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Chapter 1

THE RELATIONSHIP BETWEEN SCHOOL PRINCIPALS' LEVEL OF CONDUCTING SUPERVISION AND TEACHERS' PERCEPTION OF ORGANIZATIONAL JUSTICE AND ORGANIZATIONAL STRESS

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Introduction

Education is regarded as a crucial aspect of human lives, playing a significant role in structuring and simplifying social existence. The effectiveness and success of schools, where educational services are rendered, greatly influence the perceptions, attitudes, and behaviors of individuals within the organization. The extent to which activities in educational institutions align with established rules and desired objectives is discernible only through the process of supervision. Supervision entails overseeing activities to ensure they align with public interests (Luke et al., 2011; Lunenburg & Ornstein, 2013; Marczyk, 2002). Its primary objective is to assess how well an organization's goals are being achieved and to refine processes for enhanced outcomes. In line with these purposes, organizational processes are continuously and cyclically monitored as a whole, deficiencies are noted and the detected deficiencies are then tried to be corrected. Formal organizations differ from each other in terms of their purpose, process, qualifications of human resources and evaluation of results (Moswela, 2010; Rodgers & Keil, 2007). One of the organizations that have such differences is schools. As each school has their own peculiar aspects, this results in the fact that their supervision systems are also unique (Mohanty, 2005; Pajak, 1993; Wanzare, 2012).

A school system is in constant interaction with its environment. In this system, the supervision process for schools is a mediating tool to increase student success. It is due to the importance of this tool that the literature contains many different definitions about the supervision of schools. From a managerial point of view, the supervision of schools is defined as the inspection of everything related to the school's human resources and other objects in order to ensure and make the necessary alterations regarding the functionality of the school with a view to manage the realization of its educational goals. On the other hand, those who regard supervision as a program development activity define school supervision as the evaluation of the whole education program and the explanation of its teaching outcomes to the parents (Bainbridge et al., 2022; Tyagi, 2010). Those who consider supervision as a teaching process rather define it as the evaluation of actions taken for the development of the curriculum (Ngwenya, 2020; Sullivan & Glanz, 2015). Furthermore, when seen it is regarded as human relations, supervision is defined as a process that offers solutions to people's problems and develops suggestions for the system and its practices. All organizations must protect, develop and change themselves. For this reason, as in all complex organizations, supervision is a necessity in educational organizations as well (Dollarhide & Miller, 2006; Tulowitzki, 2019). The high level of organizational justice also facilitates organizational transformation (Sheeraz et al., 2021).

One of the prerequisites for schools to train and educate their students in the desired way is to be well managed. Then again, an integral part of this

good management is supervision. This is also inevitable as supervision is one of the important processes of management and it is also one of the duties of the principal. If the organization is too complex or a part of the work has become so in depth that it is beyond the principal's knowledge, supervisors may be appointed to assist the manager with the supervision tasks. Nonetheless, this transfer of authority does not remove liability on the principal's behalf. Consequently, the school principal has to supervise everything about the school because the school principal is the first person responsible for the development of education and training. This goal can only be realized through supervision (Kowalski, 2003; Peterson, 1995; Sergiovanni & Starratt, 1993; Waite, 1995). The types of supervision required from the school principals in the inspections they carry out are the inspection and supervision of the school's physical spaces, teachers and education. In order for school principals to be able to carry out these inspections, they must be well-equipped in both fields of management and inspection (Armstrong et al., 2004). Based on these definitions and explanations, it is among the duties of school principals to improve all the processes related to their school which can only be achieved by successfully fulfilling their supervisor roles. Therefore, as supervisors, it is of utmost importance for school principals to improve themselves for their roles in the practices and applications of professional assistance and guidance, education and assessment.

In recent years, significant changes and innovations have transformed the roles of school principals. Within this evolving landscape, school principals are now commonly recognized as educational leaders. This expanded leadership role encompasses the supervision of various in-class and out-of-class activities and the articulation of a vision for continual improvement in these areas. Consequently, school principals are increasingly required to step out of their offices to oversee all aspects of school operations, monitor classroom learning activities, and effectively utilize communication channels to engage with teachers, students, and staff. These actions are essential for establishing a fair and conducive working environment for teachers, who are crucial stakeholders in schools. Such efforts are aimed at attaining predefined goals and fulfilling the public's expectations for impactful schools.

Justice entails adhering to both rights and laws. Conversely, organizational justice signifies the consistent maintenance of ethical and equitable practices within an organization. In organizations that prioritize organizational justice, actions are scrutinized to ascertain their fairness and moral alignment. In this regard, whether the administrators in an organization are fair or not characterizes organizational justice (Aryee et al., 2002; Skarlicki & Folger, 1997; Pfeffer & Langton, 1993; Pillai et al., 1999; Whisenant & Smucker, 2009). There are different methods of ensuring justice among employees in an organization. These methods for the establishment of justice are generally

classified in terms of its distribution, procedure and interaction. Distributive justice pertains to employees' perception of the equitable allocation of an organization's resources and the impartial evaluation of their work relative to that of their peers. Procedural justice, on the other hand, revolves around the fairness of practices stemming from organizational decisions and employees' perception that the organization's actions are justifiable. Interactional justice, instead, is the expectations of the employees of the sincerity and respectfulness of the communication established with them during the implementation of organizational activities (Foley et al., 2002; Greenberg, 1990; Moorman, 1991; Qiu & Dooley, 2022; Scandura, 1999). Organizational justice serves as a fundamental factor influencing various aspects of employee attitudes. Factors such as job satisfaction, intentions to leave the organization, commitment to the organization, innovative behavior at work, organizational citizenship behavior, and job performance are all directly impacted by the level of organizational justice (Pan et al., 2018).

Ensuring organizational justice in schools would change the perspectives of the employees towards the organization and it would be possible to provide a qualified education (Contreras & Gonzalez, 2020; Hoy & Tarter, 2004; Poole, 2007). When this is not ensured, due to the incompatible conditions in the physical and social environment, teachers would have to make an effort beyond their physical and psychological limits and in the literature, this environmental stimulus affecting the individuals is defined as stress (Smollan, 2015). The word stress comes from the Latin "estricia" and was used in the sense of disaster, calamity and grief in the 17th century, but starting in the 18th century, it was mostly used in the sense of hardships, pressure, difficulties (Smallfield & Kluemper, 2022). In the literature, stress is defined as the effort that individuals exert beyond their psychological and physical limits in the face of maladaptive conditions that arise in their physical and/or social environment whereas work stress is defined as an undesirable phenomenon that can turn into a mental and physical illness as a result of an individual's inability to cope with physical stress sources (Dedahanov et al., 2016; Orloff, 2005).

The constant change of business life, and the emergence of uncertainties and economic difficulties in the organization are the main reasons of the factors that cause stress for employees (Dahl, 2011; Rennesund & Saksvik, 2010). Stress occupies a critical position in one's private and business life. The reflections of this stress in working life are defined as organizational stress (Cooper, 2000). A literature review reveals that although the sources of organizational stress are based on a wide variety of reasons, it is stated that organizational stress are generally caused by problems related to communication between colleagues and employers, general dissatisfaction, poor time management, limited opportunities and organizational incompatibility. Organizational stress can

cause many problems both in the work and social life of a person. When facing problems of these sort, employees may have difficulties in fulfilling the individual and organizational roles expected from them due to anxiety, tension and troubles in the work environment. These difficulties can cause health problems as well as problems in the functioning of the organization and educational organizations are at the forefront of institutions that contain many elements and processes that can cause stress (Briner & Reynolds, 1999; Conley & You, 2021; Doby & Caplan, 1995; Greenberg, 2004; Jamal & Baba, 2000; Randall et al., 2005; Weinberg et al., 2015).

Reflecting on the long-term impact of education, it is crucial for teachers to experience happiness and minimal stress in their professional lives to contribute effectively to building a content community. In this context, this research aimed to enhance the achievement of school organization goals and improve administrative efficiency by investigating teachers' perceptions of school principals' effectiveness in supervisory roles, as well as their views on organizational justice and stress. This multi-dimensional exploration of the aforementioned relationships is significant, particularly considering the lack of existing studies that examine these interconnections in the literature, highlighting the originality of this research. To probe into the dynamics between school principals' supervisory effectiveness, organizational justice, and organizational stress, several hypotheses were formulated. Based on these, a theoretical model (refer to Figure 1) was developed and subsequently put to the test.

H₁: The level of fulfilment of the supervisory duties by the school principals predicts the teachers' school stress perceptions positively and significantly.

H₂: The level of fulfilment of the supervisory duties by the school principals predicts teachers' organizational justice perceptions positively and significantly.

H₃: Teachers' perceptions of organizational justice predict organizational stress perceptions negatively and significantly.

H₄: Perceptions of organizational justice have a mediating effect on the relationship between school principals' level of fulfilling their supervisory duties and the teachers' perceptions of organizational stress.

Method

Research Model

This research utilized structural equation modeling (SEM) as its primary analytical tool in a relational study to investigate the connections between a school principal's supervisory responsibilities, organizational justice, and the sources of organizational stress. SEM was chosen due to its strength as a statistical method rooted in theoretical development, ideal for examining

variable relationships in relational studies (Byrne, 2010; Kline, 2016). (Byrne, 2010; Kline, 2016).

The hypotheses were developed on the basis of theoretical knowledge, and a model was proposed for the study of the relationships between the teachers' perceptions of the school principal's supervisory duty, justice in the school where they work, and their perceptions of sources of stress. The model is as shown is Figure 1.

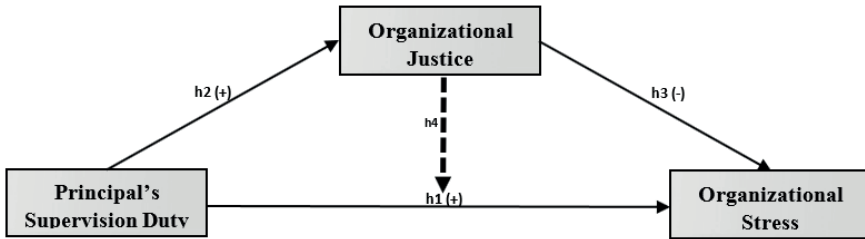


Figure 1 *Research Model*

SEM is a statistical technique which centres on correlation and regression analysis. It aids in assessing the relationships between observable variables and facilitates the empirical testing of theoretical models developed by researchers (Schumacker & Lomax, 2004).

Research Population

The study's participants were 347 voluntarily participating teachers from primary, secondary, and high school levels in Uzunköprü, Edirne during the 2021-2022 academic year. They were selected through the maximum variation sampling method, which seeks to identify common phenomena across diverse situations and explore different problem dimensions based on this variety (Büyüköztürk, 2013). Efforts were made to ensure the sample was varied, considering factors like gender, branch, professional seniority, and the type of school. Of the teachers, 56% (194) were female, 44% (153) male, 39% (136) form teachers, and 61% (211) branch teachers. Their professional experience ranged from 1-10 years (28%, 97 teachers), 11-20 years (41%, 141 teachers), to over 21 years (31%, 109 teachers). The distribution of their school levels was 39% (136 teachers) in primary, 33% (115 teachers) in secondary, and 28% (96 teachers) in high schools.

Data Collection and Data Collection Tools

For the collection of data, scales were carefully selected in order to satisfy the purpose of the study. In deciding the data collection tools, criteria such as the number of items, statistical feasibility over the total score, and practicability were

taken into consideration. Upon a literature review conducted by the researchers for this purpose, using the “Personal Information Form, Determining Principals’ Discharge Degrees of Supervision Roles Scale, Organizational Justice Scale and Organizational Stress Scale” to collect the data was decided. Requests and permissions to use the scales was obtained via e-mail to and from the scholars developing the scales. After obtaining the necessary legal and ethical committee permissions for the use of the scales, the schools where the teachers work were visited by the researchers and the teachers were informed about the research. Volunteer teachers were given sufficient time to fill in the form and scales. Further information on the validity and reliability values of each scale used in the research is explained below.

Determining Principals’ Discharge Degrees of Supervision Roles Scale

In this study, the ‘Determining Principals’ Discharge Degrees of Supervision Roles Scale,’ developed by Gündüz in 2017, was employed to assess teachers’ perceptions of how effectively school principals carried out their supervisory roles. This scale is divided into three subcategories: supervision of teachers, the educational process, and physical facilities. It features items measuring the frequency of principals’ execution of their supervisory duties, using a 5-point Likert scale ranging from ‘none’ to ‘many’. The scale’s reliability, previously established with a Cronbach’s alpha coefficient of .97, was recalculated in this study as .91. Furthermore, the confirmatory factor analysis performed as part of the research yielded goodness of fit (GoF) values ($\chi^2/sd=2.88$, NNFI=0.95, RMSEA=0.06, GFI= 0.92, CFI=0.96) that were considered acceptable according to standards set by Kline (2016), Schermelleh-Engel et al. (2003), and Schumacker & Lomax (2004).

