met neither teachers’ expectations nor the learner needs. Similarly, Şener and Mulcar (2018) investigated teachers’ perceptions on the 10th grade ELT coursebook provided by MoNE and found that the book did not cater for the teachers’ and the learners’ needs. In a more recent study, Şahin (2022) evaluated ELT coursebooks used in different levels of state schools in Turkey based on the teachers’ opinions and most of the participants were found to be satisfied with the coursebooks with regard to curriculum and teaching goals, but there were reservations about their efficiency in fostering learners’ practical skills.

In another study, Çakır (2015) investigated EFL teachers’ choices of instructional materials at primary level. In this study, 68 pre-service EFL teachers, as part of their practicum course, observed 38 EFL teachers at 14 primary schools two times a week for three months. The participants were also asked to fill out the questionnaire that the researcher had developed about the use of instructional materials and semi-structured interviews were conducted with five participants. Results showed that coursebooks were the most popular type of the materials and most teachers were found to be reluctant to use other materials “due to reasons including overcrowded classes, limited technological knowledge, lack of time, curricular constraints, heavy workload, burnout etc.” (p. 69). Considering teachers’ high dependency on coursebooks, Çakır (2015) argued that teachers should be encouraged to use alternative resources in order to inspire learners and foster a more engaging learning environment. In order to investigate how dependent English language teachers are on coursebooks, Özen-Tosun and Cinkara (2019) developed a questionnaire – the Coursebook Dependency Questionnaire (CDQ) – and applied this questionnaire to three hundred twenty-four EFL teachers working at private and state schools of primary, secondary and tertiary levels in Turkey and found out that the majority of the participants were medium dependent on coursebooks.

With all this in mind, it is possible to state that EFL teachers’ use of instructional materials is an under-researched topic in the literature. Thus, this study aims to shed light on the EFL teachers’ coursebook dependency and their views on coursebooks. Investigating this issue is important since these views are likely to have an impact on how teachers use coursebooks, which in turn will have an impact on students’ attitudes and learning. The following research questions guide this study:

1. How dependent are EFL teachers on coursebooks?
2. Is there a statistically significant relationship between EFL teachers’ coursebook dependency and a) their years of experience b) their program of graduation c) their graduation degree and d) the school level they work?
3. What metaphors did EFL teachers use for coursebooks?
4. What categories can the metaphors suggested by EFL teachers be classified according to their common characteristics?

METHOD

This current study uses a convergent mixed methods design (Cresswell & Plano Clark, 2018). The convergent mixed methods design combines quantitative and qualitative data to provide a more comprehensive analysis of a research problem. This design can help to validate the findings from different sources of data, or explore the similarities and differences between them. In accordance with the research design of this study, the quantitative data were collected through “Coursebook Dependency Scale”, while the qualitative data were obtained through an open-ended questionnaire from the participants simultaneously. Both types of data were

analysed and then combined to create a meaningful whole with this research design and have been appropriately interpreted.

Participants

Initially, there were 105 participants, however, six of them were removed during the data analysis since they either filled the scale randomly or failed to give an answer to a variable. Table 1 shows the characteristics of the participants. 74 of the participants were female, and 25 were male. 66 of them graduated from an ELT department and 33 of them graduated from non-ELT (i.e., linguistics, literature, etc.) departments. 38 of the participants were working with young learners (Grades 2-8) while 61 of them were working with high school students. 18 of the participants had an experience of 1 to 5 years, 23 had 5 to 10 years, 22 had 10 to 15 years, 16 had 15 to 20 years, and 20 had more than 20 years of experience. 71 held a B.A. degree, 23 had a M.A. degree, and 5 of them had a Ph.D. degree. Finally, 88 of the participants were working in a state school while 11 of them were working in a private school.

Table 1. Demographic Information About the Participants

Characteristics	n	(%)
Gender		
Female	74	74.7
Male	25	25.3
Program of Graduation		
ELT	66	66.7
Non-ELT	33	33.3
Degree of Graduation		
B.A.	71	71.7
M.A.	23	23.2
Ph.D.	5	5.1
School Type		
Grades (2-8)	38	38.4
Grades (9-12)	61	61.6
Years of Experience		
1-5 years	18	18.2
5-10 years	23	23.2
10-15 years	22	22.2
15-20 years	16	16.2
20 years and above	20	20.2

Data Collection

Prior to the study, the necessary ethical permission was obtained. For this study, the researcher used snowball sampling in order to reach more people. In snowball sampling, the researcher contacts a small number of people to initiate the sampling process. These individuals are then asked to name other people they know who would be willing to participate in the study. The practice continues until an appropriate sample size is reached (Ruane, 2005). The data collection tools were sent to the participants via the Google form.

The quantitative data of this study, which uses the Convergent mixed methods method, were collected through the "Coursebook Dependency Questionnaire" (CDQ) developed by Özen-Tosun and Cinkara (2019). Relevant researchers were contacted and their consent was obtained to use the questionnaire. CDQ consists of two parts: while the first part asks for personal demographic information about teachers, such as gender, work experience, type of school they work in and the school they graduated from, the second part includes 26 items in 7-point Likert type (0-never, 6-always). CDQ consists of five sub-dimensions, namely, practicality-based dependence, skill-based dependence, practicality-based independence, skill-based independence and structure-based dependence. Özen-Tosun and Cinkara (2019) determined the Cronbach's Alpha value of the scale as .90 for the overall scale. In this study, the overall reliability coefficient of the scale was calculated as .91. The high reliability coefficient calculated indicates that the data were collected with a highly reliable tool.

Qualitative data were collected with an open-ended questionnaire developed by the researcher. An open-ended questionnaire form was prepared in order to determine the perceptions of the teachers participating in the study about the coursebooks. In the questionnaire form the participants were given the sentence "A course book is like because" and asked to complete this sentence with a metaphor or simile that represent their

attitudes to course books and provide an explanation for the metaphor/simile they have written. An explanatory example was also provided in the questionnaire form.

Data Analysis

The quantitative data of this study collected through CDQ were analyzed on the SPSS 26.0 program. Before starting with the analysis, Cronbach's alpha values were calculated for each sub-dimension and the whole scale. The results indicated values of .87 for the practicality-based dependence dimension, .77 for skill-based dependence dimension, .69 for practicality-based independence dimension, .82 for skill-based independence dimension, .50 for structure-based dependence dimension, and .91 for the whole scale. Since the data showed normal distribution for the department of graduation and school level variables, 12 independent samples T-tests, six for each variable, were conducted. However, since the number of the participants in each group was lower than 30, six Kruskal-Wallis tests were conducted for the years of experience variable. Finally, since the number of graduate participants was lower than 30, six independent samples Mann-Whitney U tests were run for the degree of graduation variable.

Qualitative data were analyzed with the content analysis method and the data were interpreted in accordance with the research questions. Initial review of the data showed that there were some incomplete responses in the questionnaire forms and some responses did not have either metaphors or explanations. Thus, of 99 responses, 13 were not included in the data analysis. Content analysis process started with coding the data gathered from 86 EFL teachers. In this stage, the metaphors were first listed in alphabetical order with the accompanying explanations. They were read several times and assigned codes. The codes were then grouped under five general themes. In order to ensure reliability, the coding was conducted by two coders. The Interrater Reliability was calculated as 93% According to Miles and Huberman (1994) and Patton (2002), the level of consensus among coders should be at least 80%. Therefore, this value indicates that the internal consistency is high in this study.

Research Ethics

Prior to the study, ethical and administrative permissions were obtained. Since the data collection tools were sent via the Google form, the information on the consent form was also shared with the participants at the beginning of the questionnaire. In the questionnaire, the participants were informed about the purpose of the research and the research design, and it was stated that they were not asked for any information that would reveal their identities. It was also stated that the data of the study will only be used for scientific purposes and that due care will be taken to protect the anonymity of the data during the data analysis and reporting process. The initials of the English Language Teacher expression (i.e. ELT-1, ELT-2) are used as pseudonyms for the identities of the participants in the quotations provided in the study.

FINDINGS

How dependent are EFL teachers on coursebooks?

The first research question with regard to EFL teachers' dependency on coursebooks was determined through mean scores. Özen-Tosun and Cinkara (2019) identified the range of means so that EFL teachers' dependency can be classified into three groups labeled as high, medium and low. Depending on the CDQ developed on a seven-point Likert scale, the researchers argued that teachers with scores greater than 129 were regarded as high dependent and teachers who scored greater than 78 were considered as medium dependent while teachers with scores 78 and less were considered as low dependent on coursebooks. According to this classification, in this current study the number of EFL teachers identified as highly dependent on coursebooks was 16 which constitutes 16.2% of all the participants. The number of the medium dependent teachers was 73 which corresponds to 73.7%, while the last category included 10 teachers with 10.1 % who were found to be the least dependent on coursebooks. Table 2 shows the dependence categories in this study as well as the number of EFL teachers who fall into each category.

Table 2. Percentages of EFL Teachers in Coursebook Dependency Categories

	Frequency	Percent
HIGH	16	16.2
MEDIUM	73	73.7
LOW	10	10.1
Total	99	100

Is there a statistically significant relationship between EFL teachers' coursebook dependency and their years of experience?

The results of the Kruskal-Wallis tests highlighted no significant differences for the years of experience variables for skill-based dependence dimension ($\chi^2(4) = 5.40, p = .25$), practicality-based independence dimension ($\chi^2(4) = 2.50, p = .65$), skill-based independence dimension ($\chi^2(4) = 4.86, p = .30$), structure-based dependence dimension ($\chi^2(4) = 6.64, p = .16$), and for the whole scale ($\chi^2(4) = 6.89, p = .14$). However, the results indicated a significant difference for practicality-based dependence dimension ($\chi^2(4) = 10.19, p = .04$). Dunn's post hoc test was conducted to locate the differences. The results indicated significant differences between those with an experience of one to five years and those with an experience of 15 to 20 years ($p = .006$), between those with an experience of 5 to 10 years and those with an experience of 15 to 20 years ($p = .007$), and those with an experience of 20 or more years and those with an experience of 15 to 20 years ($p = .035$). Table 3 shows descriptive statistics for the years of experience.

Table 3. Descriptive Statistics for the Years of Experience Variable

Experience	N	Practicality-based dependence Mean (SD)	Skill-based dependence Mean (SD)	Practicality-based independence Mean (SD)	Skill-based independence Mean (SD)	Structure-based dependence Mean (SD)	Overall Mean (SD)
1-5	18	32.61 (9.83)	23.33 (6.89)	12.22 (4.48)	16.72 (6.41)	11.67 (3.09)	96.56 (26.66)
5-10	23	34.00 (7.44)	22.96 (5.57)	13.09 (3.04)	19.57 (5.85)	12.43 (2.97)	102.04 (14.91)
10-15	22	37.05 (8.22)	24.77 (5.29)	13.00 (4.99)	19.73 (7.10)	12.73 (3.27)	107.27 (21.14)
15-20	16	40.81 (8.12)	27.75 (7.34)	14.75 (5.59)	19.88 (6.15)	14.19 (4.29)	117.38 (25.26)
20 and Above	20	34.85 (8.42)	25.50 (5.75)	13.00 (4.01)	20.20 (5.44)	13.75 (2.86)	107.30 (21.07)

Is there a statistically significant relationship between EFL teachers' coursebook dependency and their program of graduation?

The results of the six independent samples T-tests indicated that all of the dimensions assumed the Levene's test for equality of variances ($p > .05$). The results further highlighted no significant differences for the program of graduation variable for practicality-based dependence dimension ($t(97) = -.17, p = .86$), skill-based dependence dimension ($t(97) = .43, p = .67$), practicality-based independence dimension ($t(97) = .94, p = .35$), skill-based independence dimension ($t(97) = .40, p = .69$), structure-based dependence dimension ($t(97) = -1.22, p = .23$), and overall scale ($t(97) = .17, p = .87$). Table 4 displays descriptive statistics for the graduated program.

Table 4. Descriptive Statistics for the Graduated Program Variable

Graduation	N	Practicality-based dependence Mean (SD)	Skill-based dependence Mean (SD)	Practicality-based independence Mean (SD)	Skill-based independence Mean (SD)	Structure-based dependence Mean (SD)	Overall Mean (SD)
ELT	66	35.59 (8.79)	24.91(6.21)	13.45 (4.27)	19.44 (6.46)	12.62 (3.31)	106.02 (22.49)
Non-ELT	33	35.91 (8.48)	24.33(6.30)	12.58 (4.68)	18.91 (5.78)	13.48 (3.35)	105.21 (22.06)

Is there a statistically significant relationship between EFL teachers' coursebook dependency and their graduation degree?

The results of the six independent samples Mann-Whitney U test highlighted no significant differences between graduate and undergraduate participants for practicality-based dependence dimension ($U = 853.00, z = -1.10, p = .27$), skill-based dependence dimension ($U = 846.50, z = -1.15, p = .25$), practicality-based independence dimension ($U = 921.00, z = -.57, p = .57$), skill-based independence dimension ($U = 869.50, z = -.97, p = .33$), structure-based dependence dimension ($U = 925.00, z = -.54, p = .59$), and overall scale ($U = 941.50, z = -.41, p = .68$). Table 5 shows descriptive statistics for the degree of graduation variable.

Table 5. Descriptive Statistics for the Degree of Graduation Variable

Degree	N	Practicality-based dependence Mean (SD)	Skill-based dependence Mean (SD)	Practicality-based independence Mean (SD)	Skill-based independence Mean (SD)	Structure-based dependence Mean (SD)	Overall Mean (SD)
Undergraduate (BA)	71	35.08 (9.14)	24.37 (6.63)	12.94 (4.38)	19.69 (6.06)	13.03 (3.48)	105.11 (23.21)
Graduate (MA & PhD)	28	37.25 (7.15)	25.61 (5.01)	13.71 (4.50)	18.18 (6.58)	12.61 (2.95)	107.36 (19.86)

Is there a statistically significant relationship between EFL teachers' coursebook dependency and the school level they work?

Finally, the last six independent samples T-tests indicated that all of the dimensions assumed the Levene's test for equality of variances for the school level variable ($p > .05$). Further, there were no significant differences for practicality-based dependence dimension ($t(97) = .39, p = .70$), skill-based dependence dimension ($t(97) = .16, p = .88$), practicality-based independence dimension ($t(97) = .37, p = .71$), skill-based independence dimension ($t(97) = .76, p = .45$), structure-based dependence dimension ($t(97) = -.90, p = .37$), and overall scale ($t(97) = .35, p = .73$). Table 6 shows descriptive statistics for the school level variable.

Table 6. Descriptive statistics for the school level variable

School Level	N	Practicality-based dependence Mean (SD)	Skill-based dependence Mean (SD)	Practicality-based independence Mean (SD)	Skill-based independence Mean (SD)	Structure-based dependence Mean (SD)	Overall Mean (SD)
Grades (2-8)	38	36.13 (8.61)	24.84 (6.15)	13.37 (4.38)	19.87 (6.65)	12.53(3.88)	106.74 (22.58)
Grades (9-12)	61	35.41 (8.73)	24.64 (6.30)	13.03 (4.45)	18.89 (5.95)	13.15 (2.94)	105.13 (22.19)

In-service Teachers' Coursebook Metaphors

86 EFL teachers produced 53 different metaphors with regard to coursebooks and these metaphors are displayed in Table 7.

Table 7. EFL Teachers' Coursebook Metaphors

Metaphor	f	Metaphor	f	Metaphor	f
An annual plan	1	Fruit garden	1	Primary source	2
An assistant	6	Greengrocery	1	Rabbit shit	1
Band-Aid	1	Guide	14	Recipe	1
Blinkers	1	Hollow plate	1	Refrigerator	1
Brochure	1	House	1	River	1
Building foundation	1	Lighthouse	2	Stairs	3
Calendar	2	Life buoy	1	Story	2
Candle	3	A little tasty food	1	Suitcase	1
Cellar	1	Main course	1	Symphonic music	1
Compass	2	Map	4	A thorny road	1
Constitution	1	Map without compass	1	Unfurnished house	1
Cookbook	1	Menu	1	A user manual	1
Cornerstone	1	Mind-map	1	Vehicle	2
Dinner table	1	Mirror	1	Waste of time	1
A drop of water in the desert	1	Mold	1	Water	1
An empty box	2	Navigation	1	Window	1
Fellow traveler	1	Ocean	1	Worksheet	1
First-aid kit	1	Photo frame	2		

Thematic Classification of EFL Teachers' Metaphors for ELT Coursebooks

The metaphorical images produced by the EFL teachers with regard to the coursebooks have been assigned to five themes: *Resource*, *Support*, *Guidance*, *Choice* and *Limitations*. These themes are displayed in Table 8. EFL teachers were found to produce mostly positive metaphorical images for coursebooks ($n=70$) that include the images grouped under the first four categories shown in Table 8, while the negative images created by the participants fall under the category of *Limitations* ($n=16$).

Table 8. A Thematic Classification of Coursebook Metaphors Produced by EFL Teachers

Themes	f	Metaphors
<i>Guidance</i>	31	Brochure, calendar (2), candle (3), compass (2), guide (14), lighthouse (2), map (4), mind-map, navigation, recipe
<i>Support</i>	23	an assistant (6), Band-Aid, building foundation, cookbook, dinner table, fellow traveler, first-aid kit, house, life buoy, photo frame (2), mirror, stairs (3), vehicle (2), window
<i>Resource</i>	8	The Constitution, cornerstone, main course, ocean, primary source (2), river, water
<i>Choice</i>	8	cellar, fruit garden, greengrocery, menu, refrigerator, story (2), symphonic music
<i>Limitations</i>	16	an annual plan, blinkers, a drop of water in the desert, an empty box (2), a little tasty food, hollow plate, map without compass, mold, rabbit shit, suitcase, a thorny road, unfurnished house, a user manual, waste of time, worksheet

Among these five categories created by EFL teachers' metaphorical images for coursebooks, the categories with the highest number of metaphors were Guidance (n=31), Support (n=23) and Limitations (n=16) respectively. The categories with the lowest number of metaphors were Resource (n=8) and Choice (n=8).

