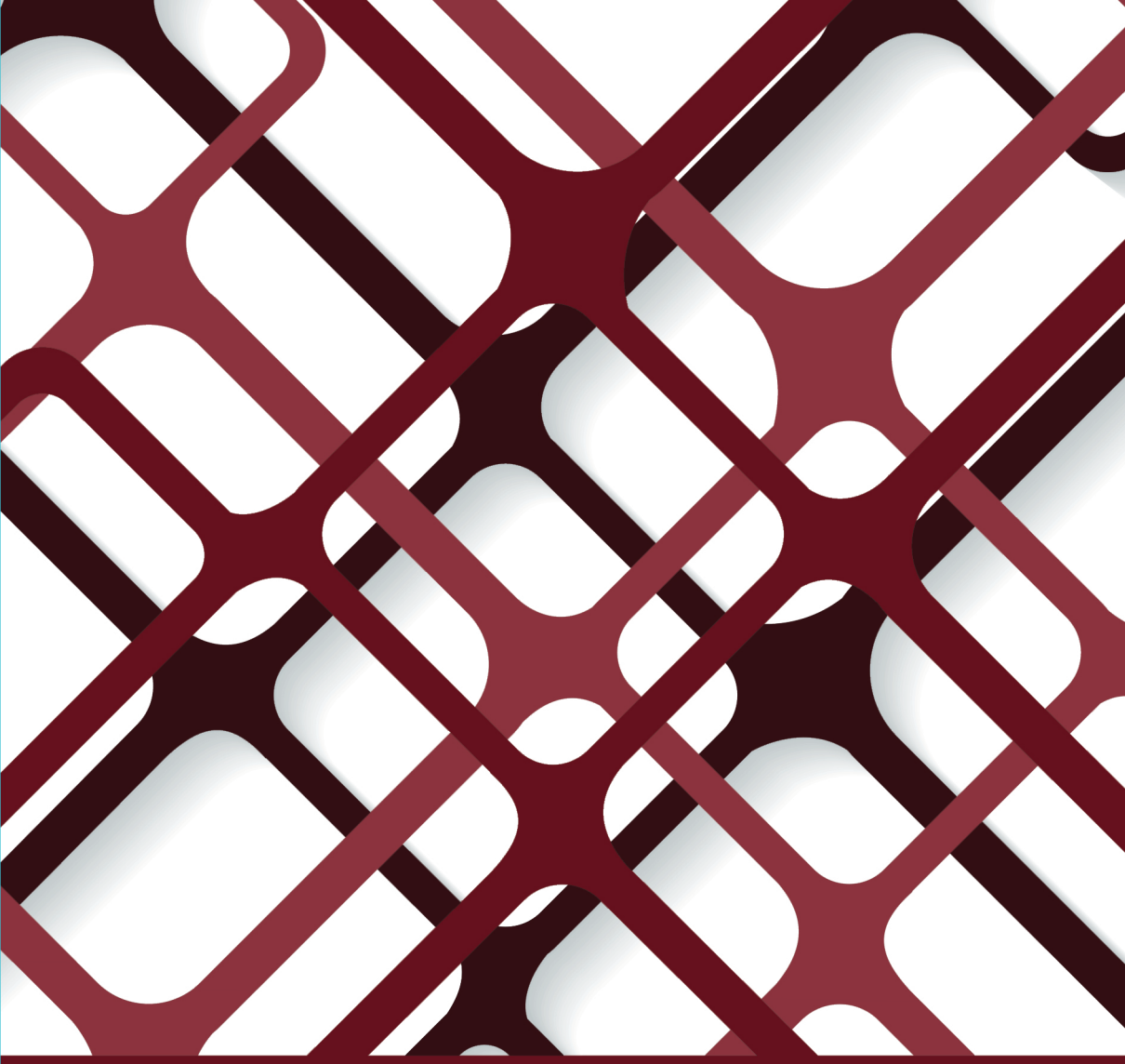

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Chapter 1

ENGLISH LANGUAGE ASSESSMENT IN DISTANCE EDUCATION

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INTRODUCTION

With the global expansion of technology, change in all layers of life has become inevitable. These changes occurred in social life and relations, in professional environment that lots of jobs have begun to disappear or have had to make piecemeal or comprehensive changes. This change also affected education that brought computers, online applications, and finally distance education into our lives.

People are now planning their present and future lives parallel to the technological developments. They have started to experience the new world and they have begun to accept and accommodate their lives accordingly. Yilmaz (2017) states that dependence on people, space, and time have become less important since new communication and information technologies created new occasions and openings in the new world. Such developments resulted in changes in social and economic system and had great impact on education that all levels of education have experienced change from face to face to distance education that affected the planning, content, assessment, and evaluation stages of education. Bedir (2019) summarized that the last century enables students to hold the required skills in order to handle the problems internationally. Therefore, not only the students, but also teachers also need to have the necessary skills to cope with the developing 21st century technological developments and knowledge that they need in their technological classes (Ball et al., 2008).

Education or instructional designs consist of various components. For instance, McNulty (2013) lists educational objectives, content, materials, teaching methods and assessment as the components of education while in Gur and van Schaack (2019), goals, instruction and assessment are indicated as the three items in the instruction process. As assessment stands as the mutual component in many studies, it has gained importance in the field of education in order to measure the fairness and trustworthiness of the grades given to learners both during and at the end of education, and to evaluate student learning process (Bahar, 2001).

With the inevitable result of technological advances and distance education that surrounded all levels of education, assessment component of education requires new horizons and explanations that is pointed out in Yoruk (2021) as using online and distance assessment methods have caused evolution in educational settings. Therefore, in order to help the teachers, teacher educators, school directors and policy makers to cope with the innovations in education after the emergence of information technologies dominated education, this chapter aims to discuss the assessment techniques used in distance education in English language teaching (ELT) contexts.

ASSESSMENT in EDUCATION

Assessment is as an indispensable part of teaching. In order to evaluate the learning outcomes, target behaviors and objectives of an education program, assessment has become a necessity in education curricula. Thanks to the assessment, the deficiencies of the students can be seen, the weak and strong aspects of the curriculum can be determined, and the teachers can evaluate their own teaching. According to the assessment results, students can be given feedback, teachers can see what is missing or excessive, and program designers can find the opportunity to rearrange the program.

Assessment is basically discussed under two dimensions in education, the first of which is formative and the other is summative assessment. While formative assessment is used to follow the individual development of each learner during the education and to measure the effectiveness of the education program throughout the process, summative assessment looks at whether both students and education programs reach the desired goals at the end of the process, and whether the expected educational outcomes are achieved in line with the goals. Examples of formative assessment types in ELT classes can be short or pop-up quizzes and tasks in which instant feedback can be given directly to the student; on the other hand, assessment tool for summative assessment can be stated as finals and end-of-year exams. It is not important to discuss which is better among these two types of assessment. Rather, it is more important to balance these two different dimensions in assessment.

It is just as important to know the principles of assessment as it is to know how important it is in education (Nikmard, 2020). Although many different principles are mentioned in the literature, these principles can be summarized under four items. These are authenticity, validity, reliability, and washback effect. In an authentic assessment tool, content should be from real life situations, have contextualized materials, and consist of natural language (Swartono & Riyani, 2019). Validity is testing exactly what is taught in the way it is taught. Reliability is obtaining the same or very similar results from the same test that is given at different times. Lastly, washback effect is the positive or negative effect of the assessment on students after the test. (Brown, 2004; Tosuncuoglu, 2018)

The above-mentioned are several principles that should be known by the people who take charge in the education and teaching processes; however, with the developing technology and ongoing change processes, while the basic understandings and principles do not change, the assessment methods have undergone transformations. Depending on the method used in ELT, assessment tools may vary. For example, in foreign

language education using the grammar-translation approach, translation and grammar rules are asked, while in a curriculum with a communicative language teaching approach, assessment should be designed with a focus on the use of the language and communication. Hence, assessment may vary according to the requirements of the world, as well as the approaches used. Especially as a result of the development of technology and the spread of distance education applications, the models used in face-to-face education and assessment had to change. As a result, search for new platforms and assessment methods to be used in distance education began.

SYNCHRONOUS VS ASYNCHRONOUS DISTANCE EDUCATION

In order to fully understand distance education, we also need to comprehend how distance learning works and how it is used in actual classrooms. In this way, we can better evaluate both the basic principles of distance education and the assessment processes. Many distance education methods have emerged due to the spread of technology and its dominance of life from the open education years when technology was not used as much as it is today and only television was used as a distance education tool. However, two methods that are basically used and accepted are asynchronous and synchronous education.

Gulbahar (2009) defines synchronous education as supporting instruction in different places at the same time. Similarly, Khan (2006) defines it as communicating with the teacher using internet. It is also stated that teachers and students meet at an interactive portal from different places at the same time (Kantar et al., 2008). Synchronous education can become a motivating process for both teachers and students. With the use of different technological applications, education can become more motivating and fun. It is accepted that synchronous education has many benefits in terms of space and time. On the other hand, this process may affect teaching negatively due to some technological disadvantages. For example, the inability to use the technological infrastructure may cause audio and visual disruptions during the course, which, unlike face-to-face education, may disrupt the active use of in-class time and the course.

In asynchronous distance education, teachers and students interact each other from different places at different times (Gulbahar, 2009) which helps learners reach the content at any time they are available. Dillon and Gunawardena (1992) point out that necessity of controlling courses, pace and order of presented material are lessened in this type of distance education. On the other hand, Duran et al. (2006) mentioned the disadvantage of asynchronous education that there is too much individual control which may result in irregularities in teaching and non-control

of instructional process. In such situations, students may delay their duties, and this may lead to lack of seriousness. It is inevitable that this situation will result in failure in distance education. However, if the class size consists of as few students as the teacher can control, the education processes can be carried out more accurately. In asynchronous education, in order to minimize the deficiencies, it should be clearly emphasized from the very beginning that the students are responsible for their own learning. As a result, whether both asynchronous and synchronous education have advantageous and disadvantageous parts, distance learning helps learners to access knowledge free of charge, gives freedom of time and organization, and generate the creativity for both teachers and learners (Pardede, 2012)

ASSESSMENT IN DISTANCE EDUCATION

During distance education, as well as the way the instruction is given, assessment methods have also changed. This has brought different and new types of assessment tools to the agenda. The assessment techniques called as classical assessment have been replaced by contemporary assessment methods with the spread of technology.

Forms of assessment may change according to the level, age and aim of the program in ELT. For instance, the type of questions in beginner level are not used in upper levels and these are taught in pre-service education to the teachers. However, distance education approach has brought up many new applications about assessment that were not previously taught in pre-service education. Thus, many English teachers have started to search for new assessment methods to be used in distance education from the internet or the relevant literature. Before examining the distance education assessment forms, it will be useful to see the classical assessment tools used in the ELT. Some very basic assessment tools mentioned in the literature (Angelo, 1993; Ur, 2012; Phongsirikul, 2018) classically used in ELT classes can be listed as follows;

- quizzes
- midterms
- end-of-term exams
- portfolio
- assignments
- self or peer assessment

Both theoretical and practical use of these assessment tools have been taught for years both in universities and in other English teacher training institutions, and these tools have been used to track students' learning performances. However, with the new paradigm bringing

innovations to education, assessment also had to renew itself. Although these assessment tools, which have been taught to language teachers for a long time, are useful in traditional English language classes, problems may arise in distance education in terms of validity and reliability, which are indispensable principles of assessment. For this reason, new, effective, and different assessment tools are needed (Gur & van Schaak, 2019).

ASSESSMENT TOOLS IN DISTANCE EDUCATION

The type of assessment that is not done at the same or real time is called asynchronous assessment. Examples can be assignments, take-home exams, portfolios, and video shots. These examples can be conducted to language skills such as speaking or listening, and they may be used to assess these skills in English language classes. Below, these different types of assessment tools are examined in detail.

Assignments

Assignment is an assessment tool widely used in both distance education and face-to-face education. Assignment has many benefits such as following students' own progress, diagnosing their deficiencies, and enabling self-practice without time or place constraints.

In classical face-to-face education, usually assignments are given by the teacher after the teacher teach the subject, and the student is asked to do them. In the next lesson, the teacher checks the assignment given to the students and the missing parts are explained again by the teacher and it is tried to ensure that the student learns the subject completely so that the teacher may move on the next subject. Moreover, these assignments are usually in worksheet form and in workbooks, which means that students have these in hardcopy formats in their hands. This type of assignments is so popular that book publishing companies mostly give workbook with the coursebook to the students. Moreover, most coursebooks have teachers' copy that contains worksheets in order to help the teacher.

In these types of classrooms where face-to-face instruction is given, the disadvantages of assignments are time and motivation. Students may complain that it takes too long to do the assignment, and this may cause a negative attitude towards homework and lack of student motivation. On the other hand, checking homework one by one by the teacher in the classroom especially in the crowded classrooms can take a lot of time for the class, which can disrupt the course and interrupt teaching.

Online assignment, on the other hand, is when the teacher assigns the students either from the book or electronically both at the same or at a different time. In this way, the teacher will be able to find many different options for homework. The teacher will also be able to easily send the

online worksheet found on the internet to the students, and students will have the opportunity to reach these resources easily. Apart from the homework given on paper, book companies now produce many helpful resources suitable for distance education and technology use. These are the types that can be done by the students after the lesson using the computer or online applications. The teacher can assign these assignments via online applications to the students at any time, and instead of checking them one by one, the student and the teacher will be able to control them on their own computer. This will save time for the teacher. In addition, the loss of motivation for paper-based assignments used in face-to-face education will not be an issue for many students.

Portfolios

In the portfolio, the student performs the tasks given by the teacher at regular intervals and within a period of time. In addition, students write reflections for these tasks. All the tasks and reflections are kept in a file in either a computer or a hardcopy format. Thus, while the students take responsibility for their own learning, the teacher can follow their development.

In classical face-to-face teaching, teachers may give students writing assignments, worksheets, short and topic-oriented project assignments and ask them to put them in their files. In distance education, unlike face-to-face education, more project-oriented assignments can be requested from students. For project assignments in distance education, students may be asked to shoot short videos, create speaking videos or conversation recordings, and do oral or written reflections about them. Students may be asked to upload the projects they have prepared in electronic environment to platforms that the teacher can access, so that project homework can be shared with the teacher instantly, and instant comments can be received from the teacher. It can be more effective in terms of time than face-to-face education.

Portfolios are very convenient in distance education in terms of both time and efficiency. In addition, it will activate the student individually and student motivation and attitude towards the lesson will increase significantly. Waste of paper and files used in face-to-face education will also be prevented. In addition, the teacher will be able to evaluate the students' language abilities effectively that they use in real life.

Synchronous and Asynchronous Writing Exams

In distance education, writing exams can be done as well as face-to-face. The subject to be written can be shared by the teacher with the students electronically. Afterwards, students may do the exam within

the time given and the teacher can watch the students from his camera. Afterwards, students can upload their writing exams to the online system used or share them with the teacher via drive or e-mail.

In the asynchronous writing exams, students are asked to write their exams in the form of essays and upload them to the system or share them with the teacher after a determined topic, detailed information about the desired format and contents are given. Here, the student may be asked to write more analytically and systematically because they will have enough time for procedures such as planning, brainstorming, outlining, drafting, reordering, checking, and finalizing. Although they are widely used in distance education, both asynchronous and synchronous writing exams have some disadvantages as well as advantages. which will be discussed in detail in several concerns section.

Synchronous and Asynchronous Speaking Exams

Speaking exam is a frequently used assessment tool in face-to-face education in ELT classes. According to their curriculum, teachers include these exams results as a quiz or include them into the overall average scores. While speaking exams are conducted as one-to-one at lower levels, they can be held as pair or group discussions at higher levels.

In distance education, as in face-to-face education, speaking exams can be done synchronously with similar content. The student and the teacher perform the speaking exams in front of the screen at the determined time. The only difference from face-to-face education is that the student and the teacher do not sit physically facing each other, on the contrary, it is done online with the cameras open.

In asynchronous speaking exams, short speaking, conversation videos, or projects mentioned in the portfolio can be used. Students may be asked to speak English for a certain period of time about a topic that the teacher has given, and to record them in a video. The advantage of this type of speaking exam can be said that the students have the chance to prepare in advance, edit the places they do not like or get stuck, and shoot the video over and over until they feel comfortable. In this way, the problems that the student feels in synchronous exams, such as excitement, being stuck, and forgetting, which usually cause failure, will disappear.

Online Exams

Pop-quiz, quiz, midterm, placement tests, final or exit exams can be done in this way. In classical face-to-face education, these are commonly called pen-paper exams. The difference is that, in online exams, students do these exams synchronously using their technological devices. In online exams, students' cameras are open, and the teacher can see all the students

synchronously. During the exam time, which is announced earlier, students are expected to organize the entire technological infrastructure and attend the exam. Multiple-choice, fill-in-the-blank, and true-false questions can be done effectively with this type of exam.

The difference from face-to-face exams is that the students take the exams online and they need to save the answers. The biggest problem here is the emergence of a technical problems that the student may encounter during the exam. In addition, the fact that students do not record their answers can cause problem.

Another point to be noted here is that the time to be given to students should be well decided and determined. The student should be given neither more nor less time than necessary. Therefore, a pilot study must be done before the exam. Another reason for the necessity of conducting the pilot study is not to encounter any technical problems with the questions since the exam will be prepared and administered in electronically.

Presentation

Presentations are tasks that should be given from the very beginning in English teaching, especially in order to overcome speaking excitement and inability to express themselves in a foreign language. During the preparation stage for the presentation, the students will revise the language skills taught to them, take time for themselves to prepare, and they will have the opportunity to discuss and check with the teacher. Thus, they will become language students with higher self-confidence.

In a presentation, students may be asked to make their presentations both synchronously and asynchronously. Students may be asked to share their presentations with the teacher asynchronously by taking video recordings. In presentations, after watching the student's presentation, questions about the processes and results of the presentation can be asked to the student in an online lesson, and they can be asked to give reflection online.

Teacher Assessment

Teacher assessment is a tool that the teacher gives a grade to the students using certain criteria, in line with the teacher's thoughts about students' efforts, participation, and success in language learning. As teacher assessment can be used in face-to-face education, its use in distance education will have many benefits. The teacher can see the active participation of the students in the lesson, how accurately and effectively they do the activities, how active they are in pair and group work, and whether they complete the given homework at the due time. By looking at all these criteria, the teacher can give an assessment grade to the student.

