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CONTENTS

Chapter 1

EVALUATION OF ONLINE LEARNING FROM DIFFERENT ASPECTS

Necmettin KÜRTÜL[1]

1 Dr. at Niğde Ömer Halisdemir University, School of Foreign Languages, Turkey, nkurtul@ohu.edu.tr, ORCID ID: 0000-0002-0355-4071

Introduction

In the 21st century education system, which has shifted from traditional face-to-face education to online education, the responsibilities, roles and duties of teachers and students need to be reviewed mutually. This process of change and transformation necessitate more cooperation between faculty members and students working in higher education institutions. Therefore, the importance of harmony between the educational perspectives of educators and students has come to the fore more with the active use of online teaching systems. However, it is seen that studies on the differences between the perceptions of lecturers and students in online teaching processes in higher education are insufficient. Based on this need, in this study, online teaching processes were evaluated in the context of teaching skills of lecturers in line with the perceptions of lecturers and students.

When the literature is examined, it is seen that there are some problems faced by both lecturers and students in online teaching processes. The areas related to these problems are; readiness for online teaching and adaptation process, technical problems, internet literacy, time management, self-motivation and self-regulation (Cahapay, 2020; Cuaton, 2020; Rucker & Downey, 2016; Gregory & Salmon, 2013; Hurst at al., 2013; Orlando & Attard 2015; Stoessel et al., 2015; Thorsteinsson, 2013).

Although there have been rapid developments in online teaching recently, it is seen that the desired level in adapting to these developments has not yet been reached. When the current literature is examined, it is seen that the development of online course programs, technologies that facilitate online course transfer, and the comparison of online teaching with traditional face-to-face education and the problems in these areas are addressed (Balfanz & Byrnes, 2012; Bettinger & Loeb, 2017; Bueno, 2020; Burde, 2017; Grady, 2017; Kemp & Grieve, 2014; Lepp et al., 2014; Wilmer et al., 2017; Woodworth et al., 2015). However, especially at the higher education level, in the context of lecturers teaching skills, studies on the evaluation of the efficiency of online teaching processes in terms of students' perceptions of students and lecturers are quite insufficient. The perceptions of lectures and students towards online teaching play a critical role in the effective execution of educational activities (Bali & Liu 2018; Fortune et al., 2011; Koohang & Durante, 2003). In this context, it is extremely important for lecturers to have the necessary knowledge and skills to make online teaching effective, as well as students' perceptions and attitudes towards online teaching, motivation and learning. In order for online teaching processes to be structured correctly, data from higher education should be provided to curriculum development experts and online teaching interface transfer providers. From this point of view,

knowing the perceptions of both students and lecturers about the online teaching processes and the problems encountered in the teaching processes in this context, in the axis of the skills lecturers have in the online teaching processes, will contribute to increasing the effectiveness of the online teaching processes in higher education.

Based on this need, the main purpose of this research is to create a framework for the healthy and effective operation of online teaching processes in the context of the practices that lecturers should perform in online teaching processes and the difficulties of the online teaching process. In this direction, it is primarily aimed to determine the skills that lecturers should have in online teaching processes and to reveal the contribution of these skills to teaching, learning and evaluation processes, students' motivation and exam performance. By determining the performance of the lecturers in the teaching processes and the practices that the students expect from the lecturers, what can be done to improve these skills will be revealed. The research also has the aim of contributing to the development of these processes by identifying the difficulties encountered in the online teaching processes and the solution proposals for these difficulties. In this direction, answers to the following questions were sought in the study:

1. What are the skills that lecturers should have during online teaching processes?

2. What are the students' views on the supportive role of lecturers in learning processes and the skills they use in the online teaching process?

3. What are the challenges that lecturers and students encounter in online teaching processes?

4. What are the practices that students expect from lecturers who teach online to facilitate learning?

2. Literary Review

The practice of information and communication technology has significantly changed student expectations in teaching processes (Wegmann & McCauley, 2008). Heuer and King (2004) argue that although online teaching shares many of the features found in traditional teaching, it has unique characteristics such as the flexibility to be accessed anytime and anywhere. Moreover, the roles of online lecturers appear to be quite new and more complex. The fact that online teaching and learning is different from the practices in traditional environments requires lecturers to review their roles and skills (Johnson, 2008; Küsel et al., 2020; Lee & Busch, 2005; Panda & Mishra, 2007). In this context, lecturers in online teaching have become; facilitators, planners, designers, evaluators, guides, role models, consultants, coaches, supervisors, strategists and problem solvers

(Liu, Bonk, Magjuka, Lee, & Su, 2005; Rhode et al., 2017).

Liu et al., (2007) examines the roles of online lecturers in four categories; pedagogical, social, managerial and technical. The pedagogical role includes teaching facilitation skills, social role includes skills in creating a welcoming virtual social environment necessary for effective online teaching, managerial role includes agenda setting, pace of progress, goal setting, rule-making and decision-making skills, and finally, the technical role includes lecturers' specialization in the technology used and then the ability to effectively use this technology in teaching (Liu et al., 2007).

Skills related to facilitating online teaching are included within the scope of various techniques applied to increase communication and interaction between stakeholders in online teaching, thus increasing the quality of teaching. Facilitating skills can be used effectively online to ensure that students are interested in the course content (Luopa, 2014). Mahmood (2021) stated that online classes emphasize social interaction between participants and nullify the teacher's authoritarian role. Moreover, it is extremely important for a teacher to have questioning skill in online teaching, as in face-to-face teaching. According to Markova et al., (2017), the way of asking a question can make a difference between discussions. Besides, giving feedback is one of the most difficult and complex tasks teachers face (Bunaiasu, 2014). Feedback means providing information about the good things students have done, as well as what they need to make progress. Therefore, it is extremely important that online students receive honest, constructive, impartial and timely feedback (Brookhart, 2020; Gibbs, 2018; Shepherd, 2000; Ko & Rossen, 2001).

As for the management skills in online teaching, the delivery of course content in online teaching is seen as an effective and efficient method of reaching a large number of students. After preparing the course content, the lecturer presents it to a group of students and can repeat it many times. However, this repetition in online teaching can cause students to feel lonely over time, and students cannot establish an emotional connection with the transmitted content and may lose interest in the lesson. Therefore, managements skills of the lecturer are one of the most common issues in terms of the delivery of the lesson effectively (Draus, Curran, & Trempus, 2014; Korkut, Dornberger, Diwanji, Simon, & Maerki, 2015; Underdown & Martin, 2016).

Unlike the problems encountered in traditional face-to-face teaching in online teaching, the most common problem for both students and lecturers arises in providing effective feedback. As online teaching has become widespread, feedback has become an extremely important element in terms

of both effective teaching and permanent learning, especially in higher education (Can, 2019; Luopa, 2014). According to Bobley & Sebel (2021), the ability of higher education institutions to provide effective feedback to students is an integral part of effective pedagogy. Babanoglu et al., (2018) argues that feedback is an important element of students' academic success. Therefore, providing effective feedback to students in online teaching by higher education institutions is an integral part of teaching processes, and various problems arise when insufficient feedback is provided. Studies on the difficulties encountered in online course transfer highlight the effect of feedback on students' motivation and success (Woodworth et al., 2015). Motivation and success of students in online courses are related to the timing and level of feedback provided by lecturers (Brookhart, 2020).

METHOD

In this study, which was conducted in a descriptive research design, it was aimed to reveal the current situation regarding online teaching processes in the context of lecturers' online teaching skills working in a vocational college. The main feature of the descriptive research design is that it deals with the existing situation in its own conditions and as it is. Descriptive research requires "collection of data in order to test the assumptions about the current state of the subject studied or to find answers to the questions" (Dörnyei, 2007, p.17). In descriptive qualitative research, a purposefully determined sample can be studied and interpretations and definitions are made based on low-level inference rather than high-level inference (Neergaard, Olesen, Andersen, & Sondergaard, 2009; Sandelowski, 2000).

The qualitative dimension of the research defines the quality of online teaching in the context of online teaching skills of lecturers by examining a sample of a vocational school where online teaching is operated through standard procedures and practices. In the quantitative dimension of the research; the questionnaire was applied to 10 lecturers and 1100 students. In the qualitative dimension, data were collected from 822 students and 10 lecturers through an interview form.

The research was conducted in a Vocational College at a state university. Lecturers who deliver online education in the distance education program of Vocational College and students who take online education constitute the study group of the research. Within the scope of the distance education program of the vocational school are; 1) child development, 2) electronic-communication technology, 3) computer programming, and 4) accounting and tax practices.

The required permissions for the research conducted at a state university were obtained from the Vocational College. At the beginning

of the questionnaire and interview form used within the scope of the research, a written statement was made stating that the data collected for all participants would remain confidential. In addition, it was stated how the collected data would be used and a copy of the results of the research can be given to the participants if they wish. Participants were not identified by name in the quantitative and qualitative data collection processes of the research. In the data collection processes, the questionnaire and interview forms were coded with participant numbers.

As for the data collection tools, '**Lecturer Questionnaire on Online Teaching Practices'** (LQ) was prepared. During the preparation process of the LQ, an extensive literature review and interviews were conducted with field experts. The draft form of the questionnaire was created in line with the expert interviews regarding the literature review and ensuring the content validity. Within the scope of the questionnaire, in terms of the skills used by the lecturers in the online teaching processes there are three sub-dimensions; technical, facilitating and managerial. The resources utilized in the survey development process are listed in Table 1.

Table 1. Conceptual Framework of the Questionaire

Sub-dimensions	Resources
Technical skills	Volery ve Lord (2000)
	McGreal ve Elliott (2004)
	Keengwe ve Kidd (2010)
Facilitating skills	Collison, Elbaum, Haavind ve Tinker (2000)
	Brockbank ve McGill (2007)
Manegeral skills	Smith ve Rupp (2004)
	McKenzie, Garivaldis, Kaissidis ve Mundy (2016)

There are 23 items in the questionnaire regarding the skills that a lecturer should have in order to perform effective teaching in an online teaching environment. Each item includes a type of skill that lecturers should have in order to perform online teaching. Questionnaire items are scored in the range of 5- completely necessary and 1- completely unnecessary.

Since the items in the skills dimension of the lecturer questionnaire on online teaching practices were answered in line with the 5 options, the reliability co-efficient of this dimension was also calculated. The reliability test is extremely important as it expresses the consistency between the parts of a measurement tool (Hung et al., 2010). If the items of the scale are "held together" and measure the same construct, the scale is said to have high reliability (Hung et al., 2007; Howard et al., 2021). The most widely

used internal consistency measure is the Cronbach Alpha coefficient. It is seen as the most appropriate measure of reliability when using Likert scales (Robinson, 2009; Whitley, 2002). There are no absolute rules for internal consistency, but researchers agree that the minimum internal consistency coefficient should be above .70 (Robinson, 2009; Whitley, 2002).

Besides the scales, the reliability coefficient can also be calculated for the questionnaires (Robinson, 2009; Whitley, 2002). As a result of the statistical analysis, the Cronbach Alpha value for the online teaching skills section of the questionnaire used in the study was found as .894. Therefore, it was concluded that the questionnaire was reliable.

In order to obtain the data from the students participating in the study**,** "**Student Questionnaire on Online Teaching Practices**" (SQ) was prepared simultaneously with the creation of the lecturer questionnaire (LQ). The student questionnaire includes a choice-based (with 5 options) question regarding the determination of the supportive role of the lecturers in the learning processes, in other words, the way they contribute to student learning. The sources used in the preparation of the questionnaire are also shown in Table 1.

Data regarding the qualitative dimension of the research were collected from the lecturers and students through an interview form. In the interview form applied to the lecturers, there is an open-ended question to determine the challenges encountered by the lecturers during the online teaching process. In the interview form applied to the students, there are three open-ended questions to determine the difficulties encountered by the students during the online teaching processes and the practices that the students expect from the lecturers who deliver online courses to facilitate learning.

In the content analysis process performed within the scope of the research, the explanatory notes recommended by Gibbs (2018) were used regarding the determined concepts in order to ensure consistency in the coding. Thus, it was ensured that the concepts determined during the analysis were created in line with the same understanding and were consistent in terms of content and context. In order to ensure the confirmability of the coding processes of the research, the audit study recommended by Lincoln and Guba (1985) was carried out. Within the scope of this study, the coding made by the researcher, the explanatory notes used in the creation of the concepts and the unification and / or separation approach used in the determination of the concepts related to the themes were presented to an external expert for examination.

Reliability in qualitative research can be obtained by confirming the findings, retesting and confirming the results. This can be achieved by reconsidering the obtained data and checking the coding (Miles &

Huberman, 1994). In this context, it is necessary to repeat the coding process by a different independent coder who is not under the individual influence of the researchers and to determine the rate of agreement between the two codings. This compliance rate also determines the reliability of qualitative data analysis. In this study, the reliability of the coding process carried out by two different coders (one of them a researcher) was calculated with the Miles-Huberman coder reliability formula. This formula is (Percent Concordance = Concordance / (Total Concord + Discord) and it is expected that there will be at least 80% agreement among the coders (Miles & Huberman, 2016). As a result of the analysis, the total agreement obtained in this study was determined as 89.46%.

FINDINGS

First of all, the skills that the lecturers should have in the online teaching processes were examined. LQ was applied to the lecturers (n=10) and the findings are presented in Table 2. When Table 2 is examined, it has been determined that the average scores of the lecturers regarding the 4th item in the questionnaire ($\overline{X}$=3.10) and the average scores of the 5th item ($\overline{X}$=2.50). On the other hand, it was determined that the average scores ($4.10 \leq \overline{X} \leq 5.00$) of the answers given by the lecturers to the items other than the 4th and 5th items were high.

Table 2. Evaluation of Online Teaching Skills by Lecturers

Item Skills	N	χ	s	Level of Engagement
1. To be able to use email effectively	10	4,90	,316	Totally necessary
2. To be able to use online forums	10	5,00	0	Totally necessary
3. To be able to benefit from online chatting	10	5,00	0	Totally necessary
4. To be able design simple web pages	10	3,10	1,197	Indecisive
5. To be able design complicated web pages	10	2,50	1,179	Unnecessary
6. To be able make students engage in online lessons effectively	10	4,60	,516	Totally necessary
7. To be able listen to students effectively	10	4,60	,516	Totally necessary
8. To be able to give effective online feedback	10	4,70	,483	Totally necessary
9. To be able to quide students during the online learning processes	10	4,90	,316	Totally necessary
10. To be able to use question-answer strategies effectively	10	4,70	,483	Totally necessary
11. To be able to make online learning committees	10	4,10	,876	Necessary
12. To be able organize interactivity among online students	10	4,40	,699	Totally necessary
13. To be able interact with online students effectively	10	4,90	,316	Totally necessary
14. To be able to motivate online students effectively	10	4,80	,422	Totally necessary
15. To be able have effective time management skills	10	4,80	,422	Totally necessary
16. To be able to provide sustainable guidance during online learning processes	10	4,40	,699	Totally necessary
17. To be able plan online instruction/education	10	4,90	,316	Totally necessary
18. To be able to observe online learning processes	10	4,60	,699	Totally necessary
19. To be able to revise online learning processes	10	4,70	,675	Totally necessary

20. To be able adapt course content in line with students' needs	10	4,90	,316	Totally necessary
21. To be able adapt instruction methods/techniques in line with students' needs	10	4,80	,632	Totally necessary
22. To be able to develop positive attitudes towards online learning	10	4,60	,516	Totally necessary
23. To be able to innovate instruction in line with required changes in online learning processes	10	4,70	,675	Totally necessary

Table 3 shows at what level online teaching skills are deemed necessary by the lecturers.

Tablo 3. Requirement Levels of Skills Needed by Lecturers

Items	Requirement Level
Items; 1, 2, 3, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23.	Very High
Items 11. and 12.	High
Items 4. and 5.	Medium

According to Table 3, in order for the lecturers to ensure the academic success of their students in online learning environments; it has been determined that they need web design skills at a medium level, creating online groups and interaction among students at a high level, and all other skills at a very high level.

Within the scope of the supportive role of the lecturers in the learning processes, it is questioned how the lecturers contribute to the learning processes of the students in general. The results related to students' views on lecturers' role as contributors to learning are given in Table 4.

Table 4. Student Views on Lecturers' Role as Contributors to Learning

Lecturers' Contribution to Student Learning	***f***	**%**
They make a high-level contribution by providing various support options	407	%37
On-demand, they make a good contribution	297	%27
No ideas	198	%18
They make little contribution	187	%17
During online lessons, I don't feel like I have an lecturer	11	%1
TOTAL	1100	%100

According to Table 4, 37% (n=407) of the students stated that the lecturers made a high level contribution to the courses by providing various supportive options. On the other hand, 27% of the students (n=297) thought that the lecturers made a good contribution with the support provided on demand. While 18% (n=198) of the students stated that they had no idea, 17% of the students (n=187) thought that little contribution was made to

their learning. The remaining only 1% of the students (n=11) did not feel that they had a lecturer in online courses.

Within the scope of the research, the challenges encountered by the lecturers in the online teaching processes were asked. The coding of the views of the lecturers on this subject is shown in Figure 1.

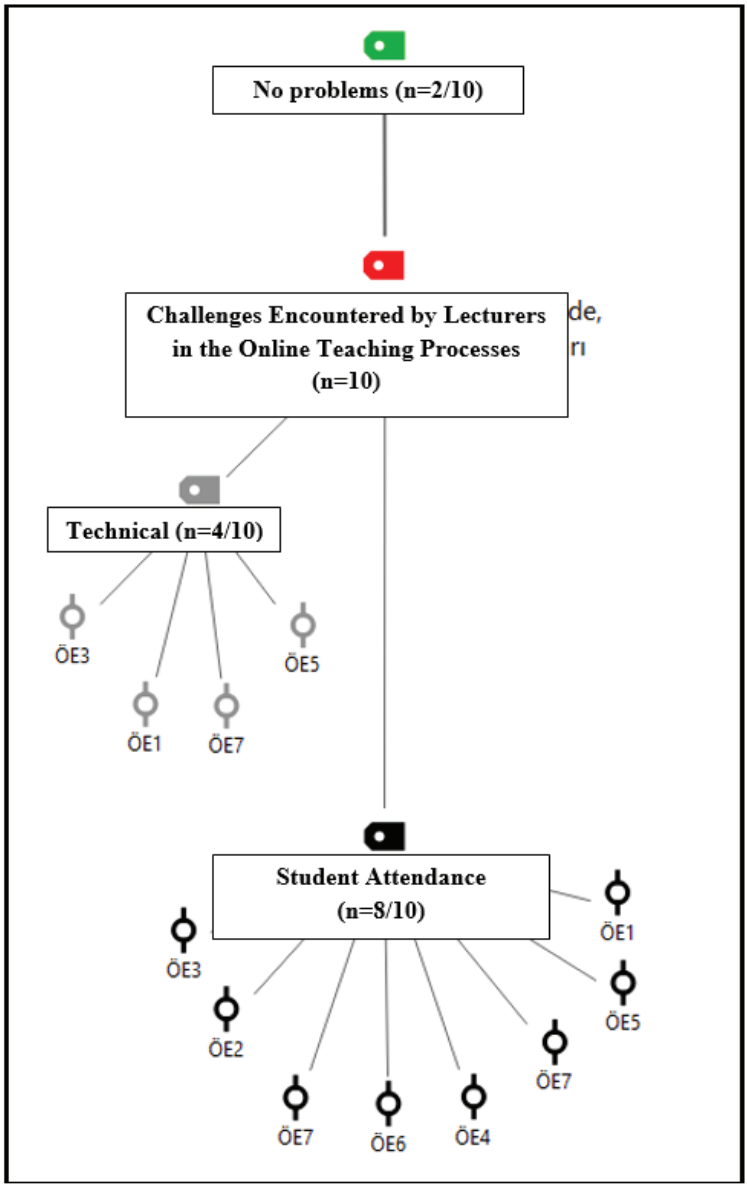

Figure 1. The challenges encountered by the lecturers during the online teaching processes

As a result of the lecturers'analysis, two (n=2) lecturers stated that they did not encounter any challenges during the online teaching process. Four of the lecturers (n=4) stated that they experienced technical problems during the online teaching process. Within the scope of technical problems, lecturers had problems with the internet connection, especially during the synchronous online teaching process. In this regard, L1 said that "*The interruptions that occur on the internet during the synchronous lesson make continuity impossible*." In addition, the most emphasized problem by the lecturers (n=8) regarding online courses was that student attendance is not sufficient. For instance, L7 said that "*The lack of attendance requirement reduces the entrance to synchronous lessons, which affects the understanding of the lesson*." L3 emphasized that students could not attend the lesson because they were also working at the time of the lesson, and added that "*Our department (child development) consists entirely of employed students, and this is one of the factors that hinder attendance.*"

Within the scope of the research, the students were asked about the challenges they encountered during the online learning processes. 822 students who participated in the qualitative dimension of the research were evaluated within the scope of the analysis. The results are given in Figure 2.

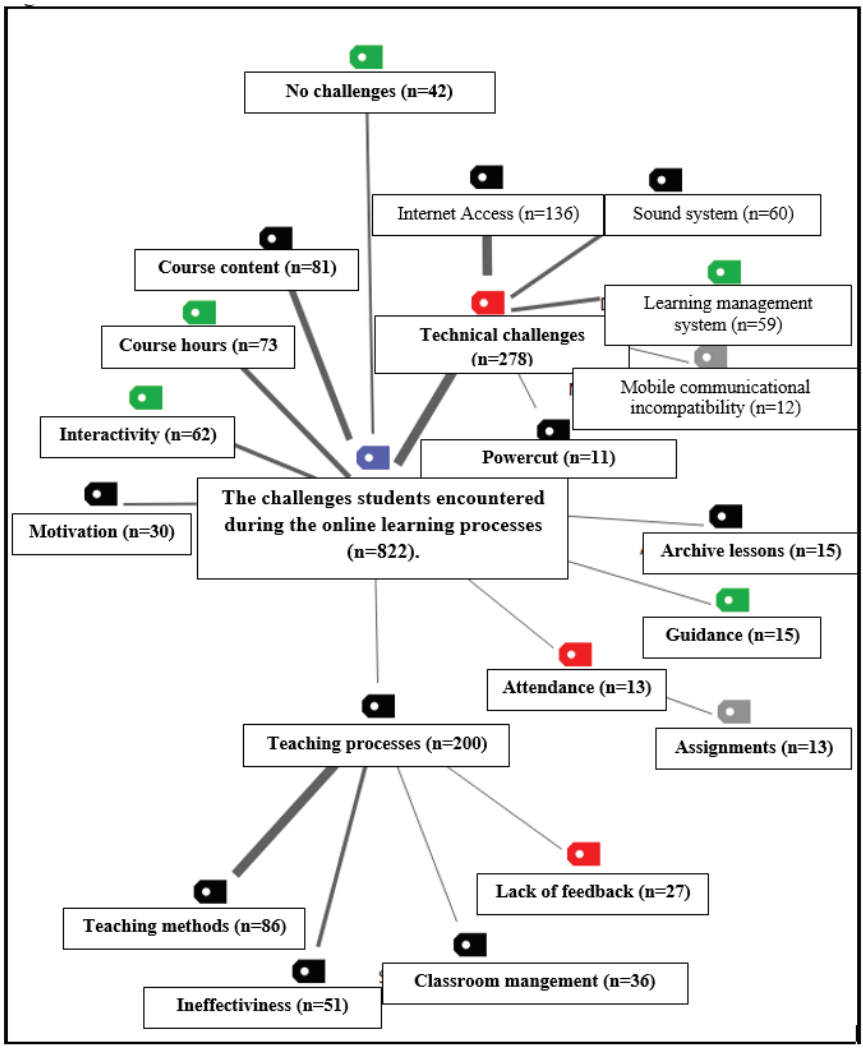

Figure 2. The challenges students encountered during the online learning processes

As a result of the qualitative analysis, 42 of the students who participated in the research stated that they did not encounter any challenges during the online teaching processes. However, it was clear that technical challenges were at the forefront among the problems experienced by the students. 278 of the students stated that they had technical challenges. In this context, 136 students stated that technical problems originated from the internet access. On this subject, S349 said that "*There are connection problems during some lessons, causing disconnection*." Challenges related to the sound problems were expressed by 60 participants. What is meant by these problems is that the lecturer's voice is gone during the

lesson and then the lesson is not perceived. As S236 stated that "*We do not understand the lesson when there are sound interruptions.*" 59 of the students stated that they had problems with learning management system (LMS). What is meant by these problems is that the difficulties arising from the inability to provide an orientation training session on the use of the new delivery system such as 'Adobe' compared to the old one, hinder the teaching. For example; S307 said that "*The old system was easier, I had difficulty using the current system… Let me be trained on the new system.*" Another technical challenge encountered by students is mobile communicational incompatibility. In other words, students cannot access online courses from their mobile phones. Regarding this, S352 said that "*I cannot attend the lesson from anywhere on my mobile phone.*" 11 of the students stated that the power cut was a problem. For example, S401 said that "*There is a power cut causing a connection problem*.", which means that the interruptions during the lesson caused by power cuts are technical problems that cannot be avoided.