Of all the total number of 86 metaphors analyzed, there were 31 metaphors (36,04 %) in the category of *Guidance*. The most frequently stated metaphors in this category were 'guide', 'map', 'candle', 'calendar', 'compass' and 'lighthouse'. EFL teachers considered course books as a guide in foreign language teaching as the following metaphors with the accompanying explanations provided by the participants display:

"Personally, I find a coursebook extremely helpful, as it guides me on what and how to teach, giving me some useful advice on the best techniques for presenting the material. Someone once said that a bad coursebook is better than none". ELT-95

"A coursebook is like a compass. It shows your way and lets you find your way when you get lost". ELT-25

Not all the teachers in this category seemed to agree on the strength of coursebooks as guide. For example, three teachers who have chosen 'the candle' as a metaphor emphasized the fact that candles were not powerful enough to enlighten the environment since it was a weak form of light. However, in case of emergency it might help. Similarly, coursebooks also provided minimal guidance, like a candle. Two teachers, who used 'the calendar' metaphor, considered coursebooks only as a reminder that they follow the program and objectives.

The category of *Support* consists of 14 metaphors obtained from 23 EFL teachers and participants consider coursebooks as an element that contributes to the development of students. Especially the metaphors 'stairs', 'mirror', vehicle' and 'window' revealed that coursebooks were considered as tools that might help learners reach their goals and information. On the other hand, some teachers who used the metaphors of 'house', 'building foundation', 'photo frame', 'cookbook' and 'dinner table' emphasized the contribution of coursebooks to education by stating that teaching can be improved based on the coursebook:

"A coursebook is like a dinner table because you basically need a table to set the table. The teacher himself decides what kind of starters, snacks, main courses and desserts to put on it, with the activities he designed". ELT-88

"A textbook is like a cookbook because it gives you what to do and the ingredients. But just as everyone's taste is different from each other, the way of teaching is also different". ELT-80

The metaphor of 'assistant', which is the most frequently cited metaphor in this category, is important because it shows the role that textbooks play in the education process for teachers:

"A coursebook is like an assistant because it makes it easier for the teacher to be prepared for the lesson". ELT-94

"The textbook is like an assistant because it is a helper, but it is never everything to the lesson. The teacher always has extra work in language teaching, the textbook alone is not enough, but it helps". ELT-23

However, the metaphors of first-aid kit, Band-Aid and life buoy used in this category show a different view of support than other metaphors. Teachers using these metaphors stated that textbooks were not a source that was normally used, but a support that was used when they had to:

"A coursebook is like a Band-Aid. I only use it when needed". ELT-49

“A coursebook is like a life buoy because it is always there to save the day”. ELT-40

The category of *Resource* includes 8 metaphors obtained from 7 English language teachers. In this category, the participants considered the coursebook as the source of the lessons and the activities. The metaphors of Constitution, cornerstone, primary source and main course might be regarded as strong resources while the metaphors of water, ocean and river might be considered as natural life resources suggesting that coursebooks might be viewed as an organic element of the teaching and learning process.

The category of *Choice* has also 8 metaphors from 7 EFL teachers. When these metaphors were examined, it was found that the participants saw the coursebook as a resource that contained many materials. Just as described in metaphors such as a greengrocer, fruit garden or cellar, teachers might use the coursebooks by choosing whatever they want.

Apart from the afore-mentioned categories, the last category, *Restrictions*, with 19 metaphors produced by 20 in-service teachers includes negative views on coursebooks. When the metaphors as well as the explanations were analyzed, the coursebooks were found to be regarded as insufficient in terms of content and activities to develop especially the productive language skills although their visual and external features were relatively good. They were boring and they did not meet the learner needs. In this sense, the metaphors of ‘a full but light suitcase’, ‘unfurnished house’, ‘empty box’, ‘hollow plate’ and ‘a map without a compass’ in this category drew attention to the dysfunctionality of coursebooks:

“The coursebook is like a full but light suitcase because the pages are filled in order to look full, away from realism and creativity”. ELT-3

“The coursebook is like an unfurnished house because there is a frame but the content is empty and inadequate”. ELT-63

DISCUSSION AND CONCLUSION

Despite technological advances and the availability of different digital tools, coursebooks are still the most widely used language materials today. In this study, in line with the literature, the English language teachers were found to be moderately dependent on coursebooks as nearly three-quarters (73.7%) of EFL teachers had a medium level of dependence on coursebooks. This result is in line with the findings of the study by Özen-Tosun and Cinkara (2019). Of 324 English language teachers working at secondary and tertiary-level schools in Turkey, 223 teachers with 68.8% of all were found to have medium level of coursebook dependency. Similar results were also cited in the literature. For example, according to a 2008 survey by the British Council, cited by Tomlinson and Masuhara (2013), 65% of respondents reported using a coursebook while only 6% of teachers reported never using one. In a study by Çakır (2015) that examined the choices of instructional materials made by EFL teachers at the primary level, it was found that coursebooks were the most commonly used type of material.

When the thematic categories that arose as a result of the analysis of metaphors were examined, it can be said that teachers’ views on coursebooks were consistent with the results of the levels of the coursebook dependency that emerged in this study. Similar to the interpretation stated by McGrath (2002) as for the metaphor analysis in his book, the positive images grouped under the thematic groups in this study can be put on a continuum with two opposing themes of “*control* and *choice*, with that of *support* being somewhere between the two” (p. 8). In this regard, the categories of *Support* and *Guidance* included 63% of all the responses meaning that majority of the teachers’ metaphorical images were in line with the finding indicating the moderate level of teachers’ coursebook dependency. McGrath’s (2006) study that examined the views of Brazilian teachers of English on coursebooks through metaphor analysis revealed that analysis over 200 images suggested varying degrees of coursebook dependence and he argued that “the thematic progression from guidance to resource posited ... can be seen as a continuum ranging from control *by* textbook to control *of* textbook, with the latter expressing itself as *criticality* and a *willingness to be autonomous*” (p. 313).

The current study revealed no statistically significant relationship between EFL teachers’ level of dependence on coursebooks and their years of teaching experience. However, there appears to be a significant difference in the sub-dimension ‘practicality-based dependence’ in favor of those with an experience of 15 to 20 years. This is in line with the findings of Özen-Tosun and Cinkara (2019), but it contradicts some other research that suggests otherwise (Allen, 2015; Grossman & Thompson, 2008; Tomlinson, 2012; Tsui, 2003). Tomlinson (2012) argues that as teachers gain more experience, they tend to rely less on coursebooks. Grossman and Thompson’s (2008) longitudinal study followed new teachers for their first three years after graduation and found evidence to support this idea that new teachers tend to closely follow the materials available. As they gain more

experience and knowledge about their students and the curriculum, they begin to adapt and tailor their use of the materials. This finding was also supported by Allen's (2015) study where the use of coursebook by both pre-service Swedish EFL teachers and in-service teachers were examined. More experienced in-service EFL teachers were increasingly turning to independent digital sources instead of coursebooks. They viewed coursebooks as a potential contingency plan and as a "fall-back position" (Allen, 2015, p. 249). However, the inexperienced but digitally native pre-service teachers relied on coursebook packages to structure their lessons during practicum and to provide their learners with extended reading practice. These findings were in contrast to the current study, which found no significant relationship between teachers' experience and their levels of dependence on coursebooks.

How can we explain this contradictory finding? One possible explanation might derive from the fact that as McGrath (2006) states, the preference of the term 'coursebook' over 'textbook' might be the reflection of the popularity of coursebooks in teaching which suggests that "the course book *is* the course: teachers are expected to follow (an ordinary enough term, but itself metaphorical in derivation) the book, and learners are tested on their knowledge of the book" (p. 307). However, Littlejohn (1992) argues that when teachers rely heavily on coursebooks, they may find it difficult to break away from them, which can create a cycle that ultimately leads to a loss of teaching skill. This might result into an understanding that views coursebooks as the syllabus of the course rather than the materials chosen in accordance with the learning goals and might contribute to teachers' level of dependence on coursebooks.

This finding suggesting that coursebook dependency does not change over experience does not also mean that more experienced EFL teachers are satisfied with the coursebooks they use, especially when we consider some coursebook evaluation studies conducted based on Turkish EFL teachers' opinions (Kayapınar, 2009; Kütük & Su-Bergil, 2021; Şahin, 2022; Şener & Mulcar, 2018). Coursebooks were reported as having some problems with regard to design, layout and activities (Kütük & Su-Bergil, 2021) and as being incapable of meeting neither teachers' expectations nor learners' needs (Kayapınar, 2009), however, they continue to preserve their central place in language teaching. One possible explanation might derive from the fact that coursebooks used at all grades are centrally selected for the entire country in Turkey and sent to all students for free. Turkish teachers of English especially working at state schools might well feel obliged to use those books and follow the ELT curriculum. Another possible reason that might explain their coursebook dependency might be the testing procedures followed at schools. In accordance with the regulations in Turkey, written and practical exams of all courses taught in more than one class in the same grade are held and evaluated jointly in order to allow teachers to make joint assessments. Thus, it may be inevitable for teachers working at the same grade level to follow the coursebook because their students will be tested with these common exams. Moreover, Çakır (2015) found that many teachers in his study were hesitant to use materials other than the coursebook due to factors such as large class sizes, limited technological knowledge, lack of time, curricular constraints, heavy workload, and burnout (p. 69). With all these in mind, it is possible to state that most teachers are dependent on coursebooks, which is supported by the results of the current study.

This study indicated no statistically significant relationship between EFL teachers' level of coursebook dependency and the school type they work at. Moreover, there was not a statistically significant relationship between teachers' coursebook dependency and their program and degree of graduation. Özen-Tosun and Cinkara (2019) also found no relationship between the level of education of teachers (such as holding a bachelor's, master's or doctorate degree) and their dependence on coursebooks. This is consistent with the findings of the current study.

This study investigates EFL teachers' coursebook dependency and it has significant implications both for pre-service teacher education and in-service teacher training programs. In this regard, teachers' opinions about coursebooks might yield insights into how they make use of these materials in language teaching. Exploring teachers' coursebook dependence is significant in that teachers might become more aware of their practices and critical of their dependence on coursebooks. Since heavy dependence on coursebooks might lead to the loss of teacher empowerment and deskilling of teachers (Littlejohn, 1998; Masuhara, 1998), teachers should also be encouraged to use other materials to better suit the learner needs. In this regard, in-service teacher trainings might be administered to foster teacher autonomy so that EFL teachers might take responsibility of their own teaching by choosing the appropriate language materials and adapting those materials to better suit their own teaching learning contexts.

Although this convergent mixed-methods study includes both quantitative and qualitative data to investigate EFL teachers' opinions about the coursebooks, it is limited to teachers' perceptions. What matters in terms of learning is the interaction between the teacher, the learner, and the material. Thus, we need more research studies which explores the classroom dynamics as well as the learners' opinions on the coursebooks used at

different contexts. Moreover, further research designs with observational evidence from the classrooms might help us explore the relationship between teachers' beliefs and practices.

Statements of Publication Ethics

Ethical permission of the research was approved by Sivas Cumhuriyet University Educational Sciences Ethics Committee. Ethics committee document number is E-50704946-100-269687.

Researchers' Contribution Rate

The study was conducted and reported by the corresponding author.

Conflict of Interest

There is no conflict of interest in this study.

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Open and Distance Foreign Language Teaching: A Content Analysis Study (2013-2022) A Follow-up Study

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Abstract

A content analysis of papers published between 2013 and 2022 in four different journals is shown in this study. To reach conclusions, a content analysis method was employed, which is a qualitative research technique, with the purpose of identifying the subjects of the articles, their samplings, and methods, as well as analyzing their outcomes and showcasing their trends. Keywords, such as English Language Teaching, Distance English Language Teaching, and Distance Foreign Language Teaching, were used throughout the research process. The 34 articles obtained were analyzed in detail, and a coding procedure was assigned. In the following step, three factors—study titles, sampling, and research diversity—were used to analyze the chosen papers. In the articles published between 2013 and 2022, the titles “teaching methodology and technology” emerged as the most frequent titles, as the results showed. For the second variable, sampling diversity, teachers, undergraduate students, and course participants participated in the study. Regarding the last variable, which is the research method, the researchers used many more quantitative techniques than qualitative ones. This study is expected to be useful in highlighting potential future studies. It will be simpler to create a framework for studies conducted in this area when content analysis is conducted with various variables and journals.

Keywords: content analysis, open and distance foreign language teaching, distance learning, foreign language

Açık ve Uzaktan Yabancı Dil Öğretimi: Bir İçerik Analizi Çalışması (2013-2022) Bir Devam Çalışması Öz

Bu araştırma, 2013 ve 2022 yılları arasında dört farklı dergide yayınlanan makalelerin içerik analizinin sonuçlarını sunmaktadır. Sonuçlara ulaşmak için, makalelerin konularını, örneklemelerini ve metodolojik yönlerini tanımlamanın yanı sıra sonuçlarını analiz etmek ve eğilimlerini göstermek amacıyla nitel bir araştırma tekniği olan içerik analizi yöntemini kullanılmıştır. Araştırma süreci boyunca İngilizce Öğretimi, Uzaktan İngilizce Öğretimi ve Uzaktan Yabancı Dil Öğretimi gibi anahtar kelimeler kullanılmıştır. Elde edilen 34 makale detaylı bir şekilde analiz edilmiş ve bir kodlama prosedürü belirlenmiştir. Bir sonraki adımda, seçilen makalelerin analizi için üç faktör -çalışma başlıkları, örneklem ve araştırma çeşitliliği- kullanılmıştır. Sonuçların da gösterdiği gibi, 2013-2022 yılları arasında yayımlanan makalelerde en sık kullanılan başlıklar öğretim metodolojisi ve teknoloji olmuştur. Bir sonraki değişken olan örneklem çeşitliliği için, öğretmenlerin, lisans öğrencilerinin ve ders katılımcılarının çalışmalara tamamen katıldığı görülmüştür. Son değişken olan araştırma yöntemine gelince, araştırmacılar nitel tekniklerden çok nicel teknikler kullanmışlardır. Bu çalışmanın gelecekteki potansiyel çalışmalara ışık tutması açısından faydalı olması beklenmektedir. Çeşitli değişkenler ve dergilerle içerik analizi yapıldığında bu alanda yapılacak çalışmalar için bir çerçeve oluşturmak daha kolay olacaktır.

Anahtar kelimeler: Öğretmen seçimi, öğretmen alımı, görüşme yöntemi, örgütsel adalet, Türk eğitimi.

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INTRODUCTION

Language learning and technology always form good alliances. One another alliance is open and distance learning, which makes constant use of the technology. As Keegan stated (1996) the main feature of ODL is the separation of learners and instructors in terms of time and place. But this separation also consists of different educational settings, levels and practices. It encompasses aspects such as instructional planning, guidance, and the overall organization of these educational endeavors, as highlighted by Holmberg (1989). In line with the findings of Moore and Kearsley (2005), distance learning refers to an educational approach that utilizes various Communication Technologies. This method is deliberately designed and implemented to facilitate teaching and learning activities across multiple physical locations. Thus, ODL removes time and location barriers for both learners and teachers. With the help of open and distance learning, the limitation of conventional education has been lifted. Unlike a conventional class environment, Distance Education can provide different alternatives, to face numerous demands (Simonson, 2012). Having different alternatives for different demands has arisen in a variety of spheres; therefore, open- and distance-learning approaches have been incorporated into numerous educational platforms. These educational platforms also include foreign language teaching.

The distance in foreign language learning is one of the most debatable issues. Accordingly, many researchers have been interested in foreign language teaching using open- and distance-learning approaches. Trajanovic et al. (2007) reached a conclusion that shows the positive effects of open and distance foreign language teaching on learners. According to the same study, open and distance learning of foreign languages can support learners' language development, and institutions with a shortage of resources can employ this strategy to give all students an equal chance to succeed. Moreover, as Jonstone stated (2007) interaction in language learning is a key factor and thanks to distance learning new skills like cooperation and peer learning can be gained.

With the knowledge of research in open and distance foreign language education, researchers and recent studies will be able to update the existing information. Not only is time saved, but resources are also not wasted with systematic research and review of prior studies. In academic papers, this research method is referred to as a content analysis. As understood, Content analysis can describe and contrast documents, interviews, and cast recordings of the interviews. Using content analysis, the researcher aimed to identify the samplings content views. Thus, content analysis makes the researcher know the data in deep and for further analysis it provides an easier way to follow for the researcher. (Altunışık et al., 2010, p.322). Therefore, field-based content research is essential.

Several studies have been undertaken to demonstrate the outcomes of language-teaching research, as evidenced by the works of Johnstone (2006, 2008) and Uzunboylu and Özçınar (2009). According to Madyarov (2008), his research examines the existing research on open and distance foreign language teaching. He highlights that these studies mainly investigate various aspects, including technological diversity, the significance of open and distance education in language learning, the influence of different cultures on open and distance education, online courses, and the implementation of content-based, task-based, and distance language courses for specific purposes. White (2006) saw a meaningful improvement in the studies conducted in the field of Distance Foreign Language Learning during the past three decades. Additionally, he emphasizes that this upward trajectory will persist and predicts that advancements in technology will enhance the efficacy of studies within the industry.