Among other assessment tools that have many disadvantages such as cheating in online exams or memorizing the speech in videos projects, giving an assessment grade can reflect the real state of the student and can be an effective assessment tool. However, in order for the teacher grade to be accurate and effective, objective criteria must be prepared in advance, these criteria must be shared with the students at the beginning of the semester, and the teacher must be impartial. The teacher grade will be more efficient in the lessons taught through the platforms where the lessons are recorded. Finally, another benefit of the teacher grade is that the student, who is aware of the teacher assessment scores, can overcome absenteeism, pay more attention to participating in classes and activities, and thus increase the motivation in the lesson.

Attendance

Attendance should be examined critically in distance education. While many schools and official institutions have attendance rules in face-to-face education, attendance is not taken in many distance education schools. The reason for this is that both working and studying people attend classes asynchronously. There are many education institutions that have made the transition to distance education for students who work or who do not want to continue face-to-face education. However, attendance can be made compulsory in institutions where attendance used to be compulsory before pandemic as in face-to-face education.

Open Books Exams

Open book exam practice is giving students an exam or homework on a certain subject, and students do the exam or homework by using any source they want. This method can be used both synchronously and asynchronously. Using the synchronous method, students are expected to take the exam online and record it. In the asynchronous method, students can be given some time and they will be able to share their exams or assignments with their teachers.

Open books exams can also be used as take-home exams. For lower-level language students, it can be used for vocabulary or grammar testing related to the subject taught, as well as writing exams or assignments at higher levels where analysis and synthesis skills are required, and many different language skills can be measured.

SEVERAL CONCERNS

Assessment is an indispensable element of education and teaching activities. Therefore, whether it is face-to-face or distance education, it should be used effectively and efficiently in order for education to continue successfully (Ferretti et al., 2021). After 2020, when many educational

institutions have necessarily switched to distance education, some problems may arise that we do not encounter in face-to-face education while making the assessment. These are cheating, technical problems, and ineffective use of technology that are mentioned in the following paragraphs.

In the assessment stage in distance education, cheating is one of the most common problems (Cizek, 1999; Rowe, 2004; Kaya & Tan, 2014). Especially in the asynchronous assessment, it is a question that students can use many sources that they cannot use in face-to-face exams. Yilmaz (2017) states that teachers do not prevent the student from cheating, or teachers cannot be completely sure whether the assigned task was done by the student (Watson & Sottile, 2010). In addition, it will be very difficult to determine exactly whether the student has found it on the internet and prepared them with the copy-paste method (Yoruk, 2021). When teachers start to investigate such exams or assignments they are submitted to them, teachers will lose a lot of time. Moreover, during the online exams, it requires a lot of technological infrastructure and knowledge to make sure that the student's computer is accessed from outside by someone else. This is a problem that individual teachers cannot deal with on their own. In addition, the student's computer may be open to external access, the student can access online resources by opening a tab from the main screen, and it is quite normal that the exam inspector teacher does not realize this. These are just a few examples that can be encountered during an online exam or assignment. Thinking that the student may have cheated or leaving the student to unprovable accusations may decrease teacher motivation. Also, it is not the duty of the teacher to be suspicious of his students in the classroom. If there is a suspension, there will be insecurity in the classroom which will negatively affect the teacher-student relationship. Even if there are software programs that will examine whether students cheat during the online exam, these are very high-cost applications and are very difficult to access for many institutions (Khan & Jawaid, 2020). For this reason, it is necessary to stay away from assessment tools where there is a possibility of cheating. As a way of minimizing cheating, it was determined that the principles of honesty should be explained to the students (Benson & Barrack, 2010), and the issue of academic integrity should be emphasized (Gikandi et al., 2009) from the very beginning.

Another important issue in the distance education assessment system is the technical problems encountered. Technical problems can occur frequently both before and during the exam. Connection problems that may be experienced during the exam reveal the fact that the exam results may not be satisfactory for the student (Yoruk, 2021). Technical problems can also create a problem not only during online exams but also in terms of other project assignments that the student will prepare. Even the quality

of the devices from which students record videos or audios can create an inequality in terms of assessment. As education should be equal and accessible to everyone, and all students should be evaluated equally with the same facilities, this issue may cause problems in assessment.

Another concern with assessment is the issue of ineffective use of technology. When the education of English teachers who are currently teaching is examined, it can be seen that most of them completed their education before the transition period to distance education. This shows us that few teachers have received formal education for distance education. Distance education requires its own methods and user interface knowledge. Teachers who have not received formal education for distance learning may have a very difficult time in distance education and technology. These teachers either adapted to distance education with short in-service training, or they went on to learn new technologies and use them in their lessons with their own efforts.

When it comes to assessment, a very difficult process awaits teachers who have adapted to technology later or who have not received training in distance education pedagogy. Because, preparing online exams, unlike face-to-face education, should be prepared and administered online via internet (Yilmaz, 2021). Even this situation requires an accumulation of knowledge. In addition, suitable platforms for students to upload projects and assignments must be determined and made ready for classroom use. This process also requires a lot of research and practice.

SUGGESTED ASSESSMENT TOOLS

When all the above-mentioned issues are considered, it is seen that assessment in distance education is a very complex and difficult process. In addition, it makes the assessment stage very difficult in distance education for problems such as cheating, insufficient technology knowledge and technological failures. Therefore, problematic aspects about asynchronous assessment tools in distance education push teachers to use synchronous assessment tools. Online exam in synchronous measurement tools may also cause the same concerns as asynchronous measurement tools. Therefore, using this tool can still be risky. In summary, effective assessment tools that can be used in distance education can be listed as follows:

- synchronous speaking exams
- videos or projects
- portfolio and self-reflections
- teacher assessment
- attendance

In order not to be affected by the problematic issues explained in the several concerns sections, the teacher should give more importance to the real-life productive dimension of the language in distance education assessment. It can be said that whether a person knows a language is understood by checking whether she can speak or write that language. Therefore, in language teaching, also in assessment, online speaking exams should be given enough weight in order to assess whether the students use the language effectively, accurately and fluently. In addition, portfolio and project assignments that will help to follow student's own development may be encouraged in distance education classrooms. Moreover, developing learner autonomy and responsibility will have a positive effect on student motivation and active participation. it is inevitable to encounter the problems in all the assessment tools mentioned above except for the portfolio, project, and online speaking assignments. In addition, within the framework of certain criteria, the teacher assessment tool, in which the teacher's opinion are taken about the students, can be added to the overall grading. Finally, in educational institutions where attendance is compulsory, including attendance to the final grading can also be an effective assessment tool.

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Chapter 2

OUT-OF-SCHOOL LEARNING IN SCIENCE EDUCATION

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1.Introduction

Mankind has always felt the need to learn since its existence in the world and has tried to meet this need until the end of its life. They shared the information they obtained as a result of these studies with the people around them, either verbally or in writing (Ertaş, Şen & Parmaksızoğlu, 2011). Although learning is a phenomenon that is constantly repeated from the birth of people until their death, it is new behaviors and experiences that are acquired consciously or unconsciously by living and experiencing. According to various scientists, learning was defined as a social process and they emphasized that the behaviors observed in people should be relatively continuous in order for learning to take place (Öner & Öztürk, 2019). Learning is divided into three. These;

1- Formal Learning

2- Informal Learning

3- Non-formal Learning

Formal learning is the whole of planned and programmed learning in which the place, time, place and goals are predetermined, resulting in positive learning in which the instructors are professionals. *Informal learning* is a life-long process that takes personal behavior, knowledge, skills and goals from daily life. Since the majority of informal learning takes place haphazardly and unplanned within the society, the result of such learning is not always positive in the desired direction (Türkmen, 2010). Non-formal education is learning through activities that are not explicitly designed as learning but contain important learning elements. *Non-formal learning* is similar to formal learning; It is purposeful or intentional for the learner. Learning activities do not need to be done in a specific or definitive face-to-face setting. It is advantageous in terms of understanding the needs of the learner. Open learning, distance learning and letter learning can be examined within the scope of non-formal education (Danielle & Jens 2004; Dib, 1988). Gradually, validation of non-formal and informal learning is becoming a keyaspect of out-of-school learning policies. Lifelong learning, it is asserted, requires thatlearning outcomes from different settings and contexts can be linked together. Aslong as learning, skills and competences acquired outside formal education andtraining remain invisible and poorly valued the ambition of lifelong learningcannot be achieved (Danielle & Jens 2004). It is possible to express out-of-school learning as out-of-school learning.

Science education offered to students in schools in our country is generally applied at the cognitive level, students have difficulty in establishing connections between old and new knowledge, and learning is

not meaningful and permanent. Therefore, the learned information stays within the boundaries of the school within the scope of a certain plan and program, and students often have difficulty integrating the information they learn into daily life (Köse, 2007). However, science education can be applied not only within the boundaries of the school, but also in every moment of daily life (Bostan Sarıoğlan & Küçüközer, 2017).

According to the data of the Ministry of National Education (MoNE), it is seen that the constructivist approach, which led to permanent changes in the 2015 science curriculum, formed the basis of the 2018 Science Curriculum, as in all curriculums. In the educational environments where this approach, which is the main purpose of this program, is applied, students will be active, learn by doing and experiencing, take responsibility, and learn meaningfully and permanently by embodying the soft information in the field of science, both inside and outside the school, taking into account the interests, curiosity and needs of the students. It is emphasized that they should be prepared in a way that they will benefit from (MoNE, 2018).

The ultimate aim of the science course is to investigate individuals, question them, meet their own needs, think critically, make decisions with logical reasoning, think creatively, have the ability to live independently, use the scientific method in problem solving, have high self-confidence, be open to socialization, enterprising, and apply the learned information in their daily life. It is to raise science literate individuals who can use lifelong continuous learning (MNE, 2013). Formal education applied in schools is insufficient in gaining these behaviors to students. When science education programs are examined, the importance of being effective in developing students' curiosity, positive attitude and perception towards scientists and science by making use of informal out-of-school learning environments in addition to formal education is increasing day by day (Balçın & Yavuz Topaloğlu, 2019).

2. Out-of-School Learning

Considering the increasing learning resources as time progresses, it is now difficult to try to teach students only by keeping them within the school boundaries. Therefore, informal learning should be taken into account in addition to formal learning (Durel, 2016). Learning that makes it more meaningful and permanent by integrating formal learning with informal learning is called lifelong learning.

Out-of-school learning is educational activities that take place outside the school boundaries within a plan and program in line with the objectives of the curriculum (Şimşek, 2011a). The main purpose of such activities

carried out in lifelong environments is to contribute to the effective and permanent learning of students (Çavuş, Topsakal Umdu & Kaplan Öztuna, 2013). In addition, it helps students to find answers to the questions they are curious about by actively participating in the process, to examine the events in detail with their sense organs, to encounter new ideas for them, to learn by doing and to interact with the new events around them (Kara, 2010; Tatar and Bagriyanik, 2012).

According to Eshach (2007), the comparison of formal, non-formal and informal learning environments is given in Table 2.1.

Table 2.1. Differences between Formal, Non-formal and Informal Learning

Formal	Non-formal	Informal
Usually at school	At institution out of school	Everywhere
May be repressive	Usually supportive	Supportive
Structured	Structured	Unstructured
Usually prearranged	Usually prearranged	Spontaneous
Motivation is typically more extrinsic	Motivation may be extrinsic but it is typically more intrinsic	Motivation is mainly intrinsic
Compulsory	Usually voluntary	Voluntary
Teacher-led	May be guide or teacher-led	Usually learner-led
Learning is evaluated	Learning is usually not evaluated	Learning is not evaluated
Sequential	Typically non-sequential	Non-sequential

It is emphasized that visits to out-of-school learning environments are important places to be fun and exciting for students, to make learning permanent and functional, and to increase the development of cognitive, affective, social and psychomotor skills (Demirbaş, 2005; Tortop & Özek, 2013).

According to Ramey-Gassert, Walberg and Walberg (1994) and Ramey-Gassert (1997), it is stated that among the characteristic features of out-of-school learning environments, it increases the desire to learn and motivation, develops attitude, arouses interest, is fun, and contributes to the socialization of students (Bakioğlan & Karamustafaoğlu, 2020; Sarıoğlan & Küçüközer, 2017). However, formal learning; it is far from real life experience, has little relation to objects and situations, is dependent on symbols and allows students to be less social. (Çebi & Arslan, 2019).

Based on these features, out-of-school learning environments enable students to exhibit positive attitudes towards science and to use nature as a laboratory by accessing concrete data at first hand. According to Armağan (2015) and Nichols (1982), the important features of course activities in these learning environments are; It takes place outside the school, the activities are attended by students first, they contain real objects, the lessons are associated with real life, they appeal to many organs, the activities encourage student participation as they are cheerful and entertaining and attractive.

In order for out-of-school learning environments to be used effectively and efficiently in education and training, they must have certain qualities. According to Orion and Hofstein (1994), these qualities can be defined as follows;

1. Funny: The student should spend time having fun without getting bored. The environment should allow the student the opportunity to conduct research and examination in accordance with his interests, curiosity, expectations and learning level.

2. Volunteering: Students should willingly and voluntarily participate in out-of-school learning environments. Students under the age of 18 should be taken to these environments with parental permission. Students who do not consent should be understood and not forced.

3. Individual management: Students should decide freely what, when and how they will do in out-of-school learning environments and plan. In this process, the teacher should guide the students by presenting the necessary preliminary information and materials and guiding them to work like a scientist.

4. By doing and living: Instead of getting the information ready-made, the student should reach it by doing and living by using his scientific process skills and past experiences. In addition, he should be given the opportunity to share the information he has obtained with his friends and close circle.

5. Open-endedness: Due to individual differences among students, the learning process should not be limited to a definite period of time. The pressure on students should be minimized by keeping the time flexible.

6. Non-consecutive: The student should decide for himself the scientific process skills he will use and the steps he will take to reach the knowledge. The teacher should not be expected to follow this instruction unconditionally by giving a single instruction to the students consecutively.

7. Purposeful: Considering the goals in the curriculum, the teacher

should give students the opportunity to learn individually, socialize, and share their experiences with those around them, by providing a comfortable learning environment away from pressure, in line with these goals.

Teachers who want to carry out their lessons in out-of-school learning environments should plan the time from the beginning to the end of the process themselves. There are some points that they need to pay attention to in order to perform these duties efficiently and actively. These; It is divided into three as before the trip, during the trip and after the trip (Bozdoğan, 2007; Şimşek, 2011a).

Activities to be done before the trip;

- The teacher should visit the out-of-school learning environment in which he will conduct the lesson in advance, inform the officials there, and correct the deficiencies by getting information about the equipment and materials.
- Basic concepts and skills should be expressed by establishing a connection between the materials in the teaching environment and the achievements of the course by making a plan in advance.
- Students should be informed about the place where the visit will take place.
- Brochures should be provided to students for information purposes about the trip.
- Worksheets should be prepared by the teacher regarding the place to be visited and the course content before the trip, covering the pre-trip, during the trip and after the trip, in order to examine the preliminary knowledge of the students and to evaluate their learning.
- The teacher who will make the visit should get permission from the parents, school administration and the national education directorate.
- The teacher should determine the number of students, transportation costs and round-trip time.
- If the learning environment to be visited is outside the city, appointments should be made from the relevant places by specifying the number of students, date and duration.

Activities to be done during the trip;

- A guide should be determined who will inform the students during the trip and play a guiding role in the implementation activities.
- Various fun activities should be organized in the learning environment, worksheets prepared in advance for students should

be distributed to help them fill in the activities while they are being implemented.

- Students should be given the opportunity to travel individually or in groups in order to contribute to the development of their creativity skills.

- Students should not be given many tasks and responsibilities; this may cause students to exhibit negative attitudes towards out-of-school activities.

Activities to be done after the trip:

The things to be done to reinforce the students who return to the classroom environment after the trip are as follows;

- The worksheets distributed during the trip can be redistributed after returning to the classroom environment and evaluated by the class.

- Can use alternative measurement and evaluation tools to find out whether the students have achieved the targeted gains.

- Students can be provided with the opportunity to express themselves by enabling them to talk about objects, objects and events that attract their attention.

- In order to reveal and correct students' mis-learning and improve their critical thinking skills, a discussion environment can be provided in the classroom about sightseeing.

- After returning to the classroom environment after the trip, students can have compositions or poems written.

- Activities and processes related to the trip can be shared with the parents.

- The trip can be reviewed in general and the deficiencies identified can be corrected for the next trip and new plans can be made (Özdemir, 2019).

Out-of-school learning environments offer a number of benefits to students if they are selected in accordance with the target acquisitions determined in the curriculum, planned and implemented according to the needs of the students. According to Soysal (2019), these are;

- It ensures the active participation of students in the learning process.

- It supports students' meaningful and permanent learning by appealing to all their senses.

- Contributes to the development of students' cognitive, affective and psychomotor skills.
- It enables students to learn by doing and experiencing.
- Increases students' interest, attitude and motivation towards the lesson.
- Allows the concretization of abstract concepts taught at school.
- It enables students to use problem solving steps effectively.
- It helps students to use their scientific process skills effectively by thinking like scientists.
- It enables students to make observations by trial and error.
- It enables students to learn while having fun.
- It enables students to socialize.
- It enables students to gain different perspectives by producing creative solutions to the problems they encounter in daily life.

In order to make science teaching more useful, increasing day by day the use of out-of-school learning environments such as *science centers*, *museums*, *botanical gardens*, *zoos*, *planetariums* (Smith, McLaughlin, & Tunnicliffe, 1998), *national parks* (Ertaş Kılıç, 2019), *industrial establishments*, *science and technology centers* (Bozdoğan, 2007). and nature education (Yardımcı, 2009), and these attract the attention of science educators.

2.1. Planetariums

The word planetarium is not a commonly used and known word in our country. Its equivalent in our language; "planet house", "star house", "sky theater", "star theater", "space theater" etc. they are called by names (Akoğlu, 2006). Planetariums are places where images related to space sciences, celestial events and astronomy are created with the help of large projection devices and realistic simulation programs on a semi-dome-shaped screen in a hall without light, and learning takes place while having fun. It is often likened to movie theaters. While images are projected onto a horizontal floor in movie theaters, this process is carried out towards the ceiling in the form of a dome in planetariums (Doldur, 2019).

Planetariums can contribute to the concretization of the abstract concepts in the science course, and contribute to the positive development of the interest, attitudes and motivations of the students towards the science course (Bozdoğan & Ustaoğlu, 2016).