Besides the technical problems, the most frequently mentioned problem area was the course content (n=81). What is meant by the course content is that it is not practical and mostly covers theoretical knowledge. Criticizing the course content, Ö80 said "*All courses are very theoretical… practical knowledge transfer is almost non-existent*." Another problem area faced by students is related to course hours (n=73). Students miss some lessons since the synchronous online lessons are delivered before 17:00 and they work at the time they should attend the lesson. On this matter, S320 said "*Because I work, it is difficult for me to attend synchronous online classes during the daytime*."

Among the challenges encountered by the participants during the online teaching processes are those caused by interaction (n=62). In this context, the students stated that they had interactional and communicational problems with the lecturers. For example, S323 said that "*Mutual communication is low, I cannot interact with the lecturers.*" There are students who think that they have a lack of motivation (n=30) in online teaching processes, which is an important problem. In other words, low motivation level is perceived as another problem area in the online teaching process. Regarding this problem area, S303 stated that "*I cannot study on my own as my motivation is low*."

Teaching processes (n=200), which can also be called the problem area related to the lecturers, were determined as another problem area perceived by the students. 86 of the students stated a problem about lecturers' teaching methods. It is perceived as an important problem that the lecturers deliver the materials by just reading during the online lessons. S53 said that "*The fact that the texts given as content are read by*

the teacher one by one during the lesson distracts me from the lesson." Another problem area related to the teaching processes is regarding the ineffectiveness of the lessons (n=51). Students think that online course delivery is not as effective as traditional lecture delivery. For example S807 said that "*The lessons are not effective, I understand it better through face to face lessons*." Another problem encountered in the context of teaching processes is about classroom management (n=36). Regarding this issue, students think that the lecturers do not pay attention to the lesson hours nor are they tolerant. S542, who has an opinion in this direction, said that "*The lecturer is late for the lesson and we have to wait for a while*." Insufficient feedback (n=27) in teaching processes was shared as an important problem by the students. In this regard, the students generally stated that the lecturers either answered the questions of the students late or did not answer them at all. S341 expressed his experience and criticism on this subject, "*I can't get answers to my questions*."

Archive lessons (n=15) emerged as another problem encountered by students. What is meant by archive courses is asynchronous course delivery. For example, S472 said that "*The course materials are not added to the archive on time*." The lack of guidance (n=13) is also seen as an important challenge for students. What is meant by guidance is that the lecturers who deliver the course do not guide the students. For instance, S351, who thinks that there is a lack of guidance and stated that "*Authorities should train me about the new system*." As a result of the analysis, it was revealed that there were also students who had difficulties at the individual level regarding course attendance (n=13). What is meant by the term class participation is the inability to attend synchronous lessons due to external factors. S362, who had problems with attendance, said that "*Online attendance in synchronous lessons is unfortunately impossible for those who working*.". Finally, assignments (n=13) was an area that students described as a challenge. Students think that too much homework is given in online teaching processes. In this regard, S471 said that "*We cannot focus on our lessons because of the time we have to spare for doing homework*."

Within scope of the current study, students' views on what kind of practices the lecturers can make in order to facilitate student learning were also examined. Thus, the expectations of the students from the lecturers on this subject were revealed. On this matter, 391 participants shared their opinions. The results of the analysis are given in Figure 3.

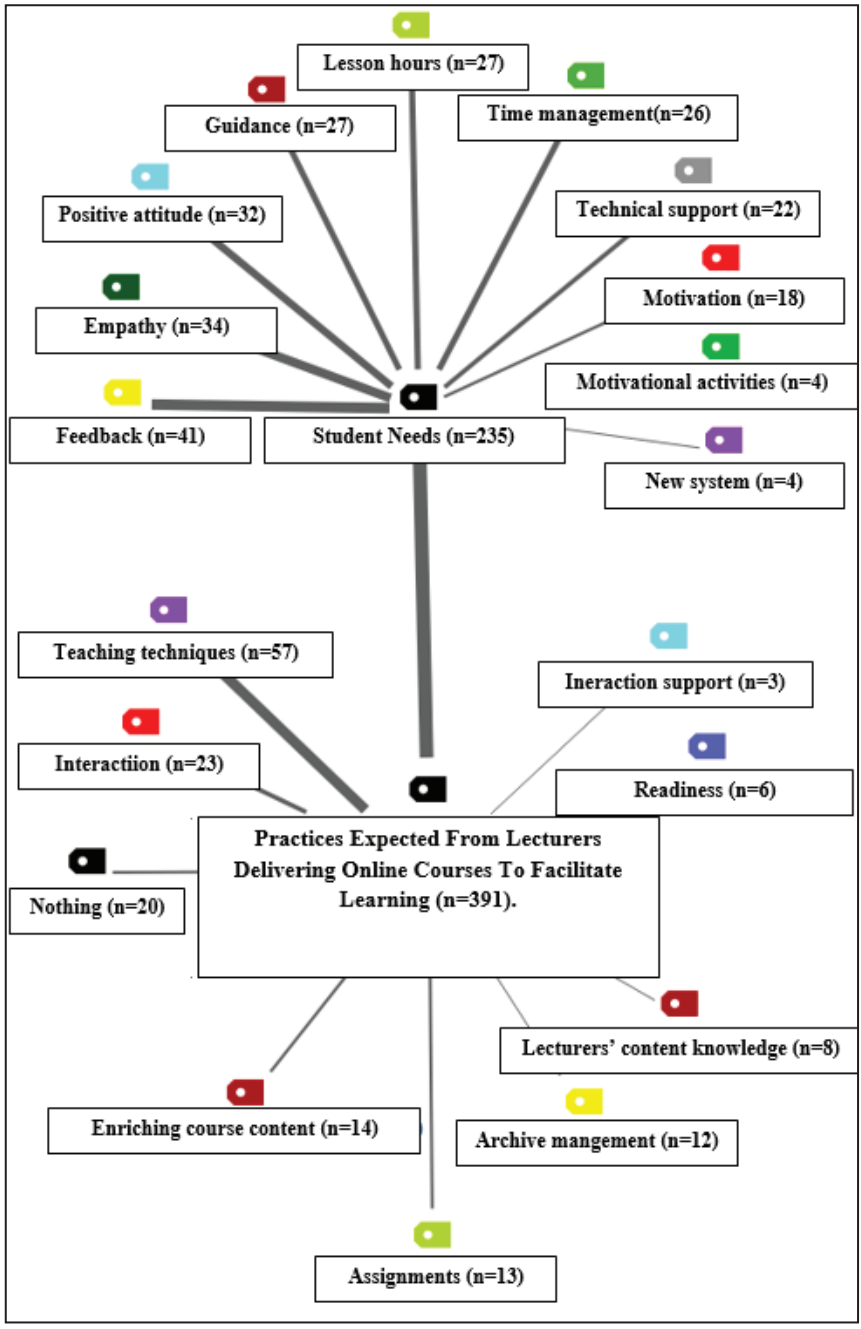

Figure 3. Practices expected from lecturers delivering online courses to facilitate learning

As can be seen in Figure 3, the practices expected from the lecturers mostly focus on student needs (n=235). Within the scope of student needs, 41 students expressed their opinions about the feedback. Regarding the feedback, the students expect answers to the questions they pose to the lecturers without wasting time. S7 said that "*I want a teacher who can answer my questions and help me solve my problems whenever I want*." Among the expectations of the students from the lecturers was their practice based on empathy (n=34). In this regard, students expect lecturers to understand themselves. For example, S432 said that "*I want an understanding lecturer*." The lecturers' positive attitude (n=33) is another expectation students request. On this matter, S442 said that "*Let our lecturers have positive attitudes towards us*." Guidance (n=27) practices are among the teaching staff practices determined within the scope of students' needs. In this context, students generally expect the lecturers to give direction to them. S763, expects them to lead them in a right direction, and added that "*I expect them to guide me to improve myself and to help me stand on my own feet.*". Lesson hours (n=27) was another requirement stated by the students. Students are obliged to attend asynchronous lessons because the synchronous lessons are held before 17:00. S78, who had a problem with this issue, said that "*I miss the lesson because I work until 17:00... Hours must be more appropriate.*" Students also have expectations about lecturer practices related to time management (n=26). In this regard, students have an expectation that the lecturers will not be late for the lesson and manage the lesson time efficiently. S119 made the following statement regarding the efficient use of lesson time: "*There should be only subjects related to the lesson, not unnecessary information during the lesson… It should not be talked about outside the content of the lesson.*" Students who need technical support (n=22) expect lecturers to fix the problems they experience during the online course whenever they need it. For example, S137 said that "*I need help to solve connection problems*." S594, among the students who had expectations from the lecturers in terms of motivation (n=18), said that "*I need special attention… my teacher should motivate me a lot… I can't study alone."* There are also students who expect the lecturers to include motivational activities (n=4) in connection with the motivation expectation. Students with this expectation want online courses to be made attractive through motivational activities. For example, S635 said that "*I should think about activities that will increase my motivation.*"

The students participating in the study have expectations for the practices of the lecturers in connection with the teaching techniques (n=57). Students who expressed their opinions regarding this matter stated that they had problems as to what to do during online lessons. For example, S637 said that "*It would also be nice if I were told what I should*

do in the lesson beforehand." He pointed out that the lecturers should guide the students more in the context of teaching techniques. Students who think that providing interaction and support (n=26) will facilitate learning, expect the lecturers to be in contact with them. For example, on this issue is S695 stated that "*Let me be informed when a system change occurs… let the communication be more effective.*" There are students who think that enriching the course content (n=14) will support learning, and therefore they share that they expect lecturers to focus on teaching during the lesson. Students who have such an opinion stated that the topics were scattered during the online lessons and they were distracted from the course objectives. S703 expressed his/her opinion on this subject with the following words: "*In lecture sessions, there should be questions about the course subject and course topics… I think it would be useful to open a separate session for conversations.*" Students, who think that practices related to assignments (n=13) are also effective on learning, stated that giving fewer assignments will affect their learning positively. For instance, S716 said that "*I should participate in the lesson livelier and more actively rather than doing homework. It would be better for our learning*."

Some of the students stated that effective archive management (n=12) would support learning regarding the management of asynchronous lessons. Thinking that archiving asynchronous lessons more regularly will help the learning process; for example S469 said that "*The archive needs to be prepared more often and carefully."* Among the students participating in the study, there are those who mentioned the importance of the content knowledge of the lecturers (n=8) on their learning processes. These students stated that the lecturers had deficiencies in their field knowledge. For example, S42 expressed his/her opinion regarding the matter as follows: "*Lecturers should know their subjects well*." Emphasizing that the lecturers should consider the students' readiness levels (n=6), the students shared that they did not feel ready for the online course. S815 stated his/her expectation on this subject as saying that "*Let us be given information about practice beforehand by the lecturers.*" And finally, 20 of the students who participated in the research stated that they did not have any expectations from the lecturers.

DISCUSSION AND CONCLUSION

Lecturers are required to fulfill various tasks during online teaching practices. In this context, lecturers must have some ceratin teaching skills for students' effective learning, such as facilitating, management and technical skills in order to perform the teaching preparation, course delivery and evaluation processes effectively. The lecturers participating in the current study emphasized that the skills that facilitate teaching and learning are more important in the successful preparation of education.

Moreover, they emphasized the necessity of these skills in improving the quality of online teaching processes. Within the scope of facilitating learning and teaching skills, especially the skills such as determining course topics by exchanging ideas with students, directing students to ask questions using the question-answer technique, asking for feedback and displaying a positive attitude increase the effectiveness of online teaching practices. Winne and Nesbit (2010) stated that lecturers delivering online teaching should have pedagogical skills that facilitate learning in order to transfer knowledge effectively. Lee (2021) argues that lecturers teaching online should have an understanding of how students learn in the virtual environment in terms of methods and processes. Similarly, Murphy (2007) stated that skills and competencies that facilitate learning, such as effective presentation, guiding students, and cooperating with students, ensure effective teaching. Therefore, the results of these studies support the findings of the current study in that the facilitating skills used by the lecturers in the online teaching processes improve the quality of the teaching processes.

On the other hand, it is obvious that the effectiveness of online teaching depends on the technology used during online teaching practices. As stated in the related literature, although lecturers are not expected to have high-level knowledge and skills in terms of technical skills, they should have basic skills in the use of technology. Studies conducted in this context (Abdous, 2011; Alman & Tomer, 2012; Bailey & Card, 2009; Bailie, 2011; Bawane & Spector, 2009; Fatimah, 2020; Carnoy et al., 2012) have shown that lecturers should have various technical skills.

The participants of the study emphasized that the students who participate in the research demand feedback from the lecturers and that they attach great importance to the feedback processes as it contributes to their more permanent and easier learning. The results of the studies in the related literature also support these findings of the research (Dahal et al., 2020; Douglas et al., 2020; Erickson et al., 2020; Trachtenberg et al., 2020).

The results of the study show that during online teaching, many students are not provided with the strong internet connection required for effective delivery of online courses. This makes it difficult to follow the 'Course Management System' (CMS) and makes learning experiences problematic. The role of meeting the technical needs of students in the successful continuation of online teaching has been demonstrated in several studies (Ametova & Mustafoeva, 2020; Chen et al., 2020; Geçgel et al., 2020).

Moreover, the students' opinions participating in the study show that the challenges encountered at the interaction level of the lecturers

have negative effects on their teaching performance as well as students' motivation. The importance and necessity of the interaction between the lecturers and students during online teaching has also been revealed within the scope of various studies in the literature (Garas-York, 2020; Saeed & Qunayeer, 2020; Tang, 2020 Warner et al., 2020).

Considering the solution proposals offered by the lecturers for the difficulties they encounter, they believe that providing the tools needed in the context of software and hardware, and improving internet connection would be fairly beneficial.

The solutions put forward by the students participating in the interviews for the challenges they encountered were mainly in the direction of improving the technical infrastructure. In addition, suggestions were made to provide training to students and lecturers on online teaching as well as developing online teaching activities.

When the challenges students encountered during online teaching practices are taken into account, the most emphasized ones are those they experienced during the synchronous lessons. For example, technical problems such as the internet connection and the interface used as well as the interaction problems with the lecturers negatively affect the quality of the lessons. Therefore, it is understood that online teaching has an important role in students' self-motivation and gaining self-directed learning skills. Researches on this subject (Coté, 2020; Lasfeto, 2020; Khalid et al., 2020; LaTour & Noel, 2021; Morgan, 2020; Zhu et al., 2020) show that there is a significant relationship between social interactions and students' self-directed learning readiness in online learning environments.

In this study, both quantitative and qualitative data obtained from students and lecturers show consistency with each other. Moreover, both data emphasize the significance of interaction between students and lecturers. In support of this conclusion reached in the current study, studies in the related literature also found that communication and interaction between lecturers and students play an active role in the success of online teaching processes (Chukwuedo & Ogbuanya, 2020; Gamage, 2020: Gracia et al., 2020; Linjawi & Alfadda, 2020).

A good number of institutions in the higher education system have begun to systematically pay more and more importance to online teaching. Besides, online teaching has now become a type of teaching that almost all higher education institutions plan to use permanently. Therefore, necessary arrangements should be made for the development of online teaching in order to reduce the differences between the qualifications of traditional teaching (face to face) and online teaching practices since there are several aspects of online teaching that differ from traditional one. For this reason,

lecturers' roles in online teaching have different characteristics from their roles in traditional teaching practices. In this research, it has been revealed that the primary role expected from the lecturers in online teaching practices is the motivation of the students in their learning processes. All in all, during online teaching, students also want the communication and interaction to which they are used in traditional teaching processes.

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Chapter 2

GATTEGNO'S SILENT WAY: A REVIEW OF THE GUIDING PRINCIPLES OF THE METHOD IN LIGHT OF POST-METHOD PEDAGOGICAL DEVELOPMENTS IN LANGUAGE TEACHING

Ahmet Remzi ULUŞAN[1]

1 Asst.Prof., Başkent Üniversitesi, ORCID ID: 0000-0003-4469-0819

1. Introduction

Gattegno's Silent Way drew the attention of language teaching professionals especially in the early 1970s due to the growing popularity of Cognitive Code Theory, which emphasized, as opposed to behaviorism, human cognition in language learning. It is, as termed by Nunan (1991), one of the *designer methods*. Cook (2008) notes that the method is more often considered as an "alternative language teaching system" (p. 266), as Gattegno based it not on the general tendencies of language teaching of the time but on his general theories of teaching, and it is grouped under the title of *alternative approaches and methods* by Richards and Rodgers (2014, p. 259).

Though the method is based on the pure idea that teachers should be as quiet as possible and students should be encouraged to talk as much as possible, it aroused confusion and disagreement among many of those involved in the field of language teaching, because it involved quite radical and revolutionary ideas which went against the traditional language teaching trends that existed up to that time. And, many professionals and teachers in this field are still skeptical of the method. It is criticized of being a harsh method as the learner seems to be bound to work in isolation, and natural communication is lacking badly in the classroom. Besides, the teacher applying the method can be become too distant and learners get very limited amount of help from him/her, and this situation causes learning itself to be at stake as it turns into an extremely tedious, trial-and-error process. Also, the use of rods and charts does not guarantee the inclusion of all aspects of the language being taught (Brown and Lee, 2015, p. 25-37)

This study does not intend to justify the efficiency of the method as a whole, as the researcher has not experienced the teaching of a language through the Silent Way. It focuses on certain principles that form the core of the method and that were first introduced to the field of language teaching by Gattegno, and evaluates them according to today's popular language teaching trends, as the researcher thinks these principles have not received the respect they deserve until now.

2. Problem

Due to the exaggerated silence of the teacher throughout the implementation of the Silent Way, its other characteristics, some of which seem worthy of praise, are overshadowed. The method is considered unconventional or even bizarre because today's language teaching trends that praise student-student interaction during class hours also place great value on personalized input (as Michael Long termed, *tailor-made comprehensible input* or learner-contingent I+1 from teacher-student interaction during class hours. Though it is still used in some parts of the

world and still has proponents, it doesn't seem to be getting the attention it deserves in FLT departments of universities where future language instructors are being trained. Just to display this fact, before the preparation of this article, 36 4th year students of an ELT department at a foundation university in Turkey were asked to rate, on a scale of 1-10, the 10 approaches and methods that are included in Larsen-Freeman and Anderson's popular book, *Techniques and Principles in Language Teaching* (2015), namely 'The Grammar-Translation Method', 'The Direct Method', 'The Audio-Lingual Method', 'The Silent Way', 'Desuggestopedia', 'Community Language Learning', 'Total Physical Response', 'Communicative Language Teaching', 'Content-based Instruction', and 'Task-based Language Teaching', and the Silent Way got the lowest score, even lower than the Grammar-Translation Method.

To tell the truth, these students did not have much practical experience in teaching English as they had not yet graduated from the university, but the result obtained from this limited survey gives some clues as to how the method is perceived after four years of studying ELT methodology. When some of the students were interviewed about what was wrong about the method, almost all the responses were based on the eccentricity of the teacher's silence, although they had been informed about the logic behind that silence in the undergraduate methodology courses they had taken. And, one response was really interesting: "this is not a method, but a fantastic product of the imagination of a person who has nothing to do with language teaching", referring to Gattegno's actually not being a linguist or ELT expert but a designer of math and reading programs.

By stating in their article that "rather than a clear-cut teaching methodology, the Silent Way constitutes a game-like approach to teaching a foreign language that has been based on careful observation of the workings of the mind", Yüksel and Caner (2014) seem to partially justify what my student said, perhaps interpreting the above-mentioned *alternative language teaching system* by Cook (2008) in their own way. Moreover, Kumaravadivelu (2006) prefers to call the Silent Way, Suggestopedia, Community Language Learning and Total Physical Response, *designer nonmethods* because, to him, they are not full-fledged methods as they do not satisfy the conditions of being a method (p. 94). Kumaravadivelu seems to be right when these methods are analyzed in accordance with the criteria that make a method such as objectives, syllabus, types of learning and teaching activities, the roles of learners and teachers, and the instructional materials (Richards and Rodgers, 2014). However, gone are the days when language teachers examined the methods and approaches that emerged in the history of language teaching in order to determine the best method in foreign language teaching and blindly followed its guidelines in foreign

language teaching.

We are in the rightfully named post-method era in which teachers no more slavishly follow the procedures prescribed by individual methods but study them to make a mix of principles, classroom practices and techniques from different methods and approaches (and, of course, combining them also with their own teaching experience) in order to meet the changing needs and demands of language learners in today's world. Post-method pedagogy is a language teaching approach that puts the teacher at the center of language learning and teaching, and highlights their beliefs, experiences and knowledge, because, today, it is believed that teachers are the people who know their students and their needs best, and who know the conditions of the environment they teach best. Therefore, as Richards and Rodgers (2014) state, post-method teachers are encouraged to develop and create their own methods by combining their knowledge of methods and approaches and their experience based on their own classroom context (p. 352-353). And, it should be noted here that as Can (2009) rightfully concludes in her article:

Post-pedagogy does not imply the end of methods the knowledge of which is contributing but requires educators to understand the confines of method and at the same time to recognize their own powers as great sources in creating methods.

So, the shortly given above information about the post-method era brings us to the conclusion that, methods and approaches are supposed to be evaluated according to in what way(s) they have contributed to the EFL world and which principles or practices of theirs can find their place in today's language classrooms. And, it seems plausible to think that if Gattegno and the Silent Way are viewed from this perspective, those prejudices about the method might be, at least partially, abandoned.

3. Method

As stated above, the author of the article firmly believes that the era of methods in language teaching is long over. The aim here, of course, is not to show that the method as a whole is actually successful and deserves to be used more widely in language classes. However, there are certain views embedded in the method that are far ahead of their time, and these views find many supporters among today's teachers and language teaching professionals, perhaps without knowing that they were put into practice years ago through the Silent Way. For this reason, in this study the findings, discussions and comments of various researchers in previous research and studies have been examined, and its unique principles and classroom applications have been handled separately to reveal whether certain norms of today's modern language teaching have any traces in the method.

The study is, quite naturally a theoretical one, as it is based on exploration of theories and compilation of information from previous studies and research on the method. There was no chance to observe the actual application of the method or to use a questionnaire to reveal the opinions of the instructors who used the method in teaching a foreign language, because there seems to be no institution applying this method in language instruction in Turkey today.

4. Findings and Discussion

Richards and Rodgers (2014) inform that the Silent Way makes use of a rather traditional structural and lexical syllabus, and add:

It exemplifies many of the features that characterize more traditional methods, such as Situational Language Teaching and Audiolingualism, with a strong focus on accurate repetition of sentences, modeled initially by the teacher, and a movement through guided elicitation exercises to freer communication. The basic unit of teaching in this method is the sentence, and the teacher focuses on the propositional meaning rather than communicative value (p. 289-290).

So, considering the value that almost everyone in the field today attaches to the acquisition of *Communicative Competence*, which, as put quite wisely by Canale and Swain (1980), briefly entails; (1) knowing how to use language for a range of different purposes and functions, (2) knowing how to use language appropriately in different settings and with different participants, (3) knowing how to produce different types or modes of discourse, and (4) knowing how to maintain communication despite having certain gaps in one's interlanguage, there is nothing worth mentioning about the way language is handled and presented in the method (Richards and Rodgers, 2014, p. 289-290). However, this fact can be excused because the method was designed by a person outside the field at a time when the syllabi and lesson practices of Situational Language Teaching and Audiolingual Method dominated the world. Therefore, this study focuses on the principles of the method related to learning rather than how the method approaches the language being taught.