Teachers’ Perception of Organizational Justice Scale

The ‘Organizational Justice Scale,’ developed by Niehoff and Moorman in 1993 and adapted for Turkish contexts by Polat in 2007, was utilized to gauge teachers’ perceptions of the school environment. Comprising three dimensions—distributive justice, procedural justice, and interactional justice—the scale’s items, aimed at depicting the school environment, were evaluated using a 5-point Likert scale ranging from (1) strongly disagree to (5) strongly agree. The scale’s reliability, as indicated by Cronbach’s alpha coefficients, was previously reported as .89 for distributive justice, .95 for procedural justice, .90 for interactional justice, and .96 overall. In this particular study, the recalculated Cronbach’s alpha values were .87 for distributive justice, .93 for procedural justice, .91 for interactional justice, and .93 for the scale in its entirety. The confirmatory factor analysis performed on this scale in the study showed that the GoF metrics ($\chi^2/SD = 2.11$, NNFI = 0.95, RMSEA = 0.05, GFI = 0.95, CFI = 0.95) all fell within an acceptable range (Kline, 2016; Schermelleh-Engel et al., 2003; Schumacker & Lomax, 2004).

Organizational Stress Sources Scale

The “Organizational Stress Sources Scale,” created by Pehlivan in 1993, was utilized to evaluate teachers’ perceptions of stress levels in their school settings. This scale encompasses six sub-dimensions, which are categorized as tasks, authority, production, clustering, role, and the cultural structure within the organizational framework. In the initial study, the scale’s reliability, as measured by the Cronbach’s alpha coefficient, was .87. In the present research, the Cronbach’s alpha was similarly found to be .86. The CFA performed in this study indicated that the GoF values ($\chi^2/SD = 2.94$, NNFI = 0.95, RMSEA = 0.07, GFI = 0.90, CFI = 0.95) were all within acceptable ranges (Kline, 2016; Schermelleh-Engel et al., 2003); Schumacker & Lomax, 2004).

Data Analysis

During the research, the collected data were systematically analyzed. Initially, the dataset was scrutinized for any missing or incomplete entries. This check revealed seven partially completed forms, which were subsequently removed from the dataset, leaving a total of 350 participants. Next, an extreme value analysis was conducted. Here, participants’ total scores were transformed into z-scores. Forms with standardized scores beyond 3.29, considered outliers as per Tabachnick & Fidell (2014), were excluded, resulting in the retention of data from 347 participants. The analysis was carried out using SPSS 18.0 and AMOS 23 software. For conducting structural equation modeling, it is essential for the dataset to exhibit normal distribution in both univariate and multivariate aspects (Byrne, 2010). To assess univariate normality, skewness and kurtosis coefficients were computed, with values ranging between +1 and -1 indicating a univariate normal distribution (Tabachnick & Fidell, 2014). For multivariate normality, the tolerance value ($1-R^2$), variance inflation factor (VIF), and condition index (CI) were evaluated. The absence of multicollinearity is suggested by a tolerance value above 0.2, a CI value below 30, and a VIF value under 10 (Büyüköztürk, 2013). The outcomes of these assessments are detailed in Table 1.

Table 1 *Skewness, Kurtosis, Tolerance and VIF Statistics for the Study’s Variables*

Variable	Skewness	Kurtosis	Tolerance	VIF	CI
Supervision Duty	0.697	0.563	0.37	5.21	6.521
Distributive Justice	-0.382	0.781	0.51	3.88	5.049
Procedural Justice	0.524	0.465	0.58	4.36	9.721
Interactional Justice	-0.412	0.856	0.61	4.01	4.263
Organizational Justice	-0.379	0.761	0.49	4.08	8.417
Sources of Organizational Stress	0.494	0.863	0.54	5.76	11.032

As seen in Table 1, the fact that the skewness and kurtosis values of the variables in the data set were within the range of limit values (-1, +1) and as per the tolerance ($>.02$), VIF ($< .10$) and CI (< 30) values also indicated, no multicollinearity problem was detected. These values met the normality assumptions to proceed to the analysis stage.

SEM is conducted in two distinct phases: the measurement model and the structural model. In this two-stage method, the phases are analysed independently. In this research, firstly the confirmatory factor analysis (CFA) of each latent variable was performed under the measurement model approach. CFA results for each variable were given under data collection tools. Also, the sub-dimensions of the scales can be taken as the total score and included in the model as the observed variable (Byrne, 2010). In this study too, latent variables were formed by taking the total score from the manager's level of fulfilling his supervisory duty, organizational justice and organizational stress scales. The maximum likelihood technique was used for the estimation of the created model. In opting for this particular technique, criteria such as the large sample size (more than 200), the fact that the variables were measured at least at the equal interval level, and that it met the assumptions of multivariate normal distribution (Byrne, 2010) were influential. Bootstrap analysis was used for the mediation test of organizational justice. Baron and Kenny (1986) mentioned some criteria regarding the influence role of the mediator variable. The criteria for this process include: (a) the independent variables must have a significant impact on the dependent variable, (b) the influence of the mediating variable on the dependent variable should be significant, and (c) the introduction of the mediating variable into the model should either diminish or potentially nullify the effect of the independent variable on the dependent variable. If its effect diminishes, it is then considered as a partial mediator and the roles of different mediators that contribute to this can be examined additionally. On the other hand, the strongest mediating effect occurs when the previously significant relationship between the independent and dependent variable is completely eliminated. In this research, these criteria were taken into account with a view to find out whether the role of organizational justice as a mediator in the relationship between the principal's supervisory role and the teachers' organizational stress level is partial or complete. The research findings were given under the titles of descriptive statistics, measurement model analysis findings, testing the structural model, and findings related to the mediation effect.

Findings

In this section of the study, the outcomes derived from conducting analyses to test the research hypotheses is reported. These analyses utilized path analysis, a technique within the realms of the measurement model and SEM. Table 2 displays the findings from the simple correlation test that was

executed to determine if a significant link exists between the extent to which school principals perform supervisory duties and the teachers' perceptions of organizational justice, as well as the variable of organizational stress managements.

Table 2 Results of the Correlation Test Between the Variables of the Study

Variable	\bar{x}	SS	1	2	3
1. School Principal 's Supervision Duty	2.45	.77	1		
2. Organizational Justice	3.85	1.10	.32**	1	
3. Organizational Stress	2.75	.91	.18**	-.20**	1

Note. * $p < .05$, ** $p < .01$.

The analysis of the data presented in Table 2 indicates significant correlations between the extent of school principals' fulfillment of their supervisory duties and the variables of teachers' organizational justice and organizational stress management. Closer inspection of the nature and strength of these relationships reveals a positive and moderate link between the school principal's supervisory role and the organizational justice variable ($r = .32$). Additionally, there is a positive but weaker association between the school principal's supervisory duty and the organizational stress management variable ($r = .18$). Furthermore, a negative and similarly weak relationship ($r = -.20$) is observed between the organizational justice and organizational stress variables.

Measurement Model Regarding the Variables of the Study

Before initiating the path analysis, it was essential to examine the measurement models of the scales used in the analysis through CFA. To this end, all paths between latent and observed variables in the measurement model were analyzed. In this model, the data from the scales employed in the research were collectively considered, and the resulting GoF values for this study's measurement model were calculated as $X^2 = 1450.12$, $SD = 345$, and $X^2/SD = 4.20$. Other relevant values determined were: $CFI = .91$, $SRMR = .06$, and $RMSEA = .068$. Based on these results, the fit of the data in the measurement model can be regarded as being at a good level.

Table 3 Estimated Values Regarding the Measurement Model of the Research

Tested Path		β	C.R.	
			(t value)	p
School Principal 's Supervision Duty	SD	0.65	14.37	.000*
Organizational Justice	OJ	0.81	17.90	.000*
Organizational Stress	S	0.59	14.95	.000*

Note. $p < .01$ * (SD: Supervision Duty OJ: Organizational Justice OS: Organizational Stress).

Data shown in Table 3 revealed that the standardized (β) coefficient values of the dimensions in the measurement model were between .59 and .81, and the t values were between 14.37 and 17.90, and all of the scales and dimensions were statistically significant. No intervention was required. As a result, the measurement model can be said to display an acceptable level of fit.

Analysis Findings Regarding the Research Model

The model created based on the theoretical model of the research is as shown in Figure 2. The standardized regression coefficients of this model and the values related to the significance of the regression coefficients are given in Table 4.

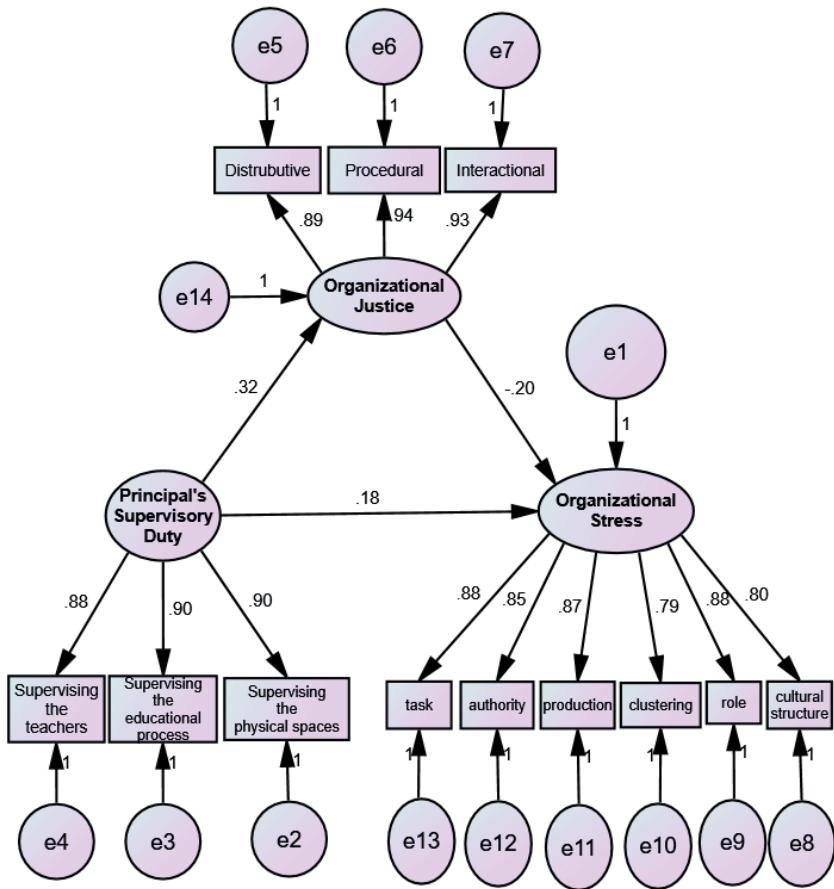


Figure 2 *Tested Model*

Table 4 Results and Estimated Path Coefficients of the Research Model According to the Path Analysis

Tested Path			Standardized (β) Coefficient	C.R.(t)	<i>p</i>
SD	→	OJ	.32	10.45	.000*
SD	→	OS	.18	4.49	.000*
OJ	→	OS	-.20	-6.28	.000*

Note. $p < .01$; $p < .05$ (SD: Supervision Duty OJ: Organizational Justice OS: Organizational Stress).

Table 4 shows that the t values of the model varied between 10.45 and -6.28. If t values for direct effects are greater than ± 1.96 , they can be to have a significant effect (Kline, 2016). Therefore, it can be agreed that all the paths between the variables in the research model were significant. Consequently, school principals' supervisory duties had a positive effect on organizational justice ($\beta = .32$; $t = 10.45$), as well as a positive effect on organizational stress ($\beta = .18$; $t = 4.49$), and finally organizational justice affected organizational stress in the negative direction ($\beta = -.20$; $t = -6.28$).

Upon analysis, the GoF values of the model were found as follows: $X^2 = 12.37$ $SD = 3$ and $X^2/SD = 4.12$, GFI = .92, AGFI = .91, CFI = .93, SRMR = .055. According to the fit indices of the model, the fit indices of all values can be claimed to be at an acceptable level.

Examination of the Mediation Effect in the Research Model

Within the scope of the fourth hypothesis of the research; direct, indirect and total effects were utilised in the interpretation of the results of the road diagrams drawn in the model. Bootstrap analysis was performed to examine the significance of these effects. In the bootstrap analysis, the 5,000 resampling option was preferred. Of the calculated path coefficients, the lower and upper limit values reached in the 95% confidence interval were examined. The tested paths and the lower and upper limit values reached for these paths were as presented in Table 5.

Table 5 Model Bootstrap Analysis Results

Tested Path	β	95% Confidence Interval	
		Lower Limit	Upper Limit
Direct Effect			
SD→OJ	.32	.25	.39
SD→OS	.18	.09	.27
OJ→OS	-.20	-.11	-.28
Indirect Effect			
SD→OJ→OS	.11	.10	.20

Note. SD: Supervision Duty OJ: Organizational Justice OS: Organizational Stress.