The first planetarium in Turkey was established in Tuzla, Istanbul in 1975 to provide military training, and its numbers have been increasing late last year. Some planetariums in Turkey are as follows (Bakioğlu, 2017; Ertaş & Şen, 2011):

- Istanbul University Beyazıt Campus Planetarium, Istanbul.
- METU Planetarium, Ankara.
- Discovery Sphere Planetarium at Rahmi Mustafa Koç Museum, Istanbul.
- İzmir Private Turkish College Planetarium, İzmir.
- Konya Science Center Planetarium, Konya.
- Serdivan Planetarium, Sakarya.
- Naval Academy Command Spacehouse, Eskişehir

Out-of-school learning in planetariums is fun and at the same time, activities that increase the permanence of learning are complementary to the educational activities implemented in the classroom. When the science course curriculum is examined, it can be said that there are many subjects that can be applied in terms of out-of-school learning in planetariums in Turkey (Ertaş & Şen, 2011).

2.2. Zoos

Zoos are special places where wild and domestic animals are exhibited together. Well-organized zoos show their visitors by making animals live in accordance with their natural habitat. Sometimes it allows the reproduction and protection of endangered creatures (Akça, 2016). Students who visit zoos for educational purposes not only spend time having fun and enjoyment, but also encounter new animals that they have never known before, and learn about the habitats, behaviors, sounds, feedings, etc. of these animals. they may have conscious or unconscious knowledge and experience about their characteristics (Ersoy & Yılmaz, 2009). In addition, it is one of the preferred lifelong environments for students to be able to integrate with nature, to display positive attitudes towards animals, and to gain affective skills to increase their love for animals (Balkan Kıyıcı, 2011).

Some of the zoos in Turkey that can be visited for educational purposes within the scope of education programs are as follows (Balkan Kıyıcı, 2011; Kazan, 2014):

- Atatürk Forest Farm Zoo, Ankara
- Darica Faruk Yalçın Zoo, Kocaeli

• Gaziantep Zoo, Gaziantep

• Bursa Soganli Zoo, Bursa

• İzmir Fair Zoo, İzmir

The lessons applied in zoos not only enable students to have an active life by seeing them in a concrete way, but also help them to learn more effectively, permanently and meaningfully than the lessons taught in the classroom, to increase their interest and curiosity towards animals, and to have a positive attitude towards the lessons (Görmez, 2014).

2.3.National Parks

Today, the rapidly increasing human population causes unconscious consumption of natural resources. This excessive consumption brings human beings face to face with various environmental problems, causes the decrease of some living species and even their extinction. Various measures have been taken to ensure the continuation of the generations of such creatures. Within the scope of these measures, we come across "national parks", which were created for the purpose of protecting natural resources, animal and plant species and leaving them a legacy for future generations (Kervankıran & Eryılmaz, 2014).

According to the Turkish Language Association (TLA) (2020), the national park is; It is defined as "an area under protection by the state in order to protect the natural vegetation and the animals living in a region or the historical structures on it". There are currently 44 national parks throughout the country, including the national parks, which have been increasing every year, and the "Botan Valley National Park", which was last put into service on 15.09.2019. The first national park taken under protection in our country is the "Yozgat Çamlığı National Park" established on 05.02.1958 (Yücel, 2005).

The main purpose of science teaching is to raise individuals as science literate. Science literate individuals make sense of nature and the events taking place in nature and make explanations. In order to make these explanations, science literate individuals need to watch, touch, smell, hear, apply, wonder and produce alternative solutions to problems (Türkmen, 2010).

Considering these aims in science teaching, teaching activities carried out in the classroom environment are insufficient. By continuing education in nature in the national parks located outside the borders of the school, it should be possible for students to be able to understand nature and integrate with nature, and become students who directly discover and make sense of information. In addition to in-class activities, the achievements in the

science course should be associated with national parks, which is one of the out-of-school learning environments (Varnacı Uzun, 2011).

2.4.Botanical Gardens

botanical gardens; It is a special garden that can be considered from different aspects such as being scientifically based, having interesting planting designs, protecting plant species and contributing to environmental education (Önder & Konaklı, 2011).

Botanical gardens were established in the past in the Ottoman and Byzantine Empires for the cultivation of fruit, vegetables and medicinal plants. The first of the botanical gardens established in the modern sense in our country; Next to the Mekteb-i Tıbbiye-i Şahane building, which was established at the location of Galatasaray High School, is the Galata Palace Botanical Garden, which was opened in 1839 (Demircan & Yılmaz, 2004; Küçüker & Üzen 1998).

Önder and Konaklı (2011) examine botanical gardens in three categories according to their purpose and function:

- Urban botanical gardens: These are non-profit, non-artificial gardens where people spend their free time.
- Botanical gardens attached to schools: These are the gardens established to serve the lessons of the schools such as science, biology and environment.
- Botanical gardens affiliated to scientific institutions: These are gardens that serve the work of scientific institutions and organizations.

In addition to providing resources for scientific studies, botanical gardens provide an environment for visitors to learn by doing and living by introducing the natural habitats of living things, developing environmental awareness, collecting concrete data from the first hand through experiments and activities. In addition, it helps to draw attention to the importance of nature by gaining knowledge about endangered plant species (Nuhoğlu, 2011). Some botanical gardens in our country are as follows (Bakioğlu, 2017);

- Istanbul University Botanical Garden, Istanbul.
- Nezahat Gökyiğit Botanical Garden, Istanbul.
- Darica Faruk Yalçın Botanical Garden, Istanbul.
- Bursa Botanical Garden, Bursa.

Industry; It is the whole of the methods, techniques and tools used to obtain products that meet human needs as a result of the efficient use

of energy resources. Almost all of the technological products we use in our daily life are obtained in various industrial establishments of the raw materials available in the World (Atabek Yiğit, 2011).

Industrial organizations and science courses are related to each other. Students have the opportunity to see the processes by which the products they come across in daily life in industrial establishments are obtained through. In addition, it can be ensured that they see the more complex and modern version of the experiments and apparatus applied in the classroom environment within the scope of the science course, in industrial establishments, and they can establish relations with the practices in the classroom (Durel, 2018).

Industrial products establishments that are actively used in daily life; energy industry, electrical-electronic industry, food industry, packaging industry, chemical industry, cosmetics industry, building-construction industry, iron-steel industry, automotive industry, textile industry, machinery-metal industry, health industry. In many of these industrial branches, the content of the science course is used while producing the products. Environmental pollution that occurs after the products are obtained is included in the science curriculum (Can, 2019).

Before organizing a trip to industrial establishments, the necessary theoretical information should be given to the students by the teacher, and the students should be provided with sufficient prior knowledge, and in order to prevent possible accidents that may occur during the trip, the students should be warned in advance, so that the trip can be carried out in a safe and efficient manner (Atabek Yigit, 2011).

Within the scope of the science course, by cooperating with industrial organizations and organizing trips; It can be ensured that students have knowledge about different occupational groups, that students reinforce the science concepts they learn in the lesson, that students display a positive attitude towards science lesson, that they use what they have learned in daily life by providing more meaningful and permanent learning.

2.6. Science and Technology Museums / Science Centers

Science and Technology Museums are museums that reveal the changes in science and technology chronologically, present how inventions are made, the working principles and functionality of various technological tools and equipment (Bozdoğan, 2007).

Science centers are out-of-school learning environments that transform scientific knowledge into practice and transfer it to daily life. Their aim is not only to educate students, but also to help science to be understood by every individual (Koyuncu, Bilici, Kırgiz, & Güney, 2016). In addition, it

offers exhibitions and dynamic environments where visitors can actively wander, contact and practice (Çolakoğlu, 2017).

Science centers enable students to read, touch, hear, see, apply force, etc. It provides the concretization of theoretical knowledge about science by presenting examples from daily life through experimental setups in which they personally participate actively. While there are experiment sets in science centers, the development adventure of technological products is exhibited in technology museums. Students enjoy learning by living, having fun and discovering more than stereotypes taught by rote knowledge, using experiment kits under the control of instructors in the science center (Ertaş & Şen, 2017).

Science and technology museums are the main objectives of science courses; It helps to achieve these goals by including at least one of the cognitive, affective and psychomotor areas such as gaining and using knowledge (Cognitive goals), gaining skills (Psycomotor goals) and moral values, social awareness and responsibility, positive attitudes and attitudes in individuals (Affective goals). It has a structure that can be used (Bozdogan, 2011).

2.7. Nature Education

The main purpose of nature education is to introduce students to natural environments, as well as to increase students' curiosity and interest in nature by enabling them to see the opportunities nature offers to human beings. During nature education, environmental awareness is created in students by including various activities in which students can take an active role. Some of these activities are: making simple barometers, finding directions, observing with a microscope, calculating ecological footprint, etc. (Keleş, Uzun & Varnacı Uzun, 2010).

Nature education started for the first time in our country by TUBITAK in 1999 with the project named "Scientific Environmental Education in National Parks". In the following years, it continued its activities with the codes 4001 (Nature Education) and 4002 (Science Parks / Schools), and it continues to support projects with the call of "Nature Education and Science Schools" under the 4004 code by combining the latest 4001 and 4002 codes (Keleş, 2011).

Teachers who participate in nature education have multi-dimensional knowledge, skills and experience about the environmental theme in the science and technology curriculum, as well as knowledge about which acquisitions should be transferred to students with which activities (Güler, 2009).

Scientific knowledge alone is not enough to understand the relationship

between science, technology, society and the environment. It is also necessary to transform them into behaviors suitable for the environment and nature by using the nature as a laboratory, making and living the learned theoretical knowledge (Şimşek, 2001b).

In the science and technology curriculum published by the Ministry of National Education in 2005, it emphasizes the importance of environment and nature by including the achievements of science, technology, society and environment (FTTC), which is one of the dimensions of being science literate. Some of these achievements are as follows (MoNB, 2005);

- Becomes aware of natural and artificial environments.
- Knows how people and society affect the environment.
- Knows and discusses the methods of protecting the environment and wildlife.
- Knows and discusses local, national and cultural environmental problems.
- Knows the necessity of protecting and developing natural resources.
- Participates in activities related to environmental protection.
- Knows renewable and non-renewable energy sources and their importance.

As it can be understood from the achievements stated in the program, "naturalist" students are tried to be trained in the science course. In order to realize the stated gains and to raise naturalist students, teachers should give more importance to nature education and educate students with environmental awareness.

3. Studies on Out-of-School Learning

Jarvis and Pell (2005) aimed to examine the attitudes of students aged 10-11 visiting the UK National Space Center towards science and space. As a result of the research, it was determined that the students who visited the National Space Center in England developed a positive attitude towards science and space. It was also found that teachers' personal interests during the visit also had a significant long-term effect on students' attitudes.

Bozdoğan and Yalçın (2006) aimed to examine the effects of exhibitions and activities in science centers on second-level students' interest in science education and academic achievement. As a result of the study, it was determined that there was a significant difference in favor of the posttest between the interest pretest and posttest scores of the 6th and 7th grade students in the experimental group. While a significant

difference was found between the academic achievement pretest-posttest scores of the 7th grade students in favor of the posttest, there was no significant difference between the academic achievement pretest-posttest scores of the 6th grade students. It is estimated that this situation is due to the fact that the materials in the Energy Park are not suitable for the level of 6th grade students. In general, it was concluded that the materials in the Energy Park and the activities carried out there increased the students' interest and success in science.

In their study, Sturn and Bogner (2010) aimed to compare the education given in the classroom with the education given in the science museum and to examine the effect on students' learning and motivation. In the study, in which the comparative group design was applied, the students' knowledge and motivation were analyzed by applying the pretest-posttest. It was determined that the experimental group students learned more than the control group students and their motivation was higher.

In their work within the scope of the "Energy and Environment" unit, Balkan Kıyıcı and Atabek Yiğit (2010) made a technical trip to the Bandırma Wind Energy Power Plant to The pre-service teachers in parallel with the wind energy topic they learned in the classroom and analyzed their views on the trip with a descriptive method. In the findings of the study, the pre-service teachers expressed positive thoughts such as providing the opportunity to obtain first-hand information, providing the opportunity to make observations, and helping permanent and meaningful learning. They also stated that thanks to the technical trips, it became easier for the students to integrate the information they learned at school into daily life.

Yavuz and Balkan Kıyıcı (2012) in their study named “Student views on the use of zoos in science teaching”; While a statistically significant increase was found in the academic achievement of the experimental group students, no increase was found in the students in the control group. In the permanence test applied after the activity, it was determined that the knowledge of the students belonging to the experimental group was more permanent and meaningful. In terms of anxiety level, while there was no change in the science anxiety level of the experimental group, there was a significant change in the anxiety level of the control group.

Şahin and Sağlamer Yazgan (2013) found that out of the classroom laboratory activities significantly increased the academic achievement of students in the findings obtained from the study of "determining the effect of research-based out-of-class laboratory activities on the academic achievement of primary school students”. It has also been suggested that out-of-class laboratory activities should be included in the curriculum.

Kılıç and Şen (2014) aimed to investigate the effects of students'

critical thinking dispositions on students' attitudes towards physics course by teaching methods based on critical thinking supported by both out-of-school learning activities and current teaching in physics course. As a result of the study, it was concluded that physics teaching based on critical thinking, supported by out-of-school scientific activities, may be more beneficial than the other two experimental groups and the control group in developing students' critical thinking dispositions and increasing their attitudes towards the lesson.

Suter (2014) aimed to investigate the effect of students visiting the science museum on their science achievement and attitudes towards science. In addition, the education level of the families of the students, the number of science lessons taken, the number of visits to the science museum both in the normal education period and in the summer periods, the success levels and attitudes towards science formed the variables of the study. It was determined that the attitudes of the students who visited the science museum towards science developed positively. It has been determined that the science achievement of the students who visit the science museum very often is higher than those who visit the science museum less. It has been determined that there is a direct proportionality between the number of science lessons and science success.

Bozdoğan, Okur, and Kasap (2015) aimed to show teachers how out-of-school trips should be planned and to examine how such practices affect students' learning. According to the results of the study, it has been revealed that the knowledge acquired by the students by doing and experiencing is permanent. It has been stated that the desired goals can be achieved if the trip is well planned.

In their study titled “Attitude levels of 6th grade students of science festivals towards science lesson” of Yıldırım and Şensoy (2016); It was determined that there was a significant difference in the attitude levels of the students in the experimental group, who made a science fair, compared to the control group, and that the use of science fairs provided permanent and meaningful learning.

Sontay, Tutar and Karamustafaoğlu (2016) in their study titled "Determining the opinions of 8th grade students about the "Planetarium" trip; It was determined that the students found the trip fun, they had the opportunity to examine the planets closely, their interest in the lesson increased and they had the opportunity to examine it with a telescope. When asked to compare with the classroom environment; They stated that they used most of their sense organs during the trip, had the chance to examine the telescope closely and felt like they were in the solar system in the planetarium.

In their study, Erten and Taşçı (2016) aimed to examine the effect of "field trip" on the science process skills of secondary school students within the scope of the subject of "Let's get to know living things in science class". As a result of the study, it was observed that the participation of the experimental group students in out-of-school activities positively increased their ability to observe, use data and create a model, but no statistically significant difference was found in terms of measurement and classification skills.

Doğan, Çiçek, and Saraç (2017) carried out this study in order to reveal the thoughts and experiences of science teacher candidates about the "scientific field trip". As a result of the data obtained, the pre-service teachers stated that the field trip increased the permanence of the learned information, made it possible to associate with daily life, make observations about the subject and transfer the theoretical knowledge to practice, increased the motivation for the lesson and developed psychomotor skills.

In their study named "Pupil views on the use of out-of-school learning environments in teaching process"of Bakioğlu and Karamustafaoğlu (2020); It has been determined that out-of-school learning environments affect academic success positively, students provide permanent learning by having fun in out-of-school environments, and they help develop career awareness by learning unfamiliar professions and concepts. In addition, students stated that they could relate what they learned in out-of-school environments with daily life.

Füz (2018) In the research named "out-of-school learning in hungarian primary education: Practice and barriers"; It aimed to determine how primary schools in Hungary use out-of-school learning environments (visiting environments, frequency and motivation) and general attitudes towards out-of-school learning. As a result of the data obtained, it has been determined that such programs are carried out only occasionally, although students want out-of-school learning environments to be applied frequently and continuously. It has been determined that the main reasons for the low prevalence of out-of-school learning activities are the difficulties in financial arrangements and the inability to fit them into the curriculum.

In the study named "Opinions of science pre-service teachers on out-of-school activities conducted in different learning environments"; As a result of the study by Mertoğlu (2019), pre-service science teachers stated that they gained concrete experiences regarding out-of-school learning environments, and that they learned in a fun and permanent way. They stated that they had knowledge about how to learn and teach science subjects in such environments. They stated that they learned about places they had not even heard of in the past, and that they learned new

information. They stated that thanks to this experience they gained before becoming a teacher, their professional self-confidence increased and they would take their students to such out-of-school learning environments when they started to work.

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Chapter 3

ORGANIZATIONAL SILENCE IN EDUCATION

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INTRODUCTION

As a result of the rapid changes experienced in today's information and technology era, changes are experienced in the education sector as in many other fields. Education is the most effective way to keep up with the changing world. In this context, schools and all educational institutions are among the most important structures in society. In line with the needs of the changing society, the existing non-formal and formal education institutions have great responsibilities in raising the required human profile (Toprak & Erdoğan, 2012). School administrators are expected to make rapid and radical changes in order not only to manage the school in line with the goals to be achieved, but also to compete and survive.

In this competitive environment, it can be possible for organizations to continue their development and keep up with the changes by providing an environment where employees can easily express their ideas and wishes about the change of the institution. When the employee feels free, can express himself comfortably and feel as a part of the organization, he is satisfied with his work and this brings success with it. Employees who are not satisfied with their job and experience job dissatisfaction may react in various ways. Silence may also be one of the reactions of the employees. This silence, shown as a result of a reaction, causes the organization to lack innovative approaches (Hirschman, 1970).

According to Brinsfield (2009), employees fall silent when they believe that they cannot change something about the organization and when they experience uncertainties in their goals. When the majority of the employees of the organization prefer to remain silent about the issues related to the organization, this turns into a collective action and is defined as organizational silence (Liu, Wu, & Ma, 2009). The organizational silence occurred poses a great threat to the change and development of organizations. When employees remain silent, it will become very difficult to identify and voicing mistakes in organizational processes and to fix incorrectly functioning processes (Milliken, Morrison, & Hewlin, 2003). This situation significantly affects both the performance of the employees and the future of the organization.