The most current study carried out by Karadeniz and Sözlür in 2016. The study, which is the pre-study of this current follow up study, presents, the findings of a content analysis conducted on papers pertaining to Open and Distance English Language Teaching. The analysis focused on examining articles published between 10 years from 2002 and 2012 in four influential journals within the field. The study encompassed a total of 25 publications, of which 19 were ultimately included in the analysis following a rigorous screening process. The publications that were chosen for analysis were examined based on three variables: the names of the research, the sampling methods employed, and the variety of the research conducted. The findings revealed that educational techniques and deployed technologies were the prevailing topics in publications published from 2002 to 2012. This study encompassed the participation of a diverse sample, consisting primarily of educators and tertiary-level students. The final variable indicated that the publications under investigation had a much higher number of qualitative studies in comparison to quantitative studies. This study is anticipated to yield valuable insights for future research endeavors. Utilizing content analysis across several factors and scholarly publications facilitates the development of a comprehensive framework for conducting research in this topic.

In light of the information given above, this study aims to present the trends, samplings, research techniques, contents of interest, and findings of studies conducted between 2013 and 2022 in open and distance foreign language instruction. As a follow-up, this study is based on my previous study and aims to reveal the differences between the two research periods. For this purpose, the contents of journals in the field of open learning

were analyzed. Educational Technology Research and Development (ETR&D), British Journal of Educational Technology (BJET), Distance Education (DE), and The International Review of Research in Open and Distributed Learning (IRRODL) are the journals that were examined. Answers to the following research questions were addressed:

- (1) What is the distribution of titles?
- (2) What is the sampling distribution?
- (3) What is the research methods distribution?

In the articles released from 2013 to 2022.

METHOD

Research Design

A deep investigation of the collected data is required for content analysis, which also allows for the exploration of themes that are unclear (Creswell, 2008). To accomplish this goal, this study used qualitative content analysis as its research method.

Data Collection

This study utilized four scholarly journals in the field of open and distance learning. The names of the journals are given above and, in the table, below. In the literature review, the researcher employed keywords such as open and distance foreign language instruction, foreign language teaching, and foreign language. During the initial phase, a total of 40 articles were obtained. However, when it comes to the subsequent level of the study, the papers have been evaluated by the researchers specifically focusing on themes related to open and distance foreign language instruction. As a result, 34 articles were selected for the purpose of content analysis. Table 1 shows the distribution of articles based on the journal of publication and the corresponding year of publication.

Table 1. The distribution of the articles

Journals	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	T
	N	N	N	N	N	N	N	N	N	N	
ETR&D	1	-	-	-	-	-	-	1	-	-	2
BJET	-	1	2	1	1	-	4	3	2	-	14
DE	-	2	-	1	-	2	-	1	-	-	6
IRRODL	1	-	2	2	1	1	1	1	1	2	12

*Total 34 Articles selected

Data Analysis

Documents from the journals archives were gathered for the study. In order to gather the documents, the archive web pages beginning 2022 to 2013 were visited and the selected articles downloaded. The articles were categorized according to their journal title, years, and volume numbers. For this procedure a google drive folder created.

As the research continued, the article titles, research methodology, and samples were categorized by each researcher in a Microsoft Excel table. Consequently, the disparities among these classifications were rectified through comparative analysis. The publications utilized categories of topics such as technology, educational approach, affective dimension, perception, teacher competency, and motivation. The example article categories were documents, elementary school pupils, teachers, college students, course participants, and course instructors. The present study has shown three final types of research approaches, including non-experimental and semi-experimental studies utilizing the quantitative method, case studies, and document analysis employing the qualitative method.

Research Ethics

For this research, archives of relevant journals were accessed through their websites. In the meantime, no permission was required for journals that were completely free of charge, that is, open access. However, for journals that require subscription, journal archives were accessed through journal or database subscriptions in university libraries. In addition, during the scanning of the archives, three researchers prepared different tables and listed the preliminary research results. Each researcher then checked the table of the other researcher and activated a cross-checking mechanism. Then, while the controlled tables were brought together, the studies to be selected

were checked once again, and the conclusions of the studies to be included in the study were reached. This entire process was used throughout the data analysis process, thus prioritizing both data security and research ethics.

FINDINGS

In a prior investigation spanning from 2002 to 2012, the focus of the publications was found to be mostly centered on pedagogical approaches and technological advancements pertaining to research topics. The research focused on the pedagogical approaches of synchronous and asynchronous teaching, web-based instruction, computer-based instruction, and e-learning. Within the technological domain, the outcomes encompassed a learning management system, instructional software, and social networking platforms.

The outcome of this recent research also suggests that these articles concentrated on teaching methodology and technology. Until now, these two categories have remained the focus of research in the field of distance foreign language education. Both previous and recent studies have focused less on other categories, such as motivation, competency, teacher, perception, and dimensions.

When both studies were compared, technology and teaching methodology came to the fore. However, in the current study, motivation titles were used more frequently than in the previous study. The motivation title remained in the background of previous research, but it was among the most frequently used titles in this study.

Table 2. The distribution of research titles

		Title Categories					
		Technology	Teaching Methodology	Teacher Competency	Motivation	Perception	Affective Dimension
Years	2013	3	4	2	2	2	2
	2014	3	-	2	2	2	-
	2015	5	8	5	5	4	6
	2016	3	5	3	1	2	1
	2017	2	3	2	1	1	1
Years	2018	2	2	1	1	-	1
	2019	8	11	1	8	4	8
	2020	9	9	6	8	7	5
	2021	10	10	6	7	4	7
	2022	6	6	6	4	6	4

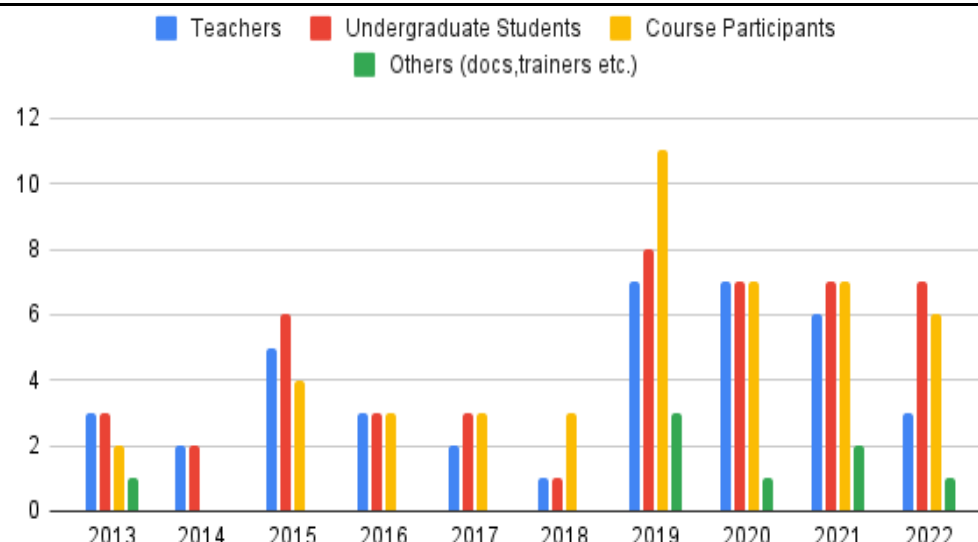


Figure 1. The distribution of samplings

In a previous study, most papers sampled their studies using undergraduate students and teachers. Furthermore, only one study used primary-school learners for sampling. Additionally, it was concluded that some research has focused on open courses to sample both students and teachers.

When compared with the previous study, undergraduate students and teachers were still in the majority as samplings in the articles. Primary school students were used more as samples than in the previous study. However,

there was a significant difference in the sampling of course participants and course teachers when the two studies were compared. In the previous study, both course participants and course teachers were included in the articles as samples. However, in articles published between 2013 and 2022, course participants were included as sampling, while course teachers were not. Unlike in the previous study, more articles from course participants were also used for sampling.

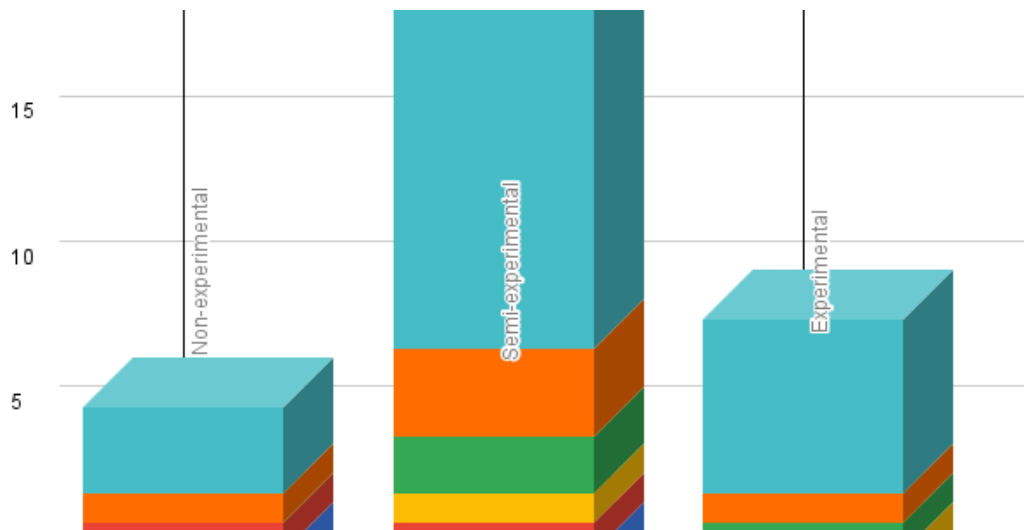


Figure 2. Distribution of research models

In articles published between 2000 and 2012, the most frequently used research model was an experimental study; however, qualitative research methods were used only four times.

In contrast to previous research, semi-experimental studies have been conducted over the last ten years between 2013 and 2022. In other words, there has been a shift from experimental studies to semi-experimental ones.

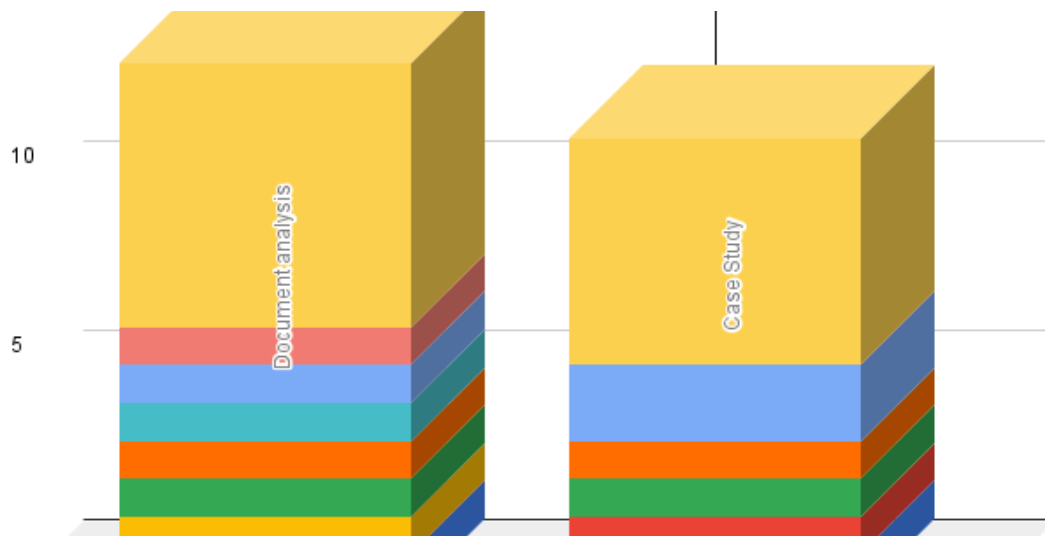


Figure 3. Distribution of research models

Document analysis and case studies have been used more frequently in recent studies. In summary, quantitative method preference is still number one, although there are some differences in the research models.

DISCUSSION AND CONCLUSION

The present investigation examined a total of 34 scholarly works that were published throughout the time frame of 2013 to 2022 in reputable academic journals such as ETR&D, BJET, DE, and IRRODL. The focus of these studies pertained to the domain of foreign language teaching via open and distance learning. In addition, the analytical method involved the utilization of research titles, sampling techniques, and research models for the purpose of sampling.

The study titles that are commonly utilized include instructional methods and technology. The categories are thereafter accompanied by affective dimensions and motivation categories. The findings of this study align with the conclusions reported by Karadeniz and Sözlü (2016).

The present study employed a diverse sample strategy in the field of distance foreign language teaching, spanning from 2013 to 2022. The study mostly involved individuals who were enrolled as undergraduates or participants in various courses. This conclusion indicates that the majority of these investigations have been carried out in conventional face-to-face environments. Consistent with previous research, the samples included in this study exhibited limited variability. As lifelong learning becomes more prevalent, there is a growing preference among learners for open and distance education in the context of foreign language learning (Johnstone, 2007; Trajanovic et al., 2007). Expanding the diversity of samples will yield benefits for further research endeavors.

The publications analyzed in the study primarily focused on quantitative studies. Semi-experimental studies exhibit a greater prevalence compared to other types of investigations. This study employed quantitative data analysis methodologies to provide empirical support for its findings. It is recommended to employ a mixed-method study framework and utilize qualitative data analysis methodologies in forthcoming investigations to facilitate more comprehensive analyses.

This study is expected to contribute to the understanding of the present status of foreign language teaching via open and distance learning studies and to provide insights for future research endeavors. The depiction of the field's layout can be facilitated with the conduct of similar studies in the domain of open and distance foreign language education articles.

One another conclusion of this study is the period it covers. In total, this current study covers a period of 20 years. In 20 years open and distance foreign language studies mostly carried out by quantitative studies which raises a need for more qualitative studies in the field. In addition, totally 59 studies published in these 4 high-impact factor journals in 20 years which means 3 studies per year as average. This number should be increased. By this way more multidisciplinary studies can be published. The last and third concern is the sampling used in the studies. In the 20 years mostly undergraduate students in face-to-face environments were participated. Other sample groups and preferably in online or hybrid environments can be studied and compared to these studies.

Implications

When both decades are considered separately and the same research questions are used, there is no significant difference between the findings. On the other hand, it should be noted that the number of studies that combined language learning and open and distance learning in both the previous and recent periods is very different. This situation can be interpreted as the result of the pandemic. However, the fact that the number of studies has almost tripled is a pleasing point in the field of open and foreign-language teaching.

Another suggestion that this study can offer researchers is to conduct the same research in journals of the field of language education and compare the results. This result reveals the field from which the researchers are mostly from. This may explain why journals in the fields of open and distance learning provide less space for articles on language education.

Finally, the fact that studies on teacher competencies are on the rise may be a sign that sample diversity has shifted from learners to trainers. Thus, it can be concluded that technology has turned from being an end to being a tool. Content that is better structured by more competent instructors can provide permanent learning opportunities in open and distance foreign language education.

Limitations

This research covers 2013 to 2022 and is limited to the journals analyzed in this study. As a follow-up study, it compares the journals and articles covered in previous studies from different years. The conclusions and recommendations of this study were based on this perspective.

Statements of Publication Ethics

In this study, all ethical rules required for both the research methods and the publication process were followed.

Conflict of Interest

This study has no conflict of interest to declare.

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APPENDIX

The International Review of Research in Open and Distributed Learning (IRRODL)

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Distance Education (DE)

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Differentiation of Self, Career Adaptability and Optimism: The Mediating Role of Self-Construal

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Research Article

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Abstract

One of the variables in a better understanding of career adaptability and optimism levels is family-of-origin experiences. Differentiation of self (DoS) is one of the variables linked to career development. University students with higher DoS maintain an authentic intimacy with significant others while they succeed in individuation. The current study examined the mediator role of self-construal (i.e., interrelational, and self-developmental orientations) on the relationship between the differentiation of self and career adaptability. Our sample was composed of university students; 750 young adults (550 females, 73.3%; 190 males, 25.3%; and ten were missing) participated. The data were gathered from these young adults using the Career Adaptability and Optimism Scale, Differentiation of Self Inventory, Balanced Integrated Differentiation Scale, and Demographic Information Form. Contrary to our hypotheses, findings revealed that self-construal orientations mediated the relationship between differentiation of self and career adaptability in a negative direction. We concluded that a lack of balanced-integrated differentiation (self-construal) complicate the relationship between self-differentiation and career adaptability; we delineated our results considering the literature.

Keywords: differentiation of self, career adaptability, self-construal, interrelational orientation, self-developmental orientation

Benlik Ayrımlaşması, Kariyer Uyumu ve İyimserliği: Benlik Kurgularının Aracı Rolü

Öz

Üniversite öğrencilerinin kariyer uyumu ve iyimserliklerinin daha iyi anlaşılabilmesinde önemli değişkenlerden biri de köken aile deneyimleridir. Benlik ayrışması, üniversite öğrencilerinin kendileri için önemli olan kişilerle otantik bir yakınlığı sürdürürken, bireyselliklerini de sürdürebildikleri bir beceridir ve kariyer gelişimleriyle ilişkili değişkenlerden biridir. Bu çalışmada, benliğin farklılaşması ve kariyer uyumluluğu arasındaki ilişkide benlik kurgusunun (ilişkiler arası ve kendini geliştirme yönelimlerinin) aracı rolü kurulan yapısal eşitlik modeli ile incelenmiştir. Çalışma grubu 750 beliren yetişkinlik dönemindeki üniversite öğrencisinden oluşmaktadır. Öğrencilerin 550'si kadın 190'ı erkek olmak üzere 10 öğrenci cinsiyetini belirtmemiştir. Verilerin elde edilmesinde Kariyer Uyum Yeteneği ve İyimserlik Ölçeği, Benlik Farklılaşması Envanteri, Dengeli Bütünleşme Ayrışma Ölçeği ve Demografik Bilgi Formu kullanılmıştır. Hipotezlerimizin aksine bulgular, benlik kurgusu yönelimlerinin benlik farklılaşması ile kariyer uyumluluğu arasındaki ilişkiye negatif yönde aracılık ettiğini ortaya koydu. Dengeli-bütünleşik farklılaşma eksikliğinin (benlik kurgusu), benlik ayrışması ve kariyer uyumluluğu arasındaki ilişkiyi karmaşıktırdığı ortaya konulmuştur. Elde edilen sonuçlar literatür ışığında tartışılmıştır.