4.1. Teacher's Silence

The most eye catching feature of the Silent Way is teacher's silence, and according to Yüksel and Caner (2014), it should not be seen merely as a reaction to traditional language teaching methods in which teachers do the majority of the talking and are very active in dominating classroom activities. They state that "it is used to focus students' attention, elicit their responses and encourage them to correct their own errors." It might be

that Gattegno had no idea of it when he suggested that teacher be silent, but Stevick (1975), citing evidence from research on short-term memory, supports teacher's silence in the Silent Way by informing that the silence which follows the teacher's presentation of a new sound or word is a very efficient use of short-term memory as it gives the mind maximum opportunity to extract information from an aural input.

Silence in this method, as put by Larsen-Freeman and Anderson (2015) is also a tool that "helps to foster autonomy, or the exercise of initiative", and that "removes the teacher from the center of attention so he can listen to and work with students" (p. 59).

Finally, Hsia (2015), who includes the method in the group of humanistic methods, states that teacher's silence is to encourage interdependence between the learners as the students frequently learn by overhearing one another. They listen to each other rather than listening only to the teacher so they are not absolutely dependent on a single authoritative voice and their collective memory and resources are just as reliable.

The above given views by different professionals may seem to be attempting to justify the exaggerated silence of the teacher, but they do not save it from being criticized of preventing the formation of a communication in accordance with today's norms in a language classroom. However, it should be given credit for the fact that it brings to the minds of people in the field of language teaching today the notions of *learner autonomy* and *peer interdependence*, though it was designed almost 60 years ago.

4.2. Discovery Learning and Problem Solving

As noted by Brown and Lee (2015), *Discovery Learning*, which became popular as an educational trend of 1960s "advocated less learning 'by being told' and more learning by discovering for oneself various facts and principles" (p. 26). Bruner (1966), who is known as the originator of discovery learning, categorizes the benefits of learning through discovery as (a) the increase in learners' intellectual potency, (b) the shift from extrinsic to intrinsic rewards, (c) the learning of heuristics by discovering, and (d) the aid to conserving memory (p.83). When applied carefully, it is widely acknowledged that it increases motivation and participation, supports autonomous practice and independence, ensures long-term retention of knowledge, and contributes to lifelong learning. Richards and Rodgers (2014), emphasizing its influence on Gattegno's method, summarize the learning hypotheses behind the Silemt Way as follows:

- the facilitation of learning through encouraging inductive learning by discovery,

- engaging learners in problem solving while using new language material, and
- accompanying learning with physical objects. (p. 291)

Brown and Lee (2015) state that, in order to achieve this, teachers were expected to provide single-word stimuli or short phrases and sentences, once or maybe twice and then students were supposed to refine their understanding of meanings and pronunciation among themselves, with minimal corrective feedback (p. 26). In one sense, this was too harsh a method, and the teacher was too distant to encourage communication. "Silent Way practitioners found that students needed more guidance and overt correction than the method advocated" (ibid). This is correct, but today, as mentioned above, we know that presenting everything on a silver platter is not accepted as an appropriate teaching method. Students need less teacher talk than they usually do, and they need healthy doses of discovery learning in classroom activities. They should be allowed to handle things on their own, and, language learning is no exception in this regard, nor is the age of language learners.

As Rod Ellis (2015) informs while mentioning the critical age hypothesis, research has shown that older learners are better equipped to make use of conscious learning strategies, and children, however, have an advantage in implicit learning (p. 43). So, in today's language classrooms language teachers equipped with modern teaching techniques are supposed to provide opportunities for their students to associate new learning elements with their previous knowledge and guide their students to discovery learning. The ages of the learners do not change the situation as the older ones make use of conscious learning strategies and the younger ones draw on implicit learning.

Considering today's modern practices and analyzing the views of the theorists and psychologists such as Jean Piaget, Jerome Bruner, John Dewey and Seymour Papert, who contributed to the emergence of discovery learning, one may find many deviations in the application of discovery learning in the Silent Way, as, first of all, everything is strictly under the control of the teacher, and more importantly, discovery learning is much more than starting with what students already know and building from that to the unknown. However, no one can deny that Gattegno was one of the first (or perhaps the first) to try to use discovery learning (though partially) in language teaching with certain problem-solving activities. After all, Gattegno's views in his writings (1972, 1976) give the impression that if, in late 1960s and early 1970s, people had the chance to make use of technological tools (internet, computers, i-pads, mobile phones, etc.) enjoyed by the language learners today, he would not hesitate to import

them into his methodology at the maximum level in order to realize all the principles of discovery learning. Color-coded pronunciation, word charts, and colored bars can be seen as a kind of substitute for the aforementioned technology that students did not have the opportunity to use at the time.

4.3. Awareness-raising and learner autonomy

Gattegno, in his books published in 1972 and 1976, repeatedly, and quite rightfully, state that knowledge is not something to be transferred from person to person, but a construct that must be actively developed through personal experience (as implied above, this is also the main principle of the discovery learning). Therefore, the purpose of education or the task of the language teacher is to raise awareness that there is some knowledge to be gained, rather than seeing students as passive recipients of knowledge. The use of word charts in the Silent Way, as Young (2012) puts it, frees the students from the need to rely on memorization, and thus they become more autonomous. "This in turn allows the teacher to devote more attention to being a sensitive source of feedback during the students' exploration of the language, indicating systematically when changes need to be made and finding the best way of inducing them" (ibid).

Larsen-Freeman and Anderson (2015), referring to the Silent Way teacher as a technician or engineer, state that "the teacher, relying on what his students already know, can give what help is necessary, focus the students' perceptions, 'force their awareness,' and 'provide exercises to insure their facility' with the language" (p. 62). And, everybody knows the importance given to awareness-raising in the field of language teaching today. Especially in mixed-ability classes, awareness-raising is a technique frequently used by language instructors with a goal to enable learners to respond to and process the new information according to their level of competence. Brown and Lee (2015) note that in Communicative Language Teaching (CLT) "students are given opportunities to focus on their own learning process through raising their awareness of their own styles (strengths, weaknesses, preferences) of learning and through the development of appropriate strategies for production and comprehension" (p.32). Such awareness and action help to develop autonomous learners capable of continuing to learn the language beyond the classroom and the course.

As Richards and Rodgers (2014) put it, the Silent Way is a top-down approach to learning as are the Audiolingual Method and Situational Language Teaching in which "the learner is expected to submit to the prescriptions of the method and is not consulted or involved in making decisions about how to approach learning" (p. 332). However, whether top-down or not, if one views what Gattegno does in his method with an

objective eye, he/she can see that Gattegno, though in his peculiar way and with slightly different goals, took the very first steps to achieve one of the key aspects of modern language teaching many years before the birth of CLT.

Rubin in 1975, as cited by Brown and Lee (2015), "named fourteen characteristics of language learners all of which placed responsibility on the learner to take action, to take charge of their learning, to create opportunities for using the language, to utilize a variety of strategies, and to organize information about language" (p.74). These characteristics are all related to self-regulation and autonomy which are indispensable components of language learning today, and Brown and Lee rightfully claim that "this advice still holds!", and add:

Autonomy is now almost universally manifested in the classroom in the form of allowing learners to do things like setting personal goals, developing awareness of strategic options, initiating oral production, solving problems in small groups, and practicing language with peers (ibid).

Besides, in the era we live in today, the enormous increase in number and diversity of technologies in teaching and learning environments has led people to increasingly turn to learner-centered approaches in language teaching, because students have much bigger opportunities to access and use knowledge themselves (Ersanlı, 2016), and this fact has facilitated the realization of one of the most advocated ideals of today's language teaching world, i.e. enabling learners to learn according to their priorities. As a result, language teachers' role has shifted from an ultimate source of information to an advisor, a guide or a facilitator.

Richards and Rodgers (2014) state that "learners are expected to develop independence, autonomy, and responsibility", as "the absence of correction and repeated modeling from the teacher requires the students to develop 'inner criteria' and to correct themselves and "the absence of explanations requires learners to make generalizations, come to their own conclusions, and formulate whatever rules they themselves feel they need" (p. 295). If all those methods and approaches that have emerged in the history of language teaching are analyzed, it can be easily seen that Gattegno's Silent Way, though it was still teacher-controlled and though teacher's silence in the method seems to be too radical, was the first practical attempt to change the role of the language teacher, and perhaps, to lay the first seeds for his/her present role in the language classroom, and it paved the way for the adoption of the concept of learner autonomy in language teaching.

4.4. Student-centeredness

As expressed above, the Silent Way is generally considered to be one of the alternative or humanistic methods. This is because it rejects the behavioristic model, the most popular approach to language teaching of its time and considers learning to be a conscious and cognitive process. Though not as much as the other humanistic methods, it gives considerable importance to the affective aspects of learning as well (Young, 2002), and, as implied by Gattegno himself many times, attempts to involve the whole of the learner throughout the language instruction (1972, 1976). This brings us to one of the most popular post-method era tendencies of language instruction, i.e. student-centered learning, because humanistic perspective is considered to be one of the starting points of the student-centeredness (Stevick, 1990).

'Teaching should be subordinated to learning' is one of the backbone principles of the Silent Way, as "Gattegno believed that to teach means to serve the learning process rather than to dominate it" (Larsen-Freeman and Anderson, 2011, p. 51). Although Gattegno, as cited by Richards and Rogers (2014), makes extensive use of his understanding of first language learning processes as a basis for deriving principles for teaching foreign languages to adults, he also emphasizes that the processes of learning a second language are radically different from those involved in acquiring a first language. He proposes that an artificial approach should replace a natural approach, and this approach "is based on the principle that successful learning involves commitment of the self to language acquisition through the use of silent awareness and then active trial" (p. 292). And, the principle of 'teaching should be subordinated to learning', as put by Richards and Rogers, "places a focus on the self of the learner, on the learner's priorities and commitments" (ibid). Even Kumaravadivelu (2006), who doesn't see the Silent Way as a method, gives Gattegno his due by noting that the classroom procedures of the method are "consistent with the theoretical underpinnings of a learner-centered pedagogy" (p. 94). Kumaravadivelu seems to be right if the blurred vision caused by the prejudice about the teacher's silence is disregarded and classroom procedures suggested by Gattegno are evaluated in accordance with Felder and Brent's (1996) definition of student-centered learning, i.e. "a broad teaching approach that includes substituting active learning for lectures, holding students responsible for their learning, and using self-paced and/or cooperative (team-based) learning" (p. 43).

The imprints of constructivist theory on student-centered learning (SCL) is quite vivid, which, as put by Richards and Rodgers (2014), sees learning as something that results from the learner's internal construction of meaning rather than viewing it as a passive process and the result of

internalization of outside knowledge (p. 27). Jacobs and Renandya (2016) note that student-centered learning (SCL) "shifts the focus of instruction from teachers to students and prepares students to be lifelong learners, i.e., people with the ability and desire to continue learning inside and outside of formal education". They add that there are ten elements of SCL, trying to link, quite successfully, these elements with today's prevailing second language pedagogy. These elements are (1) *students and teachers as co-learners*, (2) *student-student interaction*, (3) *learner autonomy*, (4) *focus on meaning*, (5) *curricular integration*, (6) *diversity*, (7) *thinking skills*, (8) *alternative assessment*, (9) *learning climate*, and (10) *motivation* (p.14).

Searching for similarities between the above-mentioned elements of SCL, which dominates language teaching pedagogy today, with a method whose first seeds were planted in the early sixties, does not seem very promising at first glance, but if the method is evaluated with an objective viewpoint free from prejudices, and taking into account the period in which it was created, some early but ambitious practices of a number of these elements can be observed in the Silent Way.

One of these elements is *student-student interaction,* which, as stated by Larsen-Freeman and Anderson (2015), is desirable and encouraged to make students learn from one another. They interact and suggest alternatives to each other (p. 63). And, one of the reasons for the teacher's silence is to help make this happen. Learners in the Silent Way, as Richards and Rodgers (2014) state, "must learn to work cooperatively rather than competitively", and "need to feel comfortable both correcting each other and being corrected by each other" (p. 296). These principles are way ahead of their time, but not easy to realize. However, once realized, it seems possible to say that the last two elements of SCL, namely *learning climate* and *motivation,* are also achievable in this method.

The other element that can be observed in the Silent Way is *learner autonomy,* as Gattegno (1976) himself uses the term *autonomous* when describing learners as problem solvers who are "independent, autonomous and responsible" (p. 45). It is one of the basic goals of the method, and, how Gattegno approaches learner autonomy is explained above.

As implied above, Gattegno's language teaching system is based on a problem-solving approach to learning a foreign language". This is because Gattegno (1976) sees this problem-solving approach as the best way to encourage students to develop internal criteria that allow them to monitor their own production and correct themselves. As a result, he expects students to be actively engaged in learning process, to be motivated to explore, to develop their understanding and apply their new knowledge. And this brings us to *thinking skills*, the element of SCL which, according

to Jacobs and Renandya (2016), involves going beyond the information given to them, such as applying it, giving examples, disagreeing, making new connections, teaching each other, and discovering (p.14).

One more element by Jacobs and Renandya that needs to be mentioned here is *focus on meaning*. As it is known, *meaningful learning* is a concept whose importance was stressed by cognitive psychologists as a reaction to the concept of rote learning advocated by behaviorists. To them, new material to be learned would be lodged more efficiently when added to the existing cognitive structure. This brings us to the concept of *transfer* which, according to Brown and Lee (2015), underlies all meaningful learning, as they wisely state:

Because L2 learners naturally seek to transfer existing knowledge/ ability, efficient (and successful) learning will result from a process of making meaningful associations between a learner's existing knowledge, skills, and emotions and the new material to be learned" (p. 71).

As Richards and Rodgers (2014) put it, materials specific to the Silent Way such as colored rods, color coded pronunciation and vocabulary wall charts, a pointer, and reading/writing exercises "are used to illustrate the relationships between sound and meaning in the target language" (p. 297). And, it should also be noted that these materials are used by the students as well as the teacher to promote language learning by direct association" (ibid). These materials, especially colored rods, play a major role in providing visible actions or situations in which meaning is clarified so that language is connected with meaning. In short, the silent way can be seen as the first attempt in language teaching to emphasize meaningful learning in the sense that cognitivists implied.

Larsen-Freeman and Anderson (2015) state that the Silent Way teacher never gives a formal test but assesses student learning all the time, as "his silence frees him to attend to his student and to be aware of these needs", because "the needs will be apparent to a teacher who is observant of his students' behavior" (p. 64). This is a typical process-oriented approach to evaluation, because Gattegno believes that learning takes place in progression and the teacher should "look for progression, not perfection" (ibid), because every learner has different learning rates. Thus, as Yüksel and Caner (2014) put it, the best way to evaluate students is considered to be the observation of individual progress, where the teacher seeks steady improvement and the ability to transfer a skill to a new learning area. These facts about the method do not indicate that *alternative assessment,* one of the most important elements of SCL, is fully implemented, but it is clear that such an alternative to formal exams which until then (and even for many years later) were considered to be on of the most important

integral components of language education, was beyond imagination at the time the method was designed. And, Gattegno deserves great praise here.

Trying to relate the Silent Way to the other elements of SCL by Jacobs and Renandya, such as students and teachers as co-learners, curricular integration, and diversity seems to be very difficult, given the era in which the method was designed and considering the fact these concepts are still very difficult to realize in language classrooms. There is no mention, and even hint of them in Gattegno's books (1972, 1976) anyway.

5.0. Conclusion

It is known that the era in which language teaching is practiced today is called *the post-method era*. Language teaching methods are no more seen as prescriptions that teachers slavishly follow in language classrooms, but rather as a source of useful practices they select according to their and their students' particular needs and purposes. In this respect, no matter how weird Gattegno's Silent Way may seem due to the teacher's exaggerated silence, it should be noted that certain principles and practices of the method were far ahead of the time it was designed, as they pioneered in emphasizing certain norms of current language teaching such as learning through discovery, problem solving, awareness raising, learner autonomy, and student-centered learning.

Being the first person to devise a method that incorporated most of the principles of cognitivism, Gattegno seems to have redefined language learning and teaching and provided the field with many valuable fresh insights. Though these principles and practices do not meet today's standards to the fullest extent, Gattegno deserves credit for introducing such revolutionary ideas after so long a period of dominant behavioral teaching practices and being one of the most important figures in the field that paved the way for language teaching tendencies today.

Finally, the current post-method era places teachers at the center of language learning (not, of course, in the behaviorist sense that they direct and control all the language behavior of their students), appreciates their beliefs, experiences, and knowledge, and encourages them to develop and establish their own methods as they gain experience in the classroom and learn about different methods and approaches. If today's teachers manage to overcome their prejudices about the method, which stem in part from the fact that the above-mentioned and praised principles are overshadowed by the traditional grammatical and lexical syllabus it follows, as well as certain behaviorist classroom practices it employs, it is rather plausible to say that those pure ideas behind the Silent Way can be of great help to their efforts to develop their own way of teaching.

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Chapter 3

BIBLIOMETRIC ANALYSIS OF THESES ON ENVIRONMENTAL LITERACY

Sevil ÖZCAN[1]

1 Assist. Prof., ORCID: 0000-0001-6352-0255, ADÜ, Aydın Sağlık Hizmetleri MYO, Çevre Sağlığı Programı, sozcan@adu.edu.tr

1. INTRODUCTION

The importance of the environment and people's behavior towards the environment is increasing day by day. As a result of the climatological and geological changes that started to be felt more in the millennium, people are massively affected negatively. The most important factor of this rapid change in the ecosystem is human. However, it is not only human but also living and non-living nature that is affected by the negative conditions that arise. Environmental education, water, soil, forests, etc. in addition to protecting and developing natural resources, it focuses on protecting and improving the entire environment, including ecosystems, biospheres and biomes (Ünal & Dımışkı, 1999, p. 143). Environmental education, over time, aims to go beyond informing societies about the environment and to make them skilled and willing participants in environmental management (Peyton et al., 1995, cited in Yang & Filik İşçen, 2013, p. 132). Today, the term "literacy" is used in the sense of being well-educated in a certain field and having extensive knowledge about this field. The concept of EL, which was first used by Charles Roth in 1968, was defined as the level of environmental knowledge and awareness of individuals (Roth, 1968; cited in Altınöz, 2010, p. 14). EL is the situation in which individuals are equipped with the knowledge to make responsible choices on behalf of both nature and society, as well as future generations, in ensuring the healthy functioning of the ecosystem of which they are a part, developing it, preventing its destruction and renewing the damaged systems, and ensuring the continuity of the elements of the ecosystem on earth. It is among the duties of the higher education institutions to meet the qualified manpower needs of societies, to train scientists or academicians, to produce information that will guide the development of countries, and to transform this knowledge into practice and transfer it to the society. When the higher education institution is mentioned, associate, undergraduate and postgraduate (MSc and PhD degrees) education steps come to mind in Turkey. Generating knowledge and transforming this knowledge into practice are among the goals of postgraduate education, especially PhD programs. Social transformation and science production in almost every field is related to postgraduate programs in social, health-related, such as education, economics, management, politics, or in basic sciences such as environment, biology, physics, and chemistry. Postgraduate education should be shaped according to the interest of the student and should encourage more creative, courageous, and multidisciplinary research, as well as being able to provide systematic and open direction to meet the interests and needs of the society and the globalizing world, providing professionalization in the education process.

The number of scientific studies in all fields is increasing day by day, and there are many independent studies with different results on a specific subject. The basis of science is based on the accumulation of knowledge from the results of these studies, which have been carried out in large numbers. Over time, there has been a need for comprehensive and reliable studies that will interpret the stack of information that emerged as a result of the studies carried out by different researchers in the same field and shed light on new studies. Such analysis was not needed albeit due to the small number of studies conducted on the same subject in previous years. However, today, the rapid increase in the number of studies in many fields of science has brought these studies together to determine the gaps in the literature that provide data in terms of various factors, or studies such as bibliometric and meta-analysis that guide researchers working in the same field have become necessary. Bibliometric studies are important in terms of providing quality and quantity presentation of scientific publications in a certain field. Bibliometric analysis is the number of authors of certain documents or publications, the journal in which they are published, the subject, the number of citations, etc. quantitative analysis of some of its properties. In bibliometric research, the future of the field is shed light on by evaluating many criteria such as the publication qualifications of the disciplines, the number of publications and the characteristics of the journals in which they are published (Alkan, 2014, p. 42). Handling the works produced in a field in certain periods will provide information about this field; in other words, it enables the development of the related discipline to be noticed, the problems and deficiencies in this field to be revealed and discussed with the suggestions to be put forward in this regard (Çiçek & Kozak, 2012, p. 736; Yılmaz, 2017, p. 66).

1.1. Statement of the Problem

Environmental education gains importance in order to understand the world and our environment, which is in constant interaction with the living things live on it and in it, and accordingly, to teach the future generations well, and to raise them as conscious and responsible individuals. Thanks to environmental education, it is possible to raise environmentally literate individuals who will contribute to the sustainability of living and non-living ecosystems. When the literature is examined, it has been seen that bibliometric studies on the theses produced in Turkey are mostly on tourism and gastronomy, which is a sub-branch of tourism (Akkaşoğlu et al., 2019, pp. 1193-1218; Ayaz & Türkmen, 2018, pp. 22-38; Güdü Demirbulat & Tetik Dinç, 2017, pp. 20-30). There was no bibliometric study on the theses on environment and education. While this bibliometric research to be conducted on EL fills an important gap, we believe that it

will also guide postgraduate faculties and their students working in this field.

1.2. Purpose of the Study

The aim of this study is to investigate the situation and structures of postgraduate theses on EL and environmental health literacy in Turkey. For this purpose, the bibliometric analysis method, which is an analysis technique preferred in many disciplines today, was used.

1.3. Problem of the Study

During the pandemic period we have been experiencing for the last 2 years, environmental and environmental health awareness has gained a completely different dimension. From this point of view, a bibliometric study on EL and EHL, which is a current and important issue at the global level, has been planned. Although this situation is seen to be related to the field of health, it is within the scope of education, especially biology education.

1.3.1. Sub-problems of the study

In this study, postgraduate theses on EL and EHL, which were completed and open to access at CoHE thesis center, were examined with the bibliometric method, and answers were sought for the following questions:

1. What is the number of theses completed on EL and EHL, and their distribution by years?

2. What is the distribution of theses according to universities, institutes, departments and programs?

3. Is there a continuity in terms of advisors and graduate students in theses on EL and EHL?

4. Which methods and techniques were used in the theses?

5. Who is the sample group in which the research studies were conducted/applied?

6. What are the sample sizes studied in the theses?

2. METHODOLOGY

This study is a descriptive research and for this purpose, a search was carried out on the concepts of EL and EHL on the thesis search menu in the National Thesis Center Database (CoHE Thesis) on 25, 05, 2021. When EL and EHL are scanned separately as search criteria in CoHE thesis

center, 49 theses on EL are listed. As a result of the scanning, a total of 49 theses, 12 of which were PhD and 37 of them MSc were reached between 2008 and 2021. It was determined that, one of the thesis which was result of EL searching was made in the field of foreign language education, so it was excluded. Because the terms "environment" and "teaching" were included in its' index. Unfortunately, it has been observed that there is no thesis prepared in the field of "environmental health literacy".

In this study, document analysis method was used as data collection technique. Document review is the examination of written and visual materials related to the problem studied, in addition to observation and interview, in conditions where direct observation and interview are not possible or in order to increase the validity of the research (Özkan, 2019, p. 26). A twelve-item checklist created by the researcher was used as a data collection tool. These open-ended items in the list are intended to identify descriptive information such as the year, institute and university of completion of the theses, the subject, the method/technique used, the sample group and their size.

2.1. Participants

The study was carried out on a total of 48 theses, of which 12 (25%) are PhD and 36 (75%) MSc degree theses, all of which are open to access and downloaded and filed. Then, these theses prepared on EL in Turkey were analyzed bibliometric method within the framework of various parameters. Content analysis was carried out on the subject area indexed in the CoHE thesis center. The year it was accepted, the institute it was prepared in, the department (Dept.), advisor, terms used in indexing, research method, sample group, sample size, data collection tools were analyzed using descriptive statistic methods. The data gained were presented with graphics and in tables, and frequencies and percentage values are in the text.