According to the leadership behavior exhibited by the educational administrator, teachers may prefer to speak out or remain silent. The important thing here is; it is to reveal issues such as why and how they become silent, in which subjects they are reluctant to voice up the most, how they decide share/not share the matters or issues related to their institutions and with whom, and how silence can be understood (Milliken, et al., 2003).

Especially in universities with a high hierarchical structure, the attitudes and behaviors of unit and administrative managers can have significant effects on the productivity of academic staff. Just like any employee who feels that they are not valued, academic staff will have negative feelings psychologically and will be able to remain silent to the sharing and development of many experiences and knowledge they have acquired.

Organizational silence, which was perceived as a positive employee attitude in the 1970s, began to be given importance to the adaptation of employees to developments and changes in the early 1990s with modern and up-to-date approaches, which caused the concept of organizational silence to be perceived negatively. Hirschman (1970) defines silence as a passive but constructive behavior synonymous with loyalty. The fact that employees do not complain and continue to work even if they are subjected to maltreatment is perceived as their consent to this situation, and this behavior of silence is seen as the loyalty of the employees. In the following years, however, management scientists continued to see silence as synonymous with loyalty, even if the perspective on silence changed. As a result, silence is defined as the reaction of employees who have been treated dissatisfied and unfairly.

The concept of organizational silence is affected by many variables within the organization and significantly affects teachers' performance, organizational commitment, motivation and many organizational behavior factors (Vokala & Bouradas, 2005).

In the following sections, first the concepts of sound and organizational silence will be briefly mentioned, then the concepts of silence and organizational silence, types of silence, theories of silence, causes of organizational silence, forms of silence, attitudes towards silence, possible effects and consequences of organizational silence, organizational silence in education and teachers. silence will be addressed.

SOUND, ORGANIZATIONAL VOICE AND EMPLOYEE VOICE CONCEPTS

The Turkish Language Association defines the concept of "sound" as "vibration, sound, voice that our ears can hear", "vibrations caused by the air reaching from the lungs on the vocal cords", "spiritual reaction, behavior and attitude to any situation" and "vibrations with synchronization between them". (TDK, 2018).

Organizational voice was first addressed by Albert Hirschman in 1970, when he evaluated the voice as a reaction to organizational dissatisfaction. He did this by proposing a typology of how consumers behave after a

drop in organizational performance. Hirschman argues in his research that consumers react to dissatisfaction by attempting to cut off their relations with the organization and to voicing up, that is, to complain. For this purpose, Hirschman difenses the voicing up as any initiative that instead of escaping from the inappropriate situation in relationships aming to call the management individually or collectively, to ask for help to change the current situation, or to direct the public opinion. After Hirschman's definition of the concept of the voicing up between 1980-2000, the interest in the concept of voicing up has significantly increased by combining the espionage and situations such as causing trouble and being rumored. The interest in the concept of voicing up brought along the first organizational justice study focusing on the concept of voicing up (Brinsfield, 2009: 8-12).

Employee voice is the voluntary upward communication of ideas, suggestions, concerns and thoughts about work-related issues by employees in order to improve the functions of an organization or unit (Morrison, 2011). Rusbult et al. defined the voice as presenting solutions in an active and constructive manner, seeking help from organizations such as unions, taking action to solve problems, and trying to improve working conditions by discussing problems with colleagues or managers (Landau, 2017). Employee voice, which is also defined as the behavior of the employee to clearly communicate his / her problems in the workplace, is sometimes caused by the disturbance of the current situation and is seen as an opportunity for the employees to improve the working conditions (Kassing, 2002). In other words, voicing up is behaviors that not only encourage criticism on work-related issues but also encourage constructive challenge to improve organizational activities and proactively make suggestions for change (Dyne, And, & Botero, 2003). In this sense, it can be said that vocal behaviors play an important role in ensuring both productivity increase and job satisfaction.

Briensfield (2009) states that employee voice plays an important role in the formation of four basic and important activities in general:

(1) Participating in the decision-making process of the employees and supporting them with their recommendations,

(2) Employees' indicating their dissatisfactins, if any, with the current situation,

(3) The thought of the effectiveness of the unifying power of voicing behavior like union activities,

(4) Ensuring both organizational and individual continuity.

The Silence and The Concept of Organizational Silence

The concept of silence is a concept that has been researched and reflected on by researchers since the 1950s. It is described in many different disciplines such as sociology, anthropology, psychology, and philosophy. Silence is defined in the Dictionary of the Turkish Language Association (2005) as "the absence of noise around, silence".

There are many different definitions for the concept of organizational silence in the literature. According to Bowen and Blackmoon (2003), organizational silence is the situation that occurs when organization employees do not participate in discussions and do not contribute to their organizations. According to Henriksen and Dayton (2006), they are small reactions by organization employees against the important problems faced by the organization. According to Pinder and Harlos (2001), silence within the organization is also a means of communication and expresses many feelings such as affirmation and opposition.

Silence, which not only develops between managers and employees, but can also arise as a result of employees' relations with each other (Gephart et al., 2009), contains a multidimensional and complex structure. It is stated by Çakıcı (2020) that silence has five dual functions. Silence;

(1) Both brings people together and drives them apart,

(2) Can both harm and correct human relationships.

(3) Both provides information and conceals information.

(4) Indicates both reflection and absence of thought.

(5) Can be an indicator of both acceptance and opposition.

The concept of organizational silence entered the literature with the studies conducted by Morrison and Milliken. Organizational Silence is defined as the conscious hiding of employees' ideas, experiences, knowledge and thoughts about improving their jobs and institutions (Morrison & Milliken, 2000).

Organizational silence describes a tendency to say or act little on ideas that can generate remedies for problems that could be considered important to an organization (Henriksen & Dayton, 2006).

Organizational silence is expressed as hiding the sincere ideas about the behavioral, cognitive and emotional evaluations of the person in matters related to organizational issues to the people who are accepted to have the ability to influence change (Bayram, 2010; Vakola & Bauradas, 2005).

Bowen & Blackmon (2003) state that the process of being silent may evolve into a collective attitude at the organizational level, by leaping to

other employees in the institution, as the employee becomes reluctant to express her thoughts on many issues over time. According to the definition made by Dyne et al. (2003), silence is the absence of speech or a behavior that can be clearly understood.

The Importance of Organizational Silence for Management

Describing the concept of organizational silence as a collective work, Morrison and Milliken stated that the employees will use their choices in the direction of remaining silent in a possible silence environment and that organizational silence can be negative in terms of the development and growth of the institution. (Çakıcı, 2007).

According to Piderit & Ashford (2003), managers are always looking for the best way to fix any problem or situation. The most important step in achieving this shows that employees can clearly express all their opinions and ideas without being silent. According to Milliken & Morrison (2003), managers' reactions to those who prefer not to remain silent affect the choices of these employees. Silence seems to be generally preferred by employees.

While silence is perceived as undesirable by some organizations, some organizations do not perceive silence as a disadvantage (Mcgovan, 2003). The results of many studies show that, in general, organizational managers do not tolerate different opinions. In organizations with a culture of fear and intimidation, employees remain silent, so they are reluctant to intervene in company policies and administrative forces. This will result in those who do not even want to contact top management. Especially in public institutions, ideas and works are always limited to senior management (Clapham & Cooper, 2005).

Silence is used in different meanings in different areas. For example, in psychology, "introversion", "lack of self-confidence", in sociology "social silence" is generally characterized as a negative situation. Emphasizing the conditions in which silence is appropriate and important in the ethical and philosophical literature, it is stated that a positive approach to silence is also necessary for communication, since it is a serious element of social interaction (Çakıcı, 2010).

As it can be understood from the explanations, the nature of silence is complicated, difficult to understand, has implicit and intense meanings, and it is extra difficult to understand silence because it depends on the motivation of the person. Therefore, silence can have different meanings according to various situations.

Since the contributions of employees are of great importance for organizations, organizations that cannot prevent their employees from

remaining silent may encounter the following problems (Özgen and Sürgevil, 2009: 321):

• Employees stay away from each other due to lack of communication within the organization,

• Separate themselves from the organization as a result of their intensive adoption of their individual silence and their distancing from the social environment,

• The danger that the silence, which arises from not expressing the problems throughout the organization, becomes a culture within the organization,

• The decrease in job satisfaction, loyalty to the organization and productivity of the employees,

• The decrease in the confidence and motivation of the employees and the increase in alienation, depersonalization and stress level,

• Risk of not being able to adapt to change,

• It hinders creativity.

Types of Silence

The concept of Organizational Silence, which emerges from the deliberate and willingness of the employees and their desire to keep their opinions and ideas to themselves, can manifest itself in different types of institutions. This concept can occur sometimes because of the belief that it will not make any difference to express their opinions, sometimes for the sake of self-protection, sometimes for the sake of conforming to the opinions of others, and sometimes because of the desire to act in consideration of others.

Various classifications can be made for the concept of silence that arises in different situations, depending on different expectations. In this context, when the literature on organizational silence is examined, it is seen that some researchers such as Pinder & Harlos (2001) make a double classification, while some researchers such as Dyne, Ang & Botero (2003) make a triple classification. Pinder and Harlos added a third type to these two types of silence they developed, which they call "pro-social silence" (Pinder & Harlos, 2001 p. 349). Çakıcı has named these three types of silence as "accepting", "protective" and "protectionist" in his studies and put it into the literature with the phrase "3 K of silence" (Çakıcı, 2008).

In this study, within the scope of the definitions, types of silence are examined under three different classifications.

Accepting Silence. It can be defined as the employees' failure to express their knowledge, opinions and thoughts about the situation by not accepting the developments about a specific problem or event (Dyne et al., 2003). Those who accept such silence are willing to accept the current situation, do not attempt to make any correction, and do not try to express their views clearly. In this form of silence, there are deliberate passive behavior and indifferent behaviors (Çakıcı, 2008).

Protective Silence. According to this type developed by Dyne et al. (2003), employees do not express their views, opinions and knowledge on an issue in order to be beneficial to the institution or other persons for collaborative reasons.

Protective Silence. It can be defined as employees' hiding their thoughts and ideas in order to protect themselves from the possible reactions they may encounter when expressing their thoughts about an issue, situation or a problem (Dyne et al., 2003). Pinder & Harlos (2001) defines this kind of silence as consciously choosing to remain silent because he is openly afraid of the possible consequences of speaking, as he deliberately chooses to remain silent.

In addition to these, there are a number of silence classifications;

Sobkowiak's Classification of Silence. Sobkowiak divided silence into two, Acoustic and Pragmatic, and classified it on this basis. Sobkowiak defined the acoustic silence as "the environment where sound waves are missing"; and the pragmatic silence, on the other hand, as "it reflects the absence of voicing about strategic goals or goals aimed at obtaining benefits, and this situation is caused by the human being." (Pinder & Harlos, 2001).

Bruneau's Classification of Silence. Bruneau based his classification of silence on pragmatic silence. According to Brunea, pragmatic silence describes a preference for silence that is usually made for a strategic purpose, as people sometimes find it dangerous to express their thoughts and therefore deliberately avoid speaking up within the organization (Pinder & Harlos, 2001).

Pinder and Harlos's Classification of Silence. The authors have classified silence into two categories as "passivity" and "consent". They tried to explain the difference between the two species in terms of these eight dimensions. These are: volunteering, awareness, acceptance, stress level, awareness of alternatives, tendency to speaking up, tendency to quit and dominant emotions (Pinder & Harlos, 2001).

Van Dyne, Ang and Botero's Classification of Silence. Van Dyne et al., basing their classification upon that of Pinder&Harlos's, classified

the concept of silence in three different ways; "consent", "defense" and "prosocial" (Van Dyne et al., 2003).

Park and Keil's Classification of Silence. The authors have collected the concept of silence in three catagory; "conscious silence", "defensive silence" and "collective silence". Conscious silence refers to the deliberate silence of the employees in the organization and not to express their opinions on the problems and their views on the organization, while defensive silence is expressed as the employees' choosing to remain silent in order to protect their organizational interests and prevent any conflict within the organization. Collective silence, on the other hand, is defined as the employees choosing to remain silent by not expressing their thoughts as a result of the decisions they have taken together (Altınöz & Çöp, 2012).

Knoll and Dick's Classification of Silence. Knoll and Dick (2013), inspired by other researchers such as Pinder and Harlos, Van Dyne, Ang, and Botero, when dividing silence into its types, explained organizational silence in four forms: passive, accepted, protective, and opportunistic. As other forms have been explained earlier, only opportunistic silence is mentioned here. Opportunistic silence is defined as "employees' hiding their opinions in order to protect their information advantages or to prevent increased workload" (Knoll & Dick, 2013, p. 347).

Theories of Silence

Different theories by which employees can express their choice to remain silent or their decision to remain silent during the process are explained below.

Cognitive Contradiction Theory. This theory, developed by Leon Festinger, is based on the idea that people try to create consistency between cognitive elements by avoiding cognition, behavior and emotions that lead to a contradictory situation in the cognitive plane (Festinger, 1997).

Planned Behavior Theory. According to this theory, which was developed by Icek Ajzen in 1991, what drives individuals to behave in a certain way is their intentions regarding certain types of actions. According to Ajzen (1991), the more positive an individual's attitude towards exhibiting a certain behavior and the more perceived control over social pressures and behaviors, the stronger the intention of the individual to exhibit this behavior will be.

Affactive Events Theory. The Affactive Events Theory, developed by Weiss and Crapanzano, is a theory that tries to reveal the effects of emotions and modes on individuals' behavior by examining the structure, causes and consequences of emotional experiences in the workplace (Weiss & Cropanzano, 1996).

Attribution (Causality) Theory. This theory refers to the process of individuals' understanding the reasons for their own or other's behavior (Can et al., 2006). According to this theory, individuals first determine the causes, then base their next behaviors on these reasons and finally form general principles and rules that guide the entire process (Duman, 2004).

Cost-Benefit Analysis. Employees can use the Cost-Benefit Analysis to decide on silence or voicing up behavior within the organization. They apply the Cost-Benefit Analysis by calculating the probable cost of this voicing up-making behavior against the benefits they can gain when they choose the voicing up-making behavior (Premeaux, 2001).

Expectation Theory. Developed by Victor H. Vroom, this theory is built on the basis of the desirability of the gains that can be obtained in relation to an individual's effort, performance and a high level performance. The key point in this process is the feelings of expectation people create before they exhibit motivational behavior (Bateman & Zeithaml, 1990).

Self-Observation. Self-Observation means that people observe their own behaviors in order to adapt to their conditions. Self-observation behavior is a behavior related to the measure of the way people show themselves in interpersonal relationships, observe the state in the group they are in, and supervise and adjust themselves profoundly to the group (Greenberg & Baron, 2003).

The Abilene Paradox. According to the Abilene Paradox, people may think that their own thoughts and ideas in their group will not be adopted and accepted by other people in the group. In this case, the person, although believing that his or her opinion does not conform to what others in the group generally adopt, by not objecting to this general mindset, becomes silent and tends to conform to it. Therefore, people become silent and adapt to the common voice dominant in the organization and serve it (Harvey, 1988).

The MUM Effect. The MUM Effect can be expressed as people's unwillingness to convey information or news that they consider negative. The factors that cause this reluctance are the damage to the relationships of the individuals in their workplaces, their hesitation from the senior management, or their fear of being held responsible for negative information or news. Differences in title and power within the organization can also increase this effect (Brinsfield, 2009).

The Deaf-Ear Syndrome. The Deaf Ear Syndrome, defined as organizational inactivity, is an organizational rule that prevents employees from expressing their dissatisfaction directly and clearly (Pinder & Harlos, 2001). This syndrome can cause those who work as a stereotypical rule

within the organization to behave in the aforementioned way.

The Spiral of Silence. The spiral of silence theory developed by Noelle-Neumann (1974, 1985, 1990) examined how people make decisions while expressing their actual/sincere thoughts. This theory attempted to determine what the impact of external forces such as the media and interpersonal opinions would be on the reporting of personal views (Bowen & Blackman, 2003).

Courtesy Theories. In this theory, which was developed by Penelope Brown and Stephen Levinson in 1987 and puts human at the center, communication is seen as potentially dangerous and incompatible. The basic idea of courtesy theory is "facial expression". Brown and Levinson define "facial expression" as “the public image" that every member of society demands to be in, and according to them, facial expression has two related aspects. These appear as positive and negative courtesy.

The Self Adaptation Theory. The content of the theory basically consists of person’s watching himself during mutual relationships, creating his self-image or trying to control and arrange it to the situation. Employees organize their images and their presentations in order to create an effect according to the reactions and feedback they receive in their relationships. Individuals express themselves in a controlled manner, taking into account the conditions they live in in the organizational environment (Premeaux & Bedeian, 2003).

Ajzen's Theory of Planned Behavior. In this theory, put forward in 1970, it was tried to explain that the reason for the individual's instinctive tendency to plan and think before performing a behavior is his general attitude about behaviors and the thoughts of the individuals around him. In other words, the attitude in a person's behavior is shaped by the thoughts of others. The theory allows the explanation of behaviors and attitudes towards specific goals that do not only develop under the control of the individual (Ajzen, 1985).

Causes of Organizational Silence

Organizational silence is seen as a collective situation of employees’ not saying or doing anything to important problems, situations or events that may occur in an institution (Henrikson & Dayton, 2006). On the other hand, the change that is critical for the success of an institution, concepts such as producing or learning original ideas can be carried out with the contribution and compliance of employees (Ehtiyar and Yanardağ, 2008). It is important to determine the factors that can cause employees’ behavior of silence.

In the model develop by Milliken et al., it is observed that the silent is affected by three different factors group, “individual”, “organizational” and "relationships with the speriors”. The silence that occurs due to these factors may be negative consequences such as labeling the employee as a negative person, relationship breakdown, breakdown of trust and respect, and losing the job. In addition, it may also cause the silence behavior when the indiviual believe that speaking would not do any change or difference (Milliken &, 2003).

Morrison & Milliken (2000) stated that there were pressure elements related to hidden problems or problems that increase the silence of employees in most institutions. These pressures can be caused by managers, employees, institutions or cultural factors. The silence behavior of employees develop after a disobedience, stress and cynicism period. There is a positive relationship between the employee silence and the distrust to the managers. In direct proportion to not trusting on the managers, they communicate with their superiors by censucating the information they have (Liu &, 2009).