Anahtar kelimeler: benlik farklılaşması, kariyer uyumu, benlik kurgusu, kişilerarası ilişki, öz gelişim

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INTRODUCTION

Career development is a long-lasting journey, and theories attempt to crystallize the process. Definitions of career development highlight ‘career exploration’ that includes (tasks of) solidifying, specifying career choices, and putting one’s choices into action from adolescence to adulthood (12 to 24) (Bacanlı, 2006). In understanding one’s career development, Savickas (2011) suggests that counselors evaluate their clients’ stories from three perspectives: (1) *actor* refers to the sense of self which is shaped within the family of origin, (2) *agent* reflects the sense of control to handle transitional processes with building specific goals accompanied by self-regulation abilities to adapt developmental tasks (3) *author* reflects young adult creates a unique identity and meaning in a career journey. The transition from university to work is also essential to undergraduate students' developmental process. Graduates must be able to apply their academic and career competencies in order to transition from university to the working world successfully. Career-related developmental competencies such as critical thinking, leadership, or communication are crucial for these students as such competencies prepare university students for a healthy career transition. Otherwise, this young population may become more vulnerable to career anxiety or a limited view of the future, for instance, in self-realizing career-related goals (Boo et al., 2021). One factor that regulates this context of developmental competencies is the construct of *career adaptability*. The term refers to the ability to handle anticipated work-related tasks such as participation in working roles and situations. The term indicates individuals’ readiness to adapt to unexpected changes triggered in the working environment (Savickas, 1997). The career adaptability that Savickas describes has often been cited as a necessary source for healthy career development, reacted positively to a range of career and business challenges, and enhanced well-being.

Therefore, career adaptation is not only a factor that facilitates transition but also helps individuals cope with the requirements of the business world. Moreover, graduate students with greater career adaptability had more outstanding employment quality (Koen et al., 2012). Career adaptability’s effect on university students is also related to their emotional functioning (e.g., negative or positive affect; Konstam et al., 2015). Anxiety may be one of the most challenging emotions that undecided university students must deal with during unemployment (Saka & Gati, 2007). The role of anxiety here is that it causes undergraduate students to cling to their negative past or (negative) future perceptions (Taber & Blankemeyer, 2015). Anxiety in career development may be linked to several factors, and research mainly emphasizes the effect of families. For instance, when young adults experienced pressure to meet parents’ expectations (i.e., intimidation) and fusion, they had more significant trait anxiety and difficulties with career decision-making (Larson & Wilson, 1998).

Whiston and Keller (2004) speculate that there is a theoretical gap in the literature in understanding how families affect (positively or negatively) children’s career development, even though many counselors claim the role of the family of origin. We speculate that Bowen Family System Theory (BFST) may explain the links between a family’s role and anxiety on one’s career development. One of the main concepts of this theory is the differentiation of self (DoS). The intrapsychic dynamics of DoS suggest a capacity to distinguish between people's emotional and cognitive development in their responses to contentious situations or interpersonal relationships (Kerr & Bowen, 1988). This process also includes regulating emotions and learning appropriate coping methods. Individuals with greater DoS manage chronic anxiety more effectively (Kerr & Bowen, 1988). Lower DoS and higher anxiety may be two underlying mechanisms that reveal nonadaptive behavior in career decision-making for university students (Larson & Wilson, 1998). Lower DoS and higher anxiety in the context of family of origin may indicate university students’ lack of readiness and independence in their career development, which may be related to their capacity to differentiate themselves from their significant others, especially their parents. Both career adaptability and DoS may require the ability to take one's steps by using one's internal dynamics and convictions despite uncertainty and stressful conditions. Therefore, university students with well-differentiated self may feel less emotional symptoms (such as chronic anxiety). Otherwise, pseudo-self (fused self in unhealthy relationships), for instance, may emerge as the origin of emotional dysfunctionality in different domains of their life (Kerr & Bowen, 1988). The DoS-inspired literature led to our perspective on career adaptability as the predicted variable. Current findings on career adaptability may contribute to scientific knowledge on the dynamics of career adaptability and university students’ emotional dysregulation strategies.

Career Adaptability

The Career Adaptability construct was initially developed by Super and Knasel (1981) and further illustrated by Savickas (2013) as part of his Career Construction Theory (CCT). The construct reflects the adaptability benefits based on four essential domains (Savickas, 2013): (1) *Concern* is the prime component that indicates one’s planful attitudes, future orientation, and optimism, with a sense that individuals recognize it is vital to prepare for the future. (2) *Control* is the second prime component that refers to individuals’ autonomy with

accompanying characteristics of self-discipline, diligence, determination, or organization to cope with career development tasks (Savickas, 2013). (3) *Career curiosity* characterizes itself with individuals' openness to having more knowledge about themselves (i.e., abilities, values) and a fit of balance with occupational requirements. Besides the previous components, (4) *career confidence* may also reflect DoS emphasizing the individuals' sense of self-efficacy to solve problems and pursue their goals. Savickas' (1997) comprehensive categorization of career adaptability also involves career planning, exploring, and creating career-related decisions. Some studies considered career adaptability as a second-order factor (e.g., Creed et al., 2009) or assessed it in attendance of other constructs (i.e., optimism) in a single dimension (Zorver & Korkut-Owen, 2014), as optimism reflects one crucial component of individuals' career adaptability levels. According to Savickas and Porfeli (2012), career adaptability is a psychosocial concept in CCT because individuals' resources (on career adaptability) are placed at the intersection of the self and surrounding environment. CCT integrates career development within personal needs and social norms, in which career development is a product that maintains adaptability to the environment (Savickas, 2015). In the present study, we aimed to investigate career adaptability that clarifies the process for university students to seek employment and contributes to many intrapersonal dynamics (i.e., self-awareness) in career development. Thus, it is crucial to reveal the factors that affect career adaptability in undergraduate years. Researchers and several career theorists (e.g., Osipow, 1983; Super, 1980) emphasized the contextual components of interrelationship characteristics or the links between family influence, self (concept), and career. Researchers have attempted to reveal predictors of career adaptability and focus on individual characteristics or contextual factors (Johnston, 2018). A series of related studies have examined the association between family influence and the career adaptability of youth (e.g., Garcia et al., 2019; Guan et al., 2015; Guan et al., 2018). Definitions of career adaptability point to self-regulating mechanisms emphasizing the significant contribution of reciprocal actions between the person and their environment (Creed et al., 2009). Career adaptability develops through interactions between individuals' inner and surrounding worlds (Savickas & Porfelli, 2012); the process inevitably links to a family system where individuals are assumed to interact most. We speculate that one of the families' system-related underlying factors for career topics is that the DoS can directly or indirectly affect the career adaptability of undergraduate students.

The differentiation of Self (DoS)

The family is where an individual's sense of agency involving career development (i.e., identity) begins to form (Garcia et al., 2019). For instance, elders' career behaviors (i.e., decision-making) may implicitly affect youngsters' career adaptability via parents' adaptability levels and role modeling (Garcia et al., 2019). Although it is a leading family system approach, little research focused on the association between BFST and career development, especially in developing countries like Türkiye. A guiding perspective of the family-of-origin concepts (i.e., DoS) to understand the factors linked to career-related variables has merit. The DoS configuration emphasizes two distinct abilities of individuals (Bowen, 1978; Kerr & Bowen, 1988). The first is that intrapsychic dynamics indicate an ability to differentiate individuals' emotional and cognitive progress on their reactions to conflictual situations or relationships. Interpersonal dynamics refer to maintaining the individuation orientation of self while maintaining authentic intimacy with significant others. Higher DoS levels indicate an equilibrium between togetherness and separateness. The advantage of this equilibrium is that individuals can make their own decisions even in challenging or conflictual interpersonal situations (Kerr & Bowen, 1988), resulting in successful career transitions. A balance is needed involving functional forms of secure attachment and healthy independence from significant others (e.g., parents) for developmental career tasks (Lee & Hughey, 2001). Individuals with low-level DoS will also potentially fail to make critical decisions, such as career decision-making (Johnson et al., 2014). A supportive mother's attitude to young adults' independence with a higher intergenerational intimacy has also contributed to young adults' self-efficacy in career decision-making (Lease & Dahlbeck, 2009). The research also proved DoS's explanative role in career exploration (Keller, 2006) and career decision-making (Kwon & Lee, 2014). Even previous literature emphasized the link between DoS and university students' career development; however, further research is still needed. Our study speculates that the cultural background in understanding the relationship between DoS and career development (i.e., career adaptability) at the societal and family levels noteworthy. Social norms and demands regulate this relationship because the reciprocal progress between DoS and culture is much more complicated than it emerges. The DoS reflects the cultural context in which self-constructual is also suited, involving such dynamic structural practices (e.g., childbearing and children's value) (Erdem & Safi, 2018). We propose that career development is not free from those cultural norms, demands, and self-view of individuals that can provide a comprehensive context to better understand the reciprocal process between DoS and career development during the transition period for university students from school to work.

Integrating Study Variables, Including Self-Construal

The ‘self’ is a familiar variable to career-related topics; some leading approaches (i.e., CCT) already explain some aspects of career adaptability in the context of self-related constructs (e.g., self-construction, self-clarity). From a career counseling perspective, CCT emphasizes a reciprocal process in individuals' way of constructing themselves into who they are will also be decisive to what kind of self they will also construct in their careers through three types of selves (i.e., actor, agent, and author) (Savickas, 2013). The reciprocal dynamic between culture and self has also emerged as a well-known concept of *self-construal*. We also see a similar notion in the CCT, indicating that the self is culturally and socially constructed (Savickas, 2013), as a part of the self-making process in career progress. One of the questions that career counseling scholars investigate is ‘how does self-construal affect one’s career development?’. Ma and Yeh (2005) illustrated a piece of evidence that relational-interdependent self-construal prompted Chinese youths to have ‘career certainty’. However, independent self-construal was the variable with career decision self-efficacy making the most substantial contribution to young Mexican American women's life satisfaction levels (Piña-Watson et al., 2014).

Self-construal could exist synchronously in a particular cultural heritage (İmamoğlu, 2003; Kağıtçıbaşı, 2007) rather than in a uniform form. The Balanced Integration and Differentiation Model (BID; İmamoğlu, 1998; 2003) has theoretical intersection points with DoS (Bowen, 1978); both refer to an inherent human drive to be together with significant others while being differentiated. The difference between the two approaches is Bowen’s (1978) prominent emphasis in favor of individuation, in which İmamoğlu’s (1998) model (balanced and integrated differentiation) was born into Türkiye’s culture that depicts both collectivist and individualistic characteristics (Kağıtçıbaşı, 2007). İmamoğlu (1998) broadened her model from the intergenerational family context to the social normative references, in which individuals realize their potential more without social norms and reference points. Definitions of self in collectivistic or individualistic standards should not be limited to togetherness or separateness because one orientation is not essential over another or vice versa. Research should also consider culture-centered and complex variables regarding individuals' self-views, such as career development or adaptability. The BID model suggests two self-construal types: self-developmental and interrelational orientations. The self-developmental orientation displays predominantly individualistic characteristics and self-realization without social/familial expectations. The interrelational orientation refers mainly to collectivistic parts; harmony and a need for approval are more predominant in relationships with reference points of social/familial expectations (İmamoğlu, 1998).

Research Questions

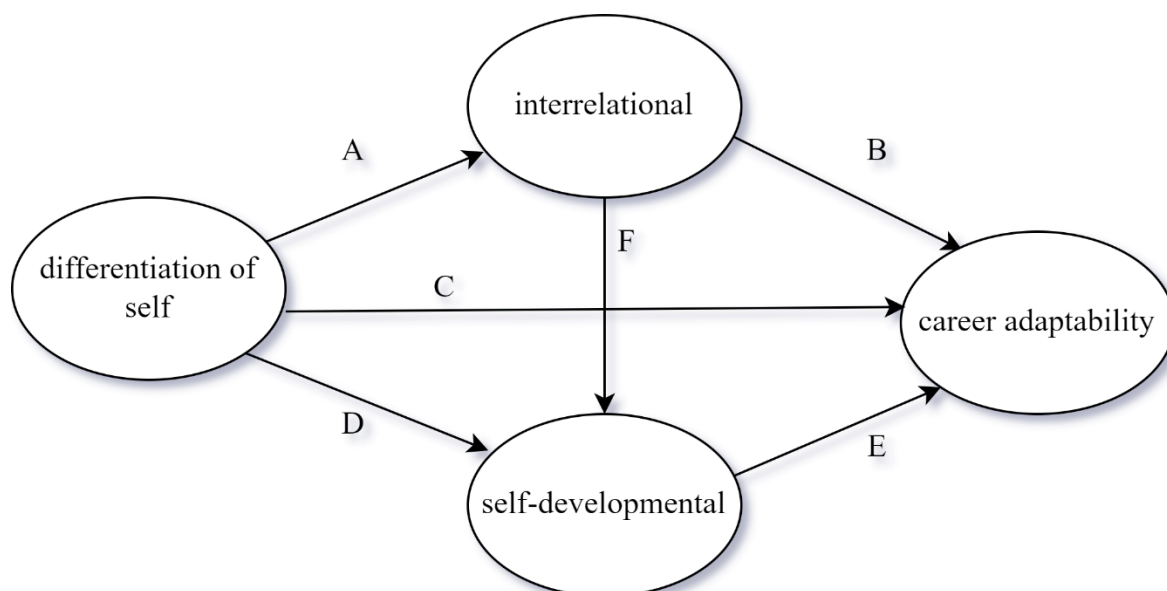
It is crucial to see that considering university students’ self-views or promoting their DoS levels can result in higher career adaptability. Because both DoS and BID models were born in different cultural contexts, we speculate that examining the effect of DoS on another theoretical concept of career adaptability in line with self-construal may contribute to an integrationist view of data-based intergenerational family mechanisms and career adaptability interventions. We suppose that self-construal provides a challenging context where intergenerational conflicts on career-related topics appear most, and the underlying mechanism of family-of-origin progress and self-views in those origins become more visible. Young adults’ self-construal (i.e., interrelational and self-developmental) orientations might also mediate the relationship between DoS and career adaptability. Our study involved the following four hypotheses in the structural model:

First Hypothesis: DoS has a direct effect on career adaptability. Our participants with higher DoS will have higher career adaptability levels.

The second Hypothesis: The interrelational orientation will mediate the association between DoS and career adaptability. Our participants with higher DoS will have lower interrelational orientation and higher career adaptability.

Third Hypothesis: The self-developmental orientation will mediate the association between DoS and career adaptability. Our participants with higher DoS will have higher self-developmental orientation and career adaptability.

Fourth Hypothesis: The association between DoS and career adaptability will be indirectly mediated (in serial) by the interrelational and self-developmental orientations.



Hypothesis 1 = C; Hypothesis 2 = A + B; Hypothesis 3 = D + E; Hypothesis 4 = A + F + E

Figure 1. *Hypotheses of the structural model*

METHOD

Participants

Our data was gathered by convenient sampling, in which the sample consisted of 750 university students (550 females, 73.3%; 190 males, 25.3%; and 10 was missing) enrolled in a midsize university in the north of Türkiye. The age range of the participants ($n = 750$; 9 was missing) was between 17 and 49 ($M = 20.43$, $SD = 2.41$). The relationship between DoS levels and career adaptability had been more intensified in child-focused (symptomology of family's emotional climate with lower DoS levels) families (Bowen, 1978), especially during developmental transition periods (e.g., career decision-making). Most participants reported being single ($n = 734$, 98.1%) and unemployed ($n = 702$, 93.6%). The class levels of the participants vary from freshman to senior year.

Data Collection Tools

Career Adaptability and Optimism Scale (CAOS)

The CAOS (Zorver & Korkut-Owen, 2014) assesses university students' career adaptability (with optimism) levels in the Turkish cultural context. Factor analyses supported the one-factor formation of the scale in three separate groups (for pilot, validity, and reliability studies), totaling 577 university students. The CAOS comprises eighteen items on a 5-point Likert scale. The total score is 18-90; higher scores represent higher career adaptability. Item examples include 'I have a plan for my career development'. The Cronbach alpha coefficient of the total score was .93. Zorver and Korkut-Owen (2014) revealed test-retest reliability .85. We found 0.95 of Cronbach's alpha correlation coefficient.

Balanced Integrated Differential Scale (BIDS)

BIDS (İmamoğlu, 1998, 2003) assesses individuals' balanced integration and differentiation levels. The Scale has 29 items, including two dimensions of interrelational (16 items) and self-developmental orientations (13 items). The total score in interrelational orientation is 16-80, and higher scores indicate higher relatedness (to the family, significant others, and cultural norms). Item example includes 'I feel emotionally disconnected from my significant others.' The total score in self-developmental orientation is 13-65, and higher scores indicate higher individuation or propensity to self-realization in the self-developmental orientation. Item example includes 'I can find interesting things to do on my own.' The Cronbach alpha coefficients of the scale were 0.91 for the interrelational and 0.74 for the self-developmental orientations. We preferred the BIDS to assess our participants' self-construal orientations. Cronbach's alpha coefficients were 0.87 for the interrelational and 0.71 for the self-developmental orientations in our research.

The Differentiation of Self Inventory-Revised (DSI-R)

The DSI assesses the DoS levels of individuals (Skowron & Friedlander, 1998). The Turkish DSI-R (Işık & Bulduk, 2013) includes 20 items with a four-factor (i.e., I position, emotional reactivity, fusion, and emotional cutoff) model on a 6-point Likert-type scale. The Cronbach alpha coefficient was 0.81 for the total score. The authors found a test-retest reliability of 0.75 in the adaptation study. Cronbach's alpha coefficient was 0.74 for the total DSI-R in our study. The total score is 20-120; higher scores represent higher individual DoS. Item example includes: 'There is no point in worrying about things I cannot change.'