The path coefficients related to the tested paths in the bootstrap analysis and the lower and upper limit values of these coefficients in the 95% confidence interval are given in Table 5. In this context, it was found that none of the paths' lower and upper limits included the zero value and thus all roads were confirmed to be significant.

Accordingly, the fourth hypothesis of the research (H_4 : Teachers' perceptions of organizational justice play a mediating role in the negative relationship between school principals' supervisory duty and organizational stress management) was accepted.

Direct, indirect and total effects as standardized for the variables in the research model were as shown in Table 6.

Table 6 Standardized Direct, Indirect and Total Effects on the Research Model

	Organizational Justice			Organizational Stress		
	Direct	Indirect	Total	Direct	Indirect	Total
School Principal's Supervisory Duty	.32		.32	.18	.11	.29
Organizational Justice				-.20		-.20

Note. $p < .05$.

Analyzing the model's direct effects showed that the supervisory role of the school principal had an impact on teachers' perceptions of both organizational justice (.32) and organizational stress (.18). Additionally, a significant influence of organizational justice on the perception of organizational stress (-.20) was observed. Regarding the model's indirect effects, it was discerned that the supervisory responsibilities of the school principal had an indirect influence on the perception of organizational stress (.11). Upon reviewing the total effects within the research model, it was evident that the supervisory role of the school principal played a notable role in shaping teachers' perceptions of

organizational justice (.32) and organizational stress (.29). Furthermore, the effect of organizational justice on the perception of organizational stress was confirmed (-.20). The results related to the hypotheses developed for this study are concisely presented in Table 7.

Table 7 Findings Regarding the Research Model Hypotheses

Hypotheses		Result
H_1	The level of fulfilment of the supervisory duties by the school principals predicts the teachers' school stress perceptions positively and significantly.	Confirmed
H_2	The level of fulfilment of the supervisory duties by the school principals predicts teachers' organizational justice perceptions positively and significantly.	Confirmed
H_3	Teachers' perceptions of organizational justice predict organizational stress perceptions negatively and significantly.	Confirmed
H_4	Perceptions of organizational justice have a mediating effect on the relationship between school principals' level of fulfilling their supervisory duties and the teachers' perceptions of organizational stress.	Confirmed

Table 7 shows that all of the research hypotheses formed related to the theoretical model were confirmed.

Discussion, Conclusion and Suggestions

This study's primary goal is to examine a theoretical model that delineates the linear structural connections among teachers' perceptions of school principals' effectiveness in fulfilling their supervisory duties, organizational justice, and the levels of organizational stress. The model is based on the hypothesis that a school principal's supervisory role influences organizational justice, which in turn impacts organizational stress levels. Before putting this model to the test, descriptive statistical analysis was conducted on teachers' perceptions concerning the school principal's supervisory performance, organizational justice, and stress. This analysis included calculating the mean values and standard deviations for these three variables.

In the descriptive statistics revealed that the teachers had the perception that the school principals did not perform their supervisory duties adequately. This was also confirmed by Köybaşı et al. (2017). Some studies in the literature also emphasize that school supervisions are necessary for the improvement of schools and their educational activities (Hult & Segerholm, 2012) and that these supervisions must be carried out by the school principals themselves (Acheson & Gall, 2003; Williams, 2007). The results of this research showed similarities to those of Altahayneh et al., (2014) and Jameel et al., (2020), in

which teachers' perception of organizational justice was found to be at high levels. Another descriptive statistical result obtained from this research was that the teachers' views on organizational stress sources were moderate. While this finding is similar to those in Haberman (2004) and Van Dick et al., (1999), the research conducted by Oteer (2015) differs from this research in that it found the teachers to have a high perception of organizational stress.

The analysis results indicated a significant correlation between the total scores for the school principal's completion of supervisory tasks, organizational justice, and organizational stress. Regarding the latent variables in the model, it achieved good levels of GoF, confirming that the model is valid and well-fitted. The examination of the relationships between variables within the model revealed significant links between the principal's supervisory duties and organizational justice, as well as between organizational justice and organizational stress. In line with this, the study explored the connection between school principals' supervisory responsibilities and teachers' perceptions of justice and levels of organizational stress. The researchers developed and tested four hypotheses, drawing on theoretical insights and related research findings. The analysis concluded with the affirmation of all four hypotheses.

The first hypothesis of the study was formed as "the level of fulfilment of the supervisory duties by the school principals predicts the teachers' school stress perceptions positively and significantly". Accordingly, school principals fulfilling their supervisory duty had a positive and significant effect on teachers' stress perception levels, therefore the first hypothesis was confirmed. Thus, it can be stated that as the school principal's level of supervision over the teachers increases, organizational stress perceptions also increase. In this regard, the research conducted by Davis and Newstrom (1988) and Luthans (1992) also emphasized that the failure to perform the supervisory task effectively and correctly would increase organizational stress. Briefly then, the theoretical statement that the school principal's supervisory practices over the teachers, the teaching processes and the physical environments increase the teachers' stress level was also confirmed by the analysis findings. Blase (1986) stated that the most common sources of stress faced by teachers arise from organizational, student, administrative and teacher related factors. In his research, he stated that work stress causes negative emotions in teachers and that teachers would experience anger towards others as a result of dealing with work stress. Richardson (1988), who claimed that there to be a relationship between school principals' supervisory practices and teachers' professional burnout level, stated that teachers with a high perception of professional burnout define school principals as intervening and directing. In this respect, the supervisory and guiding practices of school principals can be considered among the sources of professional stress for teachers. Friesen and Williams

(1985), on the other hand, reached the conclusion that the main factors that caused professional stress to teachers were; role overload, relationships with students, workload and relationships with their colleagues. Studying the preventive effects of supervisor support on these stress sources, Himle et al., (1989) reported that stress due to role conflict, workload and role ambiguity could be reduced by instrumental support, stress caused by role conflict could be diminished through emotional support, and stress caused by workload, as it was found to be related to anxiety, could be reduced with informational support.

The second hypothesis was stated as “the level of fulfilment of the supervisory duties by the school principals predicts teachers’ organizational justice perceptions positively and significantly.” Based on the analyses made, it was concluded that the school principals’ level of fulfilling their supervisory duty had a positive and significant effect on teachers’ organizational justice perception levels, so the second hypothesis of the study was confirmed as well. Similarly, it was stated by Poyraz and Kara (2009) that participatory and effective supervision positively affects organizational justice. In this context, it can be stated that the school principal’s supervisory practices over teachers, teaching processes and physical environment affect teachers’ perceptions of justice in schools positively. Thus, it can be said that the effective and sufficient supervision by the principal increases the perception of justice throughout the school.

The study’s third hypothesis posited that teachers’ perceptions of organizational justice would negatively and significantly predict their perceptions of organizational stress. The analysis confirmed this hypothesis, revealing a negative and significant influence of teachers’ perceptions of organizational justice on their levels of organizational stress. This finding indicates a negative, though modest, correlation between teachers’ perceptions of organizational justice and their stress levels. Consistent with this outcome, research by Greenberg (2004) and Lambert et al. (2007) demonstrated that unfair practices within an organization escalate the perception of organizational stress. Sert et al. (2014) highlighted a negative connection between distributive and procedural justice and organizational stress. Judge and Colquitt (2004) identified procedural and interpersonal justice as having the most substantial links to stress, mediated by conflicts in work and family life. In these research findings, a perception of justice was linked to reduced stress levels. Furthermore, Vermunt and Steensma (2001) noted that injustice within an organization is a significant stressor. Thus, it is widely believed that unfair behaviors and practices in school environments contribute to increased organizational stress. Conversely, it is argued that the stress levels among teachers can be alleviated through fair practices by principals, such as equitable task distribution, encouraging teacher participation in decision-

making and management, and fostering effective communication and interaction. In summary, this study established that the supervisory actions of school principals positively influence both organizational stress and justice, with the perception of organizational justice in turn negatively impacting the perception of organizational stress.

The fourth hypothesis of the study was stated as “perceptions of organizational justice have a mediating effect on the relationship between school principals’ level of fulfilling their supervisory duties and the teachers’ perceptions of organizational stress.” In this regard, bootstrap analysis was conducted for the mediation test of the principal’s level of fulfilling his supervisory duty, organizational justice and organizational stress variables. The analysis revealed that the indirect relationships among the variables were significant and aligned with expectations. According to the model, the school principal’s effectiveness in supervisory duties had a significant indirect effect on organizational stress. Furthermore, organizational justice served as a mediator in the relationship between the principal’s supervisory duty and organizational stress. In essence, the supervision exercised by the school principal influences teachers’ perceptions of organizational justice and their stress levels. Specifically, as the school principal’s supervisory practices intensify, it enhances the teachers’ sense of justice, which in turn diminishes their stress levels. Therefore, the principal’s supervisory role indirectly impacts teachers’ stress levels through organizational justice, although this indirect effect is less pronounced than the direct effect. Ultimately, it can be inferred that enhancing teachers’ perceptions of justice in school practices can also alleviate the stress associated with supervision.

Limitations

Certainly, this research had some limitations that should be noted. The model created was based on the theoretical knowledge that principal supervision would be a source of organizational stress as well as an important influencer of organizational justice. The direct and indirect links in the proposed model presented a causal inference that assumed supervision to increase organizational justice and that increased organizational justice would reduce the level of organizational stress. For this model which was built on a theoretical basis, longitudinal data were collected over a period of three months. Although it can be stated that the model fitted well with this cross-sectional data, however, these data did not fully allow for causal inferences. Reconducting the research with different samples may be helpful in this regard. Another limitation was that the analyses for detecting the direct and indirect relationships between the variables were carried out on the total score of the latent variables.

Suggestions for Future Research

In order to create an environment in which the right decisions can be made for practical development of schools and the improvement of their existing facilities, more emphasis should be placed on the complex nature of the organizational aspects of schools that impede teaching and learning. This paper studied the direct and indirect effects of the school principal's supervisory duty on teachers' organizational stress levels and perceptions of justice. In conclusion, it was found that the supervision by the principal would increase the stress level of the teachers, but on the other hand, it was also observed that the stress level could as well be reduced thanks to the increased perception of justice in the school environment. The fact that the samples and analyses included in the research were carried out over the total score for the variables points out to the limitations of the research. In order to remedy this, future researches can be carried out to study the direct and indirect relationships of the manager's supervisory duty (teacher supervision, supervision of educational process, supervision of physical spaces) in the context of organizational justice (distributive, procedural and interactional) and the sub-dimensions of organizational stress sources (task, authority, production, clustering, role and cultural structure) in more detail. Future research may as well develop a model that includes these variables. In conclusion, more research is needed to reveal the effects of these three dimensions of justice on organizational stress. Also, the structure revealed among the variables can be applied to different institutions and different sample groups. The data to be obtained from that future research can be compared with the results of this research so that the effects of different variables can be examined in more detail.

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Chapter 2

THE IMPACTS OF EARTHQUAKES ON EDUCATION TRAINING

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INTRODUCTION

Disasters are undesirable situations that occur when natural, human and complex factors come together and stop or interrupt the normal life and actions of human beings. These events usually occur suddenly and unexpectedly and adversely affect human life with the effect of various environmental factors. Similarly, earthquakes, which are among natural disasters, have a destructive effect on both ordinary life and many areas such as health, mental health, economy and education. In this context, it is especially important to analyze the effects of earthquakes on education and training in order to understand the profound effects of earthquakes on human life and society. In addition, it is necessary to determine the effects of earthquakes on education in order to establish resilient education systems, to ensure the continuity of education and to ensure the safety of students and education personnel. Therefore, in this section, information compiled from current sources on natural disasters and earthquakes, the effects of earthquakes on education and training, and post-earthquake measures and solution proposals in education will be presented.

1. Natural Disasters & Earthquake

Disaster can be characterized as small or large-scale disasters that occur due to natural or human factors and adversely affect people's life, safety, psychology, biology, philosophy, health, economy, education, future and many actions in general. In the dictionary published by the United Nations Humanitarian Assistance Office within the scope of disaster management, the concept of disaster is defined as events that cause a serious disruption in social functioning by causing significant losses on human and environment (UNDHA, 1992). According to the World Health Organization, disaster is the serious disruption of the functioning of a community or society at any scale as a result of a number of dangerous events and the emergence of human, material, economic and environmental losses and impacts (WHO, 2020).

Among the elements frequently emphasized in the general definitions put forward within the scope of the concept of disaster are loss of life and property, damage to animals, disruption of social order, shaking of ecological balance, disruption in health services, environmental destruction and social and psychological effects (Gündüz, 2022). Therefore, disasters cause great damage to the societies and regions where they occur and lead to irreversible processes. Moreover, in order for an event to be characterized as a 'disaster', it must cause losses on human communities and settlements, stop and/or interrupt human activities (Gökçe & Tetik, 2012). From this point of view, in the process of understanding and defining the nature of disasters, it is of great importance to consider the effects of natural disasters such as floods and earthquakes, and especially to raise a society resistant to earthquakes.