In terms of the concept of organizational silence, many studies described different reasons that caused the organizational silence. These reasons are collected under three headings; managerial, individual and organizational reasons.

Managerial reasons can be categorized as the managers' fear of negative feedback, the implicit beliefs of managers and the fear of employees’s abusing their duties, whereas individual reasons are categorized as not trusting the managerr, considering the speaking risky, fear of exclusion, fear of breaking Relationships, past experiences, personality treatis. Organizational reasons, on the other hand, are categorized as organizational culture, culture of injustice, climate of silence and organizational communication.

Sub-Factors Forming Organizational Silence

Organizations, due to their structures, have a large number of people. These people, who are in constant interaction with their duties, are also likely to have disagreements at some points. Because every human being is different from each other in terms of its structure and personality traits. Therefore, it can be said that these differences are closely related to organizational structure and organizational silence. Based on this idea, sub-factors affecting organizational silence are listes as culture, organization culture, behavior plane, organizational climate, organizational trust, organizational justice, group thinking and group pressure.

Ways of Remaining Silent

Employees exhibit consciously and purposefully "remaining silent behaviors" in different ways. It can be said that they accept the duties assigned to them without objection and questioning, sometimes act as if there is no problem, and they do not want to stand out by trying to be like other employees (Bildik, 2009). The types of silence of employees are classified as follows.

Employee Obedience. It describes a fundamental acceptance of organizational conditions, an unquestioned acceptance of the situation, and limited awareness of other options available. Obedient workers are slightly less aware of their silence and are less prepared or less willing to change than their silent opposition to change (Bildik, 2009).

The Deaf-Ear Syndrome. Expressed also as "organizational inactivity", the deaf-ear syndrome is the organizational norm that employees avoid expressing their discontent directly and explicitly (Pinder & Harlos, 2001).

Remain Passive and Consenting. In the studies conducted, it was stated that there are four types of silence: "irrelevant", "withdrawn", "supportive" and "meaningless". Examples of these types are nodding to motivate support or approving with a smile (Pinder & Harlos, 2001).

Withdrawal and Tending to Other Behaviors. Van Dyne et al. stated that silence can manifest itself in the form of "protection", "withdrawal" and "tending to other behaviors" (Van Dyne et al., 2003). Being dangerous or risky for employees to talk about the thougts related to work and options for solutions interferes with problems to be soleved and prevents them. The thought that expressing your opinion will not make a difference, and the negative consequences such as dissatisfaction, inability to get promotions, dismissal in institutions, which prevent or slow down the change cause employees to act passively (Bildik, 2009).

Attitudes Towards Silence

The seven sort of attitudes of the employees towards silence are explained below.

Pluralistic Ignorance. Pluralistic ignorance means that in some cases, people resemble their behaviors to others, but that different attitudes and emotions are the basis of these very similar behaviors. Pluralistic ignorance is based on hiding their true feelings and beliefs because of fear of embarrassment and social disapproval (Brinsfield, 2009).

Diffusion of Responsibility. Darley & Latane (1968) first introduced this concept in 1968. It expresses this concept that when people join a

group, they feel less responsibility for their activities in the group than when they do their activities alone (Henriksen & Dayton, 2006).

Silence Effect. The silence effect can be explained as a concept that expresses people's reluctance to communicate bad news (Schermerhorn et al., 2011). The silence effect is based on the unwillingness of people to convey negative information, as they would be uncomfortable with being known as a bad news carrier.

The Abilene Paradox. The Abilene paradox was put forward by Harvey in 1974. In this paradox that leads to the collapse of group communication, each member of the group mistakenly believes in the collective action of the group, which is the opposite of their choice, and therefore does not object (Brinsfield, 2009).

Group Think. The idea of a group think is when the desire to reach a unanimous decision in groups with a high level of interdependence prevents reasonable decision-making (Hogg & Vaughan, 2007).

Commitment and Listlessness. In the study carried out by Hirschman in 1970; he defined the concepts of separation / exit, voicing up and commitment as the behavioral response of the members of the organization to dissatisfaction. In particular, he stated that high commitment is related to voicing up and low level commitment is related to separation / exit (Brinsfield, 2009).

Social Exclusion. Social or relational exclusion is explained by Williams as a situation often excluding and disregarding people. However, social exclusion and silence have begun to be among the topics of interest in organizational science in the last decade (Greenberg & Edwards, 2009).

Possible Effects and Consequences of Organizational Silence

Knowing the causes and consequences of organizational silence provides a map for organizations to tackle organizational silence. Within the framework of these reasons and consequences, the development of a silence climate can be prevented by taking some institutional measures (Harlos, 2001). Organizational silence can have serious long-term consequences for both employees and the organization.

Silence behavior in institutions is negative not only for individuals but also for institutions. It is possible to say that silence behavior negatively affects the performance of the employees. This low performance phenomenon at the individual level will spread within the organization over time and will adversely affect the competitive advantage of organizations that aim to survive in today's competitive conditions.

The individual and organizational effects and consequences of organizational silence are scrutinezed in the following headings.

Effects and Results on Employees. In general, the benefit of speaking is at the societal level, while the harm is mostly at the individual level. The person raises the issue for the benefit of the public or the institution, but faces negative consequences such as loss of reputation, humiliation or beign labeled as problematic (Çakıcı, 2008).

According to the results of the research done by Milliken & others (2003); more than 85% of the managers and employees admitted that they remained silent and were unable to speak at least one work-related topic. A deliberate silence about problems faced by employees resulting from not communicating can be very costly and have negative repercussions on the organization (Morrison & Milliken, 2000)

Due to the negative effects of silence, employees may feel powerless to speak openly about their problems and concerns in the workplace, and they may intrinsically suppress critical communication by consciously choosing not to share information. Also, being unable to talk about problems and expressing opinions clearly; it can lead to feelings of cognitive dissonance that results in low satisfaction, belonging, trust, appreciation and support, commitment, and motivation. As a result, keeping silent about what they are good at can cause employees to suffer and feel helpless and worthless (Vakola & Bouradas, 2005; Ehtiyar & Yanardağ, 2008; Çakıcı, 2008; Ülker & Kanten, 2009).

These effects may manifest themselves as learned helplessness. In other words, employees will be less inclined to engage in organizational change efforts, believing that speaking will not change anything over time, and therefore will prefer to remain silent.

According to Briensfield (2009), employee silence affects employee performance and therefore organizational performance. While the accepted silence and defensive silence types, which are one of the sub-dimensions of employee silence, negatively affect employee performance, silence for the benefit of the organization positively affects employee performance (Şehitoğlu & Zehir, 2010).

Effects and Results on the Organization. Silence is extremely damaging to organizations as it causes increased dissatisfaction among employees. It causes many undesirable behaviors for the organization, increasing absenteeism and labor force turnover rate. If the silence behavior starts to appear in an organization, first of all, communication is damaged and this causes disruption of the general functioning of the organization. Over time, silence can cause employees to be indifferent to

their profession, employers, and the quality of their work. This situation leads to the deterioration of organizational functions and financial losses (Bagheri et al., 2012).

In the decision-making process, members of the organization can participate and even initiate this process. This is a process that increases morale and reduces negative reactions to decisions within the organization (Barçın, 2012). However, when silence prevails in the organization, the advantages of this situation cannot be benefited, and also there will be a loss or even a decrease in the motivation of the employees.

In researches on strategy formulation, it is possible that there are different and contradictory views among the senior management, that they have a positive effect on the company performance and decision quality. When evaluated within the framework of these studies, it can be said that organizational silence can negatively affect the efficiency of decision-making and change processes (Barçın, 2012).

The feedback systems required to detect the mistakes and deficiencies of the organizations cannot be operated properly in organizations where there is silence. When these feedback, which is vital to organizations, is not provided by subordinates, organizations cannot learn about their current situation and thus efficiency and productivity decrease (Milliken & Morrison, 2003). Because especially if there is no negative feedback, mistakes tend to repeat and this situation gets more complicated as corrective measures are not taken when necessary (Barçın, 2012).

Silence gives the appearance of "no problem" in the organization and creates satisfaction and a source for satisfaction. This can make most managers happy, but when the curtain is lifted, it can be encountered with the fact that many mistakes and errors are under the mat. Although everyone continues to pretend that there is no problem, silence does not solve anything, it only causes problems to remain hidden (Çakıcı, 2006).

As a result, organizational silence in organizations and employees, has many negative effects such as lack of diversity in information inputs, inability to analyze ideas and alternatives in detail, lack of negative feedback, the emergence of the idea that employees are not considered and evaluated, lack of control perception among employees, cognitive contradictions of employees, organizational decision structures, weakness of ability to correct, low organizational commitment, lack of organizational trust, poor organizational change processes, low internal motivation of employees, job dissatisfaction, high turnover of the workforce, leaving the job, stress and sabotage (Kalay & Oğrak, 2012).

ORGANIZATIONAL SILENCE IN TEACHERS AND EDUCATION

All educational institutions from pre-school to universities have undertaken a responsible duty such as training the educated and qualified manpower of the future. These institutions are organizations that are expected to be at the lowest possible level of organizational silence, to speak the most, to produce scientific knowledge, and to support change and development. For this reason, educational institutions are at the top of the organizations that need development the most and need to respond to this need as soon as possible. While educational institutions are of such great importance, it is extremely important to conduct research on silence behavior that may hinder the development and change in these areas and to eliminate the deficiencies within the scope of the results and inferences obtained.

Teaching profession, which is indispensable for educational institutions, is defined as the architect of human behavior, a human engineer, and an artist who shapes the personality (Şişman & Acat, 2003). Teachers directly affect and shape the personalities of individuals and therefore society. For this reason, mistakes made in education affect not only the individual but also the society negatively. A qualified and correct education will have a positive impact on both the individual and the society in the future. For this reason, teachers should have an understanding of education beyond the age and have high motivation to fulfill the requirements of their profession. Only a highly motivated teacher can best perform this important task.

High motivation of teachers in the school environment can only be possible if the school environment is in line with teachers' expectations. A suitable school environment also makes teachers think of a social environment where they can express themselves freely, share their ideas with other teachers and administrators, and feel safe. However, if teachers cannot express themselves and their thoughts comfortably at school due to various reasons, they may show silence behavior. The reasons that prevent teachers from expressing themselves comfortably and pushing them to silence include anxiety about losing their job, anxiety about exclusion or thinking that their ideas are not valued and therefore giving up sharing their thoughts. In addition, teachers may show silence behavior when they feel unsafe with their managers and other teachers, or when they see them as a threat to themselves. If the appropriate social environment is not established, it becomes difficult for teachers who isolate themselves to be productive, and this situation may negatively affect teachers' job motivation (Çetindere, 2019).

When teachers are unable to express their thoughts and wishes due to various reasons, when they are not given the opportunity to implement the plans and innovations they want, their job success, job satisfaction and work commitment decrease, and as a result, their professional motivation is negatively affected. It becomes difficult for them to adapt to innovations and developments. The students of teachers who work unproductively and reluctantly due to a decrease in their job motivation will be adversely affected and as a result, a decrease in education level will occur.

The organizational silence that teachers feel in the school environment is a situation that may affect employees negatively, as in all organizations. In a school where organizational silence is dominant, teachers cannot express their problems and thoughts comfortably. This negatively affects the work of teachers and therefore the quality of education.

Since the behavior of silence tends to spread in organizations and can be considered as a type of behavior that has the potential to affect the organization in general, it has the increasing possibility of negatively affecting the organization (Ayduğ et al., 2017). It is important to investigate the causes and effects underlying this silence attitude, to try to understand the communication perceptions of the members of the organization, and to examine the interactions between individuals. Especially in schools, silence behavior may have negative effects due to the intense individual interaction and these effects can negatively change the functioning processes of the school. The silence behavior among teachers, who constitute the main human resource of schools, prevents the development of cooperation and supportive attitude, and may cause negative effects such as a decrease in the morale and motivation of teachers, weakening of the ties to the school and alienation from the working environment. Factors such as learned helplessness, not sharing information, dominant groupings, and fear of the deterioration of their relationships are also seen as factors that increase silence in teachers (Sardoğan, 2007).

There are many studies on the causes and consequences of employee silence in educational organizations and many other organizations both at home and abroad. Although these studies have an important place in making the silence behavior understandable, studies focusing on the underlying causes and consequences of the silence behavior and the relationship between them are increasing today. Studies on teachers' silence behaviors in schools and the relationship between these behaviors and various variables are also found in the literature. When the results of the studies are examined, different results are encountered about the perceptions and behaviors of teachers in schools.

Some of these studies are briefly mentioned below.

Çakıcı & Çakıcı (2007), in their study which they investigated the reasons for silence in organizations and the subjects of silence, titled "The Silence of the Worker: Is it Difficult to Talk or to Stay Silent?", conducted with 508 academic and administrative staff working at a university; they found that the least silent issues were responsibilities, management problem, ethical issues, efforts to improve the organization, work opportunities and employee performance. They concluded that "organizational and managerial reasons" were the main reasons for choosing to remain silent and that "fear" also existed as an effective factor.

Aşkun et al. (2009), as a result of their research to investigate the relationship between locus of control and silence among 83 academics working in two major universities in Istanbul, found a weak relationship between locus of control and silence.

Sözen et al. (2009), in a study conducted on blue-collar employees working at the university to test the claim that employees would prefer to remain silent in the face of perceived inequality, they found that employees preferred to remain unresponsive to perceived inequalities.

Alparslan (2010), as a result of his research conducted to 150 university faculty members to examine the interaction between organizational silence climate and employees' silence behavior, revealed that there are significant relationships between organizational silence climate and employees' silence behavior and that the silence behavior of employees causes silence. It was found that demographic characteristics of the participants such as age, working time in the organization and economic status affected the silence behavior.

Bayram (2010), as a result of his study in which tried to determine the academics' perceptions of organizational silence, it was found that the organizational silence levels of the academicians made a statistical difference according to the title, duration of work, age, and whether or not they had a management position. In addition, it was concluded that the fear of isolation from the organization is a factor on organizational silence.

Kutanis and Çetinel (2011), in their study titled "Women's Silence: A Study on Female Teachers", conducted semi-structured interviews with 37 female teachers to investigate the effect of gender on employees' silence behavior, concluded that gender has an effect on the behavior of silence.

Kutlay (2012), in his study with the participation of 291 research assistants working at universities in the Mediterranean Region to examine the effect of research assistants' self-efficacy and organizational commitment levels on their organizational silence, concluded that the organizational silence levels of research assistants are affected by their

self-efficacy and organizational commitment levels.

Panahi et al. (2012), in their study titeled "An Empirical Analysis on Influencing Factors on Organizational Silence and its Relationship with Employee's Organizational Commitment", conducted on 260 employees at Patame Noor University in East Azerbaijan, found a positive relationship between the dimensions of organizational commitment and silence climate and employee silence; and between employee silence and managers' attitudes.

In the study conducted by Nartgün and Demirer (2012) on teachers' silence, it was observed that teachers could easily speak and share their ideas at school. This situation can be interpreted as different school climates may cause different perceptions of organizational silence among teachers.

In the study of Kahveci and Demirtaş (2013) on the organizational silence of teachers, it was observed that teachers working in primary schools preferred to remain silent rather than talking about events and situations, and female participants remained silent more than male participants.

In the study conducted by Ruçlar (2013), it was tried to investigate whether there is any relationship between the organizational silence perceptions of academic staff and the organizational culture. As a result, organizational silence levels of research assistants were found to be significantly higher than those of faculty members. In addition, it was concluded that the gender and educational status of the instructors did not make any difference on organizational silence.

In the study titled "Organizational Silence in Universities", which was conducted by Algin (2014) with 349 faculty members working in the faculties of Science-Literature, Education and Engineering of three state universities in Ankara, it was determined that the lecturers generally remained silent. Significant differences were found in the silence perceptions of the lecturers participating in the research in terms of gender, title, administrative duty and working time. According to the findings of the researcher, female instructors are quieter than male instructors in terms of damaging relationships, fear of isolation and lack of experience. It has been determined that research assistants are quieter than professors and associate professors in all dimensions except for administrative and organizational reasons, faculty members who do not have administrative duties are quieter than those who have administrative duties in the dimension of administrative and organizational reasons, and also, as the working time increases, the silence of the lecturers decreases.

Çakınberk et al. (2014) in their study titled "The Relationship Between Organizational Trust and Organizational Silence: A Public University

Example" aimed to examine the relationship between organizational trust and organizational silence and to determine the effect of this relationship on a public university in order to inform managers and provide improvement in organizations. According to the findings of the researchers, there is a negative, moderately significant relationship between the organizational trust perceptions of the participants and their organizational silence behaviors. In other words, as the trust of the academic staff in their organization increases, their silence behaviors decrease. Academic staff, who do not trust their organization and their managers, prefer to remain silent with the thought that even if they express their opinions about the organization, protection from possible reactions, concern of being perceived as a problematic person, or expressing problems, their statements will not have any effect.

Üstün (2014) conducted his study with 251 instructors of higher education institutions providing sports education. According to the results of the study conducted to determine the general leadership perceptions and organizational silence levels of managers; It was found that managers' perceptions of silence were higher, females had higher perceptions of silence than males, and singles had higher perceptions of silence in school environment than married ones.

In another study conducted on academics, it was determined that the lack of experience and confidence differed according to titles. In addition, it was concluded in the research that academicians remained silent due to factors such as "institutional regulations, withdrawal, protecting relations with colleagues, protecting relations with managers, self-protection and lack of self-confidence" (Tülübaş, Celep, 2014).

In a study examining the organizational silence behaviors of teachers working in secondary schools, Özuçağlayan (2015) found that many organizational and managerial reasons were effective on teachers' silence behavior in the institutions they work. In addition, he concluded that a number of individual variables that teachers have are also effective on organizational silence behaviors.

In his thesis study, İşçiler (2015) determined the organizational justice and organizational silence levels of teachers and revealed the relationship between them. As a result, it was determined that there was no statistically significant difference between teachers' perceptions of organizational justice and organizational silence according to the variables of seniority, age, gender, type of school graduated and working years with the manager.

In their study titled "Possible Consequences of Organizational Silence in Universities", which they conducted on 349 lecturers at three state universities in Ankara, Algın and Başkan (2015) examined the

silence perceptions of lecturers according to the variables of gender, title, administrative duty, faculty and tenure. Based on the fact that the results are in line with the results of other similar studies, the faculty members working at the university prefer silence at a high rate, on the other hand, professors and associate professors with high professional seniority do not have such concerns. They concluded that even if they exhibit organizational or individual silence behavior, this does not affect their productivity, and the academic staff who have just started working in the organization (1-5 years) have a higher level of participation in the possible consequences of silence than the lecturers with longer service period.