3. FINDINGS

In this section, information on the theses obtained as a result of the examination according to the items in the checklist has been presented in the form of subject headings. The percentage values of the data are given in the text in order not to cause any congestion in the tables.

3.1. Subject Areas of the Theses: The findings regarding the subject areas in which the theses are classified in CoHE thesis center are given in figure 1. Distribution of the theses' subject areas 44 (91.7%) of them in the field of education and training, three (6.2%) of them in the field of biology and one thesis (2.1%) in the field of nursing were found to be.

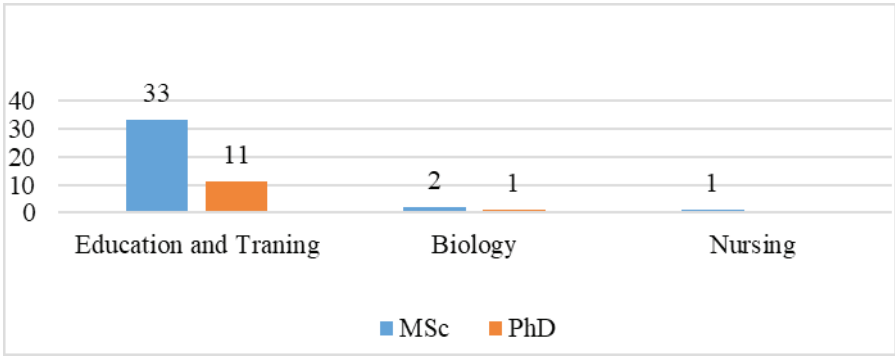

Figure 1. Distribution of the theses by subject areas.

3.2. Distribution of the Theses by Years: The data on the years in which the theses prepared on EL were completed are given in Figure 2. When the distribution of theses by years is examined, it has been seen that the most theses were produced (n = 12; 25%, PhD = 2, MSc = 10) in 2019. In addition, it is seen that between 2008 and 2020, 1-4 MSc theses were completed each year and there was a continuity except for 2019. But, this is not the case in PhD dissertations (Fig 2).

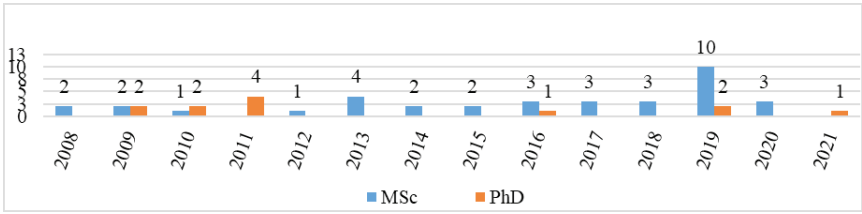

Figure 2. Distribution of the theses by years.

3.3. Language of the Theses: Of the 48 theses examined, 29 (80.5%) of the MSc theses were in Turkish and seven (19.5%) were in English. While nine (75%) PhD theses were prepared in Turkish and three (25%) in English. In total, 38 (79.2%) of the theses are in Turkish and ten (20.8%) are in English (figure 3).

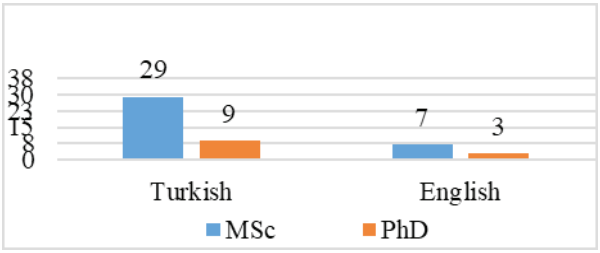

Figure 2. Distribution of the theses by languages.

3.4. Universities Where the Theses Are Prepared: Looking at the universities where the theses were made, the following findings were obtained (table 1; universities are listed alphabetically). According to CoHE data, there are a total of 203 universities in Turkey, three of which are passive, 129 state and 74 foundations. As a result of the examination, it was determined that the number of universities that produced postgraduate thesis in the field of EL, which is the subject of the research, is 24, which corresponds to 11.8% of the existing universities.

The highest number of theses on EL were prepared by the postgraduate students who studied in institutes affiliated to GU (n = 9; 18.7%) (MSc = 6, PhD = 3) and METU (n = 7; 14.6%) (MSc = 4, PhD = 3). MU (MSc = 2, PhD = 1) and ASU (MSc = 3) universities come next with three theses (6.2%) each. Two (4.2%) theses were prepared at ADYU, FU, BILKENT, KU, NEU and SAU universities, and only one (2.1%) was prepared hitherto at the other 14 universities in table 1.

Table 1.

The Universities Which Was Prepared Theses and Their Distribution.

No	Universities	MSc *f* (%)	PhD *f* (%)	∑ *f* (%)
1	Adıyaman University (ADYU)	1 (2.8)	1 (8.3)	2 (4.2)
2	Afyon Kocatepe University (AKU)	1 (2.8)	-	1 (2.1)
3	Aksaray University (ASU)	3 (8.3)	-	3 (6.1)
4	Amasya University (AMASYA)	1 (2.8)	-	1 (2.1)
5	Atatürk University (ATAUNI)	-	1 (8.3)	1 (2.1)
6	Boğaziçi University (BOUN)	1 (2.8)	-	1 (2.1)
7	Çukurova University (CU)	1 (2.8)	-	1 (2.1)
8	Dumlupınar University (DPU)	1 (2.8)	-	1 (2.1)
9	Fırat University (FU)	2 (5.5)	-	2 (4.2)
10	Gazi University (GU)	6 (16.7)	3 (25.0)	9 (18.7)
11	Gaziosmanpaşa University (GOP)	1 (2.8)	-	1 (2.1)
12	Hacettepe University (HU)	1 (2.8)	-	1 (2.1)
13	İhsan Doğramacı Bilkent University (BILKENT)	2 (5.5)	-	2 (4.2)

14	Kastamonu University (KU)	2 (5.5)	-	2 (4.2)
15	Marmara University (MU)	2 (5.5)	1 (8.3)	3 (6.1)
16	Mersin University (MEU)	1 (2.8)	-	1 (2.1)
17	Necmettin Erbakan University (NEU)	2 (5.5)	-	2 (4.2)
18	On Dokuz Mayıs University (OMU)	-	1 (8.3)	1 (2.1)
19	Middle East Technical University (METU)	4 (11.1)	3 (25.0)	7 (14.5)
20	Pamukkale University (PAU)	-	1 (8.3)	1 (2.1)
21	Sakarya University (SAU)	2 (5.5)	-	2 (4.2)
22	Sinop University (SNU)	1 (2.8)	-	1 (2.1)
23	Trakya University (TU)	1 (2.8)	-	1 (2.1)
24	Yıldız Technical University (YTU)	-	1 (8.3)	1 (2.1)
Total		36 (100)	12 (100)	48 (100)

3.5. The Institutes and Departments Where the Studies Are Carried Out: The findings regarding the institutes where the theses were prepared are given in Figure 4. Examining of the institutes where the theses were prepared, it was determined that the theses on EL (n = 48) were prepared in the departments affiliated to three different institutes. When the distribution of theses on the basis of institutes is examined, it is seen that the most theses were prepared in Educational Sciences institutes (ESI), with a total of 25 (52.1%) (MSc = 19, PhD = 6). Science / Science and Engineering Sciences institutes (S/SESI) come second with 14 theses (29.2%) (MSc = 10, PhD = 4). A total of nine theses (18.7%) (MSc = 7, PhD = 2) were produced in Social Sciences institutes (SSI) was detected (figure 4).

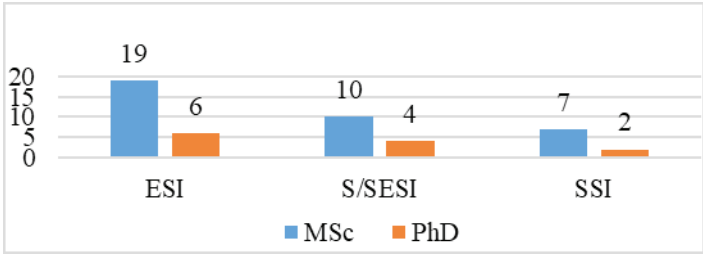

Figure 4. Distribution of the theses by the institutes.

3.6. The Departments and The Sections Which the Theses Are Prepared: The findings regarding which of the departments and sections within the aforementioned institutes are prepared for the postgraduate theses are given in table 2. The departments in which the theses were prepared are as follows; A total of 22 (45.8%) theses, 16 of them MSc and 6 of them PhD, were produced in the Primary Education Department and in its associated Science, Mathematics and Social Sciences Teaching Sections. Similarly, a total of 19 (39.6%) theses 14 of them MSc and five

are PhD were prepared at Secondary Education Science and Mathematics Fields Department, and in its associated Science, Biology and Chemistry Education Sections. Apart from these, it was determined that five (10.4%) MSc theses were produced in the department of Curriculum and Instructions, one MSc thesis (2.1%) each in the departments of Turkish and Social Studies Education and Interdisciplinary Environmental Health (table 2).

3.7. The Students Who Prepared the Graduate Theses: The data about the graduate students who prepared the theses will not be given on the basis of names, and the findings obtained as a result of the examination will be explained as text. As a result of the checking, it was seen that, there is not any student has done both MSc and PhD theses on EL subject. It is noteworthy that there are no graduate or PhD students on EL. It was determent that 48 theses were prepared by different students. This situation thinks that graduate students in EL do not continue their doctorate education same subject after their MSc degree, and they turn to a different subject or gave up postgraduate education.

Table 2.

Distribution of the Theses by Departments and Sections/Disciplines.

Departments and Sections/Disciplines	MSc	PhD	∑	Dept.
	***f* (%)**	***f* (%)**	***f* (%)**	**∑*f* (%)**
Primary Education Department	6 (16.7)	2 (16.8)	8 (16.7)	
Science Teaching Section	7 (19.4)	3 (25.0)	10 (20.8)	
Mathematics Teaching Section	1 (2.8)	-	1 (2.1)	22 (45.8)
Social Studies Teaching Section	2 (5.5)	1 (8.3)	3 (6.2)	
Secondary Education Science and Mathematics Fields Education Departments	4 (11.1)	1 (8.3)	5 (10.4)	
Science Education/Training Section	5 (13.8)	3 (25.0)	8 (16.7)	
Biology Education Section	4 (11.1)	1 (8.3)	5 (10.4)	19 (39.6)
Chemistry Education Section	1 (2.8)	-	1 (2.1)	
Curriculum and Instruction Education Department	4 (11.1)	1 (8.3)	5 (10.4)	5 (10.4)
Turkish and Social Studies Education Department	1 (2.8)	-	1 (2.1)	1 (2.1)
Interdisciplinary Environmental Health Department	1 (2.8)	-	1 (2.1)	1 (2.1)
Total	36 (100)	12 (100)	48 (100)	

3.8. Supervisors of Postgraduate Theses: In this section, the names of the thesis supervisors were not given directly, but they were classified according to their titles and given in Table 3. At the same time, the names of the supervisors were analyzed and interpreted here. When the theses' supervisors and the theses which were directed by them were examined, it was noted that there was no continuity similarly the graduate students.

Table 3.
Distribution of The Postgraduate Thesis' Supervisors' title.

Titles of the supervisors	**MSc** ***f* (%)**	**PhD** ***f* (%)**	**∑** ***f* (%)**
Professor (Prof.)	9 (22.5)	8 (57.1)	17 (31.5)
Associated Professor (Assoc. Prof.)	13 (32.5)	4 (28.6)	17 (31.5)
Assistant Professor (Assist. Prof.)	17 (42.5)	2 (14.3)	19 (35.2)
Doctorate (Dr.)	1 (2.5)	-	1 (1.8)
Total	40 (100)	14 (100)	54 (100)

Six of the 48 theses (12.5%) were managed by two supervisors therefore, there were supervisors' number (n = 54) more than the theses prepared on EL. Distribution of the supervisors' titles are 17 (31.5%) of them Prof., 17 (31.5%) of them Assoc. Prof. and 19 of them (35.2%) Assist. Prof. (table 3). In addition, it was found that on one of the theses second advisor (1.8%) had Dr. title. After evaluating the lecturers who supervised more than one thesis, it was determined that the theses were prepared by 44 different supervisors in total. (Supervisors were classified according to their titles in table 3, so it differs with their total number (n = 54). Because it has been determined that the same person has different titles in different theses due to the title change.) While only 1 (2.3%) of these faculty members supervised three MSc and one PhD theses, while three (6.8%) of them one MSc thesis and one PhD thesis were directed. Four (9.1%) supervisors had directed two MSc theses. It was seen that 36 (81.8%) of the supervisors had only managed one thesis on EL.

3.9. The Terms Used in Indexing of the Theses: In the CoHE thesis database, the tags of the theses were examined one by one, and the terms used in indexing were taken and presented in table 4 as a list according to alphabetically. When the tags on the CoHE thesis page were examined, it was seen that 1 (8.3%) of the PhD theses and 15 (41.6%) of the MSc theses did not contain any terms in the indexing section. When the words used in the index of the other 32 theses were classified, it was concluded that a total of 90 different terms were used (table 4).

Table 4.

The Terms That Used in Indexing of the Theses and Their Distribution.

Terms	MSc		PhD		∑		**Terms**	MSc		PhD		∑	
	f	(%)	*f*	(%)	*f*	(%)		*f*	(%)	*f*	(%)	*f*	(%)
1. Academic achievement	1	(0.7)	-		1	(0.5)	47. Learning	1	(0.7)	2	(3.1)	3	(1.5)
2. Argumentation based science learning	-		1	(1.6)	1	(0.5)	48. Learning methods	1	(0.7)	2	(3.1)	3	(1.5)
3. Attitude scales	1	(0.7)	-		1	(0.5)	49. Measurement and evaluation	1	(0.7)	1	(1.6)	2	(1.0)
4. Attitudes	2	(1.5)	-		2	(1.0)	50. Natural environment	1	(0.7)	-		1	(0.5)
5. Behavior of student	1	(0.7)	-		1	(0.5)	51. Nuclear energy	1	(0.7)	-		1	(0.5)
6. Beliefs	1	(0.7)	-		1	(0.5)	52. Opinions of students	1	(0.7)	-		1	(0.5)
7. Candidate teachers	3	(2.2)	4	(6.2)	7	(3.5)	53. Path analysis	-		1	(1.6)	1	(0.5)
8. Chemistry education	1	(0.7)	-		1	(0.5)	54. Pre-service training	1	(0.7)	-		1	(0.5)
9. Chemistry lesson	1	(0.7)	-		1	(0.5)	55. Primary education	1	(0.7)	2	(3.1)	3	(1.5)
10. Comparative education	1	(0.7)	-		1	(0.5)	56. Primary education students	4	(3.0)	2	(3.1)	6	(3.0)
11. Computer assisted education	1	(0.7)	-		1	(0.5)	57. Problem based learning	-		1	(1.6)	1	(0.5)
12. Concept development	1	(0.7)	-		1	(0.5)	58. Project based learning method	1	(0.7)	1	(1.6)	2	(1.0)
13. Conceptual learning	1	(0.7)	-		1	(0.5)	59. Reading-writing	-		1	(1.6)	1	(0.5)
14. Curriculum	-		1	(1.6)	1	(0.5)	60. Scales	1	(0.7)	-		1	(0.5)
15. Ecology	-		1	(1.6)	1	(0.5)	61. Scale development	1	(0.7)	-		1	(0.5)
16. Ecological environment	1	(0.7)	1	(1.6)	2	(1.0)	62. Science	3	(2.2)	1	(1.6)	4	(2.0)
17. Ecological footprint	1	(0.7)	-		1	(0.5)	63. Science and arts centers	1	(0.7)	-		1	(0.5)
18. Education	-		1	(1.6)	1	(0.5)	64. Science lesson	-		2	(3.1)	2	(1.0)
19. Education faculties	1	(0.7)	-		1	(0.5)	65. Science education	5	(3.7)	4	(6.2)	9	(4.6)
20. Education level	-		1	(1.6)	1	(0.5)	66. Science teaching	1	(0.7)	1	(1.6)	2	(1.0)
21. Efficiency	1	(0.7)	-		1	(0.5)	67. Scientific literacy	1	(0.7)	-		1	(0.5)
22. Environment	7	(5.3)	3	(4.7)	10	(5.1)	68. Secondary education	1	(0.7)	-		1	(0.5)
23. Environment identification	1	(0.7)	-		1	(0.5)	69. Secondary schools	1	(0.7)	-		1	(0.5)
24. Environmental adaptation	1	(0.7)	-		1	(0.5)	70. Secondary school students	2	(1.5)	-		2	(1.0)
25. Environmental awareness	2	(1.5)	-		2	(1.0)	71. Social responsibility	1	(0.7)	-		1	(0.5)
26. Environmental behaviors	1	(0.7)	1	(1.6)	2	(1.0)	72. Social studies	1	(0.7)	-		1	(0.5)
27. Environmental citizenship	1	(0.7)	-		1	(0.5)	73. Social studies course	1	(0.7)	1	(1.6)	2	(1.0)

28. Environmental concern	1	(0.7)	-		1	(0.5)	74. Social studies education	1	(0.7)	-		1 (0.5)
29. Environmental consciousness	3	(2.2)	3	(4.7)	6	(3.0)	75. Social studies teaching	-		1	(1.6)	1 (0.5)
30. Environmental education	12	(9.0)	8	(12.5)	20	(10.1)	76. Socio-demographic characteristics	1	(0.7)	-		1 (0.5)
31. Environmental impact	1	(0.7)	-		1	(0.5)	77. Socio-economic level	1	(0.7)	-		1 (0.5)
32. Environmental knowledge	1	(0.7)	1	(1.6)	2	(1.0)	78. Socio-economic situation	1	(0.7)	-		1 (0.5)
33. Environmental literacy	14	(10.5)	5	(7.8)	19	(9.6)	79. Soscio-scientific issues	1	(0.7)	-		1 (0.5)
34. Environmental optimism	1	(0.7)	-		1	(0.5)	80. Students	1	(0.7)	2	(3.1)	3 (1.5)
35. Environmental problems	1	(0.7)	-		1	(0.5)	81. Student attitude	4	(3.0)	-		4 (2.0)
36. Environmental sensitivity	2	(1.5)	1	(1.6)	3	(1.5)	82. Success	1	(0.7)	-		1 (0.5)
37. Epistemology	1	(0.7)	-		1	(0.5)	83. Sustainable environment	2	(1.5)	2	(3.1)	4 (2.0)
38. Epistemological beliefs	1	(0.7)	-		1	(0.5)	84. Sustainability	-		1	(1.6)	1 (0.5)
39. Extra-curricular activities	-		1	(1.6)	1	(0.5)	85. Teachers	2	(1.5)	2	(3.1)	4 (2.0)
40. Foot mark	1	(0.7)	-		1	(0.5)	86. Teaching	1	(0.7)	-		1 (0.5)
41. Gifted	1	(0.7)	-		1	(0.5)	87. Teaching methods	2	(1.5)	-		2 (1.0)
42. Gifted children	1	(0.7)	-		1	(0.5)	88. Teaching with game	1	(0.7)	-		1 (0.5)
43. Global warming	1	(0.7)	-		1	(0.5)	89. Universities	1	(0.7)	-		1 (0.5)
44. High schools students	1	(0.7)	-		1	(0.5)	90. University students	4	(3.0)	-		4 (2.0)
45. Human-environment interaction	-		1	(1.6)	1	(0.5)	Empty (There was no term at index)	15	(11.3)	1	(1.6)	16
46. In-class works	1	(0.7)	-		1	(0.5)	Total	133	(100)	64	(100)	197 (100)

While thirty-fives different terms were used in the indexing of 11 PhD theses, the most frequently used ones were “environmental education” (*n* = 8; 12.7%), EL (*n* = 5; 7.9%), “candidate teachers” and “science education” (*n* = 4; 6.3%). The number of terms used in PhD theses but not used in MSc theses is thirteen. While 78 different terms were used in the indexing of 21 MSc theses, the most frequently used ones were “environmental literacy” (*n* = 14; 10.4%), “environmental education” (*n* = 12; 8.9%) and “environment” (*n* = 7; 5.2%). The number of terms used in MSc theses but not used in PhD theses is fifty-six. The first three terms, which were used most frequently in total, were determined as “environmental education” (*n* = 20; 10.1%), “environmental literacy” (*n* = 19; 9.6%) and “environment” (*n* = 10; 5.1%) (table 4).

3.10. Research Methods Used in The Theses: In this section contains, the findings related to the research methods and techniques used in the theses, and the data obtained were presented in table 5. It was concluded that the most preferred method in theses was the descriptive survey study (*n* = 23; 47.9%). Secondly, experimental research methods were preferred (*n* = 9+5 = 14; 29.2%), followed by a mixed method in which qualitative and quantitative research techniques were used together with 14.6% (*n* = 7).

Table 5.

Research Methods and Techniques Used in The Theses and Their Distributions.

Methods and Techniques		MSc *f* (%)	PhD *f* (%)	∑ *f* (%)
Experimental (pre-test / post-test)	With control group	5 (13.8)	4 (33.3)	9 (18.7)
	Without control group	4 (11.1)	1 (8.3)	5 (10.4)
Descriptive methods	Survey	19 (52.7)	4 (33.3)	23 (47.9)
Qualitative research	Action research	-	1 (8.3)	1 (2.1)
	Document analysis	1 (2.8)	-	1 (2.1)
Mixed method	Quantitative and Qualitative together	5 (13.8)	2 (16.6)	7 (14.6)
Scale development		2 (5.5)	-	2 (4.2)
Total		36 (100)	12 (100)	48 (100)

Descriptive survey method was used in more than half of the MSc theses 52.8% (n = 19). It was determined that pre-test post-test experimental design was used in 25% (*n* = 9) of these theses (five of them with control group, four of them without control group). Also it was seen that in one (2.8%) of the MSc theses it was tried to draw conclusions about the 2015 PISA results and environmental attitudes with the document analysis method, and a scale development study was carried out in two (5.5%) theses. Experimental design was included in five (41.7%) PhD dissertations, and a significant part of this (*n* = 4; 33.3%) was with a control group. Another research method preferred frequently at the PhD theses was the descriptive survey study (*n* = 4; 33.3%). At the same time, it was seen that the mixed method which is used together qualitative and quantitative techniques was preferred as research method in two PhD theses (16.6%).

3.11. Data On Scales and Questionnaires Used in The Theses: Information on the tests, questionnaires and scales used in the theses is given in table 6. It is noteworthy that tests, questionnaires or scales, which were previously prepared by other researchers and whose validity and reliability studies were carried out, are generally preferred in theses. In two theses, survey development work was carried out. On the other hand, in some thesis studies, it was stated that used the prepared surveys were changed by postgraduate students and their supervisor.

While only one questionnaire was used in 26 of the thesis studies (PhD = 5, MSc = 21), it was reported that more than one test was used in 16 (PhD = 4, MSc = 12). It was stated that in qualitative research and action research, handicrafts such as observation (video recording), interview (semi-structured), student diaries, researcher's diary, peer assessment forms, rubrics, teaching materials, reports prepared by students, assignments and student handicrafts were used.

While only one questionnaire was used in 26 of the thesis studies (PhD = 5, MSc = 21), it was reported that more than one test was used in 16 (PhD = 4, MSc = 12). It was stated that in qualitative researches and action research, handicrafts such as observation (video recording), interview (semi-structured), student diaries, researcher's diary, peer assessment forms, rubrics, teaching materials, reports prepared by students and homework were used.

Table 6.

Information and Distribution of Tests, Questionnaires and Scales Used in Theses.