Demographic Information Form

We collected information about young adults using a demographic information form: age, gender, employment, number of siblings, and relationship status.

Procedure

The authors administered the paper-pencil forms (along with informed consent) in the classroom settings of various university departments just before the COVID-19 pandemic. Students were informed about the aim of the study, the content, and the total time commitment (approximately 20 minutes), and confirmed that participants' responses would be kept confidential and anonymous. Our participants were also informed that participation was voluntary and that they might leave the study at any time in response. The current study required no identifying personal information such as name/surname or e-mail address.

Data Analysis

We used structural equation modeling (SEM) because our study has an integrative theoretical model (BFST + BIDS + CCT) underlying particular psychological constructs. SEM has advantages over other analytical techniques when models have such complexity and require sophisticated models (Martens, 2005). Before mediation analysis, we checked preliminary analyses (i.e., descriptives, bivariate correlations, assumption checking) in SPSS 22 (IBM, 2013). We considered fit indices of χ^2/df -ratio < 5 (Schumacker & Lomax, 2004); CFI $\geq .93$ (Byrne, 1994); SRMR $< .08$ (Browne & Cudeck, 1993); NNFI $\geq .90$ of acceptable fit; and close fit: $.05 < RMSEA < .08$ (Schumacker & Lomax, 2004). We originated item parcels in our structural model to significantly minimize measurement errors. We also aimed with item parceling to manage the bias in structural parameters (Bandalos, 2002; Nasser-Abu Alhija & Wisenbaker, 2006) because we have numerous items placed on some of our latent variables (e.g., 18 items for CAOS; 16 items for interrelational; 13 items for self-developmental dimensions). Each latent factor comprises four parcels as measured indicators. According to the highest to lowest mean values, each item was randomly (an assignment technique) fixed to the parcels (Little et al., 2002).

Research Ethics

The research was carried out in compliance with the amended Declaration of Helsinki, and ethical permission was granted from the X University Ethics Committee of Social and Human Science (Approval number: 2020/86).

FINDINGS

Data Preparation, Descriptive Statistics and Bivariate Correlations

Missing values (less than 2%) for the data were first detected. Six items in the measures had no missing items, and only 5 exceeded 1% (in BIDS). However, Little's MCAR test was found significant $\chi^2 = 6599,272$ ($df = 5982$; $p < .001$), indicating that the missing data pattern is non-ignorable, assuming NMAR (not missing at random). Nevertheless, the chi-square test is sensitive to sample size (especially the samples more prominent than 200) and may produce a significant result (Tabachnick & Fidell, 2013). We investigated the missingness pattern (on study variables) by comparing missing values versus complete scores (Allison, 2002). A series of comparison tests (i.e., hierarchical regression analyses, ANOVA, and t-test) revealed similar results on the study variables considering the same significance levels. Thus, we preferred the expectation-maximization (EM) algorithm for data imputation (Tabachnick & Fidell, 2013). The sample size ($n = 750$) was more significant than required (about 200 cases) to have enough power to run the SEM (Kline, 2011). Partial regression plots indicated no violation of homoscedasticity and linearity (through bivariate scatter plots). We examined the multivariate normality through critical ratio values (Mardia's kurtosis statistics) in AMOS 24 (Arbuckle, 2016) in which all parcels were within the acceptable range of < 5 (Bentler, 2005) except for one (5.34). We presumed that multivariate normality was met. Furthermore, we applied maximum likelihood estimation (MLE) in AMOS 24 (Arbuckle, 2016) with bootstrapping because it is robust to (multivariate) nonnormality. The study variables produced lower

intercorrelations than the cut-off value of .90 ($r = .32$ max.), indicating that the multicollinearity assumption (Kline 2011) was met. Overall, the participants reported higher means of DoS ($M = 80.06$, $SD = 11.63$), interrelational orientation ($M = 65.03$, $SD = 9.17$), and low-level career adaptability ($M = 38.66$, $SD = 13.64$). The variables' associations were mainly significant ($p < .001$), as presented in Table 1.

Table 1. Preliminary Analyses of the Variables (N=750)

Variable	1	2	3	4
1. DoS	-			
2. Interrelational orientation	.26**	-		
3. Self-developmental orientation	.32**	.07	-	
4. Career adaptability/optimism	-.27**	-.29**	-.23**	-
Range	43–110	22–80	31–65	18–90
<i>M</i>	80.06	65.03	49.23	38.66
<i>SD</i>	11.63	9.17	6.32	13.64
Cronbach's alpha	.74	.87	.71	.95

** $p < .001$, DoS: Differentiation of Self

Results of the measurement invariance

We investigated the measurement invariance of our structural model using gender differences. Four-phase (configural, metric, scalar, and error variance) measurement invariance (Milfont & Fischer, 2010) was conducted by the JASP Team (2019) using multigroup confirmatory factor analysis. The changes in ΔCFI (0.009), ΔTLI (0.005), $\Delta RMSEA$ (0.003), and $\Delta SRMR$ (0.004) were between -0.01 and 0.01 (Cheung & Rensvold, 2002), and we assumed that the model confirmed the measurement invariance on gender.

Results of the measurement model

The measurement model clarified the relationships among the latent and observable variables (Schumacker & Lomax, 2004) in the JASP Team (2019) before we conducted our structural model. Results revealed an acceptable model fit of $\chi^2 (98) = 441.04$, $p < .001$; χ^2 / df -ratio = 4.50, CFI = .95, NNFI = .93, SRMR = .07, and RMSEA = .068 (90% CI = .062, .075).

Results of the structural model

Our mediation model (in Figure 1) investigated the indirect effect of DoS and self-construal in accounting for CAOS scores. Findings demonstrated a moderate model fit of $\chi^2 (98) = 440.45$, $p < .001$; χ^2 / df -ratio = 4.49, CFI = .95, NNFI = .93, SRMR = .07, and RMSEA = .068 (90% CI = .062, .075) with significant factor loadings (ranged between 0.34 and .93). The DoS explained 0.9% of the variance in interrelational and 14% of variance in self-developmental orientations. Overall, the DoS and two orientations together accounted 17% of the variance in CAOS scores.

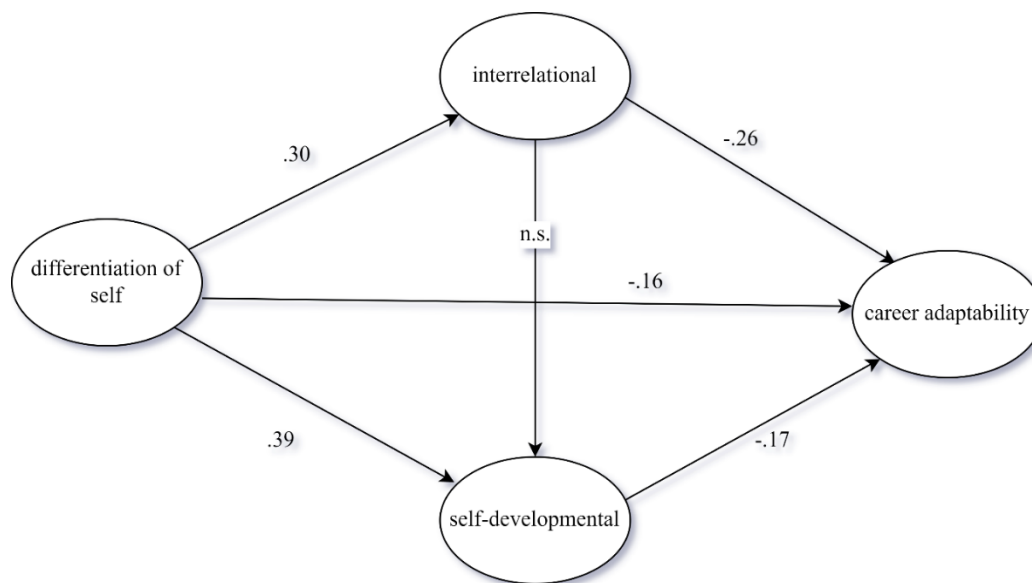


Figure 2. The Mediation Model of self-differentiation to self-construal orientations to career adaptability (with standardized coefficients)

First Hypothesis (DoS → career adaptability)

The association between DoS and career adaptability ($\beta = -.16, p < .001$) was significant, but unexpectedly indicating university students' higher DoS levels referring to lower career adaptability levels.

Second Hypothesis (DoS → interrelational orientation → career adaptability)

The indirect effect of DoS ($\beta = -.11, p < .010, [CI = -.08, -.17]$) on career adaptability over interrelational orientation was significant. The interrelational dimension partially mediated the link between DoS and career adaptability. Participants with higher DoS needed more approval from others and reported lower career adaptability.

Third Hypothesis (DoS → self-developmental orientation → career adaptability)

The indirect effect of DoS ($\beta = -.10, p < .010, [CI = -.05, -.16]$) on career adaptability over self-developmental orientation was significant. The self-developmental dimension partially mediated the link between DoS and career adaptability. Participants with a higher DoS had higher self-realization tendency and reported a lower career adaptability.

Fourth Hypothesis (DoS → interrelational → self-developmental → career adaptability)

The indirect effect of DoS ($\beta = .01, ns, [CI = .00, .02]$) on career adaptability over interrelational and self-developmental orientations (in serial) was not significant.

Table 2. Direct and indirect effects of the Structural Model

	β	95% CI	
		LL	UL
Indirect Effects			
DoS → interrelational orientation → career adaptability	-.11**	-.17	-.08
DoS → self-developmental orientation → career adaptability	-.10**	-.16	-.05
DoS → interrelational → self-developmental → career adaptability	.01 (ns.)	.00	.02
Direct Effects			
DoS → career adaptability	-.16**		
DoS → interrelational orientation	.30**		
DoS → self-developmental orientation	.39**		
Interrelational → self-developmental	-.07 (ns.)		

Note: ** $p < .001$, DoS: Differentiation of Self

DISCUSSION

DoS to career adaptability (Hypothesis 1)

Previous research has indicated that higher DoS predicts higher career adaptability in the context of healthy family functioning (Fiorini & Patta Bardagi, 2018). For instance, married Turkish couples with higher DoS reported higher career adaptability (Akün et al., 2023). However, we found a negative relationship between DoS and career adaptability, contrary to our first hypothesis. The first reason might be that the university period is developmentally different from the marriage period. Married individuals are generally expected to be individuals who have a career and have solved many problems related to their career. On the other hand, university students are developmentally just in the early stages of their careers. Second, we conclude that the cultural background of our participants and reflection of DoS in Turkish culture revealed this result. Social norms and parental expectations are also highly involved in children's career choices. Moreover, being economically dependent on parents in academic life may also affect their preferences (Bacanlı et al., 2013; Bacanlı et al., 2018). Although students may perceive their DoS levels to be high in different areas of their lives, they may tend to meet the expectations of their family of origin more regarding career adaptability in the current sample. Thus, the young people may begin to put their significant others' expectations ahead of their own needs, which refer to the fusion (Bowen, 1978).

Although previous research supports the hypothesis that higher DoS estimates functional career development, the fusion (is a dimension of the DoS) may reflect an unexpected pattern even in the US young adult sample. No significant relationship between fusion and vocational identity was observed, and higher fusion predicted less career decisiveness (Johnson et al., 2014). Fusion refers to enmeshment, dependence, or over involvement patterns in the family of origin (Kerr & Bowen, 1988). We assumed that fusion (dependence or enmeshment) in a family context might be a sign of children's strategy to maintain their needs by borrowing significant others (e.g., parents) functioning (Johnson et al., 2014). It seemed that university students with higher fusion reported a certain level of vocational identity as they borrowed this functioning (in developing vocational identity) from their parents. They needed to struggle with their own career-related decisions that they had to make, whereas they were still based on their parents' values. Our study did not examine the DoS dimensions separately. However, the current sample exhibited lower DoS and higher fusion and emotional cutoff (reflecting the interpersonal dimension of DoS) levels on mean values. The DoS may have reflected our participants' intergenerational characteristics with fusion and emotional cutoff more predominantly. This characteristic of our sample is not a strange profile for Turkish families. Fused relationship patterns are considered a norm and observable in the family of origin (e.g., the children value) (Sunar & Fişek, 2005), and intergenerational hierarchy was not regarded as a risk to claim emotional interdependence (Kağıtçıbaşı, 2007) in Turkish cultural practices.

DoS to interrelational orientation to career adaptability (Hypothesis 2)

The current findings were also contrary to our second hypothesis. However, the findings supported the direct effect of DoS on career adaptability with the inclusion of interrelational orientation to the model. Our sample's interrelational orientation tendency might trigger or be a risk factor for our participants when they reported a higher DoS; they were less likely to report higher career adaptability. Our sample exhibited a higher relatedness, which predominantly contributes to the self-construal of individuals in Turkish culture, involving several components of their cognitions, expectations, emotions, or values (Karakitapoğlu-Aygun, 2004). We speculate that lower the DoS (or higher the fusion), interrelational orientation characteristics may predominantly emerge in Turkish culture's many social and familial domains and agents. For instance, daughter preference over boys among contemporary Turkish families has become preferable due to mothers' emotional support and old age security expectations (Ataca & Sunar, 1999). The reflection of DoS in Turkish culture may also have a volatile nature with situation-specific variability in self-construal orientations. Recent findings in Turkish culture may also have supported this notion. Spouses defined themselves with more relatedness when their marriages were concerned. However, this relatedness preference seemingly returned to more individuality when childrearing practices were considered (Kurşuncu & Sümer, 2021). Individuals' self-views may also affect career development, as in other issues (e.g., raising children).

Nevertheless, even if children act in a fused pattern (in line with family expectations), they may struggle to adapt. One can easily imagine that university students have already refrained entirely from making important career-related decisions because of their developmental stage characteristics. However, a healthy career adaptability process becomes more complicated when they have a predominant feeling of satisfying significant others' expectations. Our sample may have pictured that choosing a career becomes less personal in more interdependent individuals, and their attitudes reflect less involvement in the process (Hardin et al., 2001).

DoS to self-developmental orientation to career adaptability (Hypothesis 3)

The current findings were also contrary to our third hypothesis. We revealed that when Turkish university students had higher DoS, participants had higher self-realization but lower career adaptability. Although our participants illustrated a higher interrelational orientation (on mean values), self-developmental orientation (with DoS) was the dimension that almost explained the total variance in career adaptability. We suggest further evidence, but Turkish university students' preference in our sample may have also changed to higher individuation when their career adaptability was concerned. Nevertheless, this individuation preference was not independent of the expectations of significant others (e.g., family). This dilemma (between individuation and relatedness) is not a strange picture for Turkish university students as they are born in the culture of relational interdependence (Kağıtçıbaşı, 1996). We conclude that participants (in our sample) attempt a more individuated self in the context of relatedness when career adaptability is their concern. Still, they encounter more repression in their family environment to ensure interrelatedness. Thus, an unbalanced form between interrelatedness and individuation may have emerged as the pseudo-self (Kerr & Bowen, 1988) in our participants' interdependent family context where the need for individuation on career adaptability was ignored.

The non-significant path (Hypothesis 4)

Interrelational (more relatedness) and self-developmental (more individuation) orientations are theoretically distinct (separate) and either complementary or integrated positions to each other (İmamoğlu, 1998, 2003), which may robustly reflect DoS. For instance, researchers found that relational self-orientation has a salient process to attachment security in the Turkish sample; moreover, this feeling of security became more substantial with individuation in the model (İmamoğlu & İmamoğlu, 2007). Our study found no significant association between interrelational and self-developmental orientations, but this may not change the fact that they are still complementary constructs. This finding may be related to the characteristics of the developmental period of our participants (i.e., transition from school to work). Although our sample exhibits a more interrelational orientation (on mean values), the self-developmental orientation explained the variance predominantly. Our participants may not have balanced these two orientations in their responses. These two dimensions may have reflected completely separate processes in our sample when career adaptability was concerned.

CONCLUSION

We speculate that there is no actual DoS pattern in our sample. This unclarity of DoS in our model becomes more evident, especially in the context of self-construal. We expected that as DoS increases, interrelational, and self-developmental orientations would increase, but career adaptability would remain the same. Turkish university students in our sample have tried both self-construal orientations. They attempt to meet family expectations as much as they try to have career adaptability in line with their dreams, expectations, and self-realization. However, neither effort works due to the failure to balance these two orientations. They either trying to act entirely according to family expectations or entirely with their self-realization. This disequilibrium is like trying to complete a long flight with one wing.

Limitations

Our findings illustrate a sample of university students who mostly lived apart from their family of origin. They were more likely and slightly away from the impacts of intergenerational family relationship patterns when career adaptability was concerned. Future research investigating DoS and self-construal in the context of career development should use samples with early and late adolescents who were more likely to live with their parents. University students' reports in our model were also based only on their self-perspectives (i.e., memories, opinions, experiences), which could be an obstacle for understanding multigenerational hypotheses on DoS and self-construal orientations. Our sample distribution was also unbalanced on gender because the vast majority included females. Our model was also limited to university students, and the sampling strategy was nonprobabilistic. We recommend more gender-balanced demographic characteristics to improve representability. Finally, we suggest that a longitudinal study might understand those changes in DoS levels, self-construal orientations, and career adaptability. Considering that parents are involved in career choices in Türkiye, studies can be expanded per other factors such as economic factors, Türkiye's educational system problems, and seeing some careers more prestigious.