Ünlü et al. (2015) revealed the relationship between teachers' perceptions of organizational justice and organizational silence in their study. As a result of the study, it was determined that there was a positive relationship between teachers' procedural, interactional and distributive justice perceptions and protective and accepting silence levels, and a negative relationship between defensive silence levels.

Dönmez (2016) determined the perceived organizational silence and organizational socialization levels of teachers in his thesis study in primary schools and revealed the relationship between them. As a result of the study, it was determined that there is a very weak negative relationship between organizational socialization and organizational silence, that is, organizational silence decreased while organizational socialization increased.

Valls et al. (2016) carried out a quantitative research with students studying at universities in Spain by conducting a different study to investigate whether women are exposed to violence in their study called “Breaking the Silence in Spanish Universities”. In this context, researchers who interviewed a total of 1083 students, 726 women and 357 men, from 6 universities in different regions of Spain, reached the following conclusions: Women are exposed to violence in universities in Spain. 62% of the participants either know someone who has been subjected to violence or are exposed to violence, but only 13% of them can identify these situations as soon as they happen. According to the findings of the researchers, there is a deficiency in identifying and recognizing violence situations and transferring these situations to the necessary authorities. The researchers state that two basic policies that can be developed by Spanish universities to combat all kinds of violence that women are exposed to and to show eyewitnesses to the victims of violence can solve this problem.

In the study of Aydın et al. (2016) on the silence behavior of research assistants at universities titled "The Reason for Silence of Research Assistants", they reached the following conclusions. Research assistants

mostly prefer to remain silent in situations where power distance is in question and when their knowledge and experience are insufficient. Other situations in which the research assistants remained silent were the issues they thought did not concern them, the problems they faced, political issues, environments in which there were opposing views. When the reasons for the silence of the research assistants were examined, the most common reasons found to be the fear of receiving negative feedback, the belief that speaking would not work, and organizational culture. Apart from these, other reasons mentioned were prejudices, personal reasons, strict attitudes of superiors, blacklisting of speaking people and personalized opinions.

Fapohunda (2016) aimed to examine the main factors and consequences of organizational silence in her study titled "Organizational Silence: Its Consequences Among Academic Staff" and to offer suggestions for overcoming it. Fapohunda conducted this study on 321 academic staff selected from three universities in Lagos, Nigeria. The reasons that stood out as the reasons for silence were the fear of being negatively labeled and the fear of damaging relations within the organization. According to another result, while there is a significant relationship between the organizational silence of academic staff and their emotional exhaustion and job dissatisfaction, there is no significant relationship between organizational silence and decreased individual achievement. So; As the silence behavior among the academic staff increases, emotional exhaustion and professional dissatisfaction also increase, but the silence behavior does not affect the individual success of the academic staff.

In the study conducted by Çakal (2016), the relationship between teachers' perceptions of their participation in management and their perceptions of organizational silence; it has been concluded that organizational silence perceptions are at a moderate level. In addition, it was determined that the relationship between teachers' participation in management and organizational silence behaviors was negative and has low-level significance.

Çolakoğlu (2017), in his study to determine the relationship between emotional intelligence, emotional labor and organizational silence behaviors of Anadolu University and Onsekiz Mart University faculty members, tried to determine the factors that can reduce organizational silence. According to the findings of the research; It has been revealed that superficial emotional labor increases the accepting silence, while emotional intelligence decreases the accepting silence and protective silence, while it increases the protectionist silence.

In a study conducted by Çelik (2018) by collecting data from 410 lecturers, it has been revealed that organizational silence perceptions of

lecturers have statisticly meaninful differences in the variables of academic titles, working hours and whether they have administrative duties or not. In the study, it was concluded that in the dimensions of the environment in which the lecturers work and the sources of silence, the lecturers show the most silent behavior and the professors the least. In addition, the organizational silence levels of the faculty members with administrative duties were found to be low.

Akçin (2018) found a negative relationship between perceived psychological ownage and accepted silence and defensive silence, a positive relationship with silence for the benefit of the organization, and a negative relationship between accepted silence and defensive silence and task performance, a positive relationship between silence for the benefit of the organization and task performance.

In their study titled "Teacher Opinions on Organizational Silence in Secondary Education Institutions" on 562 teachers working in public high schools in Çankaya district in Ankara, Dal and Başkan (2018) determined that the organizational silence levels of the teachers were at the "moderate" level. In the study, there was no statistically significant difference in organizational silence levels of teachers in total and in all sub-dimensions, according to the length of service in the school, educational status, branch variables, however, in the school environment sub-dimension according to gender and age variable, and in the professional seniority variable, there was a statistically significant difference in the total organizational silence and isolation sub-dimension.

Çetindere (2019), in his master's thesis titled "Examination of the Relationship Between Perceptions of Organizational Silence and Motivation of Teachers", which he conducted with 383 primary and secondary school teachers working in Beşiktaş, Şişli and Kağıthane districts of Istanbul, found that contrary to almost all research results in this field, there is a positive and significant relationship between teachers' perception of silence and motivation. Accordingly, while teachers' silence levels increase, their motivation levels also increase, as silence levels decrease, motivation levels decrease as well.

Atalay (2020), in his doctoral study on the effects of transformational and instructional leadership styles on organizational attractiveness and organizational silence, found that teachers exhibit moderate organizational silence perceptions, that the increase in teachers' perceptions of transformational leadership and instructional leadership causes a decrease in organizational silence, older teachers compared to younger age groups have higher perceptions of silence, and higher orgnazitional attractiveness decreases the organizational silence perceptions.

CONCLUSIONS AND RECOMMENDATIONS

The development rates of countries are now measured by their contribution to world science and technology, and countries that do not contribute enough in this sense are defined as underdeveloped countries. In order to qualify a country as a developed country, that country must keep up with this development and change. In order to achieve this in a society, the most important task falls on universities. It is a known fact that universities in Turkey have some physical, academic and administrative problems. Among these problems, physical problems can be overcome in time by providing financial opportunities. But more is needed to overcome academic and administrative difficulties. One of the most important elements needed for universities, which are expected to contribute to the development of the society and therefore the country by producing information freely and independently, to serve their purpose is that the faculty members in the universities can express their ideas unambivalently and clearly. Jealousy, selfishness, fear culture, and anxiety of promotion in a university's academic staff can lead to silence, and this naturally hinders the development of the university and the progress of the country.

While organizational silence behavior is seen in different ways in Higher Education Institutions, there are different reasons behind them. While the fear of being alone in the organization and the efforts to meet their personal expectations naturally lead to grouping, it can also create a prejudice against individuals with different opinions. Organizational silence can emerge as a part of organizational culture (Demir, 2010; Morrison & Milliken, 2000).

Some findings obtained in the studies show that the established culture has a significant effect on organizational silence behavior. This supports Pinder and Harlos's (2001) view that personal interests are considered as a priority within the organization.

While individuals' silence behavior against unfair practices that are reacted to under normal conditions gives a positive result in terms of getting what they want, it can mean that the problems grow exponentially when evaluated from the institution's point of view.

As a result of their research, Demir and Demir (2012) revealed that individuals show organizational silence behavior in different ways in order not to lose their opportunities and at least to preserve the current situation. Academic expectations produced a different result. It has been concluded that individuals act more clearly and in a planned manner in order to meet such expectations, and they act in silence consciously. This situation shows that individuals do not act together with other employees in order to realize their academic and administrative staff, title expectations and

various requests, and explains that wishes and expectations have personal characteristics.

In institutions, personal interests rather than organizational goals play a role, especially on the basis of maintaining the current situation and academic expectations. On the other hand, there are personal interests in organizational commitment and support to management, and organizational goals and interests are also considered. The fact that there are different polarizations under the organizational silence behavior, bringing past events back to the agenda in every management change shows that, no matter what, academics are under a certain pressure.

Çetindere (2019) found a positive and meaningful relationship between teachers' organizational silence and motivation. While almost all of the studies revealed the existence of an inverse relationship between silence and motivation (as silence increases, motivation decreases), Çetindere achieved the opposite result. The researcher concluded that when silence increases, motivation also increases, and when it decreases, motivation decreases. She interpreted this situation as the increase in the perception of silence and accordingly the increase in the perception of motivation, the anxiety of losing his job or trying to survive by doing his job in an environment where it is not accepted.

In line with the research results examined, organizational silence can be prevented and eliminated by taking the following suggestions into consideration.

In order to support the employees to express their opinions clearly on issues that they can contribute to the realization of the corporate objectives, educational managers need to show that they care about their thoughts and that they are important, enable them to participate in the decision-making process voluntarily and to trust the management, establishing communication channels in a way that will allow them to express their positive and negative thoughts comfortably will be beneficial in terms of reducing organizational silence behavior.

Leaders, in order to prevent organizational silence, and to make the institution a more workable and preferable place, should focus on their employees' values and beliefs as well as motivate their employees at the point of doing business, regulate their behavior according to their subordinates, set an example for them, and activate the sense of volunteerism.

Since it is necessary to understand first in order to eliminate the silence behavior, the personal, cultural and psychological dimensions of silence should also be investigated.

In order for any organizational issue in the educational institution to be resolved without turning into silence, an environment should be created where employees can talk freely, management receives regular feedback from their employees, a healthy upward communication channel and trust-based learning organizations exist.

Since organizational silence occurs at the highest level in the manager sub-dimension, managers should be trained on effective communication skills. Guidance and seminars should be given to both teachers and managers to break the silence.

Silence behaviors decrease as a result of teachers' success being supported, their opinions valued, appreciated and encouraged. In this context, activities should be carried out to reduce undesirable behaviors and increase desired behaviors under the leadership of school managers.

In educational institutions, which are a social system where common goals and efforts are carried out together, school-based practices should be increased to develop positive features such as cooperation, mutualization and courtesy among teachers.

Practices should be conducted to increase teachers' self-confidence and self-efficacy in order not to remain silent in the face of situations and events in school and working life. The factors that may cause teachers to experience a perception of silence should be eliminated with social activities and spiritual incentives carried out at certain periods.

In order to produce optimum solutions in the face of problems occurring in the organization, the manager should remove the hard and rigid status barriers between him and his subordinates, and ensure that they can talk freely by creating a safe environment. It should create a clear communication structure with the methods it can apply, preventing the people who want to speak from being labeled with negative expressions such as "complainant, problematic", and instead motivate them with positive expressions such as "brave and courageous". When problems are solved or processes are improved, the ideas and thoughts that lead to these results should be rewarded.

People will not want to work for an organization that they believe or suspect cannot speak freely or be spoken to. For organizations to survive, they need employees who can respond to change, who are not afraid to share information, and who can defend both individual and group ideas. Considering all these, in order to avoid silence and its effects, it is important for the manager to provide an environment where the employees feel free and can express themselves comfortably and without hesitation as a part of the institution.

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Chapter 4

A CURRENT AND SYSTEMATIC APPROACH: EMOTION FOCUSED THERAPY

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In this section, the definition and concepts of the Emotion-Focused Therapy approach, the classification of emotion, the therapy process, and the effectiveness of EFT with individuals, couples and groups in the treatment of many psychological issues are included.

Emotion-Focused Therapy Definition and Concepts

Emotions are associated with our most basic needs and stimulate our well-being in important situations. Emotions also alert us to taking action to meet our needs in these important situations. Because emotions have certain functions, such as organs, they have existed throughout the process of evolution and have survived to the present day. The most general function of our emotions is to adapt to nature and society. By adapting, we increase our chances of survival. For example, in a moment of danger, we are afraid and run away, so that we are more likely to survive (Greenberg, 2013).

Emotions are important for an individual to initiate behavior, to be motivated and organized. In other words, it provides information about how the individual will react in various situations (Cicchetti, Ackerman & Izard, 1995). Knowing what you're feeling provides important information for the current situation, clarifies the best options for the aftermath and offers specific options for changing the emotion if desired (Feldman-Barret, Gross, Conner-Sristensen & Benvenuto, 2001).

Emotions are a fundamental way in the process of taking action. When the role of emotion in an individual's functionality and therapy is examined, it appears to be highly important in a person's life experience, harmonious and incompatible functions, and therapeutic change. Accordingly, Emotion-Focused Therapy is a therapy approach based on emotions. According to Greenberg (2010), Emotion-Focused Therapy (EFT) is an experimentally supported experiential therapy that includes elements of person-centered therapy and Gestalt therapy. Since the late 1990s, Emotion-Focused Therapy theory has been an effective and practical method used in both individual and couple therapy. This approach is based on process-experimental therapy and adopts the principles of the humanistic/experiential approach. This approach activates the psychological counselor more than individual-centered therapy, and adapted the double and empty chair techniques of Gestalt therapy to this structure. Thus, it is thought that the therapeutic relationship and the process of change occur together (Prochaska & Norcross, 2010).

In emotion-focused therapy, clients are assisted to better recognize, experience, explain, make sense of, modify, and use/control emotions in a better way. As a result, clients become more skilled in informing and making sense of themselves and their emotions, as well as they begin to

use these acquired skills and adapt them to their lives (Greenberg, 2010).

Emotion schemas, one of the concepts of emotion-focused therapy, are known as the first source of life, feeling. Emotion schemas are fast, fully lived-in, and action-oriented. Feeling an emotion involves bodily changes and is also associated with an object, situation related to past emotional learning (Greenberg, 2010). Emotional schemas are known to occur quickly, develop automatically, and are noticed through an individual's life.

The development of an emotional schema is shaped by the formation of a structure that constantly develops and transforms itself from the structure of family relations in childhood to adulthood. When a person encounters similar situations in the process of life, schemes take action and allow behavior to occur (Greenberg, 2004). In emotion-focused therapy, emotional schemas containing situational, bodily, emotional, conceptual and behavioral elements are important internal structures that organize life, but they are the implicit, situation-specific internal networks of life that include consciousness, action and identity. Although emotional schemas are accepted as one of the main sources of individual difference in humans, they significantly affect thought and behavior (Greenberg & Paivio, 2003). Unlike the cognitive schema, the emotion schema includes a broad combination of nonverbal and affective feeling. Emotion schemas are a form of the foundation of the self. In short, emotion schemas are an implicit, person-specific, internal construct that includes consciousness, action, and identity. Therapists help clients understand and change their emotion schemas through empathetic listening, revealing or expressive interventions.

One of the important concepts in emotion-focused therapy is needs. Needs come from deep within the person and are influenced by biology, experience, and culture. People can have many needs and these needs arise in response to the events surrounding them. Just like emotions, needs also arise spontaneously in some way. For this reason, being aware of needs and goals guides the person in terms of change and development. In this direction, it is very important in emotion regulation that the individual tries to understand what his needs and emotions are telling him. For example, anger may be a protection against insult, sadness may be a form of communication or relief, pain may be a need for protection and healing. At this point, what the need and emotion are, whether this need is met and how it can be met are the important points emphasized in the EFT (Greenberg, 2012).

Another concept in emotion-focused therapy is emotion coaching. In therapy, counselors are known to play the role of student and therapists

as emotion coach (Greenberg, 2012). Emotion coaches first ensure that the therapy environment is safe and act empathetically. They care about clients' awareness, acceptance and understanding of their feelings and experiences. As emotion coaches, therapists aim to enable their clients to develop techniques for coping with their emotions (Greenberg 2006). Elliott and Greenberg (2007) mention three principles with emotion coaching: empathic adaptation, therapeutic bond and cooperation. It is important to be in the client's life by showing empathic harmony and to understand their feelings. In the context of the therapeutic bond principle, the ability to deal with the client and establish an empathic bond; in the cooperation principle, the decency of cooperation and trust between the client and the therapist is emphasized.

The concept of emotional intelligence is known as one of the concepts that should be acquired by the client in EFT. The reason for this is that the repetition, meaning and expression of emotional experience is seen as the power that activates the change of thoughts. EFT argues that we should consider our emotions as a tool for development and that emotional intelligence should be gained and increased (Greenberg, 2004). In this approach, it is aimed to give the client the ability to solve problems through experience, by focusing on the emotional intelligence of the client (Prochaska&Norcross 2010).

In other psychotherapy approaches, the issue of evaluating emotions as a fundamental element of change in the therapeutic process is not sufficiently focused, discussed, or systematized (Greenberg, 2007). Emotion-focused therapy approach gives more importance to emotions than other approaches, emphasizing that knowing and noticing emotions is very important in the process of emotional change. It also emphasizes that the individual is at the center of the process of change with the potential for change that the individual harbors.

At the source of this importance given to emotion is the idea that the basic function of emotion is the instinctive support of a person in terms of survival and development. Emotional problems experienced by the client are considered as reversed and distorted internal dialogues. In this approach, emotions are seen as a source of subjective information as they are perceived as a reflection of needs and expectations, as well as being the source of behavior. The field of emotion is addressed in a broader framework by adding to this information the forms of perception and social relationships of the individual (Greenberg, 2004).

Types of Emotions

In emotion-focused therapy, Greenberg accepted five of the 14 emotions as basic emotions. These feelings are; sadness, anger, fear, shame

and pain (Greenberg & Paivio, 1997). The normal function of emotion is to quickly process complex situational information in order to give feedback to the person in determining his/her response and prepares the person to act in the most appropriate way (Greenberg, 2012). Not all emotions perform the same function, and different types of emotions need to be distinguished, theoretically and clinically, to guide intervention (Greenberg, 2010). In EFT, emotions are grouped as primary, secondary, and auxiliary emotions:

a. Primary emotions: They are the first and most important reactions that a person gives in the face of situations they face. These emotions include emotions that define the individual, gain their identity, and form their actual reactions. It includes the basic structure of responses from resentment to loss, from anger to aggression. They are often described as reactions related to other emotions and directed at the person. Primary emotions are considered subjective sources of information about how people see themselves (Greenberg, 2004). These emotions are considered in two categories as adaptive and maladaptive primary emotions.

Primary adaptive emotions; These are the feelings aimed at protecting life such as anger against violence, sadness against loss, fear against threat, which give priority to the individual's survival and coping skills and value life and well-being. E.g; If someone is threatening to harm your children, anger is an appropriate emotional response here because it allows you to take a confident, assertive stance to end the threat. Fear is an adaptive emotional response to danger and prepares us to respond appropriately to the situation, such as avoiding or mitigating danger, by freezing or fleeing if necessary (Greenberg, 2012).