Questionnaires, Researchers who prepared and translated into Turkish.	**MSc** *f* (%)	**PhD** *f* (%)	∑ *f* (%)
"EL questionnaire/scale"		1 (4.2)	1 (1.4)
Developed by Kaplowitz & Levine (2005), translated by Tuncer et al. (2009)	8 (17.7)	2 (8.3)	10 (14.5)
"High School Environmental Survey" published by Wisconsin Center for Environmental Education translated by Karatekin (2011)	1 (2.2)	1 (4.2)	2 (2.9)
Developed by Coyle (2005)			
Developed by Kışoğlu (2009)	1 (2.2)		1 (1.4)
Developed by MSU-WATER, (2001-2006) Michigan State University	4 (8.8)		4 (5.8)
Developed by Teksöz, Şahin & Ertepınar (2010)	1 (2.2)		1 (1.4)
Developed by Sontay, Gökdere & Usta (2015)	1 (2.2)		1 (1.4)
Developed by Yavuz, Balkan Kıyıcı & Atabek Yiğit (2014)	1 (2.2)		1 (1.4)
	1 (2.2)		1 (1.4)
"Primary school EL questionnaire"			
Developed by researcher of the thesis.		1 (4.2)	1 (1.4)
Developed by Erdoğan (2009)	6 (13.3)		6 (8.7)
"Environmental knowledge test" and "Environmental knowledge level questionnare"			
Developed by researcher based on Timur's (2011) doctoral thesis "Determination of EL Levels of Pre-service Science Teachers"		1 (4.2)	1 (1.4)
Developed by researcher.			
		1 (4.2)	1 (1.4)
"Environmental Attitude Scale" / "Sustainable Environmental Attitude Scale"			
Developed by Şama (2003)	1 (2.2)	1 (4.2)	2 (2.9)
Developed by researcher.	2 (4.4)		2 (2.9)
Developed by Yıldız [102]		1 (4.2)	1 (1.4)

"Environmental Behavior / Responsible Behavior / Responsible Citizen Behavior Scale"		1 (4.2)	1 (1.4)
Developed by Yavuz (2006)	1 (2.2)	1 (4.2)	2 (2.9)
Developed by Goldman, Yavetz, & Pe'er (2006), translated by Şeker & Gençdoğan (2006)		1 (4.2)	1 (1.4)
Developed by Yavetz, Goldman, Pe'er (2009), translated by Timur (2011)	1 (2.2)	1 (4.2)	2 (2.9)
Developed by Özdemir Özden (2011)	1 (2.2)		1 (1.4)
"Environmental Knowledge Test/Measurement Tool"			
Developed by Benzer (2010)	1 (2.2)		1 (1.4)
Developed by Özata Yücel & Özkan (2014)	1 (2.2)		1 (1.4)
"Environmental Awareness Scale"			
Developed by researcher.		1 (4.2)	1 (1.4)
"Environmental Sensitivity Scale"			
Developed by Çabuk & Karacaoğlu (2003)	1 (2.2)	1 (4.2)	2 (2.9)
"Environmental Science Achievement Test"			
Developed by Fettahlıoğlu (2012)	2 (4.4)	1 (4.2)	3 (4.3)
"Environmental Skill Test"			
Developed by Karatekin (2011)	1 (2.2)		1 (1.4)
"Environmental Affective Tendency Scale"			
Developed by Yavetz, Goldman, Pe'er (2009), translated by Timur (2011)	1 (2.2)	1 (4.2)	2 (2.9)
Developed by researcher.		1 (4.2)	1 (1.4)
"Environmental Problem Solving Skills Scale"			
Developed by Allen & Herreid (1998), translated and edited by Benzer (2010) as "Problem Solving Skills Scale"	1 (2.2)	2 (8.3)	3 (4.3)
"Scientific Literacy Scale"			
Developed by Keskin (2008)	1 (2.2)		1 (1.4)
"Schommers' Epistemology Questionnaire"			
Developed by Schommer (1990)	1 (2.2)		1 (1.4)
Used by Ercan Kaymak (2010)	1 (2.2)		1 (1.4)
"Biology Lesson Attitude Scale"			
Developed by Tosun (2011)	1 (2.2)		1 (1.4)
"Chemistry Attitude Scale"			
Developed by Geban et al (1994) It was developed to measure the Effect of Computer Education on Students' Science Achievement and Science Interests..	1 (2.2)		1 (1.4)
"Questionnaire for English Instructors"			
Developed by Daloğlu (2004)	1 (2.2)		1 (1.4)
"Questionnaire for environmental education specialists"			
Developed by Ziolkowski (2007)	1 (2.2)		1 (1.4)
"Human and Environment Concept Test"		1 (4.2)	1 (1.4)
"Human and Environmental Relations Academic Achievement Test"		1 (4.2)	1 (1.4)
"Human and Environmental Relations Academic Achievement Permanence Test"		1 (4.2)	1 (1.4)
"Reflective Thinking Level Scale"		1 (4.2)	1 (1.4)
Total	45 (100)	24 (100)	69 (100)

"EL Questionnaire/Scale" developed by different researchers was used in 22 (45.8%) of the thesis. It was concluded that when the table is

examined, “EL Questionnaire” which was developed by Kaplowitz and Levine (2005), and translated into Turkish by Tuncer et al. (2009) was the most preferred/used one. This is followed by the “Primary Education EL Questionnaire” developed by Erdoğan (2009) with 12.5% (*n* = 6 MSc). The survey developed by Kışoğlu (2009) ranks third with 8.3% (*n* = 4 MSc). In addition, measurement tools to measure different characteristics such as attitude towards the environment, behavior, responsible behavior, knowledge, skills, sensitivity, awareness test, problem solving skill scale were also used frequently. As well as, it was identified that in some studies, very specific measurement tools such as “Biology, Attitude Scale”, “Chemistry Attitude Scale”, “Epistemological Belief Scale” were used (table 6).

3.12. Working Sample Group and Sample Size: Questionnaire, test, scale, etc. in thesis studies. In order to collect data through the application of research methods and tools, the data regarding the participant groups preferred as samples are given in table 7.

When the information under the material-method title of the theses is examined, it has been stated that it is generally paid attention to be easily accessible while determining the research universe and sample groups, and therefore, students from schools affiliated to the Ministry of National Education or university students, especially students of Faculties/Departments where the thesis study is carried out, are preferred. It is seen that pre-service teachers (*n* = 6; 50%) and secondary school students (*n* = 4; 33.3%), especially in the 7th grade, are preferred in PhD theses. The reason why seventh grade students are more preferred is the fact that environmental issues are mostly taught at this grade level. A similar situation is also valid for MSc theses, and the most studied sample groups are secondary school students (*n* = 14; 41.1%), education faculty teacher candidates (n = 9; 26.5%) and high school students (*n* = 5; 14.7%) respectively.

Table 7.

Population and Sample Groups Preferred in Theses and Distribution of Them.

Universe and Sample	**MSc** *f* **(%)**	**PhD** *f* **(%)**	∑ *f* **(%)**
University students			
Teacher candidates studying at the Faculty of Education	9 (25.0)	6 (50)	15 (31.2)
School of Health, Department of Nursing students	1 (2.8)	-	1 (2.1)
Vocational School, Computer Technologies Program students	1 (2.8)	-	1 (2.1)
Undergraduate students studying in different departments	1 (2.8)	-	1 (2.1)
Students studying in schools affiliated to Republic of Turkey Ministry of National Education			

Primary School (4th and/or 5th grade students)	2 (5.5)	1 (8.3)	3 (6.2)
Secondary School (6th, 7th and/or 8th grade students)	14 (38.9)	4 (33.3)	18 (37.5)
High school (9th, 10th, 11th and/or 12th grade students)	5 (13.9)	-	5 (10.4)
Working/specialists in different fields			
Science teacher	-	1 (8.3)	1 (2.1)
English teacher, Environmental education expert and Biology teacher	1 (2.8)	-	1 (2.1)
It is a document review and scale development study and there is no sample group.	2 (5.5)	-	2 (4.2)
Total	36 (100)	12 (100)	48 (100)

In order to collect data in theses, the sizes of the samples, which were believed to represent the universe and in which the studies were carried out, differed from a minimum of 22 people to a maximum of 2412 people. For this reason, instead of giving the sample sizes of the theses one by one, they were grouped and divided into seven subgroups as follows, and the results obtained according to this classification are given in Figure 5.

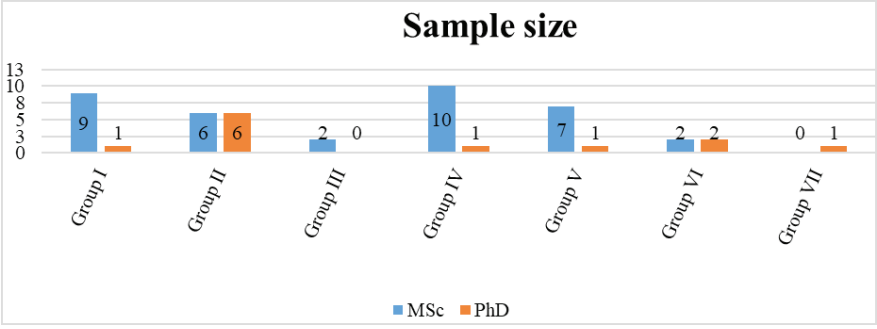

Figure 5. The Size of the sample groups in which tests, questionnaires and/or scales were applied in the theses.

Group I: less than 50 persons,

Group II: between 51 – 100 persons,

Group III: between 101 – 250 persons,

Group IV: between 251 – 500 persons,

Group V: between 501 – 1000 persons,

Group VI: between 1001 – 2000 persons and

Group VII: 2001 and more persons.

According to the above grouping, a significant amount of theses, 26.1%, was group II (n = 12), 23.9% were group IV, 21.7% are in group I (n = 10). The most preferred sample size in PhD theses were group

II (n = 6; 50%) which is consists of from 51 to 100 persons. The most preferred sample size in MSc theses were group IV (n = 10; 29.4%) which is consisted of from 251 to 500 persons. While group I consisting of 50 or less people was second (n = 9; 26.5%) preferred, and group V consisting of between 501-1000 people (n = 7; 20.6%) was the third most preferred sample size (Fig. 5). It can be said that studied with bigger sample groups in MSc theses than the PhD.

4. RESULTS, DISCUSSION AND RECOMMENDATIONS

It has seen a great increase in environmental concern in all sections of the population especially at the last three decades. Young people in particular had wanted to know more about how they can contribute to the conservation of our planet, and thus formal education began to reflect this (Palmer & Neal, 2003, p. 1). Today, the concept of literacy is also used in the sense of being well-educated in a certain field and having extensive knowledge in this field. These are fields of use such as scientific literacy, science literacy, visual literacy, media literacy, and EL (Kışoğlu, 2009, p. 68). It is of great importance for the continuity of the biosphere, or rather for all living and non-living components of the ecosystem, that individuals/society are well educated or have extensive knowledge about the environment and environmental health. On the other hand, EL also includes a citizenship dimension, so it is important for individuals to be made aware of their social rights and responsibilities.

It has been observed that almost all of the theses examined within the scope of the study, such as 91.7%, are in the field of education and training, the first thesis on EL was produced in 2008, and a total of 48 theses were prepared in a 13 - year period. Depending on this, an average of 3-4 theses per year decreases, but considering that 12 theses were produced in 2010, it can be said that this number is very low for Turkey, where an average of 2-3 theses are produced annually and there are 203 universities. Mc Keown (2002, p. 22) emphasized that raising environmentally literate individuals in higher education institutions should be among the primary goals in order to achieve sustainable development and achieve educational goals. Considering the results obtained in our study, it can be stated that the subject of EL has never been studied at the graduate level before 2008, and given the data that it does not show continuity in the following period, it can be stated that the subject is not given much importance by the academic circles.

There are a total of 203 universities in Turkey, three of them passive, 129 state, 74 foundations (CoHE, 2021). The number of universities that produced postgraduate thesis in the field of EL is only 24, which corresponds to 11.8%. Arık and Yılmaz (2017, p. 1149) emphasized that

EL of individuals can be increased by training environmental literate teachers. From this point of view, in order for teachers to have sufficient knowledge and equipment on environmental education, first of all, higher education institutions that train teachers have great duties (Eroğlu, 2009, p. 18). When the results are examined in this direction, GU (9 theses, 18.7%) and METU (7 theses, 14.6%) stand out. It has been seen that the languages of the theses are bilingual, and the language of the theses prepared in the universities (METU) where the language of instruction is English and in the departments providing foreign language education is English.

When we look at the institutes where the theses are prepared, Educational Sciences (52.1%; MSc = 19, PhD = 6) and Science (29.2%; MSc = 10, PhD = 4) institutes stand out. Subjects related to living things, human, environment, nature and their mutual interaction are the subjects included in the Primary Education Science and Secondary Education Biology curriculum (MNE, 2018a; MNE, 2018b). Parallel to this, the Departments of Science (n =18; 37.5%) and Biology (n = 5; 10.4%) of the Primary and Secondary Education Departments appear as the departments that have the most thesis on EL.

Environmental education differs from other fields in terms of conveying information about the environment, as well as the development of positive attitudes towards the environment and the transformation of these attitudes into behavior in individuals who make up societies (Erten, 2004, p. 3). In order to understand the constantly changing world and our environment, which is in constant interaction with the living things living on it and in it, to teach future generations well, and to raise individuals who are conscious and responsible for the environment, it is a necessity rather than a requirement to show continuity in education. As a result of the bibliometric examinations, a remarkable point was that the students who completed a MSc degree in EL were not among the students who did a doctorate in the same subject. This means that graduate students, who are prospective academicians, either do not pursue the next stage, the doctorate or do not continue to work on this subject. Similarly, it was noted that there was no continuity in the thesis management, namely that an important part of the faculty members, such as 81.8% (n = 36), consulted only one thesis in a thirteen-year period. Only 1 (2.3%) of the advisor faculty members supervised four theses, while seven (15.9%) supervised two theses. The issue becomes even more important, especially considering the environmental problems experienced today. Because, in environmental education, it is among the objectives to provide students with sound scientific knowledge, critical thinking skills, creative and strategic problem-solving, and decision-making skills, that is, to raise the EL individuals (Oregon State University, 2021).

It is a fact that the questionnaire is a frequently used method in practical areas such as academic studies, education, business, politics, health. The fact that information technologies are very advanced has opened the way to conduct large-scale surveys and analyzes (Bakır, 2013, p. 11; Karadağ, 2010, p. 59). Among the quantitative research methods, which is based on the ability to express or measure the findings with numerical values, the survey is the most preferred method (47.9%) in the examined theses, and the second most preferred method (29.2%) of experimental research design based on numerical data (Ekiz, 2003, p. 93). Arıkan (2018, p. 98) stated that the survey method was used in 58% of the 211 theses made between 2003 and 2007 in the field of education, which is in line with our findings. It was determined that the questionnaires previously produced by other researchers were preferred frequently in thesis studies, just two theses (4.2%) were prepared at developing questionnaires in this area. Among the questionnaires used, the "EL Questionnaire", which consists of 45 items and four sub-dimensions (knowledge, attitude, use and anxiety) developed by Kaplowitz & Levine (2005) and translated into Turkish by Tuncer et al., (2009) stands out (22.7%). When the literature is examined, it is seen that EL is defined according to a different number of dimensions in different periods. The most important components of EL in these studies constitudes the knowledge, attitude, and behavior dimensions. In some studies, other titles (such as value, sensitivity, responsibility) included in the definition of the concept of tendency are stated as sub-dimensions (Akıllı & Genç, 2015, p. 83). Güven et al. (2014) reported that Higher Education and Primary Education students were used as the sample group frequently in their studies on the evaluation of environmental education research conducted in 2014. A similar situation was observed in this study as well, it was determined that 50% of the studies were conducted with university students and 33.3% with primary school students. In order to collect data in theses, the sizes of the samples believed to represent the universe in which the studies were carried out varied between 22 and 2412 people. However, the most preferred sample group is the group II (26.1%), which consists of 51-100 people, and another prominent sample size is the group VI (23.9%), which consists of 251 – 500 participants. Tarman, Acun & Yüksel (2010, p. 736), who conducted a similar systematic review study, reported that the sample sizes selected as subjects in their studies frequently varied between 50 and 100, and that these numbers were exceeded in some studies. These results support our findings.

Considering the environmental problems that directly concern human health, as well as other living things such as global warming and pandemic, the issue of "Environmental Health Literacy" comes up. Environmental health literacy express understanding and using information about exposure

to harmful environmental factors and how these exposures affect health (Oregon State University, 2021). This topic potentially encompasses an effective set of knowledge, attitudes, and behaviors about how individuals and communities should use environmental information when making health-related decisions. A search was made by writing "Environmental Health Literacy" on the CoHE thesis search page, but it was seen that there was no thesis on the subject.

EL and EHL issues have not been studied sufficiently at the graduate level, and that these two issues should be taken into consideration more while preparing thesis proposals in Institutes of Science and Health Sciences. A bibliometric investigation of the literature on EL and environmental health literacy will also contribute to the subject. In addition, I believe that the meta-analysis study on the theses on EL and EHL will contribute significantly to this issue.

Research and Publication Ethics Statement

A letter dated 24. 05. 2021, numbered E-84982664-604.01.03-34999, was received from Aydın Adnan Menderes University, Educational Research Ethics Committee, stating that there was no need for an ethics committee since the study did not work with any person, group, or living thing (Appendix 1).

Contribution Rates of Authors to the Article

It is a single authored article.

Statement of Interest

There is not conflict with any researcher or organization.

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Chapter 4

TEACHERS' VIEWS ON THE GEOGRAPHY EDUCATION

Fatih KARTAL [1]
Ayla YILDIZ

1 Assistant Professor Fatih Kartal, Sivas Cumhuriyet University, Faculty of Education, Orcid: 0000-0001-9266-5007

[2] Assoc. Dr. Ayla Yıldız, Sivas Cumhuriyet University, Faculty of Education, Orcid: 0000-0003-3051-7441

Introduction

Individuals, who are one of the cornerstones of societies, should know the geography they live in very well and benefit from the geography at the highest level in their daily lives. Individuals who cannot make a good observation and evaluate the geography in their immediate surroundings cannot be aware of the formation and development of some geographical values in their daily lives because life styles of individuals are shaped according to the geographical structure of the environment they live in, and the place they live in turns into the fate of individuals. In this regard, geographical achievements and skills create a number of identities in individuals. Geography education contributes to the individual's acquaintance with the ethnic and social structure, cultural structure and the reasons that constitute them, physical and human elements of the society in which they live in the process of forming identities. Akınoğlu (2006) states that geography education leads individuals to see themselves as parts of societies they live in and feel responsible for both their environments and societies. In this context, geography, which deals with natural and human environment elements, helps individuals to obtain information that will facilitate their lives. Öner (2001) underlines that geography teaching helps individuals recognize the values around them and gain the strength of harmony with their environments. Individuals who know their environments well and have a developed awareness are more effective in all kinds of decisions about their environments. According to Efe, a successful geography teaching gives students the ability to better understand the events happening around them, to analyze the events well and to offer them more effective and efficient solutions to the problems they may encounter in the future. Curricula that will contribute to the training of individuals who have acquired this quality texture have been prepared in a clear and understandable structure with the objective of helping individuals gain skills and value, taking individual differences into account rather than simply transferring knowledge. In line with this objective, curricula include not only repetitive acquisitions and explanations at different subject and grade levels with a spiral approach, but also learning outcomes that are aimed to be acquired both in a holistic manner and at once. The objectives and explanations in both groups are valid, up-to-date, competent and capable of establishing relationships with life in the education and training process. The explanations and objectives that define these boundaries indicate a plain content with a point of view that provides integrity in the perspective of skills, competencies and values at the levels of classes and education. Thus, a total of curricula that direct the use of metacognitive skills, provide permanent and meaningful learning, are associated with previous learning, and are integrated around skills, competencies and values with other

branches of science and daily life have emerged (Efe 1996; MEB 2018).

A good understanding of the subjects of the geography lesson by the students within the scope of the curriculum constitutes the basis of any future planning. The curriculum aims to develop not only the awareness of teaching the geographical values and characteristics of our world and our country, but also emotions such as the effects of natural events on human life in the space, instilling a love of citizenship, homeland, nation and humanity in individuals, and the awareness of taking responsibility for the development of our country in every sense in students who are raised with the awareness of geography. Furthermore, the curriculum aims to help students gain the habit of loving and protecting all living things in nature by creating a love of nature, interpret various maps, pictures, statistics, graphs and diagrams, obtain sufficient information about benefiting from them, and draw plans, sketches and especially map of Turkey (MEB, 2018). In line with these objectives, teachers have a great responsibility in the new generation to gain geographic skills and use them in daily life.

Teachers have many roles and responsibilities in the social, cultural, economic and scientific development of countries. Therefore, teachers are obliged not only to have knowledge in their field, but also to convey this knowledge to students through alternative teaching methods (Özdemir & Tokcan, 2010) because geography teachers, first of all, conveys the objectives of geography lesson to their students, put their students at the center of the learning process, apply active teaching methods and techniques, use teaching materials suitable for the objectives of the geography lesson, especially in the teaching of abstract subjects, have high levels of technological, pedagogical content knowledge and competence, use not only traditional measurement tools but also alternative measurement tools (portfolio, self-assessment, etc.) while assessing their students, and give their students the ability to use the information they have learned in geography lessons in their daily lives. In addition, geography teachers should have positive attitudes, self-confidences and self-efficacies towards geography and teaching profession (Çepni, et al.2015).

The researchers believe that the current paper will make an important contribution to the efficient teaching of the geography lesson since it evaluates opinions of geography teachers in Turkey regarding what geography education and teaching is, and what it should be. The geography curriculum should also help the teacher in this regard. A curriculum prepared in accordance with the developing world standards and using the necessary tools at an adequate level can eliminate the application deficiencies thanks to a well-equipped educator. Thus, students can easily associate information with their daily lives without perceiving this lesson as a memorization lesson and without drowning in the mass of information.

In other words, as Akınoğlu (2005) states, students should know what the learned information does in their daily lives and what it contributes to them rather than knowing the academic knowledge of geography.

There is a vast amount of literature on geography teaching (Lemberg & Stoltman, 2001; Akınoğlu, 2004; Özpay, 2004; Wellens et al., 2006; Kent et al., 2007; Özşahin, 2009; Bedir & Akkurt, 2012; Bilgili, 2016; Öner, 2018), however, there has been a little discussion on teachers' views on the implementation process. Thus, the researchers believe that his study will contribute to further studies in terms of creating a micro and macro scale data source.

Research Objectives

Although geography teaching is the same at every school level, the terms and conditions of schools differentiate the teaching process. The purpose of this study is to identify and determine the opinions of teachers who have participated in the study to reveal the reasons for this difference, to what extent it has occurred, and its effects and results. In line with this purpose, the current study sought answers to the following questions:

- What kind of problems do teachers experience regarding the teaching and learning process in geography lessons?
- What are the teachers' views on the geography lesson curriculum?
- What are the geography teachers' opinions and suggestions on how geography education should be?

Method

The study used interview method to determine teachers' opinions and suggestions about the application process of geography teaching, the encountered problems and the reasons of these problems. The current paper investigated the problems of teachers in the application process of geography teaching using the phenomenology pattern, which is one of the qualitative research methods. Phenomenology pattern focuses on phenomena that we are aware of but do not have an in-depth and detailed understanding (Yıldırım & Şimşek, 1999; Karademir, et al., 2017).

Participants

The study consisted of 25 geography teachers who worked in 12 different schools in Sivas city center in the 2018-2019 academic year and adopted the convenient sampling method to choose the participants easily and purposefully. As Arseven et al. (2017) point out, this method allows the researcher to use a more practical and less costly method by choosing the participants that are closer and easier to reach (Arseven, et al., 2017). The study selected teachers from different schools in Sivas city

center to provide diversity in terms of the schools where teachers worked. Demographic information about the teachers in the study is given in Table 1.

Table 1. *Demographic Information about the Teachers in the Study*

Teaching Branch	Years of Seniority	Gender	Total
Geography	1 to 5 years	(3 Females, 4 Males)	25
	5 to 15 years	(6 Females, 7 Males)	
	15 years and above	(2 Females, 3 Males)	

Table 1 demonstrates that the study group of the research consists of 25 geography teachers. Seven of the teachers have one to five years of seniorty years, 13 of them have five to 15 years of seniorty years, and five of them have 15 years or more of seniorty years, and 11 of teachers are female and 14 of them are male. The reason for the low number of senior teachers participating in the study might be the schools' locations, since they are located in the city center.