Figure 1. Some unfavorable situations experienced as a result of natural disasters

The world harbors many natural cycles with various internal dynamics and hosts many natural disasters, especially tectonic movements, climate changes and volcanic activities. At this point, compared to other natural disasters, earthquakes in particular pose a serious threat to society with loss of life, material damage, economic losses and psychological effects. In other words, earthquakes are characterized as important events that deeply affect both human life and environmental balance among natural disasters (Sarigöz, 2023). Due to its geographical location, our country has witnessed a series of devastating earthquakes throughout history. Especially major earthquakes such as Erzincan (1939), Van (1976), İzmit (1999), Düzce (1999), Van (2011) and Kahramanmaraş (2023) clearly reveal this fact (AFAD, 2024). In fact, according to Disaster Management and Natural Disaster Statistics (2018), earthquakes are characterized as the natural disaster causing the highest loss of life and property in Turkey. Therefore, as a result of living in a country

located on a fault line and with a high earthquake risk, raising awareness about earthquakes and reducing earthquake-related damages has become a basic necessity for these countries (Okutkan & Gün, 2023).

2. Effects of Earthquake on Education and Training

Earthquakes damage the physical infrastructure, cause loss of life and property, have social, psychological and economic consequences and negatively affect social life (Ögenler et al., 2024). In other words, earthquakes are not only limited to physical effects, but can also have deep mental and psychological effects on people (Turhaner & Polat, 2023). According to Bıçakçı and Okumuş (2023), earthquakes cause traumatic experiences in individuals, cause intense feelings of fear and create an unpredictable, uncontrollable and destructive effect. From this point of view, it can be said that depending on the magnitude of the disaster, people's psychological state, social relations, living places or conditions and economic conditions (Baş & Sarıgöz, 2018; Cengiz et al., 2015; Sarıgöz & Çermik, 2012; Yavas, Aygun & Ulak, 2021) will vary greatly.

In addition to other destructive effects, earthquakes have negative consequences that can radically affect individuals' right to education (Tüzün, 2023). According to Feriver and Arık (2021), especially natural disasters such as earthquakes and floods affect education systems as well as all other systems in a multifaceted way, making it necessary to radically change each component of education. In this context, it is undeniable that earthquake brings along a series of factors that will prevent education and training processes (Arslan, 2023; Özdemir, 2024; Sarıgöz, 2023; Telli & Altun, 2023; Turhaner & Polat, 2023). The study conducted by Paudel and Ryu (2018) examined the effects of the 1988 Nepal earthquake on education and found that the attendance and completion rates of students in the earthquake-affected areas were relatively lower. On the other hand, Wang, Yang, and Li (2017) concluded that access to education decreased after the 7.8 magnitude disaster in Tangshan province of China. It is seen that the earthquake creates a serious obstacle in terms of benefiting from educational opportunities and causes disruption of education and training processes.

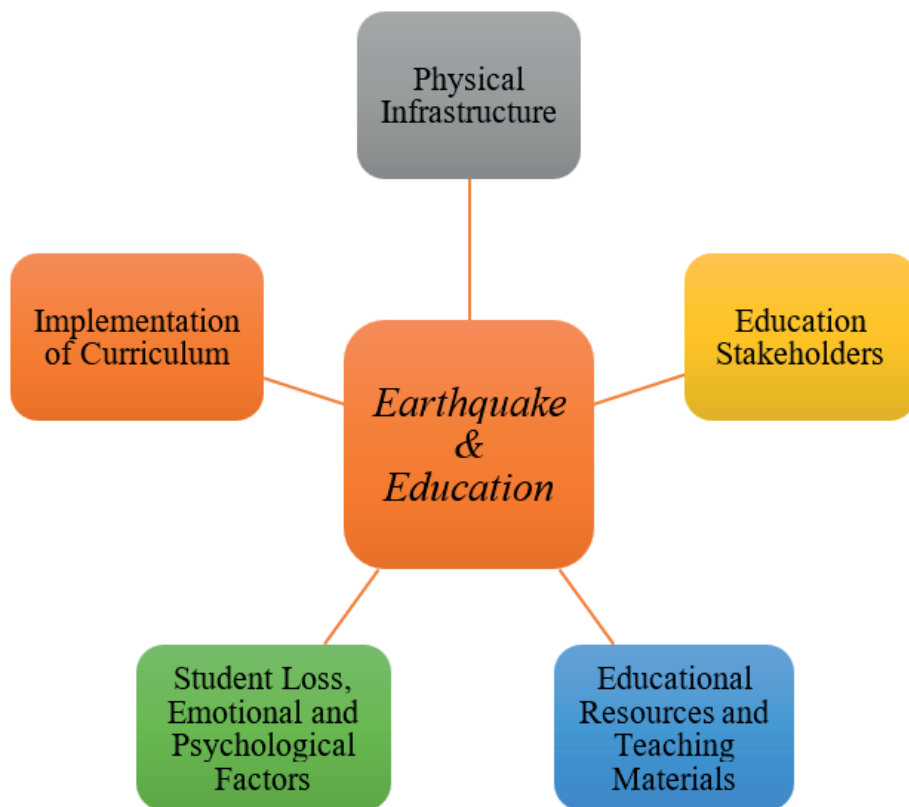


Figure 2. Effects of earthquake on educational environments

As seen in Figure 2, earthquakes have a series of negative effects such as *damaging the physical infrastructure of the school, causing loss/deficiency of educational stakeholders, restricting access to educational resources and teaching materials, causing student loss and emotional/psychological problems, and disruption of curriculum* (Ögenler et al., 2024; Polat & Sarıçam, 2024; Turhaner & Polat, 2023).

2.1. Physical Infrastructure

Earthquakes cause significant damage to school buildings, classrooms and educational facilities where education and training processes are carried out. This situation leads to the temporary closure of schools, causing students to interrupt education and a serious interruption in the learning process (Ögenler et al., 2024). In this context, Richardson et al. (2015) clearly stated that a series of earthquakes that started on 4 September 2010 in the Canterbury region caused significant infrastructure damage in education

and training activities. However, after the Kahramanmaraş earthquake on 6 February 2023, it was determined that 72 (428 classrooms) of the 8,162 educational buildings inspected were destroyed; 504 (3,739 classrooms) were heavily damaged, 331 (3,696 classrooms) were moderately damaged and 2,533 (30,961 classrooms) were slightly damaged. In addition, it was stated that a financing of 39.68 billion TL (2.11 billion USD) was needed for educational institutions to become operational again (Gökçe & Tetik, 2012). Considering the thousands of casualties and material damage in these earthquakes, which affected many provinces, especially Kahramanmaraş, it is once again evident how destructive earthquakes are. Therefore, the construction and regular maintenance of earthquake-resistant and reinforced educational structures is of critical importance in terms of improving the quality of education and ensuring educational safety and continuity.

School buildings, as physical spaces that form the basis of student and teacher interaction, contain a number of features and significantly affect students' attitudes and moods towards lessons (Uludağ & Odacı, 2002). At this point, it can be predicted that students whose schools are damaged or destroyed as a result of an earthquake will develop a negative attitude towards lessons and will face various problems in accessing and continuing education. Therefore, necessary precautions should be taken based on the destructive effects of earthquakes on educational buildings and the infrastructure of education should be made durable. In particular, the preparation of pre-earthquake structural retrofitting and emergency plans, making educational institutions earthquake resistant and thus minimizing the damage that may occur after an earthquake are critical for the sustainability of educational activities. In this respect, the authorities should effectively carry out the necessary planning, financing and implementation processes for the construction of earthquake-resistant school buildings.

2.2. Education Stakeholders

Injury or loss of life of educational personnel in disasters may have negative effects on the functioning of educational institutions (Değerliyurt, 2023). The loss of educational staff as a result of such tragic events creates a significant gap in educational institutions and disrupts the continuity of education. Moreover, this situation deeply affects the educational staff emotionally and psychologically and reduces their capacity to continue to work. In addition, the loss of life of teachers or administrative education personnel may cause emotional and psychological distress among students. In fact, psychological reactions such as stress disorder, fear, grief, anger and guilt can be observed in individuals who witness a traumatic event such as an earthquake (Filiz et al., 2023). These emotional difficulties cause a decline in the academic performance of students (Sarigöz, 2008) and greatly reduce their learning abilities (Yavas & Celik, 2020).

In order to increase the quality of post-earthquake education services, education personnel should be supported psychosocially and encouraged to participate in the necessary training before the earthquake (Ögenler et al., 2024). Furthermore, according to Karabatak and Alanoğlu (2023), psychosocial support and guidance studies should be carried out for education stakeholders to manage post-earthquake trauma. Moreover, the number of psychological counselors in schools should be increased in order to prevent problems arising from emotional and behavioral disorders in earthquake zones (Polat & Sariçam, 2024); counselors and teachers in this field should be specialized especially in psychosocial intervention and coping with trauma (Bayhan et al., 2023).

2.3. Educational Resources & Teaching Materials

The use of materials in education contributes to the success of the curriculum by creating an effective teaching environment (Şahin, 2015). Unfortunately, earthquakes restrict access to educational resources and teaching materials and prevent students' participation in the educational process to a great extent. Moreover, since the emergency aid and rescue efforts carried out immediately after the earthquake focus primarily on the protection of human life, issues such as the provision and distribution of teaching materials remain in the second plan and become time-consuming. Similarly, teachers working in container classrooms after the Kahramanmaraş earthquake on 6 February 2023 stated that the materials used for teaching and learning were inadequate (Polat & Sariçam, 2024). According to Ögenler et al. (2024), Asandas and Hacicaferoglu (2021), classroom materials, textbooks and educational materials are damaged or lost during earthquakes, which severely restricts students' access to basic learning resources. In addition, the loss of access to resources such as libraries, laboratories, gymnasiums, and music and art rooms after the earthquake seriously hinders students' access to knowledge and hands-on learning experiences. Music, art and sports resources and activities can make positive contributions to the social integrity of individuals (Hacicaferoglu et al., 2017). At this point, according to Güneş (2023), fixing the shelves in libraries after the earthquake will prevent situations such as falling books and collapsing shelves and reduce the risk of damage. In addition, emergency plans should be created and cooperation should be carried out between education stakeholders in order to prevent the restriction of access to educational facilities after an earthquake.

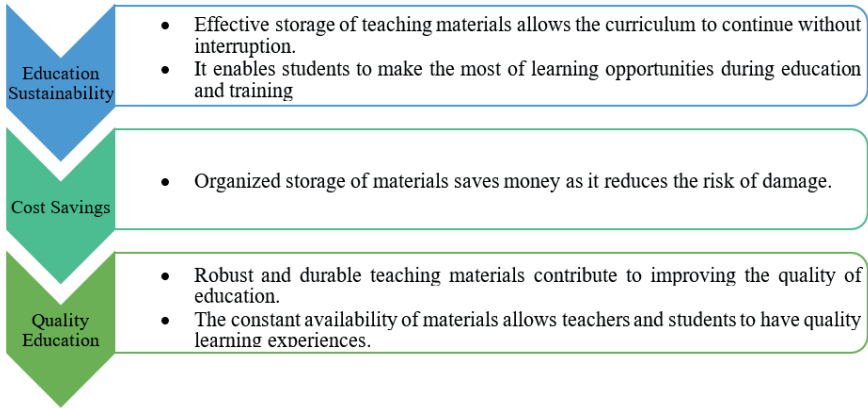


Figure 3. Things to be considered about materials in earthquakes

According to Karabatak and Alanoğlu (2023), educational materials should be produced by preferring earthquake-resistant materials and storage and protection methods of such materials should be developed. Materials should be strengthened by carrying out periodic control and maintenance work at regular intervals, fixing systems should be checked and renewed when necessary. Thus, educational resources and teaching materials, if appropriate controls are carried out, contribute to the continuity of education, provide cost savings and support the creation of qualified educational environments.

2.4. Student Loss, Emotional & Psychological Factors

Natural disasters such as earthquakes have become an integral part of human life and seriously threaten the ordinary flow of society. These disasters have often caused great loss of life, injuries, disintegration and homelessness of many families (Yıldız, 2000). Cankardaş and Sofuoğlu (2019) state that these earthquakes that occur unexpectedly have a direct impact on the mental health of individuals as well as physical destruction. From this point of view, after the 6 February 2023 Kahramanmaraş-based earthquake, which caused a great destruction in eleven provinces in total, many lives were lost and individuals were negatively affected both physically and mentally. In a study by Koçer and Koçak (2024) examining the relationship between the 2023 earthquakes and the psychological states of students, it was concluded that the rate of anxiety seen in individuals in the earthquake zone was higher than individuals outside the earthquake zone. In parallel with this, mood disorders such as distraction, insomnia, stress disorder, emotional numbing and indifference to the environment were found in students after the earthquake (Ögenler et al., 2024). Therefore, such traumatic experiences affect students' mental and emotional health in a wide range and lead to a decrease in their academic

success. In the light of all this information, it is vital to provide psychosocial support to students and to create a safe and supportive teaching environment in order to increase the quality of post-earthquake education services and to reduce the emotional and psychological effects of the earthquake. Especially in order to eliminate anxiety in children, contributing to sporting activities will provide positive contributions to children (Hacicaferoglu et al., 2015).