Primary maladaptive emotions are; they are also direct responses to situations; however, they do not help the person to deal constructively with the situations that illuminate them. They are debilitating, destructive, feelings that they regret to live and express. It is mostly based on past learning. incompatible feelings; They are mostly feelings arising from traumas, past hurts, unfinished work towards important people for the individual. For example, a vulnerable client may have learned, while growing up, that intimacy is followed by physical and sexual abuse in general. Thus, this client will perceive intimacy or caring as a potential violation and will automatically respond with anger and/or rejection (Greenberg, 2012).

Regulation and transformation of maladaptive emotions is considered important in the EFT approach, and it is thought that secondary emotions should be regulated first in order to reach primary cognitive and emotional states (Greenberg & Watson, 2006).

b. Secondary emotions: They are defined as improved defensive responses to primary emotions and internal processes. Although they are a concealer of emotion, which is the main source of emotional life, they can also contain emotional reactions to gender roles. It is the emotions that clients often describe as distressed and want to get rid of (Greenberg, 2004). Although it is emotional reactions to primary emotional states experienced in the face of events, it contains more learning elements. For example, a man who encounters rejection and begins to feel sad or fear may be angry at himself for being either angry or afraid of rejection, even when anger is functional or inappropriate (Greenberg, 2012). Clues that can help distinguish primary and secondary emotions are given in Table 1.

Table 1

Emotion Evaluation Criteria

Type of Emotion	Characteristics of Emotion
Primary Adaptive Emotions	Alive and new.
	Felt in that moment in response to changing situations.
	This feeling changes when situations change.
	Fast and action-oriented.
	Felt whole and deep.
	Supports attachment relationships and increases internal harmony.
Primary Maladaptive Emotions	Old and familiar.
	Very intense and dominant.
	It does not change with status changes.
	Difficult, deep and overwhelming.
	Often related to the person himself/herself and is part of the person's identity.
	Destroys relationship bonds and internal harmony.
Secondary Emotions	Generic and not exclusive.
	It's not exactly about the person himself/herself.
	Includes symptoms of depression and mental disorder.
	An emotion may be related to another emotion (e.g. fear of sadness)
	This type of emotion produces more thoughts.

(Obtained from Greenberg, 2015, p.173)

c. Instrumental emotions: These are emotions described as controlling others or influencing them. For example; crocodile tears to gain the support of others; anger to rule; often shame can be used to consciously indicate one's suitability for social structure. A person can respond consciously or habitually, automatically or unconsciously. In both cases, the representation of emotion is independent of the original emotion response one would give to the situation, at the same time, this

expression convinces some forms of inner sensory experience. These emotions can be called false emotions (Greenberg, 2012).

Therapy Process

In therapy process, clients are supported in recognizing, discovering, interpreting, transforming, and managing their emotions flexibly (Greenberg, 2010). According to EFT, the therapy process consists of three main phases: bonding and awareness; evocation and exploration; transformation and alternative creation (Greenberg, 2012).

Stage I: Bonding and Awareness (Access to Emotion): This stage consists of increasing emotional awareness and expressing emotion (Greenberg, 2013). At this stage, every detail of the expressed emotional experiences is given importance by establishing an empathic bond with the client. With the messages and reactions given, the clients are made to feel that they are in a safe environment. Collaboration on the tasks and goals of the therapy process at the initial stage is of great importance at this stage (Watson, Goldman, & Greenberg, 2007).

Stage II: Evocation and Exploration (Understanding & Regulating Emotion): This stage includes the stages of encouraging the client's emotion regulation, distinguishing between primary and secondary emotions, and reflecting on emotion. During this phase, emotions are activated and intensified as needed. The purpose of the association and exploration of emotion is to reach the deepest level of primary emotion. At this stage, Gestalt techniques such as empathic association technique, focusing, empty and double chair applications are used. At these stages, the client's re-experiencing their emotions in therapy comes to the fore (Greenberg, 2013).

Stage III: Transformation and Generation of Alternatives (Transforming Emotion): This stage includes replacing emotion with emotion and replacing emotion with new interpersonal experience. In order to make sense of emotional experiences, it is supported by reflection skills and the acceptance of new feelings is ensured. By reaching the primary emotion, the client begins to create alternative ways of emotional, cognitive and behavioral responses. As the client has new experiences in his emotional world, he becomes more integrated with himself and begins to create new meanings. The therapist's role here is to reinforce the change experienced by enabling the client to use their new emotions as a power and to provide experience in new interpersonal relationships.

According to EFT, emotion is reconstructed. The therapy process continues in the form of defining primary and secondary emotions, adaptive and maladaptive emotions, and thus, the client has alternative behavioral

paths with the discovery of new emotions. The central mechanism of change is the process of creating new meanings that arise with the emotional process experienced in the therapy process (Greenberg & Pascual-Leone, 2006; Greenberg & Bolger, 2001).

Principles of Emotional-Focused Therapy Process

According to EFT, emotional change is based on six basic principles as seen in Figure 1. These principles are listed as a) emotional awareness, b) expression of emotions, c) regulation of emotions, d) reflection of emotions, e) transformation of emotions, f) corrective emotional experience (Greenberg, 2010).

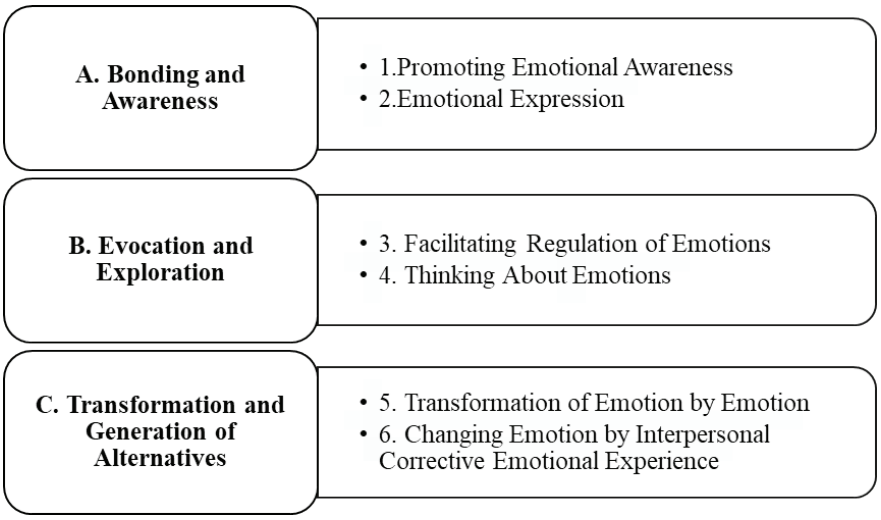
Emotional Awareness: According to Lane and Schwartz (1987), emotional awareness is defined as the ability to recognize one's own and others' emotions. Emotional awareness emerges gradually from the differentiation and then integration of emotional information. It involves knowing about the emotion at that moment, different from the experience and expression of the emotion. In addition, awareness of emotions includes experience and includes not only experiencing emotions, but also thinking about emotional experiences (Croyle & Waltz, 2002).

Expression of Emotions: According to the EFT, the expression of emotions has a purpose. This aim is not to provide a psychological release. The main purpose here is to turn to stronger emotion instead of that emotion or to reveal previously postponed emotions (Greenberg, 2010).

Regulation of Emotions: According to Greenberg (2010), we seek certain emotions and want to feel them, because the feelings they create help us survive. We don't always try to feel good; we also try to meet/achieve our needs/goals/wants. We also want to feel calm, joy, pride, excitement, interest, as well as not feel pain, shame, and fear. Therefore, seeking emotion is an important motivating force. Regulation of emotion is also one of the main motivators of behavior. Emotional regulation skills include activities such as naming the emotion, recognizing the emotion, tolerating the emotions, creating the distance to work with the emotions, increasing the tendency to positive emotions, and relaxation with breathing exercises.

Figure 1

The Relationship of Emotional Change Process and Basic Principles



(Obtained from Greenberg, 2013).

Reflection of Emotions: Reflecting emotions gives a different perspective to emotions by allowing clients to express their experiences in a different way. With the effective use of this method, by defining different needs, thoughts, feelings and goals; it is ensured that the clients reveal the main causes of their emotional reactions (Greenberg, 2010).

Transformation of Emotions: In the EFT process, dysfunctional emotions are transformed into functional ones and experienced. In this principle, the aim is not to destroy or erase the emotion, but to replace it with another emotion after discovering maladaptive emotion. This stage is a difficult stage for the client and the therapist. At this stage, it is aimed that the client realizes and re-experiences maladaptive emotions and transforms them into new emotions in line with their needs (Greenberg, 2010).

Corrective Emotional Experience: It is the last step of emotional change. In this principle, it is emphasized that the emotions worked in therapy, especially the transformed emotions, are experienced in interpersonal relationships and in new life (Greenberg, 2010). At this stage, the relationship between the client and the therapist is important. It is critical for the therapist to encourage the client and use empathic techniques and skills (Greenberg, 2013).

The Effectiveness of EFT

When the studies conducted related with EFT are examined, it is seen that there are studies on individual therapy, couple therapy and group therapy.

As a result of many studies on the effectiveness of EFT, Greenberg and Paivio (2003) stated that it is not appropriate to apply this approach to individuals who are psychotic and at risk of suicide, and to individuals who need severe psychological help; instead, they state that it can be applied to individuals who experience depression, anxiety, childhood traumas and life problems. Watson and McMullen (2005) also state that EFT is effective in issues such as trauma, stress disorders, depression, family and sexual problems, and communication problems. Similarly, Johnson and Wittenborn (2012) stated that EFT is used in many different cultures, and also the solutions of life periods, sexual orientation, and various problems. These include areas such as anxiety, depression, trauma, abuse, forgiveness and attachment.

Watson, Goldman, and Greenberg (2011) investigated the effectiveness of EFT for depression in a case study. 16 interviews were made with the client, and the stages of emotion-focused therapy were followed. At the same time, two chair and empty chair techniques were used. As a result of the research, it was seen that the depression scores of the client decreased from 24 to 14. At the same time, it was stated that the client suppressed his emotions less, behaved less reactively, and coped with his problems more differently after 16 sessions.

Another study compared EFT and pharmacotherapy intervention methods for the treatment of major depressive disorder. Eighteen couples, one of the female couples, diagnosed with major depressive disorder participated in the study and 12 couples completed the 16-week study. As a result of the research, both interventions were found to be effective in reducing symptoms. At the same time, it was stated that the results of the EFT were slightly more improved. As a result, it was stated that EFT can be said to be effective in the treatment of major depressive disorder and in stressful situations (Dessaulles, Johnson, & Denton, 2003).

Dolhanty and Greenberg (2009) conducted a single-subject study examining the effectiveness of EFT in the treatment of eating disorders. According to the results of the study conducted on a 24-year-old female patient hospitalized in the eating disorder service and terated with EFT interventions, it was concluded that the symptoms of eating disorders decreased and the ability to cope with negative emotional states increased.

Paivio and Nieuwenhuis (2001) studied the effectiveness of EFT with adults who were abused in childhood. 32 adults participated in the study and 20 weeks of individual psychotherapy was applied. This therapy is focused on emotion theory and experiential therapy. As a result of the research, the clients showed significant improvements, it was found that their sadness and distress were reduced and persisted for nine months.

In another study conducted with people who were sexually abused in their childhood and their partners, it was found that their relationship satisfaction increased significantly, trauma symptoms decreased and there were changes in their thematic analysis. It has been stated that the effect of EFT is important in reducing trauma symptoms such as emotional disorders and increased attention (MacIntosh & Johnson, 2008).

Byrne, Carr, and Clark (2004) evaluated the effectiveness of behavioral couple therapy and emotion-focused couple therapy while studying stress in couples. They reviewed 20 studies, 13 of which were behaviorist and 7 were emotion focused. As a result of this research, EFT was found to be more effective than problem-solving therapy, but less effective than integrated systematic therapy.

Emotion-focused couple therapy has also been studied on the forgiveness processes of couples. Menesess and Greenberg (2011) studied with eight women who were cheated on by their partners. Forgiveness scores and unfinished works were evaluated within the scope of the research. While four of the women forgave their partners, four did not. Four forgiving women were paired with their partner in therapy and attended sessions together.

Greenman and Johnson (2012) applied emotion-focused couples therapy to individuals diagnosed with posttraumatic stress disorder in one of the couples. They thought that social support, attachment theory, and EFT were important in reducing the symptoms of posttraumatic stress disorder. They continued their research with a couple who were 40 years old and had a child. The woman (Joyce) of the couple has a diagnosis of PTSD. Emotion focused couple therapy consists of three stages. In the first stage, it is aimed to find the source of the client's anger behavior, to examine the fear of losing his partner (Peter), and to help his partner become more accepting towards him. In the second stage, it is aimed to face emotions and how they are reflected in their relationships. In the third stage, it was aimed for the couple to learn to establish an emotional bond again and to break the negative interaction chain. As a result of this study, emotion focused couple therapy was found to be an effective component in PTSD. In particular, emotion regulation was found to be effective on symptoms such as isolation, recollection, and deterioration.

Witterborn, Culpepper, and Liu (2012) also worked with men to learn about the effectiveness of emotion-focused therapy in depression. A married couple (John and Jill) for 16 years participated in the study. John shows depressive symptoms and the couple seeks therapy because they have conflict over almost everything. The applied EFT consists of three stages. In the first stage, the therapeutic relationship is established with the client, then the negative interaction cycle is discovered, aggressive behaviors and introversion behaviors are observed. In the second stage, the therapist follows this cycle and emphasizes the couple's acceptance and understanding of each other's feelings. In the final stage, a more positive interaction chain is created. As a result of the research, it was found that depressive symptoms decreased and relationship satisfaction increased.

McQueeney, Stanton, and Sigmon (1996) investigated the effectiveness of emotion-focused group therapy and problem-focused group therapy in their study with women with fertility problems. 29 women with reproductive problems participated in the study and the group therapy they attended included six sessions. As a result of the study, it was stated that women who participated in the emotion-focused therapy group showed faster development, their depression levels decreased and their well-being levels increased.

Leone, Bierman, Arnold, and Stasiak (2011) studied 66 men who were detained in prison and showed violence to their intimate partners. The treatment applied consists of the integration of many approaches. Empty chair technique was used for awareness, reflection and empathy, and EMDR was used to help clients get rid of their traumatic experiences. This group work is a time-limited and closed group. The first six sessions of the group were structured as emotional change and the last six sessions as relationship change. The aims of this program are a) working with emotions related to traumatic life experiences (parental blame, sexual abuse or abandonment), b) developing focus and empathy, c) developing behavioral techniques for regulating emotions, d) developing awareness of others' emotions, e) using cognitive restructuring to improve self-esteem, f) expressing feelings and needs clearly, g) developing relationships, h) developing communication skills for conflict resolution, i) developing empathy for the abused partner. At the same time, homework assignments were given to the clients in order to achieve these goals. It was found that people in the treatment group were able to control of violence themselves better.

When group studies based on the Emotion-Focused Therapy approach were examined, in one of these studies, group therapy based on emotion-focused therapy for 12 weeks was applied to six women diagnosed with eating disorder. Group sessions were carried out under two headings, namely the empty chair application and the discussion of the effects of

the empty chair. As a result of the research, several themes emerged such as striving to stop negative thinking, recognizing destructive effects, recognizing and accepting avoided emotions, accepting needs, and finding the group valuable (Brennan, Emmerling, & Whelton, 2015).

Wnuk, Greenberg, and Dolhanty (2014) applied 16 weeks of group therapy based on emotion-focused therapy to 14 women diagnosed with bulimia nervosa. In the group process, both double chair and empty chair techniques were applied. At the end of group therapy, women reported that episodes of binge eating decreased, and that their emotion regulation and self-efficacy perceptions improved.

In a nine-week EFT-based group study with eight people diagnosed with anxiety and depression, the empty chair technique was applied to the participants. As a result of the quantitative analysis, no difference was found in the depression and anxiety levels of the participants. As the reason for this; Reasons such as the difficulty of measuring emotion regulation and the inadequacy of the number of individuals for analysis were shown as the reason of no difference (Robinson, McCague, & Whissell, 2014).

Ivanova (2013) compared the group based on the EFT approach with the group based on motivation and skill development, and conducted the research with individuals diagnosed with eating disorders. The emotion-focused group lasted for 16 weeks and 19 people participated in the group. The other group lasted 16 weeks and 13 people participated. As a result of the study, three people completed the group based on motivation and skill development, and 12 people completed the group based on emotion-focused therapy. The results showed that EFT group have a high value in continuing treatment and completing the program, and this approach should be used in patients' participation in treatment.

In the study conducted by Gençoğlu (2012), emotional awareness training based on emotion-focused therapy was studied on the optimism levels of young adults. In this study, for improving emotional awareness, a training program was prepared that includes practices such as recognizing emotions, developing empathy skills for one's own and those around them, recognizing primary and secondary emotions, recognizing emotional schemas and internal dialogues. This training program consists of ten sessions. There are 24 people in total in the experimental and control groups. As a result of the ten-session training program, it was found that the optimism levels of young adults in the experiemnetal group increased.

In another study, emotion-focused group counseling were conducted with divorced women. In her research, Canbulat (2017) found that there was a significant increase in the emotional awareness levels of divorced women who participated in emotion-focused group counseling as a result

of 16 sessions, and this increase was permanent. At the same time, it was stated that there was an increase in the psychological well-being levels of divorced women in the experimental group but this increase was not significant. The qualitative results of the study were grouped under two categories as "Contribution" and "Emotion Focused Group Counseling". When the Contribution category was reviewed, four themes including level of emotional awareness, psychological wellbeing, adaptation after divorce and metaphors emerged. In the context of Emotion Focused Group Counseling category, three themes emerged including techniques, group leader and recommendations regarding group structure. Divorced women in emotion-focused group counseling, provided recommendations regarding session number, session duration, session frequency and physical environment.

Conclusions and Recommendations

Emotion-Focused Therapy is an up-to-date and new approach, mainly because it keeps emotions in the focus of therapy. Emotions affect the individual in every moment of his or her life. In this therapy approach, it is extremely important for clients to be aware of their emotions, to distinguish between adaptive and maladaptive emotions, and to be able to replace emotion with emotion. The main purpose of EFT is to strengthen the self by regulating the emotions of the individual and creating new meanings. Many studies are carried out to examine and evaluate this aim.