Data Collection Tool

This study used "teacher interview form" as a data collection tool. The researched reviewed the related literature before preparing the interview questions. After designing the topic, the items in the form were determined and thus a draft interview form was developed. To evaluate the questions in the interview form, the researchers consulted opinions of teachers and faculty members, and the form was finalized. The interview form was given to the participants after making the necessary arrangements. The researchers collected the data regarding the answers to the questions in the interview form of the teachers, who were informed about the study, by interviewing between 10th and 15th of March. The interview form included a total of three questions and a total of 14 probes related to the details of the questions. An example of the questions and probes in the form is given below:

1. What are the Teachers' Opinions on the Geography Curriculum?

Probe: Related to the Objectives

Probe: Related to the Educational Situations

Probe: Related to Evaluations

Data Analysis

The researchers collected the data through interviews, and used content analysis technique, one of the qualitative research methods, in analyzing the date. These stages are: 1. Coding the data, 2. Determining the themes

of the encoded data, 3. Organizing the codes and themes, 4. Identifying and interpreting the findings. The study conducted interviews with teachers and grouped similar expressions in the same theme in the analysis of the interviews. The study consulted teachers' opininos and coded the teachers as Geography Female 1 (GF 1), Geography Male 1 (GM 1), GF 2, GF 3, GF 4, GF 5, GF 6, GF 7, GF 8, GF 9, GF 10, GF 11, GM 2, GM 3, GM 4, GM 5, GM 6, GM 7, GM 8, GM 9, GM 10, GM 11, GM 12, GM 13, and GM 14.

The study made the data obtained through the interviews meaningful, grouped similar items in the explanations and themed them according to the groups. The study presented some of the teachers 'opinions that played a role in the formation of the themes by using the participants' code names and sharing their opinions as they were. The study explained and interpreted the themes using induction and deduction methods according to the situations to ensure internal validity, and compared the findings with previous studies. The participants reviewed the findings and found them realistic. To ensure external validity, the research process was explained in detail from the preparation of the data collection tool to the application and analysis phase, and the study tried to reach the realities in the application. While categorizing the data, the researchers consulted the opinions of two faculty members, one curriculum developer and two geography teachers, and shared the findings.

The researchers collected the data by conducting face-to-face interviews for a three-week period in the 2018-2019 academic year, during the hours when geography teachers working in various schools were available and in the teachers' rooms in their schools. Each interview lasted an average of 15 minutes. The study used the semi-structured "Teacher Interview Form" prepared by the researchers and examined the opinions of the teachers about the problems of geography lessons regarding the implementation of the geography curriculum.

Findings

As a result of the study, three themes occurred regarding the geography teachers' opinions and suggestions about the problems teachers experienced in the teaching and learning process in the geography lesson, teachers' views on the geography curriculum and how geography education should be, and fourteen codes occurred related to these themes. These themes and codes are given below.

-What kind of problems do teachers experience in the geography lesson regarding the teaching and learning process?

-Physical impossibilities (GF1, GM5, GME3)

-Lack of books and materials (GM6, GF11)

-Inability to associate with daily life (GM14, GM4)

-Perceiving the lesson as a memorization lesson (GF9, GM9)

-Lack of practice (GM10, GM12, GF3)

-Inclusion of numerical subjects (GF4, GM8)

-What are the teachers' views on the geography curriculum?

-Related to the objectives (GM11, GM7)

-Related to the content (GM1, GF2)

-Related to educational situations (GM5, GM6,GF7,GF8)

-Related to evaluations (GF1, GM2, GM13, GF10)

-What are the views and suggestions of geography teachers on how geography education should be?

-Trip and observation (GF3, GM2, GF5,)

-Human and nature interaction (GF6, GM9, GM10)

-Should be associated with daily life (GM14, GM11)

-Should be away from memorization (GF4, GM4, GM6, GF7)

1. ***Teachers' Problems Regarding the Teaching and Learning Process in Geography Lesson***

The answers given by the geography teachers to the "What kind of problems do teachers experience regarding the teaching and learning process in the geography lesson" sub-problem revealed the following six codes: "opinions about physical impossibilities", "lack of books and materials", "inability to associate information with daily lives", "perceiving the lesson as a memorization lesson" "lack of practice", and "inclusion of numerical subjects". Explanations on these codes are given below.

Physical impossibilities

Regarding the views on physical impossibilities, the teachers participating in the interview stated a similar opinion that physical impossibilities affect learning. The opinions of the teachers coded as GF1 and GM3 regarding this situation are as follows:

The distance of our school to the city, the absence of the necessary physical conditions, the lack of maps, smart boards and interactive tools affect the awareness of students. I think that all tools and equipment brought within the scope of the FATIH Project will be active in the 2018-2019 academic year. GF1

The fact that our school provided the necessary materials for the geography lesson positively affected the attitudes of our students towards the lesson. However, it should not be forgotten that we have to follow the rapidly developing technology. GM3

Lack of books and materials

Regarding the lack of books and materials, the majority of the teachers stated similar views that the most basic way of teaching the lesson is provided by books, therefore, learning cannot be achieved and the lesson is not efficient due to the lack of books. The opinions of the teachers coded as GM6 and GF11 are as follows:

Unfortunately, the geography education process is not very efficient. The lack of books, the abundance of incomplete and incorrect information and keeping the subjects too long in the books cannot provide the necessary motivation. GM6

We can transfer geography education to our students with the information contained in the books, and the lack of books and materials reduces the success level of our lessons. GF11

Inability to associate information with daily lives

Regarding the inability to associate information with daily lives, teachers stated that no matter what type of school group they were in, their students could not achieve the desired level of success in geography education, as they could not associate the taught knowledge with their daily lives, making the lesson a memorized lesson and forgotten. The views of the teachers coded as GM14 and GM4 regarding this situation are as follows:

Students generally enjoy the lesson as they become aware of nature, their own environments, and their interactions with the environment. The lesson will be more effective if we have the opportunity to teach the lesson by giving more examples in daily life. GM14

We need to provide examples from our students' daily lives to increase the permanence of the lesson. GM4

Perceiving the Lesson as a Memorization Lesson

The views of the participants on perceiving the lesson as a memorization lesson are similar. The views of the teachers coded as GF9 and GM9 regarding this situation are as follows:

Education should be visual, not memorization. It should be based on trips, observations and investigations. Since memorization is forgotten, it is not permanent and bores the student; therefore, we should try methods that are not based on material. GF9

Unless we explain the geography lesson by giving examples from students' daily lives and supporting it with visuals, they perceive the lesson as a memorization lesson. GM9

Lack of Practice

G The participants stated that the efficiency and retention of the lesson was negatively affected due to the lack of practice in the geography lesson. The views of the teachers coded as GM10, GM12 and GF3 regarding this situation are as follows:

The geography lesson cannot be without a map. Students should learn onsite and have sufficient materials and practices. If the subjects are taught practically, the course will be permanent. GM10

Although the students are interested in the lesson, the success level of the lesson without practicing is quite low. GM12

The interactionalism and permanence of the lesson taught through practicing is high. GF3

Inclusion of Numerical Subjects

Regarding the views on the inclusion of numerical subjects, while some of the teachers stated that numerical subjects made the lesson difficult for the students, others stated that numerical subjects took the lesson away from a monotonous narrative and attracted the attention of the students. The views of the teachers coded as GF4 and GM8 regarding this situation are as follows:

The numerical subjects included in the content of the geography lesson make the lesson difficult for the students and make the lesson irrelevant to them. GF4

The numerical content of the lesson saves our students from monotony during lecture. GM8

2. ***Teachers' Views on the Geography Curriculum***

The question in the interview form regarding the second sub-problem of the study is "How do you evaluate the geography curriculum?". The answers given by the participants revealed "objectives and learning outcomes", "content", "educational situations" and "assessment and evaluation" codes.

Objectives and Learning Outcomes

Regarding the participants' views on the objectives, teachers working in different schools stated a similar opinion that the exams were not sufficient and they should be more distinctive.

Content

Regarding the participants' views on the content, the teachers stated that giving the content in a stack excluded the student from the lesson. The views of the teachers coded as GM1 and GF2 regarding this situation are as follows:

I can say that the geography lesson, which is given in the form of a pile of information, has been challenging our students in terms of its content. GM1

The geography lesson contains more information than it should in terms of its content, so our students get bored with the lesson and lose interest in the lesson. GF2

Educational Situations

Regarding the participants' views on the educational situations, most of them stated that students needed an education supported by visuals and observations due to the geography lesson's excessive content. The views of the teachers coded as GM5, GM6 and GF8 regarding this situation are as follows:

Geography education is not suitable for its objectives. There are problems in the nineth and tenth grades because of excessive content. The lectures are solely based on presentations and images. GM5

An education not supported by trips and observations causes us not to reach the desired level of success. GM6

When I look at the geography programs as a whole, I think that the subjects and activities do not meet the learning outcomes, they are insufficient or sometimes there are unnecessary details in educational situations. GF8

Assessment and Evaluation

Most of the teachers who were working in different schools and participated in the interviews stated that the details in the education were too much, the students had a tendency to cheat and the exam feedback was insufficient. The views of the teachers coded as GF1, GM13 and GF10 regarding this situation are as follows:

The feedback of the exams that the students take as evaluation exams is not sufficient. While exam analysis helps to increase the quality of the questions, we, unfortunately, see that our students do not fulfill their responsibilities in order to carry out these processes properly. GF1

Excessive cheating habits of students divert the exams from their purposes. GM13

Coğrafya programlarına bütün olarak baktığımda konu ve etkinliklerin kazanımları karşılamadığını yetersiz kaldığını yada bazen eğitim durumlarında gereksiz ayrıntılar olduğunu düşünüyorum. GF10

3. ***Opinions and Suggestions of the Teachers on Geography Teaching***

The question in the interview form regarding the third sub-problem of the study is "What are the views and suggestions of geography teachers about how geography education should be?". The answers given by the participants revealed "trip and observation", "human and nature interaction", "should be associated with daily life " and "should be away from memorization" codes. Explanations on these codes are given below.

Trip and Observation

The teachers participating in the interview stated that if there was no trip and observation activities in the geography lesson, the lesson would be guided by memorization and the students would not associate the lesson with their daily lives. The views of the teachers coded as GF3 and GF5 regarding this situation are as follows:

The geography lesson should be practical, otherwise, the lesson becomes boring, memorization and unnecessary. GF3

Education should be visual, not memorized, it should include trips, observations and investigations to provide a better understanding of both our immediate surroundings and the world. GF5

Human and Nature Interaction

Regarding the participants' views on human and nature interaction, they stated that an interaction between nature and human would help students develop an understanding of the environment. The views of the teachers coded as GF6 and GM10 regarding this situation are as follows:

Geography is of great importance for students to understand all the events that take place in their surroundings and in the interaction between the environment and human. GF6

Interaction between nature and human should be ensured. GM10

Should be Associated with Daily Life

The data obtained from the sub-theme of geography lesson should be associated with daily life revealed that the views of the teachers who participated in the interview were similar. The views of the teachers coded as GM14 and GM11 regarding this situation are as follows:

Geography should be taught by introducing people to their surroundings and making comments on the basis of the country and the world. GM14

Geography education and training in secondary education institutions should not be independent from students' daily lives. This is important for students to establish better relations with the environment they live in. Geography subjects should be planned in a way that helps students to solve the problems they face in their daily lives or to see the geographical features of their daily lives. GM11

Should be Away from Memorization

Most of the teachers who participated in the interview stated that the students' adoptions of an education based on memorization to save the moment would create differences in their success levels. The views of the teachers coded as GF4, GM4 and GF7 regarding this situation are as follows:

Our students memorize the given information to save the moment, only to get higher grades in exams. GF4

Unless the teaching and learning process continues outside the classroom, our students perceive the lesson as a memorization lesson. GM4

I can say that our students have gained a perspective away from memorization because they study to achieve success in exams rather than saving the day. GF7

Discussion, Conclusion and Suggestions

The results of this study, which aimed to determine the application levels of geography teachers working at secondary education level in geography teaching, revealed that the aim of geography teaching should be to teach students the economic and cultural values of the environment and the country they live in. Geography teaching should give the student a broad perspective in terms of its subjects. The important thing is not to overload the student with information but to give more concrete, more permanent and more understandable information enriched with visuals. The study determined the problems in geography education, how to make it more efficient and solution suggestions, and, in line with the teachers' opinions, found a total of three themes and 14 codes related to these themes and the details of the questions. As a result of the findings, the following results emerged.

According to the answers given by the geography teachers regarding the problems of geography teaching and learning, which is the first sub-problem of the study, the problems with high frequencies are low

achievement levels due to the physical impossibilities of the schools with low success levels and the lack of books and materials. Analyzing all these situations will reveal the reasons for the low achievement levels of schools. In these cases, the land can be brought to the classroom through various materials, such as slides and overhead projectors. Today, the development of technology enables this, and the researchers believe that the success levels of schools will increase even more through the use of this developing technology. However, the use of technology in schools with low level of success does not prevent students to perceive the the lesson as a memorization lesson and the decrease of students' interests in the lesson. The results revealed that problems in these schools were lack of practice and students' inability to associate the course with their daily lives. The data obtained from the interviews showed that the main reason for this was that the lesson remained in practice and students could not associate the information with field trips or their daily lives. However, the teachers believed that this negative situation would turn into positive with the necessary trip and observation activities.

The interviews with teachers about the geography curriculum, which is the second sub-problem, revealed that the geography curriculum was first implemented in 2005 with a radical change, and has continued to be used with changes and updates made almost every year since 2011. The objectives and learning outcomes determined in the geography curriculum are appropriate. We see that the content used for these objectives is acceptable. This study determined that the common problem of the teachers was that the nineth grade subjects were the most basic issues in terms of their contents; therefore, students, who just started secondary education, were afraid and had prejudices against the lesson. For this reason, including easier subjects in the curriculum for the nineth grade will be in the interests of students. This will ensure that students get used to the lesson and do not have too much difficulty in their first year of secondary education. However, the fact that the success levels of the schools are different indicates that their problems will be different. The fact that the materials suitable for the educational content are not suitable for the physical and financial conditions of all schools creates changes in the success levels of students. Furthermore, this causes differences in the evaluation levels of geography education because educational programs cannot be implemented sufficiently due to various reasons such as students' tendency to cheat and not fulfilling their responsibilities in schools with low levels of success.

When we examine the opinions of teachers on the third sub-problem, how geography education should be, the common opinion is that the geography lesson, which is implemented in line with the curriculum, does

not have a positive effect on students' daily lives. The study observed that geography education contained only teaching the information instead of helping students associate the information with their daily lives. This situation affects the success levels of schools Furthermore, the study observed that the physical conditions and materials of the schools were not at the same level. This situation also affects the ability of students to comment on current events. This study emphasizes both teaching the subjects according to their scientific contents and social education in geography education. The important aspect in geography education is primarily its functionality, and the main message to be conveyed in geography education is the need to be sensitive to the environment. Some of the participants stated that "the given information should be up-to-date because if it will not work in life, it is unnecessary information". Geography teaching should move away from theoretical as much as possible, students' motivations towards the lesson should be ensured, students' interests should be kept alive from the beginning to the end of the lesson, relations should be established between existing knowledge, and it should not, and it should not be forgotten that if students participate in the learning with stimulating their sense organs, the teaching can be more efficient. Therefore, for an effective teaching, students should be given homework, animations about geography should be prepared, and teachers need to ensure that students understand the topic both by seeing and hearing it. The study concluded that while the level of success was high in schools where geography education was considered to be sufficient, both the interest in the lesson and the success levels were low in the schools where the necessary conditions for the geography education were limited.

Teachers should know how to teach the subject to students to ensure the effectiveness of the geography education and teaching. First of all, those who teach geography must have a geographical consciousness, that is, they should stay away from memorization, and they must have qualifications that can produce and use knowledge. Suggestions regarding the results of the research are given below.

In-school and out-of-school activities (such as local governments, public and private institutions) should be organized for students in accordance with the objectives of the geography lesson.

Teachers should support the students by preparing more activities for the practice subjects in the geography lesson. For example, in cases where learning is incomplete, teachers should foster the learning process on the subject by assigning projects or homework. Furthermore, on important days and weeks such as the World Water Day and the Energy Week, they should guide their students about the knowledge of distant environments by starting from the near environment by organizing geographical trips and observations.

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Chapter 5

EXAM ANXIETY LEVELS OF ENGLISH LANGUAGE TEACHING DEPARTMENT STUDENTS AND TURKISH LANGUAGE TEACHING DEPARTMENT STUDENTS

Canan DEMİR YILDIZ[1]

1 Doç. Dr., Eğitim Fakültesi, Eğitim Bilimleri Bölümü, Eğitim Yönetimi ABD. Email: canan.yildiz@alparslan.edu.tr ORCİD ID: https://orcid.org/0000-0002-5905-9344

INTRODUCTION

Almost everyone feels nervous before an exam. Aches in the stomach and worrying thoughts -'Will I be able to answer the questions?' 'Have I done enough revision?'-are indications of exam anxiety that are probably familiar to all students. In fact, a certain amount of nervous tension probably helps us perform to the best of our ability, producing some adrenaline that helps us to feel alert and focused. But too much anxiety can block thoughts, create a negative frame of mind and lead to panic and potentially poor exam performance.

Within the field of education, one of the affective factors is anxiety which is very critical in effective learning. Anxiety can be defined as a general, frightened reaction to an indefinable source. It is a kind of threat of might have happened in the past or might happen in the future (Decay, 2000). Fragen and Fadiman (1984) has defined anxiety as a feeling that is triggered by an expected or predicted increase in tension or displeasure, it can develop in any situation when the threat to some part of the body or psyche is too great to be ignored or get rid of. Unfortunately, it is difficult to pin down anxiety and it is extremely difficult to measure and define. It is also impossible to specify the contribution it makes to the learning process. Despite all these, it refuses to go away and it is necessary for us to deal with it.

The aim of the study is to determine whether or not there is a difference between exam anxiety levels of English Language Teaching Department's students and Turkish Language Teaching Department's students.

The problem of the researcher is whether or not there is a difference in exam anxiety levels of Turkish and English Language Teaching Departments' students. The hypothesis of the researcher is that English Language Teaching Department students' exam anxiety levels are higher than Turkish Language Teaching Department students.

In part I, a general information about exam anxiety will be provided and under this part the causes and the results of exam anxiety will be given. In part II, we will discuss exam anxiety in second language learning. In part III, the methodology of the study will be provided. Under methodology, participants of the study, design, data collections and instruments, data analysis, finding and discussions will be explained.

LITERATURE REVIEW

Anxiety is one of the major problems for the psyche. It is stimulated by an expected or foreseen increase in tension or displeasure. If the threat to some part of the body is too great to be mastered , it can develop in any situation (Fragen & Fadiman, 1984). According to Ellis (1985), anxiety

plays a debilitating or facilitating role. In the case of the former, learners may reduce or abandon learning effort. In another study, it is proposed that it is often concealed or reduced by defensive behaviors such as avoidance or habitual action like hand washing (Morgan, King, Weisz & Schopler, 1986). Flanagan (1990) has proposed in her study that "Everyone knows what it is to be frightened or worried about something; the "something" can be concrete, like a bill or illness, or less tangible, like the anticipation of a future unpleasantness- an exam, interview, or work deadline, for example" (p. 61). Antony and Swinson (2000) have found that when anxiety is too intense it can interfere with performance; however, a little amount of anxiety is helpful. They believe that if you never became even slightly anxious under any circumstances, you probably wouldn't bother doing the things that must be done. It is normal that everyone experiences anxiety from time to time. However, Dacey and Fiare (2000) have stated that anxiety affects the way you perceive and think about the world.

Casede and Dereshiwsky (2001) have found that anxiety plays an important affective role in second language acquisition. According to Spangler and et all (2002) there is "cumulative knowledge" implying negative despite the modest relations between "exam anxiety" and academic achievement. They believe that exams may lead to many physiological anxiety reactions which are caused by examination anxiety. Therefore in the study of Güneri (2003) it is argued that exam anxiety is considered as one of the most debilitating types of anxiety which results in performance decrements. Also, it is a kind of nervousness which you experience during your exam preparation and exam taking (Leaver, Ehrman & Shekhtman, 2003). As Stöber and Pekrun (2004) have stated anxiety is only one of many emotions that may be experienced in the contexts of tests and examinations and considered by the researchers in the field.

I. EXAM ANXIETY

Most of us see taking tests or having examinations as the most anxiety provoking situations. The case of being judged makes us anxious. "Far more energy can go into worrying about the test any your results than into learning and performing on the test" (Leaver, Ehrman and Shekhtman, 2005, p. 100). Thus, exam anxiety has a long and fruitful history. Stöber and Pekrun (2004) has stated in their study that first studies about exam anxiety begins in 1914 and it continues until 1952. After that time it begins to be searched under its own name by Mindler and Sarason. In order to assess individual differences in exam anxiety in adults and in children, they develop Test Anxiety Questionnaire and Test Anxiety Scale for children. As Stöber and Pekrun (2004) have stated in their study, the exam anxiety research is still flourishing and it continues to be a key in anxiety, stress and coping. Black also states this condition in her study, "Back in high

school, I had never heard the term "exam anxiety", but today's students are all too familiar with it-even the elementary school" (2005, p. 42).

In a study of Stöber and Pekrun (2004), they have stated that exam anxiety remains an important factor in all disciplines of educational psychology as the most prominent factor. In educational testing, exam anxiety may represent a bias that hide the true potential of students. According to Gross's study, "Exam anxiety is considered to be one of the most debilitating types of anxiety that results in performance decrements" (in Güneri, 2003, p. 3). Students regularly experience tests and examinations which makes them very anxious. "Passing or failing exams may profoundly affect chances to get access to further educational and occupational development, thus implying high importance and the potential to induce high amounts of psychological stress" (Spangler, Pekrun, Kramer & Hofmann, 2002, p. 414). Therefore, too much anxiety while taking exams plays a debilitating role in learning that the learners can abandon their learning efforts.

I. 1 THE CAUSES OF EXAM ANXIETY

Researchers have found exam anxiety to be inversely related to students' performance in a wide variety of evaluating situations. Lots of students experience anxiety during their exams. There are many factors that affect exam anxiety. It can be caused both by the students themselves because of their personalities or it can be caused by the environmental factors such as teachers, parents, school mates, etc. Hembree (1988) has reviewed the causes of exam anxiety as the following; ability level, ethnicity, sex, birth order and school environment (in Güneri, 2003). "Numerous physicians say exam anxiety is a type of performance anxiety that results from the fear of being judged by teachers, parents, and classmates" (Black, 2005, p. 42). According to Spielberger, and et all (1978), exam-anxious students generally have higher levels of anxiety, tend to find examinations threatening because of their evaluative nature, and experience higher levels of state anxiety when taking exams (in Dibattista & Gosse, 2006). Moreover, "a number of situational factors, such as time pressure (Plass & Hill, 1986), have been shown to exacerbate the anxiety associated with test situations and further detract from test performance" (in Dibattista & Gosse, 2006). On the other hand, Black (2005) also states that

> Some students who've coasted along without studying have their comeuppance when faced with a test they realize they have no hope of passing. Others melt down because they don't have the skills to read and understand questions, and instructions. And some panic when exam questions pop up on material they haven't covered or questions are presented in an unfamiliar format. (p. 42)

Fear of failure is the most discouraging factor which causes anxiety during taking exams. As Stöber and Pekrun have found that "Fear of failure predicts residual changes in both performance and mastery avoidance goals, with higher fear of failure leading to stronger avoidance goal orientations" (2004, p. 209). Apart from this reason of exam anxiety, Leaver et al. (2004) give some reasons of exam anxiety in their study. They have stated some of the reasons as following: "Previous conditioning, self image, consequences, fear and frustration, facing the music; that is, a test can force you to face up what you do and don't know" (p. 101). Previous experiences in school may cause students expect an unpleasant experience. Moreover, students can experience some environmental situations such as "loss of a desired object, loss of love, failure to win the approval of someone who matters to you, public ridicule, acts which result in guilt or self-hate, etc." (Frager & Fadiman, 1984, p. 23). On the other hand, literature on test anxiety shows that some of the factors that influence students' reactions to tests are related to test validity, time limit, test techniques, test format, length, testing environment and clarity of test instructions (Young, 1999). Another factor that increases test anxiety and affects performance is time limit (Trifoni and Shahini, 2011, p.95) The threat of these factors causes anxiety in students during the process of preparation and taking exams.