Implications

Previous research has emphasized a demand for an integrative perspective in cross-cultural research for developing a comprehensive cultural background (Erdem & Safi, 2018). The fact that Türkiye is the only country

in the world located in both Europe and Asia has caused it to carry traces of both Eastern and Western cultures. Although our focus was not a comparison in different cultures, we concluded that there are still points that need comprehensive answers on applying DoS to our sample, reflecting a cultural background with more collectivist characteristics than Westernized cultures and more individualistic characteristics than Eastern cultures. We aspire that our results will encourage researchers to examine how DoS reflects those samples that picture different cultural elements that are alike and dissimilar to Türkiye. Our results suggest a valuable source for understanding how Turkish young adults' self-constructual orientations interact with their DoS levels in the context of career adaptability. We expect that our integrative perspective (of self-constructual and DoS) is worth the cross-validation of our results across multicultural societies.

Furthermore, our findings may assist notions that these integrative construct's function nearly the same way. Our results can also prompt researchers to evaluate their focus and practice regarding interventions. Practitioners should be sensitive to self-constructual orientations and the DoS levels of university students, as they are likely to realize more career adaptability. Our results could also benefit career counseling interventions, specifically aimed at university students for more career adaptability. When more career adaptability is the effort of university students, practitioners can assist them in two interrelated ways. The first is counseling university students to improve their balanced and integrated self-definitions. The second is counseling university students to develop a higher sense of DoS without ignoring that BFST's emphasis on individuation might not be an ultimate goal of therapeutic progress in such cultures that reflect multidimensional self-constructual dynamics. The main objective should be to maintain emotional relationships with significant others who impact career adaptability without symptomizing an emotional distance. More specifically, a career counselor should respect the client's attentiveness to the significant others' expectations concerning career-related issues. A university student with a higher interrelational orientation may present cultural suitability of relatedness (approval of others), not an unconformity in career development or pessimism.

Statements of Publication Ethics

Ethical approval was procured by the Ethics Committee of Humanity Sciences of Ordu University (dated 11/25/2020, 2020-86). All participants who took part in the study provided informed consent.

Researchers' Contribution Rate

The study conceptualization and design involved participation from all authors. Material preparation, data gathering, and analysis were carried out by [SB], [MAK], and [SDZ]. The original draft of the manuscript was written by [SB, MAK, SDZ], and each author provided feedback on earlier drafts. The final manuscript was read and approved by all authors.

The authors declare no conflicts of interest. In addition, the authors did not reproduce material from other sources.

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Examination of Preschool Teachers' Environmental Attitudes in Terms of Different Variables

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Abstract

This study investigated the environmental attitudes of preschool teachers in relation to various factors, including their educational background, place of residence, age, professional seniority, and gender. The findings reiterate the importance of environmental education in shaping positive environmental attitudes, as teachers with a strong environmental education background showcased more favourable views on the environment. In contrast, factors such as place of residence, age, and professional seniority did not significantly influence environmental attitudes. The results also indicate that there was no differentiation in environmental attitudes based on gender. These findings emphasise the importance of instilling a comprehensive environmental education in educators, who play a central role in shaping the environmental perceptions of the younger generation. Despite its invaluable insights, the study is limited by its geographical scope and the possible omission of influential variables. Future research should expand its parameters and investigate deeper qualitative enquiries.

Keywords: environment education, early childhood, education policies, preschool

Okul Öncesi Öğretmenlerinin Çevresel Tutumlarının Farklı Değişkenler Açısından İncelenmesi

Öz

Bu çalışma, okul öncesi öğretmenlerinin çevresel tutumlarını eğitim geçmişleri, ikamet ettikleri ve doğdukları yer, yaşları, kıdemleri ve cinsiyetleri gibi çeşitli faktörlerle ilişkili olarak araştırmıştır. Güçlü bir çevre eğitimi geçmişine sahip öğretmenler çevre hakkında daha olumlu görüşler sergilediklerinden, araştırmanın bulguları olumlu çevresel tutumları şekillendirmede çevre eğitiminin önemini göstermektedir. Bununla birlikte, ikamet yeri, yaş ve kıdem gibi faktörler çevresel tutumları önemli ölçüde etkilememiştir. Sonuçlar ayrıca cinsiyete dayalı olarak çevresel tutumlarda bir farklılaşma olmadığını göstermektedir. Bu bulgular, gelecek neslin çevresel algılarını şekillendirmede önemli bir rol oynayan öğretmenler için kapsamlı bir çevre eğitimi oluşturulmasının önemini vurgulamaktadır. Önemli değişkenler olmasına rağmen, çalışmaya coğrafi kapsam ve diğer etkili değişkenler dahil edilmemiştir. Gelecekteki araştırmalar, parametrelerini genişletmeli ve daha derin niteliksel araştırmalara yönelmelidir.

Anahtar Sözcükler: çevre eğitimi, erken çocukluk, eğitim politikaları, okul öncesi

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INTRODUCTION

Environmental issues are among the most significant global concerns of the 21st century. The education of conscious individuals to solve these problems is possible by starting education at an early age. The preschool period is a critical phase in which children shape their values, attitudes, and behaviours. For this reason, the level of skill and knowledge of preschool teachers in terms of environmental awareness and sensitivity plays a decisive role in the development of children's attitudes on this issue.

Environmental attitudes play an essential role in how people perceive the environment, interact with it, and advocate for it. As educators who influence the next generation, the environmental attitudes of preschool teachers can significantly impact their students' perceptions and behaviours regarding the environment (Tilbury, 1995). Various factors, including an individual's environmental education, experiences related to environmental events, geographical conditions and locations they live, gender, professional seniority, and age, can shape these attitudes (Payne, 2001).

Similarly, teachers' attitudes towards environmental issues can vary depending on many variables and may affect the attitudes of the children they educate. Investigating the effects of these variables can contribute to the development of educational policies and programmes.

In previous years, some studies have addressed preschool teachers, educators and teacher candidates to determine their environmental attitudes (Akçay, Halmatov & Ekin, 2017; Doğan & Demirel, 2019; Duru & Bakanay, 2021; Şahin & Doğu, 2018; Uyanık, 2016; Yurt, Kandır & Kalburan, 2012). Other research has examined the environmental attitudes of preschool teachers in terms of different variables and explored the relationship between environmental attitudes and behaviours (Toprak et al., 2023).

Previous research emphasises the importance of environmental education in shaping positive environmental attitudes (Rickinson, 2001). It is expected that individuals with more knowledge of the environment would develop more positive attitudes toward it (Hungerford & Volk, 1990). In this context, teachers who have received environmental education can more effectively integrate sustainability concepts and environmental awareness into their teaching methodologies (Ballantyne & Packer, 1996).

The city or region where one lives can influence environmental perceptions due to differences in environmental challenges, policies, and local culture (Gifford & Sussman, 2012). For example, teachers living in urban and rural areas, having different environmental experiences, can have different attitudes towards environmental issues.

Gender is another variable examined in relation to environmental attitudes. Some studies suggest that women tend to express more concern about the environment than men (Zelezny, Chua, & Aldrich, 2000), although this remains an ongoing research and discussion topic.

Additionally, professional seniority and age can play a role. Over time and with experience, teachers may witness environmental changes and develop different attitudes compared to their younger counterparts (Van Liere & Dunlap, 1980). On the contrary, younger teachers, potentially more recently exposed to contemporary environmental education methodologies, may have different perspectives than their experienced peers.

This study aims to determine the environmental attitudes of preschool teachers based on variables such as environmental education, place of residence, city where they grew up, gender, professional seniority, and age. In this way, it will be possible to obtain more in-depth information about how open preschool teachers are to environmental awareness and how this awareness can be reflected in children.

METHOD

Research Design

Quantitative research design was used in the investigation. The research data were collected from the environmental attitude scale and the demographic information questionnaire presented online to preschool teachers who participated in the research voluntarily.

Participants

The study sample consists of 152 preschool teachers living in different provinces of Turkey. The frequency distribution of the participants' age, gender, professional seniority, place of residence, place of childhood, and in-service training is given in Table 1.

Table 1. Frequency Distribution of Participants According to Some Variables

Variables	Category	Sum	
		<i>f</i>	%
Gender	Woman	138	90,8
	Man	14	9,2
Age	21-30	68	44,7
	31-40	55	36,2
	41-50	29	19,1
Professional seniority	0-3	47	30,9
	4-7	25	16,4
	8-15	52	34,2
	16 and up	28	18,4
Place of residence	City	123	80,9
	Rural	29	19,1
Place of childhood	City	93	61,2
	Rural	59	38,8
In-service training	Yes	66	43,4
	No	86	56,6

Data Collection

In the study, demographic information form was used including in-service training, place of residence, place of childhood, gender, professional seniority, and age.

In the study, also to measure the environmental attitudes of preschool teachers, "Çevresel Tutum Ölçeği (Environmental Attitudes of the University Scale)" developed by Fernandez-Manzanal, Rodriguez-Barreiro, and Carrasquer (2007) and adapted into Turkish by Yurt, Kalburan and Kandır (2012) was used. The original scale, consisting of 20 items, was assessed according to a 5-point Likert-type scale: "Strongly agree [5], agree [4], neutral [3], disagree [2], and strongly disagree [1]." Eight items on the scale are reversely scored. In the Environmental Attitude Scale (EAS), there are 4 sub-factors: The Need for Education about Environmental Problems (5 items- ÇPIEG), the Importance of Fieldwork and Activities for Environmental Education (5 items- ÇEAGÖ), Environmental Contamination and the Need for Conservation (5 items- ÇKVK), and Environmental Protection Actions (5 items- ÇKH).

Data Analysis

Data analysis was performed using the SPSS 20.0 programme. Whether or not the responses of the participants to the Environmental Attitude Scale (CTS) differ according to the in-service training, place of residence, city where they grew up, gender, professional seniority, and age were examined by the independent samples t-test, which is one of the parametric tests. Since the variables of professional professional seniority and age were divided into more than two groups, one-way analysis of variance (ANOVA), which is also a parametric test, was used to examine the difference between the groups. The lowest $p < 0.05$ significance level was taken into account in the interpretation of the techniques used.

Research Ethics

Research data was collected from preschool teachers who participated in the investigation voluntarily. The ethical approval for this study was obtained from the Scientific Ethics Evaluation Committee of the Faculty of Education, Selçuk University, with reference number E-574466.

FINDINGS

In order to decide whether the t test and one-way analysis of variance (ANOVA) tests can be used in the analysis of scores obtained from the Environmental Attitude Scale (CBS), the requirements of these tests were examined. The scores obtained from the scale showed a normal distribution in all the subcategories of the relevant independent variables; It was determined that the skewness and kurtosis were between +1 and -1, and the results of the Kolmogorov-Smirnov test were statistically significant (see Table 2). In this regard, the independent sample t test was used to examine whether there was a significant difference between the participants' scores according to

where they lived, where they spent their childhood, and whether they received in-service training, and the results are given in Table 2.

Table 2. Descriptive statistics of the scores obtained from the CTÖ

		Kolmogorov-Smirnov Test			Kurtosis	Skewness
		Statistics	sd	p		
Sum scores	Place of residence					
	City	0,079	123	0,055	-0,143	-0,492
	Rural	0,088	29	0,200	-0,597	0,111
Sum scores	Place of childhood					
	City	0,066	93	0,200	-0,059	-0,369
	Rural	0,099	59	0,200	-0,179	-0,533
Sum scores	in-service training					
	Yes	0,101	66	0,089	0,006	-0,610
	No	0,073	86	0,200	-0,069	-0,289

Table 3. T-Test Results of the Scores obtained from the CTÖ

		n	\bar{X}	ss	sd	t	p
Sum scores	Place of residence						
	City	123	81,70	6,713	150	-0,882	0,379
	Rural	29	82,90	5,954			
Sum scores	Place of childhood						
	City	93	81,71	6,759	150	-0,512	0,609
	Rural	59	82,27	6,310			
Sum scores	in-service training						
	Yes	66	83,15	6,195	150	2,032	0,044*
	No	86	80,99	6,734			

According to the results of the Independent Samples T test, the scores of the participants who received environmental education ($\bar{X}=83.15$, $sd=6.195$) and those who did not ($\bar{X}=80.99$, $sd=6.734$) show a statistically significant difference in favour of those who received in-service training ($t(150)=2.032$, $p<0.05$). On the other hand, it is seen that there are no significant differences between the scores of the participants in the CTÖ according to the place where they live ($\bar{X}=81.70$, $sd=6.713$) and whether they are rural ($\bar{X}=82.90$, $sd=5.954$) ($t(150)=-0.882$, $p>0.05$). There is no significant difference between the scores of the participants who spent their childhood in the city centre ($\bar{X}=81.71$, $sd=6.759$) and those who spent their childhood in the rural ($\bar{X}=82.27$, $sd=6.310$) in CTS ($t(150)=-0.512$, $p>0.05$).

One-way analysis of variance (ANOVA) was used to compare the average of the scale scores according to the age and professional seniority of the participants, and the Levene test was used to test the homogeneity of the variances belonging to the universe, which is one of the requirements of ANOVA.

Table 4. Levene Test Results Showing That the Variances of the Scores Obtained from the CTÖ are Equal according to Professional Seniority

	sd	F	p
CTÖ scores	(3, 148)	1.219	0.305*

Table 5. Levene Test Results Showing That the Variances of the Scores Obtained from the CTÖ are equal according to age

	<i>sd</i>	<i>F</i>	<i>p</i>
ÇTÖ scores	(2, 149)	2.540	0.082*

According to the results of the Levene test, it was seen that the variances of the CTÖ scores were the same according to both professional seniority ($F(3, 148)=1.219, p>0.05$) and age ($F(2, 149)=2.540, p>0.05$). The one-way analysis of variance (ANOVA) test was calculated for these variables separately.

Table 6. ANOVA Results on The Examination of CTÖ Scores by Professional Seniority

	Professional seniority	<i>n</i>	\bar{X}	<i>ss</i>	<i>sd</i>	<i>F</i>	<i>p</i>
ÇTÖ scores	0-3	47	82.36	6.24	(3, 148)	0.916	0.435
	4-7	25	80.64	5.32			
	7-15	52	81.40	7.05			
	16 and up	28	83.32	7.18			

Table 7. ANOVA Results on Examination of CTÖ Scores by Age

	Age	<i>n</i>	\bar{X}	<i>ss</i>	<i>sd</i>	<i>F</i>	<i>p</i>
ÇTÖ scores	21-30	68	82.03	5.66	(2, 149)	0.377	0.687
	31-40	55	81.40	7.08			
	41-50	29	82.69	7.64			

When the results of the one-way analysis of variance (ANOVA) were examined, it was concluded that the scores obtained from the CTÖ did not show a statistically significant difference according to different levels of professional seniority ($F(3, 148)=0.916, p>0.05$). Similarly, the CTÖ scores of the participants did not show a statistically significant differences according to the different levels of the age variable ($F(2, 149)=0.377, p>0.05$).

DISCUSSION AND CONCLUSION

Discussion

The critical role of educators in imparting environmental awareness to the younger generation is undeniable, as this study aimed to explore the environmental attitudes of preschool teachers in relation to several variables. The results highlighted several noteworthy findings that are consistent and at times divergent from the existing body of research.

Foremost, the significant difference observed in environmental attitudes between teachers who received environmental education and those who did not reaffirms previous research. As posited by Rickinson (2001) and Okyay et al., (2021), a solid foundation of environmental education enhances positive environmental attitudes. This study aligns with this premise, suggesting that teachers with more extensive environmental education tend to be more positive in their environmental perceptions. This parallels Hungerford and Volk (1990) argument that heightened knowledge about the environment precipitates more favourable attitudes.

However, intriguingly, the place of residence or upbringing, be it city or rural, does not demonstrate a significant impact on environmental attitudes. This contrasts with Gifford and Sussman (2012), who suggested that one's region could significantly sway their environmental perceptions. The lack of differentiation between urban and rural teachers in this study could suggest that globalisation, increased connectivity, and information sharing might bridge attitudinal gaps that once existed between such groups.

The gender perspective of environmental attitudes, which has been a prominent topic in previous research, was not a focus in this study's results and results did not differ as gender. Yıldırım et al., (2012) study did not differ according to gender, similar to the results of this study. However, past studies like that of Zelezny, Chua and Aldrich (2000) and Ahi and Özsoy (2015), did observe gender-specific variations. Future research could benefit from intertwining gender with the variables in the current study to gain more granular insights.

Interestingly, age and professional seniority did not showcase any statistical significance concerning environmental attitudes. This challenges the narrative presented by Van Liere and Dunlap (1980), who posited that with time and experience, environmental attitudes would be more ingrained. The static nature of attitudes across different age groups and professional level of seniority in this study suggests a consistent educational approach over the years. However, the study by Ahi and Özsoy (2015) seems remarkable according to these results. Their results show that teachers with 1-5 years and 16-20 years of service have positive attitudes. Alternatively, it could signify that environmental attitudes are shaped by more profound personal or societal influences than just age or professional exposure.

In light of these findings, educational policy makers and institutions should underscore the importance of environmental education for teachers. As Ballantyne and Packer (1996) argued, those equipped with proper environmental education can seamlessly integrate sustainability concepts into teaching, thus shaping a more environmentally conscious generation.

However, the study is not without limitations. The restricted geographical scope and noninclusion of some potential confounding variables might affect the generalisability of the results. Future research could consider expanding the sample size, integrating more variables, and utilising qualitative methods to dig deeper into teachers' motivations and barriers to adopting positive environmental attitudes.

Implications

Environmental attitudes of preschool teachers play an important role in shaping the perceptions of the next generation. This study has provided valuable information on how various factors, such as environmental education, place of residence, education, age, and professional seniority, impact these attitudes. The key findings revealed the importance of environmental education in fostering positive environmental attitudes, highlighting the need for such training in the academic progression of educators. Moreover, it was surprising to note that elements such as age, professional seniority, and place of childhood or residence did not significantly influence these attitudes.