Improvements to be made within the framework of education systems include the development of psychosocial support and guidance programs for students, teachers and family members to cope with earthquake trauma (Doker & Yiğit, 2023; Karabatak & Alanoglu, 2023). In this context, after the earthquakes centered in Kahramanmaraş, the Ministry of National Education initiated psychoeducation practices in addition to curriculum-based education, and the attendance obligation for disaster-stricken students was abolished. In addition, psychosocial support services were provided to strengthen the mental health of students (MEB, 2023). Students who are victims of earthquakes face many serious problems such as post-traumatic stress disorder, introversion, stress, anxiety, depression, tidal emotions and behaviors, suicidal tendencies and thoughts, and pessimism (Atalay, 2023). Therefore, it is an undeniable fact that this approach aims to eliminate social and psychological problems that may arise after the earthquake.

According to Sönmez (2022), the first intervention in mass traumas such as earthquakes is to provide psychosocial support called 'psychological first aid'. In other words, humanitarian aid (security, water, shelter, food, cleaning, etc.) and support services should be provided to disaster victims, and they should be given access to medical care and social services (Sönmez, 2022). At this point, various behaviors such as apathy towards daily activities, unwillingness to go to school, negative peer relations, angry behaviors and failure are observed especially in school-age children (Dursun, 2023; Yavas & Celik, 2010). Therefore, teachers and educational administrators should understand the psychological and emotional needs of children and create a safe educational environment in order to cope with such post-earthquake behaviors. In addition, teachers should organize various events and activities to support the normalization process of students and create a classroom atmosphere where students can express their feelings and thoughts openly. Moreover, family participation in these processes should be encouraged and families should be made aware of understanding and supporting the emotional needs of children.

2.5. Implementation of Curriculum

Interruption and/or disruption of education and training activities due to the earthquake negatively affects the completion of the curriculum and the proper execution of the curriculum. At this point, destroyed or damaged educational buildings, losses in educational resources and the traumatic effects

of the earthquake disrupt the normal flow of curriculum and even cause delays in the implementation of the academic calendar (Ögenler et al., 2024). After the Kahramanmaraş earthquakes, which were labeled as the ‘disaster of the century’, the Council of Higher Education (YÖK) decided to provide distance education for a while (Kara et al., 2024) and took various steps to ensure continuity in education. Thus, in disaster situations such as earthquakes, teachers had the chance to transfer their lessons to students through relevant teaching platforms using online learning methods (Telli & Altun, 2023). This situation reveals the necessity of restructuring curriculums, adopting a flexible education approach, and using innovative teaching methods and techniques in order to improve the quality of post-earthquake education services.

Earthquakes prevent the regular execution of the education curriculum and cause temporary suspension or interruption of educational activities. This situation may cause students to be inadequate in achieving the learning objectives set by the curriculum. In other words, the disruption of curriculums may lead to students’ inability to fully comprehend the curriculum and learning deficiencies (Ögenler et al., 2024). After earthquakes and technological pollution caused by them, in order to ensure quality and equality of opportunity in education, education programs should be restructured and distance education technology (Sarigöz, Karakuş & İrak, 2012; Sarigöz, 2014) and similar alternative teaching methods should be used within the scope of educational practices.

3. Post-Earthquake Measures & Solution Suggestions in Education

The restructuring of education systems is of great importance to prevent crises caused by natural disasters affecting large masses in the world (Türkkaş-Anasız, 2024). Considering the reconstruction of institutions or organizations damaged in the earthquake, the emotional and psychological effects of the earthquake on educational staff and students, the obstacles in accessing teaching resources and the difficulties in implementing educational programs, it is predicted that the effects of a natural disaster such as an earthquake will last for many years (Kara et al., 2024). In line with the damages caused by earthquakes, individuals can immigrate to different places by considering environmental conditions, or they can learn to live with earthquakes by staying in existing settlements depending on scientific and technological advances (Akpolat et al., 2021). Therefore, various measures should be taken to minimize the effects of disasters and increase social resilience.

It is of vital importance to understand how earthquakes affect the education system and other education stakeholders, especially students and teachers, who are the active participants of the education process, and to take necessary measures accordingly. In this context, educational institutions should be structurally strengthened and made earthquake-resistant in order to overcome the physical damages caused by earthquakes. In addition,

educational resources should be digitized and backed up for post-earthquake use. In this process, in order to minimize disruptions in education programs, flexibility should be given to programs and distance education opportunities should be developed. On the other hand, at the point of eliminating the deep psychological and emotional effects of earthquakes on teachers, students and educational stakeholders, guidance and psychological support services, emergency planning, and studies to increase earthquake awareness and consciousness should be put into practice (Arıcı et al., 2023; Özdemir, 2024).

Under crisis conditions such as earthquakes, a qualified education system that can respond quickly and reasonably to the diversifying needs of teachers and students and that can show flexibility against ever-changing challenges should be built (TEDMEM, 2023). In other words, education systems, especially in earthquake-prone regions, should be structured based on up-to-date and scientific knowledge and should be able to respond quickly and effectively to natural disasters (Türkkaş-Anasız, 2024). In this context, the suggestions developed at the point of building a resilient education system after an earthquake are listed below (Karabatak & Alanoğlu, 2023; Karabulut & Bekler, 2019).

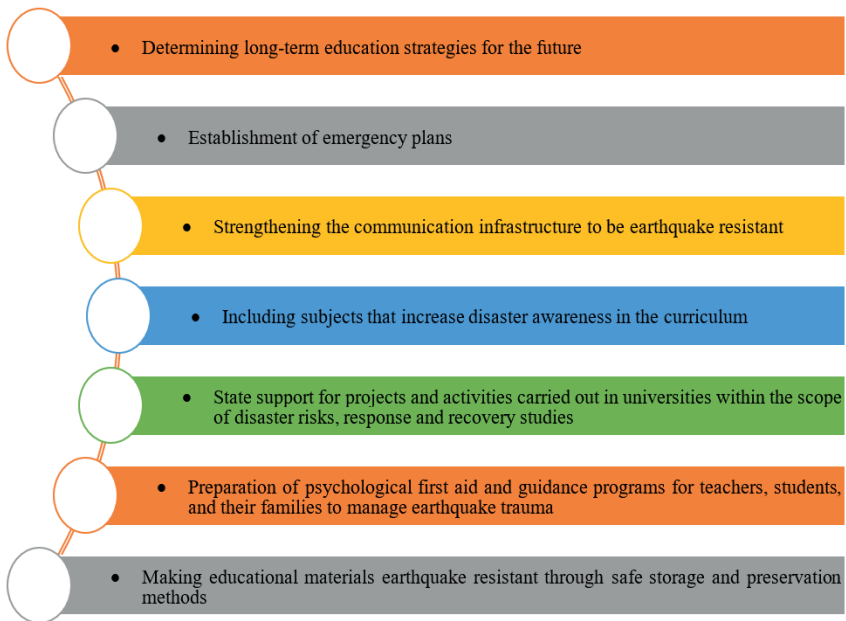


Figure 4. Some recommendations for a resilient education system

Other measures taken to reduce the effects of earthquakes on education and training include strengthening the physical structures of educational facilities to make them earthquake-resistant, conducting regular drills, providing various seminars to increase the disaster awareness of teachers and other educational personnel, and developing and expanding the use of adaptable distance education technologies.

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Chapter 3

TÜRKİYE'S GIFTED EDUCATION: A BRIEF OVERVIEW

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INTRODUCTION

Gifted individuals are generally fast learners, able to solve complex problems, think analytically, have creative problem-solving skills and have high cognitive abilities. Gifted individuals are described as those who exhibit superior intellectual abilities compared to their typically developing peers and require specialized programs tailored to their interests and talents, as determined by experts (Kaya, 2013).

The use of the terms gifted in the academic field and talented in practice can lead to conceptual confusion (Çitil, 2018). Since the concept of giftedness is complex and multidimensional, there is no commonly accepted definition (Pak and Attepe Özden, 2018). Having a clear definition of giftedness is crucial in the identification process, as it influences the choice of tools used for identifying gifted individuals (Sak, 2011).

According to the American National Association of Gifted Children (2024), gifted students excel or have the potential to excel at higher levels and require support and guidance to develop not only their talents but also their social and emotional well-being. Gifted students need special education due to different social and emotional needs arising from the incompatibility between the speed of cognitive and psychosocial areas (Kaya, 2013).

For the first time in the world, systematic and planned gifted education was provided at the Enderun School during the Ottoman Empire (Enç, 2005). Enrichment, acceleration and separate education are generally preferred in the education of gifted students (Yıldız, 2010). Enderun School can be characterised as a separate education service provided to gifted students. Ataman (2003) defines the practices carried out by enriching the programmes that gifted students attend with their peers as enrichment.

It can be said that, apart from the Enderun School, no significant steps were taken in the education of gifted students in Türkiye until the early years of the Republic (Çitil, 2018). With the enactment of Law No. 1416 on Students to be Sent to Foreign Countries in 1929, the aim was for talented young people to study abroad and return to their country to contribute to its development (Çitil, 2018).

Another important case in the history of Türkiye in terms of gifted education is the law enacted in 1948 for the education of two students. The Law No. 5245 dated 07.07.1948 and numbered 5245 on the Sending of İdil Biret and Suna Kan to Study Music in Foreign Countries, also known as the law on gifted children, was the first law that secured the education of gifted children and was an important step in this regard (Altunya, 2006).

The law enacted in 1948 for İdil Biret and Suna Kan was replaced in 1956 by the Law No. 6660 on the State Education of Children Showing Exceptional

Talent in Fine Arts (Çitil, 2017). However, the provisions of the legislation on the education of gifted students have not been sufficiently understood and practices have not been carried out effectively.

In the light of the Ministry of National Education [MEB] councils and other policy documents, it is stated that many problems in the field of gifted education in Türkiye continue to be up to date (Çitil, 2018). Although reports on the education of gifted students have been prepared in the five-year development plans of the State Planning Organisation and National Education Councils, adequate and valid programmes have not been put into practice (Bilgili, 2000).

Although successful students have been provided with education opportunities in schools such as Science High Schools and Anatolian High Schools in Türkiye and similarly, students have been supported by the Scientific and Technical Research Council of Türkiye (TÜBİTAK) with postgraduate education scholarships and study abroad opportunities, it should be taken into consideration that the students who benefit from these opportunities are hardworking students rather than students with special needs (Bilgili, 2000).

In addition, Article 42 of the Constitution of the Republic of Türkiye states that necessary measures shall be taken for the education of students with special needs (Constitution of the Republic of Türkiye, 1982).

In this sense, it is understood that the legislation is insufficient from the identification of gifted students to their education and guidance in accordance with the principle of continuity in guidance, and in this sense, there is a need for coordination between institutions and consistent regulations on legislation.

When we look at the practices in Türkiye regarding the education of gifted students, it is stated that there are no practices other than the Science and Art Centres within the Ministry of National Education and institutions such as Anadolu University and Istanbul University and that there are quantitative and qualitative deficiencies in this direction (Sak, 2011).

The Gifted Education Programme (GEP) for the education of gifted students implemented by Anadolu University is a programme based on acceleration and enrichment in out-of-school time, with components such as identification, curriculum, programme format, teaching, evaluation and teacher training (Sak, 2011).

Due to the need to support gifted students socially and emotionally, science and art centres were established in Türkiye in order for them to be together with their typically developing peers and to provide support for their developmental areas (Kaya, 2013).

Science and Art Centre [BİLSEM] was first opened in Ankara in 1995 in order to provide out-of-school time education for gifted students who scored enough points after intelligence tests (Kaya, 2013).

It is considered important to identify gifted students and support them with education programmes appropriate to their individual development (Kaya, 2013). However, in Türkiye, gifted students receive support room education at the school where they attend general education classes, and they also attend Science and Art Centres out of school.

SCIENCE AND ART CENTRE (BİLSEM)

In Türkiye, education services for gifted students are provided in Science and Art Centres opened by the Ministry of National Education. In the 2022-2023 academic year, 83,051 students studied in 2,597 classrooms and 3,178 teachers worked in 393 Science and Art Centres in Türkiye (MEB, 2023).

In Türkiye, the selection of students for science and art centres is determined according to the provisions of the “Regulation on Special Education Services” published in the Official Gazette dated 07.07.2018 and numbered 30471 and the “Ministry of National Education Science and Art Centres Directive” dated 15.12.2023 and numbered 92178559 (MEB, 2018). Science and Art Centres operate under the General Directorate of Special Education and Guidance Services and the Department of Development of Special Talents. In addition, tasks are carried out in coordination with guidance and research centres.