I. 2 THE EFFECTS OF EXAM ANXIETY

Students at school and university encounter with lots of anxious situations. Most of these situations imply their daily hastens relating to teachers, homework, schoolmates, etc. Also their educational careers provide important and critical life events. Therefore, the experienced situations create anxiety in students and this condition can be clearly seen from their examinations results. Exams cause physiological anxiety reactions and it can create an uncertainty and negative emotion (Spangler et al., 2002). John Zbornik, who is a psychologist, says that students with exam anxiety, experience physiological symptoms, such as sweating, dizziness, and heart beats. Also he states that some students have more "traumatic symptoms", such as crying and bedwetting the night before an important exam and even some of them faints on the day of exam (in Black, 2005).

According to Flanagan (1990), high exam anxiety results in physiological, behavioral and cognitive reactions. The physiological reactions during exams can be shaking, blushing, trembling, perspiration, etc. "Avoidance response" can be said as the behavioral response to exam anxiety. Apart from this, going totally blank at an exam is the cognitive response to exam which is seen as a threatening resource. Moreover, Stöber and Pekrun (2004) state that in their study, individual differences also play a major role both in students' academically achievement and personality development and health.

In a recent study of Weber and Bizer (2006), they proposes that in the minutes or moments before an examination, students may learn from their colleagues in earlier sections that the exam they are about to take is very difficult. Or similarly, if the lecturer of the lesson informs the students that the examination will be difficult then the students become anxious and performs poorly. In such cases, the students' motivation falls down and exam anxiety occurs. A condition of high anxiety disrupts students' concentration and it results in low exam marks.

II. EXAM ANXIETY IN SECOND LANGUAGE LEARNING

Second language learners vary on a number of dimensions such as personality, learning style, age, etc. Anxiety is one of these dimensions in second language learning (L2). As Bailey proposes a model of "self-image" which can result in debilitating or facilitating anxiety. In debilitating anxiety, the second language learner temporarily or permanently avoids contact with source of perceived failure so the second language learning is abandoned and an unsuccessful self-image occurs (Ellis, 1985). Language learners are always prone to suffering anxiety and the reason is banishing first language from the language classes and this makes students deprive of their normal means of communication and telling themselves in exams. Also Allwright and Bailey (1991) has studied this situation in their study, "…learners report that one of their major worries is that when forced to use the language they are learning they constantly feel that they are representing themselves badly, showing only some of their real personality, some of their real intelligence" (in Nunan & Lamb, 1996, p. 220).

As an affective factor, anxiety is critical to effective language learning. If it is too high it debilitates language learning and results in bad exam performance. Affective factors such as learners' personalities can influence the degree of anxiety they experience during taking exams and their preparation to take risks in learning and using the target language. Their learning preferences may influence the kind of input and learning the task; for example, spoken or written tasks (Ellis, 1997).

The researches into the relationship of exam anxiety to second language learning have provided mixed and confusing results because of the existence of numerous variables that can affect learning. According to Casado and Dereshiwsky (2001), students' perception of their own competence in both native and foreign language makes them anxious; that is, they tend to underestimate their competence and become anxious about their performance. Also Yule (1996) has stated that if the learners are uncomfortable or anxious, they are unlikely to learn anything and these results in bad performance and bad results in exams. Apart from these, Black (2005) proposes in her study that assigning homework without

adequate preparation and practice causes high exam anxiety and especially moving on to complex concepts before students have had a chance to learn basics results in exam anxiety and low exam scores.

III. METHODOLOGY

III. 1 THE PARTICIPANTS OF THE STUDY

The study has been conducted with 40 students studying at a public university, Education Faculty Turkish and English Language Teaching Departments. 20 of them have been chosen from English Language Teaching Department and 20 of the students have been chosen from Turkish Language Teaching Department from the existing population of 87 students. All of the students are in the first classes of their departments and the participation has been voluntary. In the first grade class of English Language Teaching Department, the existing number is 46, 23 of them are girls and 13 of them are boys. In the first class of Turkish Language Teaching Department, there are 41 students in total and 23 of them are boys and 18 of them are girls. As samples of the study, 20 girls and 20 boys have been chosen from the population randomly.

III. 2 RESEARCH DESIGN

This comparative study possesses the characteristics of corelational research in that it is concerned with the results of responses from the aspect of relationship. The type of quasi experimental research was scale method. The data obtained from the raw scores of the scale were assessed by Statistical Package for Social Sciences (SPSS) to determine whether there is a difference in exam anxiety levels of English Language Teaching Department students and Turkish Language Teaching Department students.

III. 3 DATA COLLECTIONS & INSTRUMENTS

The data were obtained from the Exam Anxiety Scale which was applied to both Turkish and English Language Teaching Departments' students. In order to examine the exam anxiety levels of the students, the scale includes 50 sentences and it includes an answer key for the students. There were 50 sentences in the scale which also included information related to age, name-surname and sex. If the sentences are true for them they put "X" on the (D) sign which means true. If the sentences are wrong for them they put the same mark on the sign "Y". Reliable and valid information were taken from the scale as the students answered the scales through their personal information.

III. 4 DATA ANALYSIS

In order to analyze the data that were obtained from the scale, we profited from computer. The date related to the research question were

assessed to computer and for statistical analysis of the data, we used SPSS (Statistical Package for Social Science) Statistical Package.

In order to find an answer to the question whether there is a difference in exam anxiety levels of the Turkish Language Teaching Department students and English Language Teaching Department students, SPSS Statistical Package and t test (Independent Samples Test) were used.

IV. FINDINGS & DISCUSSIONS

Findings obtained from the study and discussions about these according to research problem are given below.

1. Is there any difference in exam anxiety levels of English Language Teaching Department's students and Turkish Language Teaching Department students?

In order to determine whether there is a difference in exam anxiety levels of the students according to their departments, t test (Independent Samples Test) was applied. The findings related to this are given in table 1 and table 2.

Table 1*: t-Test Results Of Exam Anxiety Levels According To Departments*

	BRANCH	N	MEAN	Std. Deviation	Std. Error Mean	t	p
TRUE	Turkish	20	28,5714	4,0196	,8771	-7,427	P<0,85
	English	20	39,3158	5,1105	1,1724		

According to the data in table 1, there is a reasonable difference in English Language Teaching Department's students' exam anxiety levels and Turkish Language Teaching Department's students' exam anxiety levels (t=-7,427, p<0,85). English Language Teaching Department students' exam anxiety average (Mean=39,3158) is higher than Turkish Language Teaching Department students' exam anxiety average (Mean=28,5714). This findings show that there is a reasonable difference between the departments according to their exam anxiety levels. So it can be said that there is a relationship between exam anxiety and departments. English Language Teaching Department students' exam anxiety can be connected to second language that they may not be comfortable with. Also the teacher and the environment that they take the exam and the kind of exams can affect the students' exam anxiety levels. The lecturers of the department may affect the students negatively. The way they give their lessons and inform the students about the exam beforehand can play a major role in increasing exam anxiety in English Language Teaching

Department students. Moreover, the students who are in beginners in the department may feel anxious about the exams as they don't have enough experiences and knowledge of the language. There are individual differences which may also affect exam anxiety level. Apart from these, not preparing well, not understanding the instructions in the exam, fear and frustration, experiences in the past, self-perception, fear of failure, and forewarning can be said as the possible causes of exam anxiety in English Language Teaching Department students.

V. CONCLUSION

It can be deducted from this study that some levels of exam anxiety are experienced by the beginning students both in their native language and second language. However, the findings of this study show that students experience much more exam anxiety while learning a second language than the students who are educated in their native language. From this perspective anxiety can be said to play an affective role in second language learning as suggested by Casade and Dereshwisky (2001). It is clear that when anxiety is too intense it can interfere with performance, it affects the way you perceive and think about the environment that you live (Decay & Fiare, 2000). Since exam anxiety remains a critical factor in all disciplines of educational psychology as the most prominent factor, exam anxiety was again found as a representation of a bias that hide the true potential of the students. As this situation was pointed out in Stöber and Pekrun (2004) research, too. In a study with university students, Trifoni and Shahini (2011) found four important results which are as follows: first, students are often affected by test anxiety before but especially during exams. The results show that female students feel more anxious despite being more prepared than boys. Secondly, some of the factors causing test anxiety were related to not preparing for exams and/or improper exam preparation, fear of negative evaluation, bad experiences in previous exams, time limitation and pressure, and the number of items included. Third, according to research, test anxiety also causes physical and psychological problems. It negatively affects motivation, concentration and success, increases errors during the exam, creates problems in remembering previously learned materials and prevents efficient study. Fourth, it was concluded that teachers' attitudes are key factors in reducing test anxiety.

Exam anxiety not only profoundly affects chances to get access to further educational development but also it affects to access to further occupational development as argued by Spangler and et all (2002). This study demonstrated that anxiety seems to be inherent in the learning process of learning a second language in this university especially with the first grades; hence, reducing second language learning apprehension and exam anxiety in second language learning should be an intrinsic part of any education program.

In this study, it is found that exam anxiety is experienced by lots of the students while learning second language and it is hard to manage; however there are some things that you can do so as to come over it. It depends heavily on your own ability; you need to manage your feelings, your thoughts, your activities before and during the exam, and your relationships with people who rate you (Leaver et all. , 2005). And the most significant thing to do is to stop dwelling on your anxiety. This study showed that negative thoughts can lead to set up images of your failing. You may make yourself fail. Instead, using positive images of yourself may help you be calmer and self-confident and low exam anxious.

In order to alleviate exam anxiety in second language learning in universities by minimizing their apathy and disinterest in curricula that is unrelated to their needs, educators should provide meaningful content that is similar to their particular disciplines. In dealing with anxiety as an affective factor, the important thing for the teachers or lecturers is that, they should be aware of the possible influences on students and deal with these factors. Also they need to decide which factors are within their power to change and which are beyond the teachers' control. This kind of awareness can help to reduce the exam anxiety and can increase the performance of the students during examinations so they can get high marks.

V.1. LIMITATION OF THE STUDY

Regarding this aspect, we can say that some limitations can be noted. The research is limited to students of a single institution, namely the Faculty of Education at a public university. Second, the research is limited to students' test anxiety scale scores. Finally, background education is not a variable in this study. In conclusion, given that the study was limited to only one public university student's test anxiety, further research should focus on more analytical issues such as teacher attitudes towards test anxiety and pre- and post-exam results.

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Chapter 6

ACHIEVEMENT GOAL THEORY

Nuray YILMAZ[1]

1 Doç. Dr. Nuray YILMAZ, Bursa Uludağ Üniversitesi Eğitim Fakültesi
ORCİD ID: 0000-0001-8368-4556

1. Introduction

Some theories try to explain the motivation process with purposes they associate with social cognition (For these theories, see Pintrich and Schunk, 1996). Perhaps the most popular of these theories is the achievement goal theory. Achievement goal theory emerged in the early eighties under the name of goal orientation theory (Senko & Tropiano, 2016). From the outset, the theory offered a new and promising direction to research achievement motivation (Jaganski & Duda, 2001). Over time, this theory became a frequently applied theory in research in this field (Chazan et al., 2022; Senko & Tropiano, 2016; Urdan & Kaplan, 2020). In this section, initially, the developments in the theory since its emergence, the models put forward regarding the theory, and the results of some of the studies investigating the theory from different angles are presented.

2. Developments in Achievement Goal Theory

Since its inception, achievement goal theory has been broadly used as a theoretical framework in education and motivation research since the beginning (Senko et al., 2011). Depending on the popularity of the theory over time, a large research group was formed to work on achievement goals (Huang, 2011; Urdan & Kaplan, 2020). Since it was introduced under the name achievement orientation theory thirty-plus years ago, various models of achievement goal theory were put forward (these models are discussed in the following sections) and the basic structures and assumptions of the theory have evolved through these models (Urdan & Kaplan, 2020). Elliot and Hulleman (2017) discuss that the theory appears to be under constant revision. There is no consensus on the superiority of any of the models so far put forward regarding the achievement goal theory (Janke & Dickhäuser, 2019). Researchers argue that newer models of the theory are not superior to previous models and should be selected under the questions of researchers (Elliot et al., 2011).

Although different models have been introduced over time, competencies have always been at the center of the theory (Chazan et al., 2022). When the theory was first introduced, goal orientation theorists (Ames 1992; Dweck & Leggett 1988; Nicholls 1984) conceptualized achievement goals according to how competence is defined by the individual, in other words, the individual's reasons for participating in tasks. Accordingly, the authors put forward two achievement goals, which they defined as competence development (mastery goal) and proficiency (performance goal) (Huang, 2011; (Senko & Tropiano, 2016). While the number of achievement goals was two at the beginning, the number was increased to three, then to four, and finally to six with the new models introduced over time (Vansteenkiste et al., 2014). The discussions initially focused on the critical aspects of

performance goals. In the traditional framework of the goal orientation model, performance goals include demonstrating competence ("appearance goals"), while in the developed goal standard model, performance goals include demonstrating better performance than peers (normative goals) (Senko & Tropiano, 2016). Later, in the updated framework based on the concept of valence, the performance goal was divided into two, this time as performance-approach and performance-avoidance goals, and three different achievement goals were started to be examined in theory (Vansteenkiste et al., 2014). While this tripartite model has strong empirical support, studies discuss problems with the transferability of the model across contexts. The research results of Hofverberg and Winberg (2020) support this. Research results demonstrated that the model cannot be freely transferred between countries. In later refinements of the achievement goal theory, the performance approach goal is further subdivided into two more components, the normative and the appearance component (Bardach et al., 2022). When the valence dimension was applied to mastery goals as well as performance goals, the number of success goals increased four times (Mastery- approach/avoidance-Performance- approach/avoidance) (Huang, 2011; Sun et al., 2022). Finally, in the new model proposed by Elliot et al. (2011), instead of mastery and performance goals, each of the three possible standards of competence (task, self, and other) was matched with two components of competence value (i.e. approach, avoidance) to display six success goals (Elliot et al., 2011).

In the scope of the developments in the theory, it is necessary to mention the multiple goals perspective. According to the multiple goals perspective, mastery and performance goals are not in direct opposition to each other and may be adopted simultaneously (Chazan et al., 2022; Pintrich, 2000). This can also be useful for the motivation and success of students (Zhang et al., 2016). Finally, the distinction between autonomous and controlled causes at the center of the theory of self-determination, paved the way for the evaluation of the underlying causes of achievement goals, leading to the emergence of a new model in the theory called the "goal complex" (Sommet & Elliot, 2017). Cause and standard elements in different models of achievement goal theory are discussed together in this model (Vansteenkiste et al., 2014).

To summarize the outlines of these developments in achievement goal theory from the past to the present, the theory has undergone a revision that includes the distinction between approach and avoidance in goals, intense discussions on the structure of performance goals, and mastery goals, as well as a multiple goals perspective that points to the positive potential of performance-approach goals (Senko et al., 2011). Finally, another aspect of the developments in the theory concerns the focus of

the theory. The focus of achievement goal theory was originally designed to understand the complex connections between beliefs, affect, behavior, and organizational and cultural context. Over time, the focus of the theory narrowed as comprehensive questions about the meaning of success in contexts such as classroom and school were abandoned. (Urdan & Kaplan, 2020). However, recently, there have been efforts to expand the focus of the theory as it was at the beginning (Elliot & Hulleman, 2017; cited in Urdan and Kaplan, 2020).

3. Achievement Goal Models

The models that have been put forward since the emergence of the theory are described under this heading.

3.1. Dichotomous Models of Goal Orientation Theory

The original version of achievement goal theory came forward as goal orientation theory. Four scientists – Carole Ames, Carol Dweck, Martin Maehr, and John Nicholls – made significant contributions to laying the foundations of the theory (Chazan et al., 2022). All four theorists agreed that there is more than one way of defining success and that these different definitions play a central role in motivation for success. Theorists argued that these different definitions of success by students will affect the way they engage with the task (Urdan & Kaplan, 2020).

3.1.1. Models Based on the Nature of Goal Orientations

Goal orientation theorists had quite different areas of interest and study programs other than this common assumption shared by each of them. Moving from the question of what goal orientation is, this is caused by the differences in understanding the nature of goal orientation. Accordingly, elements in the socio-cultural context, that is the characteristics/situational schemas of a particular situation and differences in individual/self-schemas, were evaluated concerning goal orientations (Maehr &Midgley, 1991; Kaplan & Maehr, 2007). These two different situations have led to the emergence of different theoretical models of goal orientation theory. These are the models that examine goal orientation in terms of its relationship with a personal tendency or individual difference variable and the models that investigate goal orientation depending on a context or situation (Pintrich & Schunk, 1996).

3.1.1.1. Models Based on the Individual. Two of the models based on individual in goal orientation were created by Dweck and Nicolls. In their model, Dweck and colleagues focused on beliefs about intelligence, while Nicholls focused on ability. The model presented by Dweck and colleagues suggests that two implicit theories of intelligence (mental ability) could explain the difference in academic goal orientations of students. These two

implicit theories of intelligence represent beliefs students have about the nature of intelligence and reveal individual differences in their beliefs. One of these theories is entity theory, which includes the belief that intelligence is static and cannot change while the other is the incremental theory, which includes the belief that intelligence can increase with effort (Pintrich & Schunk, 1996; Jagacinski & Duda, 2001; Leondari & Gialamas, 2002). These two theories create a framework for processing information, structuring descriptions of events, and making interpretations (Leondari & Gialamas, 2002).

According to this model, the goal orientation of students who adopt the theory of increase in intelligence will be in the direction of mastery goal. Students who adopt this goal orientation will aim to increase their competencies and will measure their development while evaluating their success in reaching the goal (Pintrich & Schunk, 1996). The proficiency pattern shows that mastery-oriented students do not care about the level of confidence in their ability (Dweck, 1986). Therefore, a low or high level of confidence in intelligence will not make a difference in behavior patterns.

On the other hand, the goal orientation of students who adopt the theory of existence will be toward achievement since they would be more interested in their success (Leondari & Gialamas, 2002). In addition, high or low levels of confidence in the adequacy of intelligence of students would lead to the emergence of different behavior patterns. If confidence in intelligence is high, adaptive behaviors such as perseverance and striving for defiance behavior and otherwise helplessness behavior will be observed. This will also be effective when evaluating success. Such students will try to compare their abilities with others while evaluating their success and try to do better than others (Jagacinski & Duda, 2001; Pintrich & Schunk, 1996).

Meanwhile, the model states that there may be continuity between beliefs of existence and increase, and beliefs of individuals about intelligence may include both of these theories. According to this, students can only become somewhat determined over time after they are 12 or 13 years old. The reason for this is that students can only adopt the theory of existence after this age. In addition, according to the model, opinions of students on intelligence may also change according to the field (Pintrich & Schunk, 1996).

The other model was devised by Nicholls. Nicholls' model focuses on ability insights rather than Dweck's beliefs about intelligence as influencing goal orientation. Nicholls used a developmental perspective on the concept of talent (Urdan & Kaplan, 2020). Nicholls based his insights on his ability in his developmental work with children. According to

Nicholls (1978), divergent insights are typically acquired around the age of 10. When young children cannot clearly distinguish ability from effort, their understanding of ability cannot differentiate. Young children think that they can progress with effort, that their abilities can develop, and that they can try difficult ones.

3.1.1.2. Models Based on Situation/Context. Among the theorists who put forward the foundations of goal orientation theory, Ames and Meahr emphasized that goal orientation may depend on a context or situation. These contexts can be culture, schools and classrooms, and special situations (Kaplan & Maehr, 2007). The relationship between cultural factors and motivational processes began to be discussed more than forty years ago (Maehr, 1974; Maehr & Nicolls, 1980). According to Maehr and Nicholls (1980), the success schemas of students are most likely influenced by achievement concepts common in culture. The idea that culture can influence achievement goals led researchers to examine whether the patterns of relationships, both among goals and between goals and outcomes, differ for different cultural and ethnic groups (Urdan & Kaplan, 2020). The increase in cultural and ethnic diversity in classrooms was effective in conducting cultural studies for success purposes (Kaplan & Maehr, 2011). These cultural studies have been carried out interculturally since the beginning. These studies primarily examine the similarities and differences in the relationships between goals and learning outcomes in different cultures. There are minimal cross-cultural differences in research findings that are in line with the findings in mainstream studies (Zusho & Clayton, 2011).

Although Ames, Dweck, Maehr, and Nicholls shared assumptions about the centrality of the definition of success in motivation, they each had quite different interests and study programs. Maehr (1974) focused on how changing organizational culture can elicit more adaptive motivation to seek a comprehensive understanding of culture and its impact on beliefs, values, goals, and motivation (Maehr & Midgley, 1996). Ames, (1992) had an active research program examining classroom processes, particularly how reward structures and other instructional policies and practices create different definitions of achievement in the classroom, and what educators can do to foster adaptive motivation. Dweck, (1986) examined how fixed or changeable beliefs about intelligence affect the interpretative frameworks and goals that students adopt and their responses to success and failure. Nicholls (1984) was inversely interested in how different concepts of talent, such as the relationship between luck and talent and effort and talent, develop in children and in the harmful effects of ideologies, policies, and practices that activate the concept of talent (Urdan & Kaplan, 2020).

While investigating the contextual/situational factors affecting

personal goal orientations, goal orientation theory also focuses on the goal structures of the classroom and school as a learning environment. The theory has long emphasized the impact of the learning environment on the achievement goals of students (Pintrich et al., 2003). Ames, (1992) had an active research program examining classroom processes, particularly how reward structures and other instructional policies and practices create different definitions of achievement in the classroom, and what educators can do to promote adaptive motivation (Urdan & Kaplan, 2020).

3.1.2. Two-Factor Goal Orientation Model

Goal-orientation theorists in their goal-orientation models generally presented goals in dichotomous classifications as learning and performance goals (Dweck & Leggett, 1998), task-involved and ego-involved goals (Nicholls, 1984), mastery and performance goals (Ames, 1992), task-focused, and ability-focused goals (Maehr & Midgley, 1991) (Pintrich & Schunk, 1996). Although the theorists labeled them with different names, they focused on two academic goals that they saw as opposed to each other. According to the theory, these goals shape learning (Dweck, 1986). Urdan and Kaplan (2020) explain the reason for the adoption of this binary structure in theory as it is compatible with philosophical ideologies that discuss the development of individual strengths against the benefits of competition.

Both structures constituting the two target groups are defined through qualifications (Huang, 2011). Authors working on this theory perceive competence as the ability to do something effectively, adequately, or successfully. The authors agreed on this structure at the center of the theory, despite continuous improvements in the theory's models (Chazan et al., 2022). According to the theory, those who adopt mastery goals will focus on improving their abilities, while those who adopt performance goals will adopt personal competence (Huang, 2011). Theorists agree that mastery and performance achievement goals represent two different ways of defining competence (Hulleman et al. 2010).

Because goal orientation theory assumes that mastery goals guide the experiences of students in adaptive ways, these goals should create an orientation in students that facilitates learning, such as high self-efficacy, positive influence and interest, and self-regulation or collaboration. Again, according to the theory, the performance goal should lead to a non-adaptive orientation in students that will lead them to exhibit strategies and behaviors against learning, such as avoidance or self-handicapping when they encounter difficulties (Senko &Tropiano, 2016).

Goal orientation theorists agreed that mastery goals were more advantageous than performance goals (Dweck, 1986). Thus, they

argued that schools should emphasize mastery goals involving personal growth rather than performance goals involving competition and social comparison. Naturally, these views also shaped the theory (Urdan & Kaplan, 2020). Studies have also revealed consistent and mostly positive findings regarding the specialization goals in support of these views (Senko et al., 2011). The mastery goal has been associated with numerous advantageous motivational, emotional, and behavioral outcomes (Schweder, 2019). However, according to the results of Hulleman et al. (2010) meta-analysis study, specialization goals are generally unrelated to academic achievement. On the other hand, extensive research findings testing the goal orientation model revealed differences in the definition of performance goals of the model (Senko & Tropiano, 2016). Some studies also identified the benefits of performance goals (e.g. Elliot & Church, 1997) Thus, Harackiewicz et al., (1998), proposed a revision in achievement theory that emphasized both goals had positive potential and that they could be pursued together (Senko et al., 2011).