Given these insights, it becomes imperative for educational institutions and policymakers to prioritise environmental education. A teacher equipped with environmental consciousness not only imparts knowledge, but also moulds future citizens who are environmentally aware and proactive.

Limitations

Although the study did account for several variables, it did not delve into aspects such as socioeconomic background, cultural beliefs, or detailed gender analysis, which could have nuanced influences on environmental attitudes. Despite its invaluable insights, the study is limited by its geographical scope and the possible omission of influential variables.

The research mainly used quantitative methods to gauge attitudes. Qualitative methods could provide more in-depth insights into the motivations, experiences, and subjective perspectives of educators.

Statements of Publication Ethics

I declare that we obey the principles of publication ethics. Ethical approval (number: 574466) was taken from Selçuk University.

Researchers' Contribution Rate

Authors	Literature review	Method	Data Collection	Data Analysis	Results	Conclusion
Author 1	☒	☒	☒	☒	☒	☐
Author2	☒	☒	☒	☐	☒	☒

Conflict of Interest

There is no conflict of interest to disclose.

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Inclusiveness in Graduate Education in Developing Countries: A Document Analysis of Diversity and Inclusion in the PhD Postings

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Abstract

The current research aimed to give insights into inclusiveness in graduate education and examine the admission procedures in developing countries. In this study, doctoral postings in the developing countries with the highest scores on the Inclusive Development Index were examined in terms of diversity, equity, access, and inclusion. The study provided an internationalization perspective in terms of the reflection of diversity in PhD postings because one of the points emphasized in these postings was the encouragement of lecturers from different fields, countries, and cultures. Regarding equality, this study found that doctoral postings encourage collaboration and teamwork and support equality. This lets candidates with varied skills and backgrounds collaborate to address scientific and social issues. As a result of the research, it was revealed that items such as language proficiency, financial aid, and lack of tuition fees in PhD postings were used as important tools in attracting qualified early-career academics and doctoral students. Finally, this study revealed that PhD postings did not contain offensive or discriminatory language and that they were written inclusively.

Keywords: inclusiveness, diversity, graduate education, inclusion, inclusive development index

Gelişmekte Olan Ülkelerde Lisansüstü Eğitimde Kapsayıcılık: Doktora İlanlarında Çeşitlilik ve Kapsayıcılık Üzerine Bir Doküman Analizi

Öz

Bu makale lisansüstü eğitimde kapsayıcılık konusunda fikir vermeyi ve gelişmekte olan ülkelerdeki kabul prosedürlerini incelemeyi amaçlamaktadır. Bu çalışmada, Kapsayıcı Kalkınma Endeksi'nde en yüksek puanı alan gelişmekte olan ülkelerdeki doktora ilanları çeşitlilik, eşitlik, erişim ve kapsayıcılık açısından incelenmiştir. Çalışma, doktora ilanlarında çeşitliliğin yansıması açısından uluslararasılaşma perspektifi sunmaktadır çünkü ilanlarda vurgulanan noktalardan biri de farklı alan, ülke ve kültürlerden öğretim elemanlarının teşvik edilmesidir. Eşitlik noktasında ise bu çalışma doktora ilanlarının işbirliğini ve ekip çalışmasını teşvik ettiğini ve eşitliği desteklediğini ortaya çıkarmıştır. Bu, çeşitli becerilere ve geçmişlere sahip adayların bilimsel ve sosyal konuları ele almak için işbirliği yapmasına olanak tanır. Araştırma sonucunda doktora ilanlarında yer alan dil yeterliliği, mali destek ve öğrenim ücretinin olmaması gibi maddelerin kariyerinin başındaki nitelikli akademisyenler ve doktora öğrencilerini çekmede önemli birer araç olarak kullanıldığını ortaya çıkarılmıştır. Son olarak bu araştırma ile doktora ilanlarında kullanılan ifadelerin incitici ve engelleyici olmadığı, ifadelerin kapsayıcı bir dille kaleme alındığı ortaya konmuştur.

Anahtar Sözcükler: Kapsayıcılık, çeşitlilik, lisansüstü eğitim, kapsayıcı kalkınma endeksi

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INTRODUCTION

In order to build higher societal standards, education can be thought of as an area where all diversity is supposed to be welcomed. Understanding that requires setting equal chance for all to study and work. All must have an equal opportunity to think, communicate, and interact both locally and worldwide as economies and nations grow more interconnected. Diverse communities will be in the best position to address local and global issues given the strong evidence that diverse teams deliver superior innovations and outcomes. As a result of this ultimate intention, governments, and interested parties have been trying to expand and improve their education systems to include individuals from each and every background in society.

The importance and benefits of higher education are well known. In most developed countries, including the US, the UK, and New Zealand, higher education enrolment is on the rise (Thomas, 2002), with numbers from socially underrepresented groups growing in particular (Tien, 2008). In accordance with their respective educational missions and objectives, universities define, pursue, and promote diversity in different ways. Broadening participation, diversity, and inclusivity are said to help all students who are enrolled in higher education, according to research in the field of supporting diversity efforts (Gurin, Dey, Hurtado, & Gurin, 2002; Pascarella & Terenzini, 2005). The role of the institutions of higher education is crucial in addressing the issue of diversity. In this sense most universities are committed to and benefit from having a student body that is varied in terms of background, culture, socioeconomic level, race, ethnicity, and job and life experiences, which helps to reflect a wider range of viewpoints in the university's academic life.

According to de Brey et al. (2019), graduate programs have made much less progress than undergraduate programs have in terms of racial diversity, equality, and inclusion (DEI). According to a number of studies (Brunsma et al., 2017; Fosnacht & Calderone, 2020; Truong et al., 2016), graduate students of color have been disproportionately impacted by a dearth of meaningful and mutually trusted mentorship, a sense of belonging and social integration, and mental health supports. These claims can be partially explained by pointing to the striking disparities in the racial representation of students and teachers in the classroom. Additionally, they could be attributed to a lack of understanding or acceptance of the problems students face in relation to DEI, as well as a dearth of institutional support and programs for students of color (Chen et al., 2020; Harris & Lee, 2018). Both of these factors have been cited in recent studies (Chen et al., 2020; Harris & Lee, 2018). According to recent studies, access to care for underserved populations is enhanced, and racial issues and disparities in service delivery are reduced when minority populations are well represented in service sectors other than education (Cavanagh et al., 2023).

A diverse and welcoming learning environment benefits all students' education and enables universities to make use of the wealth of ideas, experiences, and abilities from all segments of society. Because of this, more and more universities are committed to drawing in highly skilled faculty, staff, and applicants from a variety of backgrounds, perspectives, and ideas. In terms of graduate programs, deliberate changes to admissions procedures, increased applicant numbers, and transparency of barriers to acceptance of people from diverse backgrounds should be taken into consideration. This paper aims to give insights into inclusiveness in graduate education and examine the admission procedures in developing countries.

Background

Being an association of nearly 500 universities granting graduate degrees, The Council of Graduate Schools (CGS) (2019) states that diversity, equity, access, and inclusion need to be supported for a nation to make their graduate education excellent. The reason for that it is both morally and economically necessary to foster diversity and inclusion in graduate education. Universities must recruit from a large pool of students who have the aptitude, interest, and determination to finish a graduate degree if a country is to grow, spur innovation, assure sustainability, and maximize impact. In other words, promoting inclusivity through attracting students from diverse backgrounds will contribute highly to the labor force of the countries.

Diversity

The term "diversity" refers to the characteristics that set each of us apart from the other people in the world, such as our histories, personalities, experiences, and beliefs. These traits all contribute to who we are, and it is the sum of our differences that determines how we see the world, how we approach problems, and how we behave (Deloitte, 2011). In other words, regardless of a person's sexual orientation, gender, age, race, religious affiliation, or ethnicity, diversity is about valuing and celebrating the unique perspectives and experiences that each individual possesses. In addition to this, it encompasses an infinite number of characteristics and experiences that are exclusive to the individual, such as modes of communication, professions, life experiences, levels of education,

regions, income, marital and parental status, and more (Chubbs, 2018). Characteristics of diversity include but are not limited to differences in gender, race, ethnicity, sexual orientation, nationality, age, ability, social class, religion, language, culture, ideas, institutions, and values. According to Swain (2013), universities typically view diversity through one of the following four lenses: representation, atmosphere and intergroup relations, curriculum and scholarship, or institutional values and structures.

The openness and democratic nature of society have been steadily improved by modern reforms and progress, and the ties between many cultures have gotten closer. Modern civilization increasingly reflects the variety in an era of globalization. The diversification of ethnic, racial, cultural, and lifestyle patterns is the main way in which this variety is seen (Zhang, 2019). Creating a community that reflects rich racial, cultural, and ethnic diversity is vital to any nation. Education itself is one important field that is influenced by the diversity of society. Especially, the university community is fed from this pluralism with lively scholarly discussions so that it advances in teaching and research. The diversity of the student body, teachers, and staff, who can share knowledge and provide support for one another, enriches the university. Respect and understanding are empowered and inspired by diversity and inclusion. According to Hutchinson and Hyer (2000), the concept of diversity needs to be included in the vision of an outstanding institution in a more appealing manner.

Most universities follow the same procedures to admit students to their graduate schools and it can sometimes cause problems in terms of lack of diversity of potential applicants from diverse communities. For example, according to the research, minority students' GRE scores often tend to be lower than those of their counterparts (Tapia et al., 2003). Because of this, minority students could be considered as less capable than their peers, academically by the admission committee. Aspray & Bernat (2000) and Tapia et al. (2003) have all emphasized that GRE scores are standardized assessments and unreliable indicators of success for students of color. In an effort to broaden student diversity, these researchers advise admissions committees to give more weight to other signs of promise.

Equity

Equity in higher education has multiple meanings. From an economic point of view, it indicates that regardless of their financial situation, all prospective students who meet the necessary requirements and have the necessary aptitudes should have access to higher education (Jacobs & Van Der Ploeg, 2006). According to Harper et al. (2009), a different viewpoint focuses on participation equality between socioeconomic or racial groups. According to this theory (Astin & Oseguera 2004; Harper et al. 2009; Niemann & Maruyama, 2005), the socioeconomic status (SES) and ethnicity/race of the student population in institutions of higher education should reflect the composition of the community from which the student body is drawn.

The premise behind many national broadening participation agendas is that regardless of social background, all students who have the capacity to benefit from higher education should have fair access to higher education. It is implied that the ability to gain from higher education depends on innate talent, aptitude, and/or intelligence and is unrelated to social, cultural, and educational disadvantages and disparities (Burke et al., 2016).

Access

Throughout history, three organizing ideas—inherited merit, equality of rights, and equity—have been responsible for shaping access policy (Clancy & Goastellec, 2007). Inherent merit, equality of rights, and equity are described as equality of opportunity. The initial concept of inherited merit is slightly distinct from the idea of "ascription," which refers to the qualities of access. Although admission is granted only to students who have demonstrated academic excellence and is therefore merit-based, this merit can be inherited and is heavily influenced by one's circumstances (Roemer, 1998). The place of birth can make future students better candidates as it provides the advantages of speaking a certain language and being familiar with an academic culture. According to Clancy and Goastellec (2007), this privilege is primarily about being a man, coming from an affluent household, and being in an urban setting. It appears as an undeniable fact that students who are members of a particular group that holds a dominating position in society have a greater probability of being academically opted. When it comes to providing instances, one can look to South Africa. Between the years 1830 and 1870, the province of Cape was home to South Africa's earliest universities. At those universities, the first students were the children of British immigrants. The Dutch created the first universities in Indonesia, and they were located in the country's capital city. These universities were accessible to the Dutch descendants as well as the descendants of the Priyai, an elite group of Indonesians who were submissive to the Europeans.

As the 20th century progressed, demographic, economic, political, and ideological pressures affected access (Goastellec, 2006), resulting in more and more abandonment of inherited merits and giving way to norms of

equality. There is a growing recognition that higher education should be accessible to more people, especially the ones from various social backgrounds. This criterion was first used in relation to the principle of equal access for women. Gradually, formal barriers related to gender and even ethnic/racial and social groups have been removed. The principles of equality rights, whether through open access to universities for all high school graduates (e.g., France, Germany, Israel) or through national entrance examinations (e.g., the USA, Indonesia, Vietnam), is challenged by relentless tenacity, and social background. The scope of access and type of higher education is determined by both opponents (see, for example, Bourdieu & Passeron, 1985; Bowen & Bok, 1998). For nearly two decades, the idea of access has been characterized by an equality of opportunity. Beyond formal equality, there is an increasing recognition of the need to consider differences in opportunity structures. It is recognized that performance-based accreditation needs to be complemented by some form of affirmative action (Clancy & Goastellec, 2007).

Inclusion

Supporting all young people in realizing their full potential in view of the considerable societal and private advantages that higher education provides is essential to achieving social justice and economic efficiency (Salmi & D'Addio, 2021). This can be accomplished by ensuring that inclusive access and success are achieved in higher education. A purpose like this lies at the heart of the United Nations' fourth Sustainable Development objective, which is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." The objective of education is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." Attending a postsecondary institution of learning has individual and private benefits, such as improved health outcomes, increased earning capability, and even an increase in overall satisfaction in life. The primary impetus behind the pursuit of the fourth Sustainable Development Goal set forth by the United Nations, which is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all," is found within this motivation. According to Salmi (2017), the individual and personal benefits of higher education include enhanced health outcomes, increased economic potential, and even higher levels of life satisfaction.

Some developed nations have been working toward the goal of establishing an inclusive community within their graduate education by drafting inclusive and diverse declarations with the intention of attracting prospective students. For instance, diversity statements are turning into a standard requirement for those seeking employment as faculty members in academic institutions in the United States. According to Willis and Schram (2023), there has been an increase in the number of requests for diversity statements, which indicates that prospective faculty members want to present evidence of their dedication to diversity, equity, and inclusion in the classroom. It has been demonstrated in a number of studies that the use of this strategy in graduate education results in positive outcomes with regard to the development of the research community in the future. According to Page (2008), when it comes to tasks that need creativity and/or problem-solving, diverse groups of inexperienced people usually perform better than homogenous groups of seasoned professionals. According to Francis et al. (2022), promoting racial and ethnic diversity in doctoral social work programs and, consequently, among faculty members can help boost the potential for social work research to have a transformative effect on society.

Excellence depends not only on access but also on building inclusive communities that respect differences and foster a sense of belonging. Graduate schools and graduate programs articulate a commitment to promoting diversity, equity, access, and inclusion, and these values support the achievement and engagement of all students. Graduate programs, graduate schools, and the universities they belong to need to scrutinize the evidence of what is being measured, evaluated, and rewarded. Along with funders of graduate education, we also need to invest time and resources to better understand policies and practices that promote diversity and inclusion (The Council of Graduate Schools, 2019). There is a rising interest in developing methods to broaden graduate admissions beyond a simple yes or no admissions decision across a range of graduate school programs. University admissions committees have started to broaden the scope of their admissions criteria in order to evaluate a graduate student's whole life cycle in the goal of greater fairness in the graduate admissions process (Francis et al. 2022).

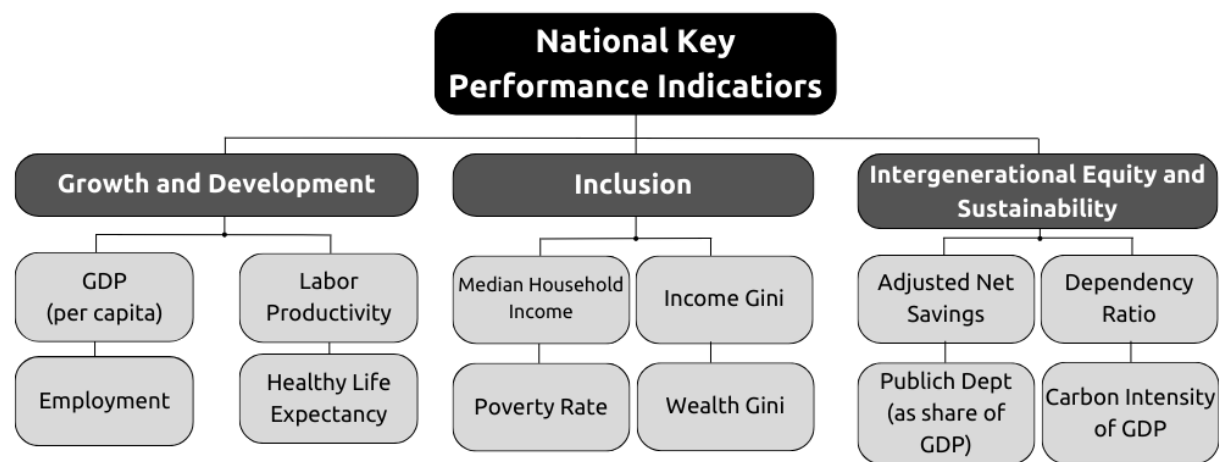
Compared to undergraduate programs, graduate programs should benefit from diverse backgrounds more. Universities, especially in developing countries, are expected to increase their efforts to recruit and assist women and minority graduate students in recognition that graduate students are the main source of future faculty. To realize that, firstly graduate admissions need to be redesigned to welcome those. In this sense, this research contributes to a larger body of scholarship by examining what employers reveal about their organizations through job postings. It is also possible via job postings to chart the changes in the field. The wording used in postings can also reflect 'who' is invited to apply for the position (Muir, Thompson & Qayyum, 2020). According to Thompson

et al. (2022), hiring for diversity begins even before the job description and advertisement are ever conceived. An organization's definition of diversity may be formally outlined in underlying paperwork like access and inclusion strategies (Muir & Carroll, 2020). Therefore, this research seeks answers to the following questions:

1. How are diversity and equity reflected in job advertisements?
2. What wording is utilized in job advertisements for early career academics and doctoral students to invite candidates from diverse backgrounds to apply?
3. Do the adverts contain language that could provide a barrier, and if so, what does it say?