Observation forms are filled in electronically by classroom teachers for students who are considered to be able to receive education in science and art centres among the students attending the 1st, 2nd and 3rd grades of primary schools. The process is carried out in line with the guideline for students nominated in general mental, painting and music talent field(s) in primary school 1st, 2nd and 3rd grade levels.

After the school orientation commission determines the students to be pre-evaluated by the school, students are taken to the pre-evaluation application, not exceeding 20% of the total number of students at each grade level. While a student can be nominated from at most two talent areas, if he/she is nominated from the second talent area, the status of these students does not affect the 20% quota. Generally, students are evaluated by taking the pre-assessment application on tablet applications.

After the pre-assessment application, the students who are eligible for the individual assessment application are announced online and parents can find out whether their students are eligible or not by using their students' ID numbers online. If students are not eligible and have valid excuses, they have the right to apply for an appeal to be directed to the provincial diagnostic exam commission.

The final decision on the process is made by the provincial identification exam commission and the central identification exam commission. Students who are eligible for individual assessment are taken for individual assessment. Similarly, students with valid excuses have the right to appeal if they do not qualify for individual assessment. The objection process is carried out as in the preliminary assessment. Individual assessment practices in the field of general mental ability are carried out at the Guidance and Research Centre, and in the fields of art and music at the Science and Art Centre.

In case of inadequacy in the physical conditions of the building, the application can be carried out in different institutions affiliated to the Ministry of National Education according to the decision of the provincial exam identification commission. Assessments are made according to the criteria determined by the Ministry. Students who are entitled to enrolment are enrolled in Science and Art Centres according to the determined calendar.

An adaptation programme is implemented to obtain information about the social and psychological development of students enrolled in the centre and to introduce the science and art centre to students (MEB, 2024).

Students diagnosed with general intellectual ability are included in the support education programme conducted in all fields/disciplines (MEB, 2024). Gifted students who are diagnosed in the field of general intellectual ability and who complete the support education programme are included in the individual talent recognition programme (MEB, 2024).

Those diagnosed in the fields of music and art are enrolled in the adaptation programme, and those diagnosed in the field of general intellectual ability are enrolled in the special talents development programme after completing the individual talents recognition programme (MEB, 2024).

At the last stage, gifted students are enrolled in a project production and management programme individually or in groups under the guidance of a counsellor teacher in a field/discipline according to their interests, wishes and abilities (MEB, 2024). Gifted students participate in activities in science and art centres or outside of these centres in line with the framework plans prepared in the relevant fields, as well as in talent development workshops that provide students with the opportunity to explore, think independently, express their ideas and focus on products (MEB, 2024).

According to the programme that gifted individuals follow in science and art centres, an individualized education programme (IEP) is prepared and implemented in line with the student's developmental characteristics, educational needs and performances (MEB, 2024).

CONCLUSION DISCUSSION AND RECOMMENDATIONS

In the planning of education for gifted students, Development Plans, National Education Councils, Strategic Plans, and Action Plans hold significant importance (Yakut Özek, 2024). Recent policy reviews in Turkey indicate that efforts have predominantly focused on Science and Art Centres (BİLSEM), aiming to expand their reach nationwide and strengthen their structure (Yakut Özek, 2024).

The lack of separate school or classroom education, inadequate progress through acceleration within the Ministry of National Education system, and limited opportunities for diagnosis and education in preschool education (Çitil, 2018) are considered as negative aspects in terms of the services provided to gifted students.

Within the system implemented by the Ministry of National Education in Türkiye, due to the legislation, the limited realisation of skipping classes at primary and secondary education levels and the lack of options to take courses from above constitute limitations in terms of acceleration in the education of gifted students (Sak, 2011).

It is recommended to examine the educational models and educational policies of developed countries regarding the educational services to be provided to gifted students and to develop appropriate models and policies (Kaya, 2013). Although the general tendency in the identification of gifted students is nomination and norm-based identification, in this method, students are nominated by teachers and a definitive diagnosis is made with intelligence tests, and in some cases gifted students may be overlooked by teachers (Sak, 2011).

One of the methods used to identify gifted children is intelligence tests based on IQ scores used to measure cognitive abilities. In the process of identifying gifted students, exams in areas such as science and mathematics, which reveal their academic achievement levels, can also provide an idea.

In addition to giftedness, some students may have talents in different fields (music, painting, etc.). Some special tests and applications and performance evaluations are used to identify students with such talents.

In some cases, according to the observations of parents and teachers, factors such as the behaviours observed in students, their participation and performance in the classroom, the projects they carry out, their creative problem solving, and their display of leadership qualities can also contribute to the process of identifying gifted students.

In the process of identifying gifted students, most institutions use multiple criteria in the process of identifying students based on multi-criteria

assessments. In this evaluation process, criteria consisting of intelligence tests, academic achievement, performance evaluations in special talent areas and observations are generally taken into consideration.

The process of identifying gifted students is considered to be a complex process that requires objectivity and consideration of various factors. In this process, it is important to provide careful assessment and appropriate support.

Only in this way can gifted students be enabled to realize their full potential. If the identification tool and the identification process are not compatible with the aims of the education programme to be implemented, it may lead to the selection of students with an ability profile that does not match the programme aims (Sak, 2011). Since there is no perfect predictor of giftedness and giftedness alone, it is recommended to use multiple criteria in the identification process (Sak, 2011).

In Türkiye, there is no programme to summarise the definition, identification, education, monitoring, employment and contribution to the country as a whole of gifted students (Bilgili, 2000). In addition, it is stated that the personnel working in Science and Art Centres do not have sufficient expertise in the education of gifted students (Sak, 2009).

In Türkiye, the routine school curriculum and out-of-school enrichment programmes for exceptionally gifted students in Science and Art Centres are not able to meet the needs of gifted students, and the establishment of Science Academies as separate schools for gifted students at the genius level (Bakioğlu and Levent, 2013) is recommended.

Administrators, teachers and technical staff who will work on the education of gifted students should have high motivation (Bilgili, 2000). When all these factors are considered, not only state institutions but also society has responsibilities in the education of gifted students (Bilgili, 2000).

Various models and strategies are applied in the education of gifted students due to the differences and different perspectives in the education systems of countries (Akarsu, 2004), and when the researches conducted are examined, it is seen that the academically effective model is the separate school application (Delcourt, Loyd, Cornell and Goldberg, 1994; Rogers, 2002).

In the USA, there are more than 50 separate school applications for gifted students (Bakioğlu and Levent, 2013). It is recommended that gifted students with high intelligence tests should receive education in a school suitable for their individual development and characteristics (Levent, 2011: 46-47).

In gifted education in the 21st century, differentiated and flexible programmes should be provided by taking into account the interests, strengths and learning styles of students. It is an important and fundamental right for

the development of society to recognise giftedness in a timely manner, to receive education appropriate to their needs, to develop themselves, and to be raised in an educational environment appropriate to their situation is also seen as a requirement of the social state understanding (Pak and Attepe Özden, 2018).

Gifted students may need in-depth and enriched academic content. In this sense, education programmes should offer advanced learning opportunities and support students to reach their full potential. Providing students with independent study opportunities such as research projects, problem solving tasks and creative projects can contribute to the independent study skills of gifted students.

Creative and critical thinking skills should be developed to help gifted students solve complex problems, generate new ideas and develop alternative perspectives. Education programmes should also support students' social and emotional development by encouraging collaborative learning environments. Providing project-based and experiential learning opportunities for gifted students allows them to learn in depth and produce creative solutions.

Experienced mentors or guidance specialists should be assigned to support gifted students. These people can help students to better utilise their potential by providing academic, social and emotional guidance. This can help students achieve emotional balance, improve peer relationships and cope with stress.

Advanced technological tools and digital resources can enrich the learning experiences of gifted students. Technology used in educational programmes can provide students with more diverse and effective learning opportunities. Technology should play an important role in future school environments. Gifted students should be provided with learning opportunities through advanced technological tools and digital platforms. In this sense, environments where gifted students can develop their technology literacy skills should be created.

Gifted students should be provided with the opportunity to work individually and with small groups of students, and environments should be created to provide individual attention. Teachers should adjust their teaching approaches and contents according to the individual needs of students.

Thus, it is possible to follow the students more closely and respond to their needs better. The organised classroom environment should encourage the creativity and curiosity of gifted students and provide a safe environment for students to express their ideas, try new things and not be afraid of making mistakes.

Teachers should have a supportive, understanding and empathetic attitude towards gifted students. Understanding the emotional needs of students and establishing an emotional bond with them is important for students. High expectations should be set and challenging content should be presented to enable gifted students to realise their full potential.

Teachers should work together with other teachers, parents and other stakeholders to meet the needs of gifted students. It is also important that communication channels are open and information sharing is supported. Teachers should be provided with professional development opportunities in areas such as continuous self-improvement in gifted education, innovative teaching strategies, technology integration in line with student needs, and student- oriented assessment methods.

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Chapter 4

READING CAPPADOCIA: A REPORT ON A SPECIALIZATION PROJECT ABOUT READING MATERIAL DEVELOPMENT FOR TOURISM STUDENTS

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This chapter reports the stages of a foreign language teaching material development process. The project (EP23-1) was initiated by the Coordination of Specialization at Hacı Bektaş Veli University, Turkey in 2023. The main aim of the project was to develop foreign language teaching material for students at tourism faculties in the Cappadocia region. In this chapter, first, some theoretical issues concerning second/foreign language (L2 as a generic term) vocabulary, reading and material development will be discussed; then, the stages of the project will be detailed. In the last section, the results of the quasi-experimental study that was carried out by the research team using the material will be presented briefly.

INTRODUCTION

Human language operates on words and rules; lexicon and syntax are core aspects of any human language. In one's native language (L1), the growth of vocabulary is mostly on par with the cognitive development and speech organs, and syntax manifests itself sometime later. The situation is also similar when it comes to learning a foreign or second language (L2), and it is one of the common myths that vocabulary and grammar are totally separate entities (Milton & Hopwood, 2023). On the other hand, we now know that some level of modularity exists in the human brain; certain parts are responsible for lexical processing and some others control the structural aspects of language (Pinker, 2010). Lexicon and grammar are called the micro skills that operate to enable listening, speaking, reading, and writing, which are referred to as the macro skills (Brown & Abeywickrama, 2019).

Among many skills required to master a language, vocabulary stands out as an essential part of the process. Without a solid vocabulary background in the target language, L2 learners are very likely to struggle in understanding written or spoken language. In this context, reading is regarded as a powerful means to enhance L2 vocabulary. In addition to this, reading in L2 has many other beneficial aspects that help L2 learners.

Reading in L2 provides learners with context-rich environments. A well-written text in a target language will help learners see the real dynamics of the target language. Along with meaningful contexts that help L2 learners make sense of the meaning of the words in the text, through reading, L2 learners gradually become aware of connotations, collocations, nuances, and appropriate usage of L2 vocabulary. Well-written and meaningful texts are crucial for L2 learning because, unlike spoken language, texts are solid and stable sources of real-life language; when the meaning is not clear, readers can pause, go back and check the meaning constantly. In addition to this, when L2 learners experience reading in different styles and registers, they gradually understand how meanings of the words vary depending on the context.

Reading also provides L2 learners with chances of repeated encounters with the L2 vocabulary, which facilitates learning in the long run, and more importantly, enables retention. This learning and retention process is not about rote learning; it is about building a complex network of words, structures and meaning. As learners are exposed to samples of L2 lexicon and structure, the related neural connections become stronger and more solid, which leads to long term retention (Sousa, 2010).

The development of inferencing skills is another important gain that comes along with the reading skill. Through reading activities, L2 learners come to realize the phenomenon of *reading between the lines*. There is generally more meaning than what is already available in any given text, and by reading more and more, L2 learners gradually develop a skill of inferencing more meaning from what is written. This skill also helps learners to interpret the meaning of unknown words and phrases, which is another important skill in the L2 acquisition process (Ur, 2016).

The correlation between the amount of reading and vocabulary acquisition is a well-established discussion. It has been suggested that reading materials which are both interesting and challenging lead to substantial vocabulary gain (Krashen, 1989). Krashen's *comprehensible input* and *i+1* are still accepted terminologies, and they refer to language samples which are presented in meaningful contexts and are challenging yet achievable. When L2 learners are exposed to input that is slightly above their current proficiency level, they acquire the target language more effectively. Therefore, as long as the text at hand is interesting and challenging, the more L2 learners read in the target language the more vocabulary they will acquire.

Several other advantages of reading in L2 could be added to the list. All of these points make reading a highly effective strategy in the context of L2 teaching and learning. Interesting and challenging materials when presented at appropriate L2 proficiency levels will facilitate vocabulary gain.

ISSUES IN L2 VOCABULARY INSTRUCTION

What is vocabulary?