3.2. Goal Standard Model

Upon disagreements on the basic elements of performance targets, Elliot (1999) put forward the goal standard model. In the traditional framework of the goal orientation model, performance goals include demonstrating competence ("appearance goals"). The definition of performance goals in Elliot's goal standard model includes interpersonal criteria, which is performing better than peers (normative goals) (Bardach, et al., 2020; Hulleman et al., 2010). In the goal standard model, performance goals relate to the social consequences of qualification. (Senko et al., 2011). Although the goal standard model accepts performing better than others as the real performance goal, it also assumes various reasons, including demonstrating competence, within the scope of the performance goal (Senko & Tropiano, 2016). This approach was adopted to resolve disagreements among researchers both regarding the essence of the personal performance-approach goal (appearance or normative performance) and conflicting empirical findings (Bardach, et al., 2022). The meta-analysis study of Hulleman et al. (2010) revealed that performance goals emphasizing appearance goals predict low achievement, while performance goals emphasizing normative goals predict high achievement.

3.3. The Concept of Valence and Updated Triple Model and 2X2 Model

In the triple perspective, the performance goal was separated into two performance-approach and performance-avoidance goals, and three different success goals were examined in theory (Vansteenkiste et al., 2014). In the updated triple model based on the concept of valence, the approach/

avoidance distinction was applied to performance purposes to help explain inconsistent relationships students have with success (Huang, 2011). Thus, Elliot and his colleagues introduced a triple framework of achievement goals (Church et al., 2001). In the same way, Midgley et al. (1998) defined a triple classification while revealing goal orientation as task goal orientation, ability-approach goal orientation, and ability-avoid goal orientation. According to this triple framework, performance-approach goals are focused on performing better than others (Elliot & Harackiewicz, 1996). Accordingly, individuals would be positively motivated to demonstrate their competence and superiority (Pintrich, et al., 2003). Performance-avoidance goals are defined as the goal orientation type of students who cautiously avoid participating in academic tasks or attempt to minimize the effort required to complete academic tasks (Dowson & McInerney, 2001). Students with this orientation may be negatively motivated to try to avoid appearing stupid or inadequate (Pintrich et al, 2003).

Afterward, scholars developed a new framework in theory by applying the valence dimension to mastery goals together with performance goals (separating mastery goals into approach and avoidance components). Thus, a new model was created in the achievement goal theory (2 × 2- Mastery approach/avoidance-Performance approach/avoidance) (Huang, 2011). While mastery goals express the desire to learn and master a task, mastery-avoidance goals express the desire to avoid learning, thus leaving the task unfinished (Elliot, 1999; Pintrich, 2000). The performance approach refers to revealing competencies, while performance-avoidance refers to avoiding showing inadequacy (Wormington & Linnenbrink-Garcia, 2017). The meta-analysis study by Bardach et al. (2020) showed that each goal construct type is associated with a matching personal achievement goal. While the basic approach-avoidance distinction is widely accepted for the personal performance goal, it is not within the domain of goal structures (Bardach et al., 2022).

3.4. 3 × 2 Achievement Goal Model

Elliot et al. (2011) proposed 3 x 2 model which was a new model depending on the definition of success and competence elements for achievement goals. The reason for Elliot et al.'s (2011) proposal for a new model was based on the criticism that task and self in mastery goals were not always in harmony. Instead of mastery and performance goals in the achievement goal theory, in the model, they proposed they matched each of the three possible standards of competence (task, self, and other) with two components of competence value (i.e. approach, avoidance) and identified six goals: task-approach, task-avoidance, self-approach, self-avoidance, other -approach, and other-avoidance (Elliot et al., 2011; Chazan et al., 2022) Task-based objectives refer to behaving to fulfill the requirements

of a task. Therefore, competence is defined through the requirements of the task. Self-based goals define competence through internal standards aimed at correctly answering a greater number of questions than in a previous attempt. The competence standard is based on personal previous behavior. Other-based goals define competence in interpersonal standards in the same way as the original concept of competence was addressed in performance goals (Chazan et al., 2022).

3.5. Goal Complexes Model

Elliot, Urdan, et al. put forward a new model they defined as the "goal complex model" where they discussed cause and standard elements in different models of achievement goal theory (Sommet & Elliot, 2017). The goal complex model became a model that combined different models of achievement goal theory (Vansteenkiste et al., 2014). The model reveals the reasons and standards of purpose adopted for success (Senko & Trapiano, 2016). This new and young model was also considered to be an important development for achievement goal theory (Liem & Senko, 2022).

In the goal complexes model, standards are accepted as the goal of achievement (as in the goal standard model). The model assumes that students can follow a standard goal for a variety of reasons. In addition, the model assumes that reasons such as standards (as in the goal orientation model) are also important. Causes are effective not only in activating the purpose but also in shaping the effects of the purpose (Senko & Trapiano, 2016). The theory implies that students may adopt each goal for different reasons. Thus, the same goal may give rise to different effects depending on the reasons that lead students to the goal they pursue (Liem & Senko, 2022).

At the center of self-determination theory (SDT) is the distinction between autonomous motives including willingness to act (for instance, to enjoy the experience) and controlled reasons related to feeling pressure to perform a behavior (for instance, to gain rewards or to make others proud) (Vansteenkiste et al., 2010). This distinction paved the way for the assessment of the reasons why individuals tend towards achievement goals. Based on this theory, scholars working on goal complexes conceptualized the reasons why students pursue goals with these two reasons (Vansteenkiste et al., 2014). In the study conducted by Senko and Trapiano (2016) with university students, normative goals supported adaptive outcomes (self-efficacy and interest) when students pursued them for autonomous reasons (for instance, enjoyment or challenge). When students pursued controlling reasons (e.g. rewards), normative goals favored non-adaptive outcomes (help avoidance and self-handicapping). These results are similar to the results of studies conducted in previous years (e.g. Vansteenkiste et al., 2010).

3.6. Multiple Goals Perspective

Although goal orientation theorists had different theoretical frameworks and used different labels for dichotomous goals in their models, they agreed that mastery goals had more educational benefits. However, later studies showed that normative performance goals were more strongly associated with achievement than mastery goals (Hulleman et al., 2010). Research has also revealed that the results of simultaneously pursuing both mastery and normative goals are no worse than pursuing mastery goals alone (see Pintrich et al., 2003). This led theorists to develop a multi-purpose perspective. Thus, a proposal for a revision of the success goal theory came to the fore (Senko et al., 2011; Zhang et al., 2016). There was a long-standing division between supporters of both views. Performance-avoidance, mastery-avoidance, and work-avoidance goals are generally not mentioned in the discussion between those that adopt mastery goals and those that adopt the multi-objective perspective. However, scholars have recently discussed the possibility of the simultaneous pursuit of a performance-approach and performance-avoidance goals and their concerns about its academic consequences (Wormington, and Linnenbrink -Garcia, 2017).

It is important to separate the effects and interactions of mastery, performance-approach, and performance-avoidance goals in multiple goals perspective (Pintrich et al., 2003). In addition, research is required to investigate how students pursue multiple goals and to evaluate the effects of this on their success (Senko et al., 2011). There is also a long-standing discussion on which goal orientations and combinations of these goal orientations are most adaptive (Wormington & Linnenbrink-Garcia, 2017). Thus, despite the importance of examining multiple goals simultaneously, most research on multiple goals focused on relationships between two focus goals (i.e. dual-purpose relationships) (Kung & Scholer, 2020). For example, studies by Luo et al. (2011) and Jang and Liu (2012) show that students pursue more than one purpose at the same time. Most variable-centered studies have not considered the multiple goals perspective (Wormington & Linnenbrink-Garcia, 2017).

When multiple goals perspective became an interesting subject in achievement goal theory (Zhang et al., 2016), studies on multiple goals aroused little interest (Valle et al., 2015). In this scope, there were studies on multiple goals and perspectives at various levels of education. There is a growing study group that compares the effects of adopting a single goal with adopting multiple goals on secondary and high school students (e.g. Luo et al., 2011). However the same cannot be said for studies conducted with primary school and university students (Zhang et al., 2016).

4. Research Results

The effects of achievement goals on the cognitions, emotions, and behaviors of students have been wondered since the emergence of the theory (Chazan et al., 2022), thus many studies have been conducted on this subject. Below there are the results of studies conducted after the 2000s. It is possible to group the said studies under different headings. Studies are grouped under academic achievement, self-efficacy, learning strategies, and intervention studies.

4.1. Academic Achievement

Mastery goal, that is trying to develop competence was proven to be the most adaptable among different academic achievement goals and was related to many advantageous motivational, emotional, and behavioral consequences (Bardach et al., 2020). In various studies, a relationship was found between achievement goals and academic achievement. In studies, various effects were determined on academic achievement depending on achievement goals described in theory. Some studies established a positive effect between mastery-approach goals and performance-approach goals with academic achievement (Barron & Harackiewicz, 2003; Bong, 2009; Chiang & Lin,2014; Harackiewicz et. al, 2002; Linnenbrink-Garcia et. al, 2008; Luo et. al, 2011; Mouratidis, et. al, 2018; Senko et. al, 2011; Senko & Tropiano, 2016; Shih, 2005; Wolters, 2004). In their study with Turkish teenagers in mathematics class, Mouratidis et al. (2018) determined that performance-approach goals were more closely related to academic performance There are some studies conducted with primary school students that found a negative relationship between performance-approach goals and success (e.g. Lau & Nie, 2008). In the study Young (2007) conducted with university students, the author found only mastery goals (approach and avoidance) were related to performance results. Also, Steinmayr and Spinath (2009) did not determine performance-approach goals to be an important predictor of change in academic performance in their study with students. The recently published study that considers the distinction between normative and appearance elements of performance approach goal structures was conducted by Bardach et al. (2022). According to study results, while normative performance approach goal structures positively predicted achievement, appearance performance approach goal structures negatively predicted achievement (Bardach et al., 2022). There has been a relatively smaller number of studies on the relationship between academic achievement and mastery-avoidance and performance-avoidance goals. Both achievement goals demonstrate small negative correlations with different achievement results (Elliot & McGregor, 2001; Harackiewicz et al., 2002; Steinmayr & Spinath, 2009). Chiang and Lin (2014) found that mastery-avoidance and performance-avoidance goals of

7th-grade students were negatively related to their mathematics grades. Howell and Watson (2007) argued that the learning-avoidance goals of university students were negatively related to their grades.

There are also studies in the literature that examine the relationships between multiple-goal structures and achievement and that suggest multiple goals can be simultaneously adopted. Daniels et al. (2008) found that college students in multiple goal, mastery, or performance clusters tended to have higher achievement. Jang and Liu (2012) identified five different student clusters with different achievement goal profiles in their study of secondary school students. According to the results, these clusters significantly differ in terms of their mathematics performance. Students in the high mastery-approach and low mastery-avoidance cluster (cluster 2) had the best math results. These results were significantly higher than those of students in the low multiple goals and high mastery-avoidance clusters (clusters 3 and 4, respectively). In their study with third-grade students, Wilson et al. (2016), determined that students who simultaneously adopt the goals of expertise, performance-approach, and performance-avoidance had the lowest academic proficiency. In their study with fourth-grade German students, Zhang et al. (2016) also reached similar results. In this study, the scholars compared three different achievement goal profiles (i.e., mastery-focused, high multiple, and low mastery) they determined based on the standardized test scores received in German and mathematics classes. According to the results, students with high multiple profiles achieved the lowest test scores (Zhang et al., 2016). On the other hand, unlike these studies, Schwinger and Wild (2012) found that students with high multiple profiles among German primary school fourth-grade students had similar test performance and school grades as predominantly mastery-oriented students.

In their meta-analysis study on 243 correlational studies conducted until December 2006 with 91,087 participants, Hulleman et al. (2010) determined the average correlations of achievement goals with academic performance as low. Scholars determined mastery-approach goals and performance-approach goals were positively related to academic performance ($r = 0.11$; $r = 0.06$ respectively), while mastery-avoidance and performance-avoidance goals were negatively related ($r = -0.13$; $r = -0.12$ respectively). Scholars identified the conceptualization of achievement goals as the moderator of the relationship between mastery-approach, performance-approach and performance-avoidance goals, and performance outcomes. Scholars have also identified nationality as the moderator of the relationship between mastery-approach, mastery-avoidance, performance-avoidance goals, and performance outcomes (Hulleman et al., 2010).

Another meta-analysis study on achievement goals and academic

achievement was conducted by Huang (2012). Research in the scope of the study was analyzed based on achievement goal models (binary, tripartite, and quadruple). As a result of analysis, relationships between mastery-approach goals and achievement did not differ according to the models (r = 0.13; r = 0.13; r = 0.10 respectively). Again according to the analysis, approach motivations were found to be related to higher academic achievement and avoidance motivations were found to be related to lower academic achievement. In the binary goal model, the specificity of achievement goal assessment was a significant moderator of the relationship between performance goals (without discrimination to the direction of approach and avoidance) and academic achievement. In the triple goal model, the country of origin was the moderator of the relationship between specialization goals and achievement. The author could not find a moderator for the correlations between performance-approach goals and achievement in this model. The correlation between academic performance and performance-avoidance goals was mediated by the measure and specificity of an area of achievement (i.e., general academic or mathematics) next to achievement goals (Huang, 2012).

In their meta-analysis study, Wirthwein et al. (2013) investigated in detail the moderator variables related to achievement goals and academic achievement. Experimental studies were not included in the study. In the study, different than other meta-analysis studies, the methods of studies covered by the study were also assessed. In addition, in this study work-avoidance, and achievement goal that was not investigated in other meta-analysis studies was investigated. According to the results of the analysis, there were small, but statistically significant relationships between achievement outcomes and mastery-approach goals (r = 0.13), mastery-avoidance goals (r = −0.08), performance-approach goals (r = 0.08), performance-avoidance goals (r = −0.12), and work-avoidance goals (r = −0.11). In the study, the sex variable was determined as the moderator of the relationship between mastery avoidance goals and achievement. Contrary to this goal, five moderator variables (sample/school status, sex, type of achievement, originality of assessment, and temporal distance of assessments) related to mastery-approach goals and achievement were found to be important. As a result of the analysis, seven moderator variables related to performance-approach goals and achievement (sample status, sex, questionnaire, success result, area of success, methodological quality, and temporal distance of evaluations) were determined to be important. Nationality was identified as the moderator of the relationship between performance-avoidance goals and achievement. The origin of the sample and the temporal distance of the assessments governed the relationships between work-avoidance goals and achievement (Wirthwein et al., 2013).

4.2. Self-efficacy

There are varying findings regarding the relationships between achievement goals and self-efficacy, which are examined as a research subject (Huang, 2016). In some studies, a strong relationship was found between self-efficacy and mastery goal orientation (Linnenbrink, 2005; Ryan et al., 2005).

In the meta-analysis study conducted by Cellar et al. (2011) the strongest relationship was between self-efficacy and mastery-approach goals. In a study conducted with two different university student groups, Hsieh, et al. (2007) found that self-efficacy and mastery goals were positively related to academic status. Self-efficacy and performance-avoidance goals are negatively related to academic status. College students on academic probation and who have high self-efficacy reported that they adopt performance-avoidance goals more than academically successful students. In their longitudinal study conducted with international undergraduate students, Gong and Fan (2006) investigated the relationships between goal orientation, field-specific self-efficacy, and intercultural harmony. Study results showed that learning orientation was positively related to academic and social self-efficacy, while performance orientation was negatively related to social self-efficacy. In addition, self-efficacy mediated the relationship between learning orientation and intercultural harmony. In a more recent longitudinal study with Chinese university students, Lu et al. (2022) found that students with higher learning goal orientations generally had higher academic self-efficacy in the first month of the academic year. According to study results, learning goal orientations and academic performances of students are positively associated with initial academic self-efficacy levels.

In addition to the studies conducted with university students, the relationships between achievement goals and self-efficacy were examined in studies conducted with primary, secondary, and high school students. In a study conducted by Pajares and Cheong (2003), performance-approach orientations in English writing were positively associated and avoidance of writing performance was negatively associated with writing self-efficacy. This study was conducted with students in grades 4-11 in the United States. Liem et al. (2008) conducted a study with 7th-grade students in Singapore in their English class and found that both performance-approach and mastery goal orientations were positively related to English self-efficacy while performance-avoidance orientation was negatively related to English self-efficacy. In a study conducted by Lau and Lee (2008) with Chinese primary and secondary school students, mastery and performance-approach orientations were positively associated with self-efficacy, while performance-avoidance orientations were negatively associated with

self-efficacy. In a study conducted by Chiang and Lin (2014) where the authors investigated the relationship between quadruple achievement goal orientations of Taiwanese 7th-grade students and their mathematics self-efficacy, mastery-approach and performance-approach orientations were positively related to mathematics self-efficacy, while mastery-avoidance and performance-avoidance orientations were negatively related to mathematics self-efficacy. In the study conducted by Rinthapol (2013), the author investigated the relationship between achievement goals and self-efficacy with 55 junior high school students from low-income immigrant families, again using the quadruple model. In the study, students who tended to mastery-approach and performance-avoidance goals exhibited the most positive motivation and success profile. Field (Mathematics, English) had only a minor influence on this outcome. Again, in the study conducted by Lo et al. (2017) where the authors investigated the mathematics achievement goal profiles of Taiwanese secondary school (7th and 8th-grade) students using the quadruple achievement goal framework, they found that achievement-oriented students exhibited high approach orientations (mastery-approach, performance approach), non-adaptive students exhibited high avoidance orientations (mastery-avoidance, performance-avoidance), and avoidant but adaptive students exhibited avoidance and mastery-approach orientations. Students in the indifferent group scored close to the average for all mathematics achievement goal orientations. According to the results of the study, achievement-oriented students had significantly higher mathematics self-efficacy compared to indifferent and non-adaptive students. In addition, these students had the highest math scores. Indifferent students had the second-highest math scores, while non-adaptive students had the lowest math scores.

In the meta-analysis study conducted by Carpenter (2007), the author investigated the relationships between self-efficacy, goal orientation (mastery goal orientation and performance goal orientation), and the achievements of students. In the study, the mean effect size of the relationship between mastery goals and self-efficacy was found to be 0.45, and the mean effect size of the relationship between performance goals and self-efficacy was found to be 0.15. In the study, the strongest relationship was found between self-efficacy and student achievement. Again in the meta-analysis study conducted by Cellar et al. (2011), the authors investigated the relationship between goal orientation structures and task performance with self-regulation variables (self-monitoring, self-evaluations, self-reactions, and self-efficacy). Results related to self-efficacy in the study demonstrated that there was a moderate relationship between mastery-approach goal and self-efficacy and a small positive relationship between performance-approach goal and self-efficacy. While

no relationship was found between performance goals and self-efficacy, the relationship between performance-avoidance goals and self-efficacy was negative. Again, the results of the study showed that the mastery-approach goal structure was positively related to self-regulation and performance variables, while negative relationships were found between the performance-avoidance goal and all variables. Lastly, Huang (2016) investigated the relationships between achievement goals and self-efficacy in his meta-analysis study according to dual, triple, and quadruple models of achievement goals. According to the two-factor model, the relationship between self-efficacy and mastery goals was moderate and strong, and the relationship between performance goals was low. According to the three-factor model, the relationship between self-efficacy and performance-approach goals was low to moderate, while in the four-factor model, the relationship between performance-approach goals and self-efficacy was moderate. In the four-factor model, the relationship between mastery-approach goals and self-efficacy was strong. The relationships between performance-avoidance goals and self-efficacy were low in both three-factor and four-factor models. The relationships between mastery-avoidance goals and self-efficacy were also low according to the quadruple model. While the moderator effects of demographic variables (sex, age, and ethnicity) on the relationships between achievement goals and self-efficacy were generally at a minimum level in the study, the self-efficacy domain significantly affects the relationship between performance-approach goals and self-efficacy.

4.3. Learning Strategy

Learning strategies are investigated under two main headings that are deep strategies and surface strategies (Guo & Leun, 2021). There are study results on the contribution of deep strategies to academic achievement (Chan et al., 2012).

Scholars found that students with mastery-approach goal orientation tend to adopt and use effective learning strategies accompanying a deep understanding (Chan & Lai, 2008; Guo, & Leung, 2021; Huang, 2011; Hulleman et. al., 2010; Sins et. al., 2008; King et al., 2012). In their study Sins, et al. (2008) established that mastery-approach goal orientation has a significant positive effect on achievement ensured by using deep strategies by students. On the other hand, the effect of mastery orientation on using surface strategies was found positive in some studies (Guo & Leung, 2021; Ho & Hau, 2008; Liem et al., 2008). In their recent study with Chinese students (211 Han and 321 Miao) attending mathematics classes in fifth and sixth grades, Guo and Leung (2021) found that similar to Western studies, in both Chinese samples, mastery goal orientation positively predicted deep strategies of students. On the other hand, in this study, different

than in Western studies, the authors found strong positive relationships between mastery goal orientation and the use of surface strategies. In both groups, mastery goal orientation positively predicted the use of surface/deep learning strategies and mathematics achievement. In their study with secondary school students in Hong Kong, Chan and Lai (2008) found that mastery goals were negatively related to surface strategy. According to the results of the study by Rosa and Bernardo (2013) conducted with Filipino university students, students with multiple goal orientations (with mastery and performance goals) use deep learning strategies more than students with mastery and performance orientation. In addition, there are no differences in the use of deep learning strategies by students according to sex.

While some studies found a relationship between performance-approach goals and surface strategies, some found no relationship. In the study conducted by Chan and Lai (2008) with secondary school students in Hong Kong, performance-approach goals were significantly related to surface strategies. Similarly, Dupeyrat and Marine (2005) found that performance-approach goals were related to surface strategies. In the study of Guo and Leung (2021), performance-approach goal orientation was positively related to the use of surface strategies. Different from these studies, in the study conducted by King et al. (2012) on secondary school students in Hong Kong, performance goals positively predicted the adoption of deep learning strategies, while performance goals were not significantly related to surface learning strategies.

Dupeyrat and Marine (2005), found a significant negative relationship between performance-avoidance orientation and the use of deep processes by students. In their study, Liem et al. (2008) determined performance-avoidance goals as positive predictors of surface learning. In the study by Chan and Lai (2008), both performance-approach goals and avoidance goals were significantly related to surface strategies. Different than this result, Sins et al. (2008) could not find a significant relationship between performance-avoidance goal orientation and surface strategies and between using surface strategies and achievement. In the study Diseth and Kobbeltvedt (2010) conducted on psychology and economics students at university (Norway Bergen University), they determined that performance-avoidance goals and surface learning strategies were in a negative relationship with academic achievement.

4.4. Intervention

Intervention studies on achievement goals mostly include classroom-level intervention studies (Chazan et al., 2022). Classroom-level interventions are focused on creating a mastery-oriented classroom

structure (Ames, 1992). Studies demonstrated that students tended towards adopting personal achievement goals in harmony with classroom goal structures. The meta-analysis study recently conducted by Bardach et al. (2020) can be presented as an example of this. Similarly, the study conducted by Mouratidis et al. (2018) demonstrated that mastery-oriented classroom goal structures were (positively) related to the mastery-approach goals of students.

In classroom-level intervention studies, principles in key characteristics of school settings classification by Epstein (1989) (TARGET-Task, Authority, Recognition, Grouping, Evaluation) are taken as the basis (Chazan et al., 2022). In the meta-analysis study of Braithwaite et al. (2011), intervention studies conducted on physical education and at the classroom level were analyzed. In studies, a small positive treatment effect was determined in groups subjected to mastery-orientation motivational climates. According to the analysis results, it was determined that intervention made the biggest effect on behavioral results. It is followed by effects on affective and cognitive outcomes respectively.

Intervention studies including the TARGET framework are seen especially in sports and physical education fields. For instance, in their experimental study, Gillison et al. (2013) found that four study groups were composed of internal (health and fitness) or external (looking good to others) goal focus, with climate supporting or controlling autonomy respectively. It has a neutral climate with no control provision or goal focus. The results of the study demonstrated the limited effect of manipulations conducted in the scope of the class. The experimental study of Wadsworth et al. (2013) aimed to determine the effects of mastery and performance climates on physical activity in physical education lessons with children in K-2 grade. Results showed that the mastery approach, which gives.

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