METHOD

We conducted a document analysis of diversity and inclusion in the PhD postings. The Inclusive Development Index (IDI) by the World Economic Forum (WEF) created as an alternative to GDP, more accurately captures the standards to assess the economic development of their nations. The updated 2018 rankings present the results for the 103 economies classifying them into advanced and emerging groupings. The classification indicators for emerging and advanced groupings were mainly growth and development, inclusion, and intergenerational equity and sustainability. As we have the worldwide report of inclusion, we decided to take the first ten economies on the IDI to examine the patterns of inclusiveness in the graduate admission processes.



Source: World Economic Forum, *The Inclusive Growth and Development Report 2017*

Figure 1. *Inclusive growth and development key performance indicators.*

Considering the overall scores, the following ten economies were selected: Lithuania 4.86 (slowly advancing), Hungary 4.74 (Advancing), Azerbaijan 4.69 (slowly receding), Latvia 4.67 (advancing), Poland 4.61 (slowly advancing), Panama 4.54 (slowly advancing), Croatia 4.48 (slowly advancing), Uruguay 4.46 (stable), Chile 4.44 (stable), and Romania 4.43 (slowly advancing). To procure the requisite materials for graduate admittance, we conducted a comprehensive search on academic employment platforms. The following databases emerged as the most often consulted resources for identifying doctoral programs tailored to aspiring scholars: findaphd.com, academics.com, and seek.com. The encompassing analytical procedure involves the identification, choice, evaluation, and integration of data derived from various documents. The process of document analysis involves extracting data from many sources, such as excerpts, quotations, or complete passages, in order to examine job posts for the purpose of this paper. These data are subsequently categorized into primary themes, which are taken from the literature study, as well as from relevant categories and case examples. This categorization is achieved through the use of content analysis, as described by Labuschagne (2003).

FINDINGS

A total of 15 PhD positions offered in the countries selected above were elicited and imported into MAXQDA 2020 for document analysis. Wise et al. (2011) and Bernard and Bernard (2012) recommended four techniques for the methodical approach to analysing the wording of the postings. The techniques include highlighting, pile sorts, word counts, and important words in context. Using MAXQDA 2020, the key phrases in the existing datasets were highlighted in the way described by Bernard and Bernard (2012).

The body of recent research was explored in a variety of logical areas to identify the key diversity topics: equity, access, diversity, and inclusion. The essential concepts identifying diversity were discussed, contested, and

highlighted by the three team members by reviewing the literature. The study included word counts, and keywords were always detected when they looked relevant to the text's original information. The postings were classified and read by the three researchers several times to come to a conclusion on whether the advertisement contained an equal employment opportunity statement and whether it stated that people of all backgrounds were welcome to apply (e.g., "people with disabilities are invited to apply" or "people of all genders are welcome to apply") (Muir, Thompson & Qayyum, 2020). Finally, the four categories were coded as equity, diversity, inclusion and access. Starting from skimming (superficial examination), document analysis followed by reading (thorough examination), and interpretation.

We looked wording in the postings for inclusion, diversity, equity and access, besides the ones any possible hurdle wording. The requirement that is not immediately related to the job responsibilities given in the job description is known as hurdle wording. The requirement is an illustration of barrier language. After the initial pre-coding and data collecting the information was established into categories according to the research questions. Words and phrases that were used most frequently were opportunity, proficiency, supportive, equity, and quantitative. In order to compare and discuss the categories and developing or emerging themes, the research team met repeatedly during the study. It was the 'wording' that we concentrated on rather than the 'language' of postings to portray the organization. We mainly examined how welcoming advertising sounds to individuals from diverse groups; however, we did not examine how language might subtly or overtly transmit values or societal mores. Rather, we looked into the wording in the posting for the predetermined themes like access, equity, diversity and inclusion. Through the examination of access through the lens of inherited merit, equality of rights, and equity, as described by Clancy & Goastellec (2007), it becomes apparent that equity refers to the distribution of socioeconomic status (SES) and ethnicity/race within the community from which the student body is drawn. Variety can be defined as the distinct characteristics that distinguish individuals from one another, encompassing factors such as their cultural backgrounds, individual personalities, personal experiences, and belief systems. On the other hand, inclusion refers to the institutional strategies and policies that are implemented to embrace and accommodate variety. The present study utilized a coding framework to analyze the data, resulting in the identification of several codes and themes.

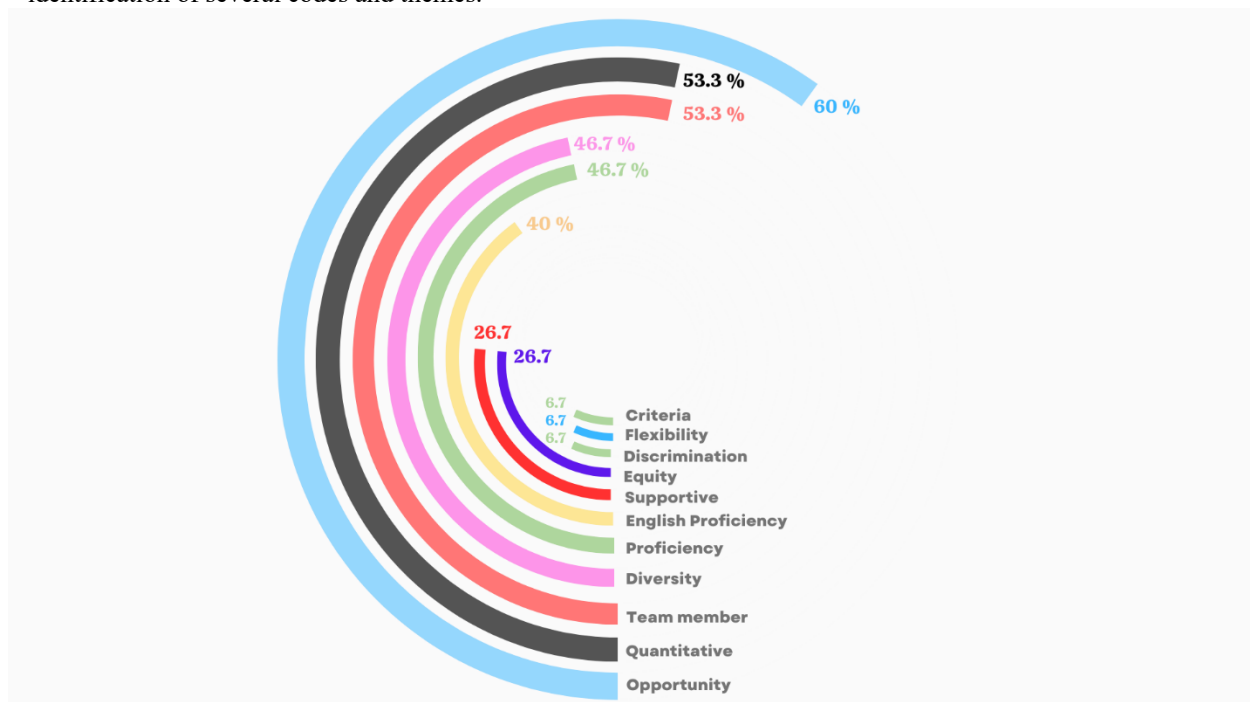


Figure 2. Codes and themes.

According to Figure 2 above the four categories revealed: equity (opportunity, criteria), access (proficiency, background), diversity (gender, nationality), and inclusion (working environment). Opportunity is the most used word in job postings. It refers to the learning, self-improvement opportunities, and the facilitating factors during the application process at the same time. Accepting applications via emails or online tools and providing equal opportunities for academic development are agreed to go under the theme of equity (87% - consistency rate of inter-coders). Proficiency levels and background information of the PhD candidates are put into the access theme. English proficiency and mastery of quantitative methods come up to be the prevailing and petitive requirements

in the analyzed documents. The researchers had a debate about whether the requirements could create a fallback for including diversity; however, the ultimate decision was that they overtly agreed about accessing the fitting program in accordance with the capabilities of the individuals (81%). For the diversity theme, we counted on words like *all...nationalities, gender, and background*. The diversification of the classes and lectures were also listed under this theme as given in the following sample: *It encompasses a broad range of subject matter and consists of required and elective classes in addition to lectures delivered by visiting professors who are experts in relevant research fields* (Poland7, Line9). Inclusion is characterized mostly by the features and facilities presented in the working environment. Being a team member (Poland11, 13), Poland13, 16), working collaboratively (Hungary, 16), vibrant, welcoming, supportive atmosphere (Poland2, Poland4, Poland10, Poland11) were categorized as statements referring to inclusion. It may be useful to interpret the findings according to the research questions.

Findings on how diversity and equity are reflected in PhD postings

First of all, it should be noted that the importance of the Inclusive Development Index may be attributed to the fact that it takes into account not only the growth of the economy but also the distribution of the benefits that come with that growth among the various parts of the population. Countries with high Inclusive Development Index ratings are more likely to have inclusive societies where people from all walks of life benefit from the nation's economic and social infrastructure. Therefore, in this study, doctoral postings in the developing countries with the highest scores in the Inclusive Development Index were examined in terms of diversity, equity, access, and inclusion. In order to reach the results of the first research question, how diversity is reflected in PhD postings was revealed with the words gender, discrimination, and nationality, and how equity is reflected was revealed with the words opportunity, team member, supportive, flexibility, and criteria.

We have reached several findings from the perspective of diversity. In the PhD postings, it is stated that the courses are given by lecturers and visiting professors from various fields and different nationalities and cultures. In addition, it was stated that the courses cover a comprehensive range of topics and that visiting professors offer courses in related research areas. The advertisements also emphasized the need to be willing to work in an interdisciplinary environment with a team of diverse scientists. We concluded that there is mostly no expression of discrimination in terms of gender or nationality in the PhD postings analysed.

In a PhD posting, there were statements about the acceptance of people with disabilities and the necessary documents. These expressions could also be interpreted in terms of diversity. This PhD posting aimed to prevent discrimination and provide equal opportunities for people with disabilities. The advertisement appeared to support the principle of diversity by emphasizing the issue of disability. While such a statement encouraged individuals with disabilities to apply, it aimed to reduce prejudices that might lead to discrimination by clearly stating their disability.

We have reached several findings from the perspective of equity. Equity is based on values such as equality and justice, and in our study, equality is reflected in codes such as opportunity, team member, supportive, flexibility, and criteria. Equity in PhD postings aims to increase the inclusiveness of postgraduate education. It ensures that candidates applying for PhD postings have equal opportunities regardless of their culture and background. Examination of the advertisements through the lens of equity reveals that the requirements are clearly, transparently, and obviously specified. As a result of the research, it can be said that doctoral advertisements use balanced and fair expression.

As a result of the research, it should be noted that the most emphasized word in PhD postings is opportunity. It is seen that opportunity is reflected in the advertisements in different contents. Most PhD postings offer candidates the opportunity to collaborate, work in teams, and become members of a research group. In addition, PhD postings provide candidates with opportunities for international courses, workshops, projects, and conferences, as well as regular courses. Finally, the most highlighted opportunities in the advertisements are the qualities of the work environment. These qualities are expressed in the advertisements as a supportive and inspiring work environment, accommodation in student dormitories, a great environment for research and development, well-equipped laboratories, a team environment, a friendly and welcoming work atmosphere, and a young, dynamic team.

In one of the advertisements, there is a remarkable application to be evaluated within the scope of equity. Giving the opportunity to send Motivation Letters via e-mail to the candidates who cannot attend the interview can be evaluated positively in terms of equality of opportunity.

Findings on job postings for early career academics and doctoral students to attract diverse applicants

Careful selection of language and wording in postings is essential to ensuring equality, diversity, and inclusion among candidates. As a result of the analysis made with this research, the advertisements for early-career academics and doctoral students were examined under the theme of access. At this point, candidates are required to have certain knowledge, skills, expertise, and qualifications. The wording used for early-career academics and doctoral students was reflected in our study with words such as proficiency, background information, and research methods. Proficiency levels, background information on the PhD candidates, and mastery of quantitative methods come to the fore among the expected candidate requirements. The level of proficiency mentioned in the advertisements is sometimes seen as proficiency in English and sometimes as proficiency in the subject knowledge in the relevant field. The quantitative methods mentioned in the advertisements are sometimes for laboratory research and sometimes as a requirement for methodological knowledge in various projects. In the job postings, candidates are required to submit an academic CV detailing their participation in academic projects, publications, scientific conference presentations, internships, awards, and scientific activities.

It has been revealed that advertisements that emphasize language proficiency, financial aid, and a lack of a tuition fee are more likely to attract qualified applicants. The language proficiency requirement has been interpreted as an effort to ensure fair treatment of applicants from all over the world because it applies to everyone. Announcing the language requirement of adverts in an open and transparent manner contributes to ensuring fairness. Candidates from low-income backgrounds are encouraged to apply due to the program's lack of financial aid and tuition fees. Candidates are afforded the same opportunities to apply to and participate in the program under the principle of accessibility.

Findings on whether the advertisements contain barriers

It can be said that the wording of the PhD postings examined within the scope of the research is generally quite inclusive. On the other hand, in one PhD posting, a photograph was required in the application file. Obtaining information about the candidate's race, gender, age, ethnic origin, or any other personal characteristics through the photograph can be considered a factor that will prevent the candidate from being evaluated impartially.

DISCUSSION AND CONCLUSION

A diverse and inclusive learning environment supports the educational process of all students and ensures that universities are nourished by a wealth of ideas, experiences, and talents from the entire community. As such, universities strive to attract highly skilled faculty and staff of diverse backgrounds, ethnicities, perspectives, and ideas. Enriching the experience of being on campus and increasing the sense of inclusion can be accomplished through activities such as supporting gender representation, promoting diversity, and welcoming students from various backgrounds. Aiming to provide insight into inclusion in graduate education and examine admissions procedures in developing countries, this research has several implications.

Conclusion on how diversity and equity are reflected in PhD postings

It can be concluded that PhD postings present an internationalization perspective because one of the points emphasized in the advertisements was that lecturers from different fields, countries, and cultures gave lectures. Regarding the subject, Altbach (2007) emphasizes that one dimension of internationalization is the exchange of faculty members, and Maringe and Gibbs (2009) emphasize that intercultural learning has a very important place, especially in student and faculty mobility. Similarly, Lamont (2009) highlights that diverse perspectives and experiences are highly valued because of the positive effect they have on the research community as a whole.

When doctoral adverts are evaluated in the context of diversity, they are expected to be free from statements that may cause discrimination on the basis of gender, ethnic identity and personal characteristics. Considering that science is a global endeavour and that different scientists carry out scientific activities on different topics in different parts of the world, the language of PhD adverts is expected to reflect all this diversity and to be written in a way that shows that different perspectives are valued.

PhD postings should appeal to everyone in the context of diversity. PhD postings should have a discourse where everyone feels well represented. More effective reflection on the issues of diversity and inclusiveness can be achieved through a more careful selection of language and expressions in the PhD postings. Emphasizing gender equality, non-discrimination, and different nationalities in PhD postings can reinforce the aim of providing equality and inclusion to candidates in the application process. It can be thought that these will contribute to the scientific

and cultural reputation of universities. Similarly, it can be stated that they will support human rights, equality, scientific and ethical values, and emphasize universal values.

Regarding equality, it was found that PhD advertisements emphasize opportunities for collaboration and teamwork and encourage candidates to participate in an environment of equality. This allows candidates of different abilities and backgrounds to come together and develop their ability to solve scientific and societal problems. Our investigation of the content of advertisements for doctoral programs in developing nations found that equity, access, diversity, and inclusion were the four primary topics revealed in these advertisements. Although statements regarding opportunity, access, and diversity were made rather frequently, statements regarding inclusion were made far less frequently. The study revealed that inclusion was an important part of the wording of postgraduate education advertisements in developing countries. However, it can be predicted that more efforts to create an inclusive learning and working environment will contribute to graduate education. Posselt's (2014) findings suggest that although diversity should be taken into account during the admissions process for graduate schools, this factor is frequently placed in a secondary position to more traditional forms of academic achievement.

Conclusion on job postings for early career academics and doctoral students to attract diverse applicants.

In conclusion, our examination of job advertisements targeting early career academics and doctoral students in the context of developing countries revealed certain patterns in the wording that was used to invite candidates from a variety of backgrounds to apply for the positions. It has come to light that the priority placed on linguistic competence, the availability of financial aid, and the absence of tuition fees are the primary factors that are more likely to attract applicants who are qualified.

Brain drain is generally observed in developing countries. Talented individuals tend to seize opportunities abroad for better living conditions. In this respect, the availability of financial aid, and the absence of tuition fees in PhD posts can be seen as a factor preventing the host country from giving a brain drain. This can protect the human capital of developing countries.

Conclusion on whether the advertisements contain barriers.

This research has uncovered that the language used in doctoral advertisements is not offensive and does not create barriers for candidates. Using inclusive language is essential to encourage candidates, give fair consideration, and provide equal opportunities to candidates with different abilities because promoting diversity, encouraging gender representation, and welcoming students from all nationalities are ways to enrich the campus experience and increase the level of inclusivity. According to Greyling (2009), the goal of inclusion is to remove obstacles to education so that all students can take part in their classes in a meaningful way.

Limitations

This study is limited to PhD positions in developing countries. Further research could explore the reasons for the differences in inclusion levels across different countries in developing regions and compare the advertisements of developed and developing countries.

Statements of Publication Ethics

The authors of this article assert that the research that they conducted does not contain any ethical conflicts or problems that could prevent the article from being published.

Researchers' Contribution Rate

The authors equally contributed to this study.

Conflict of Interest

The authors have no conflicts of interest to disclose.

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