Defining vocabulary knowledge is not as straightforward as it may sound. Most of the time, people assume that vocabulary means the one-to-one correspondence in a dictionary. However, when we think of the layers of human language like phonetics, phonology, morphology, syntax and pragmatics, through which human language operates, the complexity of the process becomes apparent. The sounds that we make to create words, prefixes and suffixes that we use for inflections and derivations, the rules that force us to organize words in certain ways, meaning relations among words, and how we use them in different contexts all have places in the definition of

vocabulary knowledge. The number of the words that one possesses at only definition level is generally referred to as *breadth of vocabulary knowledge*, and knowledge related to different aspects of words as mentioned is referred to as *depth of vocabulary knowledge* (Qian, 1999). While all these aspects of vocabulary knowledge are natural parts of human language, the human mind does not seem to have a module for definitions (Blake, 2019). When we observe people while they are communicating orally under normal conditions, the process flows smoothly; however, when we interrupt the process and ask for a definition of one of the words that was used by the interlocutors, metacognition sets in, and the process slightly falters.

How many words are there in English?

The total number of the words in the English language is one of the issues that has been discussed in the related literature. Claiborne (1983), for example, believes that the number of the words in English ranges from 400,000 to 600,000. Crystal (1988) suggests that the discussions concerning this number is somewhere between 2 million and 16 million, and in another source Crystal (2019) shares his personal belief that there should be at least one million words in the English language. Of course, not all of these words are in circulation in everyday speech. Although the largest English dictionary is claimed to include about 600,000 words, Schmitt and Schmitt (2020) argue that English words in circulation should range from 200,000 to 300,000; the context they mean is of course not everyday speech but a wider range of registers.

How are words counted?

How these words are counted is another topic of concern. The first thing that comes to mind is to get help from computers. Digitalized databases like the Corpus of Contemporary American English (COCA) will give us some solid idea about the total number of English words; however, defining a word is not as easy and straightforward as it sounds. Take the word *create* as an example. Are *creation*, *creative*, *created*, and *creator* different words? Technically they are different words, but it would not make sense to include them in the word counting process. To solve this issue, linguists use the concept of *word family* where the base word, its inflectional and derivational forms are counted in one unit, so the word *create* is counted as the word family. After removing proper names and alternative spellings from Webster's Third International Dictionary, Goulden et al. (1990) found that the dictionary contained about 54,000 word families.

How many words does a native speaker know?

The next question to raise is very likely to be about the portion of the words a native speaker knows and uses to the total number of words in the English language. Again, Goulden et al. (1990) estimated that the vocabulary

knowledge of an average native speaker of English should range from 10,000 to 20,000 word families. In another study, Nation and Waring (1997) suggest that a native speaker can control about 20,000 word families in English. After analyzing the related literature, Schmitt and Schmitt (2020) reach to the conclusion that "...the average educated L1 English speaker knows broadly 10,000 to 13,000 word families..." (p. 28). In addition to this, Van Zeeland and Schmitt (2013) found that 95% word coverage of a narrative would be enough to understand it, and to be able to reach this level, a control of about 2,000-3,000 word families was needed.

L2 Vocabulary

One important topic that is highlighted in the related literature is the amount of vocabulary knowledge L2 learners need to be able to operate in the target language. The above-mentioned 2,000-3,000 word families will be enough for everyday conversations or general reading activities; however, in order to reach higher levels of discourse activities, L2 learners need to reach to an amount of vocabulary knowledge ranging from 6,000 to 9,000 families (Schmitt & Schmitt, 2020). It has also been suggested that in order to understand written discourse, an L2 learner has to be familiar with at least 95% of the words in a running text (Nation & Waring, 1997). How L2 learners will reach this level of familiarity has been the key point in the L2 vocabulary research agenda.

Incidental vs explicit learning

It is not uncommon to hear researchers claim that vocabulary learning takes care of itself. For example, Harris and Snow (2004) claim that vocabulary acquisition is an unconscious process during which the learners build up lexical knowledge while they are dealing with other aspects of language, and this process is called *incidental learning*. When Krashen came up with the idea of *comprehensible input* he was actually voicing a similar perspective; he believed that as long as some sort of comprehensible input was available in the environment, L2 learners would pick up vocabulary unconsciously, especially through reading (Krashen, 1989). On the other hand, many other researchers believe that L2 vocabulary should be studied explicitly with a plan. Hilton (2019), for example, claims that learning L2 vocabulary is an intentional process especially at the beginning phase. It means that L2 learners need to pay attention to the words they want to learn and retain. Milton and Meara (1998) believe that in instructional settings, L2 learners can learn up to three or four words per hour while it could only be one word per hour in incidental scenarios. In this discussion, the related literature and common sense tell us that while incidental vocabulary learning cannot be ignored, explicit teaching and learning of L2 vocabulary leads to effective learning and longer retention in shorter periods.

Frequency concerns

In general terms, researchers have been busy asking about the time it takes for an individual to master a skill; it is obviously a very complicated issue, and quick answers are difficult to justify. However, in their groundbreaking studies, Ericsson et al. (1993) stated that an individual needed about ten years or 10,000 hours of practice in order to become an expert at any skill. When we consider this issue in terms of L2 acquisition, we need to start by accepting that a typical L2 learner has limited time to learn the target language. In addition to this, there are many factors that affect the period of time that is needed to reach a certain level of L2 proficiency. Factors like an individual's age, motivation, his or her learning goals, the learning environment that he or she is in, the methodology that is implemented, and the quality of the L2 instructor all play roles in the process. Assuming that all these factors are at optimum levels, it takes about 200 hours of guided instruction for an L2 learner to complete each proficiency level in CEFR, and more than 1,000 hours of instruction to complete the C2 level. This limitation imposes L2 instructors to make choices in terms of L2 vocabulary items to teach. When L2 instructors try to make such decisions, one of the first criteria that they apply is the frequency of the target word, that is to say, how often it is used in everyday situations. For example, although the words *bright* and *lustrous* appear to be synonyms in dictionaries, their frequencies are significantly different. Compared to the word *lustrous*, *bright* is used more frequently, and it has more variety in terms of collocations like *a bright person*, *the bright side of life*, *a bright sea*, or *a bright smile*. If these two words appear as alternatives in an L2 instruction scenario, the choice is very likely to be in the favor of the word *bright*. This frequency-based approach to L2 vocabulary instruction is one of the solutions to the limitations that L2 instructors have to deal with.

General, Technical, and Academic Vocabulary

Schmitt and Schmitt (2020) group vocabulary in three categories as general, academic, and technical. General vocabulary refers to the words in circulation in everyday language while academic vocabulary is regarded as the common words frequently used in academic contexts regardless of the academic domain. For example, Coxhead (2000) formed a collection of academic texts from different domains such as medicine, arts, and education and looked for lexical patterns. The result was a list of vocabulary items occurring repeatedly throughout academic domains. On the other hand, technical vocabulary is related to the body of words specific to particular domains like medicine, engineering, or tourism.

READING IN L2

Reading is one of the four macro language skills, and it is a receptive one. It is a skill which is not inherent in human nature like listening and

speaking, this is why it needs to be learned. When the act of reading is analyzed from a cognitive perspective, certain patterns appear. There are two main processes involved in a normal reading activity: bottom-up and top-down. When the focus is on the meaning presented in a text, a top-down process is at play; when the reader focuses on the parts of the text, it is called a bottom-up process (Richards, 2015). For example, if we want to understand the gist of the text and ask, “What is the main idea of this text?”, with a top-down process, we focus on the message that the author is trying to give us. If we want to find a specific date of an event mentioned in the text, our focus shifts to details rather than the meaning; we ignore ideas presented in the text and focus on dates and years available in the text. Of course, this is not an either-or situation, rather a both-and process. When reading a text, the reader switches between these two processes depending on his or her current need. It is generally recommended that while testing reading skill in L2, these two processes should be used together in harmony (Brown & Abeywickrama, 2019). That is to say, when questions are being constructed for a text, it should be borne in mind that the test-takers need to encounter questions that test both bottom-up and top-down processes.

The bottom-up process taps into micro skills of reading while the top-down process is related to the macro skills. The following list taken from Brown and Abeywickrama (2019, pp. 197-198) summarizes micro and macro skills involved in reading activities.

Microskills

1. Discriminate among the distinctive graphemes (letters or letter combinations that produce a phoneme) and orthographic patterns of English.
2. Retain chunks of language of different lengths in short-term memory.
3. Process writing at an efficient rate of speed to suit the purpose.
4. Recognize a core of words and interpret word order patterns and their significance.
5. Recognize grammatical word classes (nouns, verbs, etc.), systems (e.g., tense, agreement, pluralization), patterns, rules, and elliptical forms.
6. Recognize that a particular meaning may be expressed in different grammatical forms.
7. Recognize cohesive devices in written discourse and their role in signaling the relations between and among clauses.

Macroskills

8. Recognize the rhetorical conventions of written discourse and their significance for interpretation

9. Recognize the communicative functions of written texts, according to form and purpose

10. Infer context that is not explicit by activating schemata (using background knowledge)

11. From described events, ideas, and so on, infer links and connections between events, deduce causes and effects, and detect such relations as main idea, supporting idea, new information, given information, generalization, and exemplification

12. Distinguish between literal and implied meanings

13. Detect culturally specific references and interpret them in a context of the appropriate cultural schemata

14. Develop and use a battery of reading strategies, such as scanning and skimming, detecting discourse markers, guessing the meaning of words from context, and activating schemata to interpret texts.

Reading Ease Scores

In general terms, materials used in L2 instruction need to have reasonable difficulty levels; the material that is being used is expected to be a bit beyond learners' ability levels. Challenging but manageable materials and activities help L2 learners' development. These principles also hold true in terms of L2 reading instruction. At this point, gauging difficulty levels of teaching materials appears to be a problem to be solved. L2 instructors might feel free to use their intuitions in making decisions concerning reading materials to be used during instruction, or for the graded reading texts, but intuition can only take us so far. Difficulty levels of texts are measured through a variety of methods and techniques. One of these methods is called Flesch Reading Ease Score, which operates on the total sentence numbers, lengths of the sentences and total syllables in a given text. Basically, the more syllables a word contains, the more difficult it becomes to process, and the more words a sentence contains, the more difficult it becomes to understand it. The calculated scores by using these parameters range from 1 to 100, 1 being the easiest level.

Normally, reading scores are used to determine what level of learners a text would be suitable for in instructional contexts for the native speakers of English. However, these scores are also applicable to L2 settings. If L2 instructors want to make use of certain texts in their classes, these scores will be helpful in the process. For example, texts scoring between 90 and 100 are regarded as very easy to read, which will be suitable for A1 proficiency level. Texts scoring 70 and 90 are regarded as simple to read, and they can be suitable for A2 level of proficiency. Texts with scores ranging from 60 to 70 are regarded as standard texts, and they could be used at B1 proficiency level.

Taxonomy of Knowledge

Another important issue to consider at this point is the taxonomy of knowledge. The taxonomy of knowledge was developed by Benjamin Bloom in the 1960s, and it was revised in 2001 (Anderson & Krathwohl, 2001). This approach to knowledge claims that human knowledge in cognitive domain is based on a hierarchical system through which knowledge is *remembered*, *understood*, *applied*, *analyzed*, *evaluated* and then *created*. L2 vocabulary knowledge and reading skill can also be analyzed through this hierarchical system. When a language learner encounters a new word in L2, the learning process begins with the remembering level of the taxonomy; at the beginning, the learner needs a simple, superficial and mot-a-mot representation of the new word. Later, this type of knowledge turns into understanding, the learner starts making sense of the target word, and he or she can make explanations using his or her own words. At the next stage, the learner starts applying this knowledge and using it correctly in different contexts. After some time, the learner starts analyzing the target word and sees it getting prefixes and suffixes and appearing in different places in different sentences. In the evaluation phase, the learner starts personalizing the target word through making connections with his or her own life. At the last stage, he or she uses the target word in a way that he or she has never encountered before.

Reading activities can also be analyzed in relation to this taxonomy. It is clear that reaching a full comprehension of a text is a challenging task even in one's native language, let alone full comprehension of texts written in a foreign language; learners need to go through a certain process for deeper comprehension of a text. With such concerns, techniques like skimming and scanning have been proposed, through which L2 learners try to make sense of L2 texts gradually. In theory, L2 reading activities related to the main idea of a text precede analysis activities related to the text at hand. An L2 learner needs to deal with the face value of an L2 text before moving on to the more complex processes like analysis, evaluation or creation. Of course, these ideal scenarios are theoretical, and in reality, it is not that easy to reach the evaluation and the creation level, which are called higher order thinking skills.

PRINCIPLES OF MATERIAL DEVELOPMENT

Material development could be defined as "...anything which is used by teachers or learners to facilitate the learning of a language." including DVDs, emails, YouTube videos, grammar books, and reading materials (Tomlinson, 2011, p. 2). The main aim is, of course, to help learners to increase the input that they need and make learning a rewarding process. The term *input* is the key word at this point because the language acquisition process begins with comprehensible input with some level of affective and cognitive engagement. Later in the process, L2 instructors expect to see some *output* from the

learners' side, which is supposed to lead to meaningful interaction in the target language, and thus language acquisition (Mishan, 2005). It is clear that the materials used in the process play a crucial role, and this is why they need to be in line with certain principles. Some suggest that L2 material writers follow intuitions rather than principles (Tomlinson, 2011). In addition to this, Ellis (2011) believes that L2 material developers should start worrying about what actually learners do with the material rather than the material's appeal.

In general terms, common sense tells us that L2 instruction materials need to be appropriate to the learners' proficiency levels. Appropriate, of course, does not imply an exact match between the material that is being used with the learners' proficiency levels, which is not possible most of the time. Concepts like Krashen's *i+1* and Vygotsky's Zone of Proximal Development are always considered while making decisions about this issue. The material that L2 learners deal with needs to be a bit beyond their proficiency level in order for learning to take place.

The design, or the appeal, of the material is also another important issue. Colorful, well-organized, and well-designed materials are more likely to achieve learning goals compared to dull and sloppy ones. Of course, not only the design but also the content of the material plays an important role in the process. If L2 learners encounter interesting and engaging content, the learning process will be more effective, and L2 input and target behaviors will be retained for longer periods.

The points made above are related to common sense. With a systematic approach, by looking at the related literature, Tomlinson (2011, p. 7) lists the following principles concerning L2 acquisition in general.

1. A prerequisite for language acquisition is that the learners are exposed to a rich, meaningful, and comprehensible input of language in use.

2. In order for the learners to maximise their exposure to language in use, they need to be engaged both affectively and cognitively in the language experience.

3. Language learners who achieve positive affect are much more likely to achieve communicative competence than those who do not.

4. L2 language learners can benefit from using those mental resources which they typically utilise when acquiring and using their L1.

5. Language learners can benefit from noticing salient features of the input and from discovering how they are used.

6. Learners need opportunities to use language to try to achieve communicative purposes.

When these principles are regarded in terms of L2 material development, the following principles come into the forefront (Tomlinson, 2011, pp. 8-23)

1. *Materials should achieve impact.*
2. *Materials should help learners to feel at ease.*
3. *Materials should help learners to develop confidence.*
4. *What is being taught should be perceived by learners as relevant and useful.*
5. *Materials should require and facilitate learner self-investment.*
6. *Learners must be ready to acquire the points being taught.*
7. *Materials should expose the learners to language in authentic use.*
8. *The learners' attention should be drawn to linguistic features of the input.*
9. *Materials should provide the learners with opportunities to use the target language to achieve communicative purposes.*
10. *Materials should take into account that the positive effects of instruction are usually delayed.*
11. *Materials should take into account that learners differ in learning styles.*
12. *Materials should take into account that learners differ in affective attitudes.*
13. *Materials should permit a silent period at the beginning of instruction.*
14. *Materials should maximise learning potential by encouraging intellectual, aesthetic and emotional involvement which stimulates both right- and left-brain activities.*
15. *Materials should not rely too much on controlled practice.*
16. *Materials should provide opportunities for outcome feedback.*

The important points about the principles mentioned above can be summarized as follows: First of all, before the beginning of the development process, the focus should always be on the learner, not the material itself. We should always start with the learner in mind and move forward. In addition to this, what is being developed should be relevant to the target learner group and fill a gap in their L2 progress. Naturally, the material should fit the proficiency levels of the learners with some level of challenge. While doing so, the authenticity of the material should always be checked; it is important for L2 learners to be exposed to real language in the learning process as made-up language samples will not help them achieve learning goals.

Apart from these points, L2 learners should be able to use the language samples provided in the material with some communicative goals. The material should create an atmosphere in which L2 learners can share their ideas and feelings with other L2 learners who are very likely to have different perspectives and different learning styles. Of course, the fact that L2 learners have different learning styles means that the materials to be used for them need to have variety along with intellectually, aesthetically and emotionally stimulating aspects.

The development process of the current material included decisions about the themes or topics, and related visuals, content writing, and activity production. Before this process, the project team took all the principles related to L2 vocabulary instruction, L2 reading skill and material development that have been mentioned so far.

THE CURRENT PROJECT

In 2021, Nevşehir Hacı Bektaş Veli University was included in the specialization program by the Council of Higher Education. The main aim of the program is to encourage universities in Turkey to specialize in academic areas that fit in well with their region, which will enable them to better be integrated into their ecosystem in the long run. Our research team proposed a project for the program, and it was accepted in 2023. The main purpose of the project is to develop academic reading material for tourism departments in the Cappadocia region. This idea came into existence among the research team members after the observation that the materials that are being used in the tourism faculties in the region had little or no relation with the historical or cultural background of the Cappadocia region, and this problem held true for all the major foreign language education branches including English, German, and French. In theory, most of the students who graduate from the tourism faculties in the region are supposed to use these languages to guide tourists mainly speaking these major languages; however, the materials that are used to teach them these languages are not sufficient.

In order to fill this gap, a research team was formed. The core team was comprised of an expert in English language teaching, two experts in German language teaching, an expert in French language teaching and translation studies, and a research assistant. In addition to this, an expert in tourism and another expert in the history and culture of the Cappadocia region, who operated as fact-checkers, were included in the team.

The first step in the process was to determine the tourist destinations in the region, and themes related to its historical, natural, and cultural background. Since the reading material was planned to be implemented into an academic term of fourteen weeks, twelve unit topics were agreed upon. The majority of the topics were related to significant destinations in the region

like IhlaraValley, Göreme Open Air Museum, or Derinkuyu Underground city, and some of the topics were about cultural concepts like gastronomy or hot air balloon rides. The natural history of the region and some common misconceptions about it were also included among the topics.

The next step was to determine the focus of the material, and the research team decided that the material should focus on tourism vocabulary because its intended population, i.e. tourism students, are already familiar with the basic structures and vocabulary of the target foreign language that they are trying to learn. The project team agreed that what these students need is to focus on the key vocabulary that will help them during their tours in the region. After this decision, related websites, tour books and guides that were produced for the region were analyzed to determine the most common technical vocabulary items that are used in tour reviews and advertisements.

As was mentioned earlier, the target population of the reading material is Turkish vocational foreign language learners at tourism faculties around Cappadocia. Their assumed proficiency levels are around A2 as they are supposed to complete a basic course in one of the foreign languages provided by the program before continuing to the vocational foreign languages. For this reason, in the process of content development, the reading passages were adjusted to around A2 proficiency level. To this end, Flesch Reading Ease scores were used along with experts' views. As the reading passages were being produced, their reading ease scores were checked constantly. The reading scores of the passages were adjusted to be around 60 for the first couple of passages, and they increased gradually up to around 70 towards the last units.

The Translation Process

Originally, the reading texts in the materials were developed in English, and they were translated into German and French by the research team. The main problem was that the reading material was about the natural and cultural aspects of the Cappadocia and Central Anatolia region, and these aspects of the region were translated into three different languages with different cultural backgrounds. Each of these languages, although they belong to same core Western generic culture, has its own lexical dynamics and cultural references that they attain to the words in their repertoire. For example, the project team decided on *Reading Cappadocia* as the title of the material because of the double meaning of the word *read*; in English, its first meaning is “to look at and understand the meaning of written or printed words or symbols”, and it also means “to make out or discover the meaning or significance of” (*Oxford English Dictionary*, 2009). However, this situation is not that clear with the other two languages, especially with German. For reasons like this and several others, the translations and the original texts were constantly compared for any technical, contextual or lexical problems. Such several issues appeared

during the translation process. Another problem that was encountered was related to the lexical dynamics of the German language. The original English texts were planned to involve around 500 words; with the French language, this could be achieved with certain modifications, but for German the 500-word limit could not be achieved for most of the texts. Since the research team could not find an effective solution for this problem, the format of the texts and the exercises related to them differed for the German version of the material. As the last stage of the translation process, the translated texts were reviewed by experts in related fields and volunteers whose native language is one of the target languages.

Experimenting with the material

Before making final decisions about the material, the project team decided to see whether it would be effective in a classroom setting as was intended. To this end, the team decided to test the material under a quasi-experimental setting. Two groups of young-adult EFL learners who were attending a preparatory class at a state university were chosen for this purpose, and official ethical permissions were taken.

The material that was developed by the research team was integrated into the EFL instruction program as extra reading material. The same teacher instructed both groups, and she was trained in short online sessions about the purpose, design and practical aspects of the study. Likewise, the instructor informed and instructed the participants about the process.

The quasi-experimental study lasted about eight weeks including the training sessions. One of the groups was selected as the control group and the other one as the experimental. The main concern of the study was to compare the effectiveness of digital L2 learning tools with contextual L2 instruction. Quizlet, an online digital learning platform, was chosen as the vocabulary instructional tool for the experimental group. The reading material developed by the research team was used for the control group. The target L2 vocabulary items were the same for both groups, and both groups were instructed with the same target vocabulary in the same weeks.

At the beginning of the treatment process, two types of tests were prepared by the research team as measurement tools. One of them measured the use of the target vocabulary in short contexts, and the other one tested their translations. These two tests were given to the groups three times, once before the treatment and again after the treatment. The same test was given to both groups after about a month to see the delayed effect of the treatment. The following figure summarizes the results of the three tests.

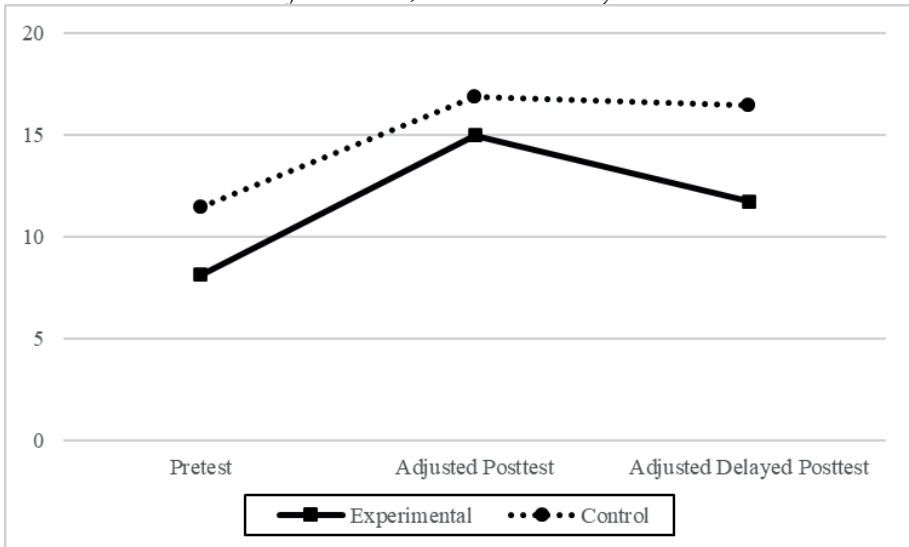
Figure 1*Results of the Pretest, Posttest and Delayed Posttest*

Figure 1 shows the pretest, adjusted posttest and adjusted delayed posttest results of the experimental and control group. It is clear that there was a difference between the pretest results of the two groups. This difference was corrected for the posttest and delayed posttest results through statistical procedures. The posttest results indicate that the two groups showed some quantitative progress in the target vocabulary; however, the control group, which was instructed through the material that was developed by the research team, retained the target vocabulary better after a month.

CONCLUSION

In this chapter, we reported the stages of an L2 reading material development project, which was supported by Hacı Bektaş Veli University, the Coordination of Specialization. The main purpose of the project was to develop a reading material that can be used at tourism faculties in the Cappadocia region, and the focus of the material was the vocabulary group that was necessary to depict the natural and historical background of the region. The reading material was developed in three different languages by considering the principles concerning reading skills, vocabulary instruction, and material development in L2. The material developed by the research team was used in a quasi-experimental study with two groups of English language learners. One of the groups was instructed with the material while the other group was instructed through digital learning tools. The results showed that the immediate effects of the two treatments were very similar. However, the group that was instructed through the reading material retained the target words longer.

This project is actually like a pilot study with an aim to show that L2 teaching materials can be developed locally by considering local cultures and needs. Language teaching materials developed by leading international companies assume a unidimensional global paradigm and ignore diversity and local cultures. Even when they try to reflect diversity in the materials that they develop, they stand as *outsiders* with a superficial understanding of the local cultures that they are trying to use as L2 instruction material.

With this project, we wanted to make and emphasize a point: Material development for foreign language teaching is not a simple and solid concept, and the process has both global and local aspects. It is obvious that there is a global pedagogical need especially for languages like English, French or German; but on the other hand, we know that every teaching and learning context is unique (Brown & Lee, 2015). Local voices in L2 material development should be heard and encouraged. The next step for the current project needs to be related to the development of a local language teaching material for tourism faculties in the Cappadocia region that integrates macro and micro skills of the intended L2.

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