In the light of all these studies aforementioned, it is seen that there are findings on the effectiveness of EFT in individual, couple and group studies. In addition to the fact that EFT works with many different cultures and life periods stemming from its view of human nature (Johnson & Wittenborn, 2012), it also works on specific issues such as trauma, depression, eating disorders, anxiety, family communication, attachment, we can conclude that preparing manuals on these subjects and specific treatments can be very instructive and useful for mental health practices. At the same time, an important point in EFT research is that the studies are tested with retention tests. Among the strengths of this approach are the fact that the effect of EFT is permanent, both in experimental studies and in studies where EFT techniques and structures are compared with other therapy approaches and their effectiveness is tested (Byrne, Carr, & Clark, 2004; Hollon & Ponniah, 2010; Brennan, Emmerling, & Whelton, 2015; Canbulat; 2017).

Despite its strengths, EFT has some limitations as mentioned in the research studies. One of them is that EFT works longer and systematically within the scope of issues such as trauma, abuse, anxiety, depression. In these studies, it was stated that the number of sessions was insufficient due to reasons such as the short duration of people's emotion regulation and

observation of emotion regulation, and the fact that working with emotions takes place with more internal processes. In studies where the number of sessions was 16 (Wnuk, Greenberg, & Dolhanty, 2014; Ivanova, 2013), the results regarding the effectiveness of EFT have been observed and it is recommended that the number of sessions be 16 or more. However, this recommendation also causes the number of members to be insufficient for quantitative analysis, especially in group therapy studies. Another limitation stated in the studies is that it is difficult to measure emotions and emotion regulation. Although measurement tools are used in studies, it is stated that measuring emotion regulation only with quantitative measurement tools is insufficient (Robinson, McCague, & Whissell, 2014).

In addition to being a new and current therapy approach, Emotion-Focused Therapy has studies that have been found to be effective in the fields of individual, couple and group therapy. The fact that EFT is effective on trauma, abuse, depression, anxiety, attachment, family communication as well as life skills, motivation, and optimism is extremely important for the well-being of the individual. Moreover, the existence of a current and new therapy approach in the mental health fields including counseling and psychotherapy will also make significant contributions to the practitioners. In this direction, it is thought that it will be beneficial to increase individual, group and couple therapy practices with adults and to make practices in the areas of anxiety, depression, trauma, abuse, forgiveness, attachment, sexual orientation, which are effective areas of EFT. It is also known that EFT has been studied in many different cultures. Therefore, conducting studies specific to different cultures or practices that combine different cultures will also contribute to seeing the effects of EFT.

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Chapter 5

AN ANALYSIS OF PRESERVICE TEACHERS' CONDITIONAL REASONING INTERPRETATIONS

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INTRODUCTION

Development of logical reasoning which is part of higher order thinking skills is one of the most important goals of education (Zohar and Dori, 2003). Logical reasoning supports critical thinking skills, which are among the important 21st century skills (Bronkhorst, Roorda, Suhre and Goedhart, 2020; Liu, Ludu and Holton, 2015). Critical thinking skills which is beneficial to teach deductive reasoning require the use of different types of reasoning methods (induction, deduction, etc.) (Hatzikiriakou and Metallidou, 2008). The development of logical thinking among children is one of the main objectives of teaching programs all over the world. Deductive logic is also essential for the development of argumentation skills that enable students to recognise and identify strong and inconsistent arguments (Hatzikiriakou and Metallidou, 2008). Milne (2004) described the educational contributions of deductive logic as follows: logic as therapy, as a toolkit, and as a body-of-knowledge. Through such contributions logic makes it possible for students to express themselves, to improve their argumentation skills, their logical-mathematical and abstract thinking skills (Hatzikiriakou and Metallidou, 2008). Therefore, it is very important that teachers can use logic as a tool for students to develop some higher order skills such as critical thinking, logical thinking, and argumentation (Bronkhorst, Roorda, Suhre and Goedhart, 2019).

Research suggests that the logical thinking skills of preservice teachers are at lower levels (Damarin, 1977; Fettahlıoğlu, 2018; Hatzikiriakou & Metallidou, 2008; Yüzüak and Dökme, 2019). For instance, in the study by Yüzüak and Dökme (2019) the level of logical thinking was analysed among pre-service classroom teachers and pre-service science teachers. They concluded that the pre-service teachers' logical thinking is not at the sufficient level. Fettahlıoğlu (2018) found that pre-service science teachers' logical thinking skills are at the medium level. In another study it is reported that the logical thinking levels of the pre-service classroom teachers and pre-service mathematics teachers sampled significantly vary and that this difference is in favor of the preservice mathematics teachers (Hacıömeroğlu and Hacıömeroğlu, 2018). It is seen that the studies examining the logical thinking levels of the pre-service teachers are generally in the fields of science and mathematics (Fettahlıoğlu, 2018; Hacıömeroğlu and Hacıömeroğlu, 2018; Yüzüak and Dökme, 2019). It has been reported that even in these disciplines that support the development of logical thinking, the reasoning skills of pre-service teachers do not develop sufficiently (Fettahlıoğlu, 2018; Yüzüak and Dökme, 2019). Durand-Guerrier (2003) also found that undergraduate mathematics students and mathematics teachers tend to exhibit a non-mathematician attitude towards reasoning in non-standart situations. The reason for that is

reported as the fact that they could not make of sense the distinct concepts of conditionals (Durand-Guerrier, 2003). For instance, teachers sometimes attempt to explain the propositional conditional using examples from daily life which causes incorrect reasoning. Morris (2002) carried out a study on a sample of 30 pre-service teachers and asked the participants to deal with the theorem stating '…n as a counting number produces the n^2+n which is always an even number." (p. 86) using one of four conditionals which contain deduction and inductive statements. The participants were asked to report whether or not these conditionals are correct proofs of the theorem. It is found that for the participants it is hard to confirm the inductive statements as valid proofs of the theorem. In another study it is concluded that mathematics teachers experienced difficulty in proving the theorems using formal proof logic (Barkai , Tsamir, Tirosh and Dreyfus, 2002).

Some studies emphasize the importance of logic knowledge as well as the development of logical thinking skills within the scope of certain disciplines such as science and mathematics (Hatzikiriakou and Metallidou, 2008). For instance, Lehman and Nisbett (1990) found that there is a significant correlation between the number of mathematics courses taken and the conditional reasoning skills for the undergraduate science students. In another study, the correlations between the adults' basic math skills and their deductive reasoning skills were analysed (Morsanyi, McCormack and O'Mahony, 2018). It is found that the conditional inferences are related to the basic mathematics skills. In addition, research suggests that the mathematical skills of both children and adults are related to their transitive reasoning skills (Handley, Capon, Beveridge, Dennis and Evans, 2004; Morsanyi, Devine, Nobes and Szucs, 2013). Inglish and Simpson (2008) examined the reasoning skills of the undergraduate mathematics and arts students and found that the conditional reasoning performance of the math students much better than that of arts students. In a separate study the reasoning skills of the students at these departments were analysed in terms of the changes over a year, and it is concluded that there is no change for the arts students in one-year period whereas the reasoning skills of the mathematics students significantly improved in the same period (Attridge ve Inglish, 2013). In another study the reasoning strategies of high school students were examined in the activities of formal reasoning and everyday reasoning (Bronkhorst, Roorda, Suhre and Goedhart, 2019). The participants were chosen among those who were attending a mathematics course containing logical reasoning topics. The activities of the invalid syllogisms were given in daily language using both symbols and not symbols. It was found that the participants used the rule-based reasoning strategies in the activities containing familiar items and provided correct

answers. However, in the unfamiliar activities the participants employed the informal interpretations and provided answers based on their prior knowledge. In the syllogism activities which were stated in a formal way the students incorrectly interpreted the words such as all, some, etc. The difficulty in comprehension and interpretation of the syllogisms has been also reported by others (Stenning and Van Lambalgen, 2008).

It is suggested that logic education should be given to both pre- and in-service teachers to improve their reasoning process (Damarin, 1977; Eisenberg and McGinty, 1974; Hatzikiriakou & Metallidou, 2008; Janson, 1975). For instance, Hatzikiriakou and Metallidou (2008) analysed the effects of logic courses on deductive reasoning skills of pre-service elementary school teachers. The study included a control group and an experiment group. In the follow-up test administered six months after the study it was concluded that the logic course had positive effects in supporting the logical reasoning ability in the experimental group (Hatzikiriakou and Metallidou, 2008). In the study by Damarin (1977) the reasoning processes of the pre-service teachers were analysed in relation to logic activities. It was found that the participants tended to produce answers which reflect conditional and biconditional situations. Although there are studies which examine the deductive reasoning processes of individuals from early ages to adulthood, studies that examine the logical thinking processes of teachers or preservice teachers through pure logic tasks are very limited (Damarin, 1977; Eisenberg and McGinty, 1974; Hatzikiriakou and Metallidou, 2008; Janson, 1975). Therefore, it is important and necessary to examine preservice teachers' and teachers' reasoning processes (Damarin, 1977). The data to be obtained as a result of this study are important in terms of examining the logical reasoning process of preservice teachers and determining their deficiencies. In other words, the analysis of the logical reasoning of pre-service teachers is very important to reveal their insufficiency in this regard.

Theoretical Background

Deductive Reasoning in Education System

Deductive reasoning is a closed method of reasoning in which the body of the argument contains all relevant details (Brisson, Markovits, Robert and Schaeken, 2018). Conditional reasoning which is also known as if-then statements is one of the significant components of the deductive reasoning (Datsogianni, Sodian, Markovits and Ufer, 2020). Conditional reasoning may have different levels difficulty depending on the structure of antecedent and conclusion parts and of the reasoning type (Zandieh, Roh and, Knapp, 2014). Research suggests that there is a correlation between correct conditional reasoning and higher-level thinking skills.

For instance, in the study by Kılıç and Sağlam (2014) it is reported that those individuals who correctly reason about conditionals have higher levels of skills in understanding the genetic concepts in contrast to those who incorrectly reason about conditionals. It is also added that the latter group tends to employ the rote memorization techniques instead of conceptual understanding techniques (Kılıç and Sağlam, 2014). Therefore, it can be argued that learning to reason about conditionals has positive effects on individuals' other learning techniques. It is generally assumed that deductive reasoning is one of the higher level skills and students may acquire reasoning skills in the advancing years (Stylianides, 2007). But deductive reasoning is not taught at the secondary level, a period in which students can use and practice their reasoning skills at the highest level (Byrnes, 2001; Piaget, 1972). Instead, deductive reasoning skills are implicitly and indirectly given in the courses such as science and mathematics (Leighton, 2006). It is generally assumed that students can acquire higher level skills such as deductive reasoning while learning subject knowledge and procedural skills in science and mathematics courses (Leighton, 2006). In the calculus courses the majority of the freshman students are found not to define the logical connections between examples and counterexamples in explaining the concepts and theorems (Liu, 2009). Inadequate logical thinking is a condition that can seriously limit students' critical and analytical thinking skills. If university students fail to understand deductive reasoning, they may not be able to grasp complex mathematical inferences and draw correct conclusions from scientific research (Liu, Ludu and Holton, 2015). Galileo Galilee defined mathematics as the language of science. Two features of mathematics make it the language of science and make it different from other natural languages. The first of these is that mathematics is based on valid logical inferences. The second is that the math symbols and their interpretations are precise without any ambiguity. Logical inferences form the basis of mathematics, science, and engineering and technology that require reference to science and mathematics (Liu, Ludu and Holton, 2015).

Deductive reasoning cannot be improved only through discipline-specific activities. For instance, Hoyles and Küchmann (2002) report that those students who have better performance in mathematics courses may have some difficulty in dealing with the operations containing the "if p then q" statements. A similar finding is also reported in another study. It is found that the performance of the participants didn't differ significantly at the end of a 40-hour formal logic training (Cheng, Holyoak, Nisbett and Oliver, 1986). In a study majority of the mathematics students cannot develop the proof in a proper manner. Because they did not recognize the logical process that support the steps of mathematical proofs (Epp,

2003; Bakó, 2002; Guha, 2014). In another study, the pre-service teachers attending a mathematics course were asked to make a decision over the mathematical correctness of the inductive and deductive verification statements (Martin and Harel, 1989). It is found that 52% of the participants considered the incorrect deductive arguments as valid ones in the unfamiliar contexts. Therefore, it may be argued that better performance in the courses such as science and mathematics does not always guarantee for the improved logical thinking skills. Therefore, logic education should be given independent of disciplines.

In Turkey logic or logic-related courses are given at high school level and are among elective courses. Students do not take any such course before high school level. In addition, at the teacher training programs there is no specific course on logic. However, preservice teachers are expected to develop students' logical reasoning and critical thinking skills within the context of the lessons they will teach. Students are also expected to gain logical reasoning and critical thinking skills in courses within different subject areas. However, it is only possible in high school that individuals can take a weekly 2-hour logic lesson in which they can learn logic and develop their own reasoning strategies during their 12-year educational experience until they start studying at university. As stated earlier this weekly 2-hour logic lesson is an elective course and its status may vary based on the opportunities at school, attitudes of school admistrators, teachers and students (Can, 2018). There is a paradox here, and students are expected to be able to use their logical reasoning ability, and teachers are expected to develop these skills among students. However, a course in which the rules of logic are taught at schools is only available at the high school level and it is an elective course. In education faculties, there is no logic course that may support pre-service teachers to develop their logical inference skills, to learn reasoning methods and to use logic rules in other courses. In this context, examining the logical reasoning processes of preservice teachers is considered important in terms of identifying the shortcomings of the preservice teachers in this regard and providing some suggestions to eliminate or at least reduce these shortcomings.

Conditional Reasoning

Conditionals are critical components of logical reasoning. In daily life and in other contexts the use of conditionals generally meets the needs of individuals in relation to logical patterns. Conditionals are used in many different contexts and require a communication type which is based on hypothetical relations which are the basis of the deductive reasoning. Conditionals are expressed through a statement like "if H, then C". Here H denotes the hypothesis or the condition, and C refers to the conclusion.

Inference tasks

In the conditional reasoning tasks, the participants are asked to deal with the following premise: "If P, then Q" and the truth value of either the ancedent (P) or the consequence (Q) (Wong, 2018). Reasoners are asked to make a decision over the truth value of the consequence (if P is given) or of the antecedent (if Q is given). In relation to such an activity there are four basic inference types.

Premise 1 (conditional): If Pınar should write a story, she will study in the library until late hours.

Premise 2 (fact): There is a story that Pınar should write.

With such two premises individuals may generally reach the conclusion "she will study in the library until late hours." This inference is entitled modus ponens (MP) which requires to deduct a conclusion using the conditional and antecedent. Another type of inferences is modus tollens (MT) which includes a given rejection of the conclusion (for instance, Pınar will not study at the library until late hours.) to reject the antecedent (for instance, There is no story that Pınar should write). In the MP, the antecedent is affirmed (P is true), and a logical conclusion, "Q is true", can be drawn. In regard to the MT, the consequence is rejected ("Q is false"), and logical conclusion of "P is false" is determined. As a result of the affirmation of consequence (AC), the consequence is affirmed ("Q is true"), but it does not lead to a certain conclusion because the consequence can be the result of other antecedent. As a result of the denial of the antecedent (DA), the antecedent is denied ("P is false"), but this does not mean that the consequence should be denied as well. Table 1 presents several examples of these inference types.

Conclusion Type	Affirmative	Negative
Valid	Modus ponens (MP) If he wrote then she understood. He wrote. Therefore, she understood.	Modus tollens (MT) If he wrote then she understood. She didn't understand. Therefore, he didn't write.
Invalid	Affirmation of the consequent (AC) If he wrote then she understood. She understood. Therefore, he wrote.	Denial of the antecedent (AC) If he wrote then she understood. He didn't write. Therefore, she didn't understand.

Table 1: Examples of Standart Conditional Inferences

In the conditional reasoning the statement "if p, then q" is considered as the major premise. In this statement p is the antecedent and q is the consequent. Conditional inferences also require the existence of a minor statement. In the conditional reasonings the type of the normative correct conclusion differ based on the positive or negative minor premises (Table 1). For instance, if the major premise is "If the sum of two whole numbers is odd, their multiplication is even.", its minor premise can be as follows: "The multiplication of two whole number is not an even number." This minor premise is a negative statement and leads to the following condition: The sum of two whole number is not even (Datsogianni, Sodian, Markovits and Ufer, 2020). In a conventional interpretation, the sum of two whole numbers may be odd and it is enough for their multiplication to be even. But it is not always necessary that the sum of two numbers should be odd to arrive at an even multiplication, for instance, 4x6=24, but their sum is a even number (4+6=10). Concerning the inference types of MP and MT there are absolute results. The minor premise for the AC inference is "Multiplication of two whole numbers is even." (q is true)". However, this premise does not allow us to reach an absolute result about the p and q. It excludes the sum of two whole numbers can be both odd and even. Therefore, the result is "indefinite" and it is not possible to say a certain thing about the truth or falsity of the premise. Similarly, the minor premise of the DA inference is "The sum of two whole numbers is not an odd number." (p is false) does not allow us to give a certain answer about the q or the multiplication of two whole numbers (Datsogianni, Sodian, Markovits and Ufer, 2020).

The Mental Model Theory assumes that in the conditional reasoning process, the results can be interpreted based on the meaning of the premises and the reasoner's knowledge of the content given in the premises (Nickerson, 2015). For instance, the MP inference the premises of p and q are enough to develop a valid deduction. In the MT inference the premises of the not-p and not-q are required to reach a conclusion. However, the AC inference does not allow for any valid conclusion. The requirement for the AC inferences includes the "p and q" and "not-p and q". Although both results are compatible with the minor premise (not-p), the results may differ as q and not-q. Similarly, "not p and not-q" and "not p and q" models are required for the DA inference. The ability to create "not-p and q" forms is important in reaching uncertain correct results for the AC and DA inferences. This skill allows us to generate alternative antecedents which contain the counterexamples that avoid typical errors in the AC and DA inferences.

The information stored in semantic memory is very influential on conditional reasoning. There are two types of this information that seem to

influence conditional reasoning. The first type corresponds to exceptions and inconsistencies in the situation where information is given (Cummins, 1995). For instance, one of the disabling conditions for the truth of the statement "If stones are thrown into the window, the window will break." is the production of the glass from a durable material such as plastic. Research suggests that when there are more than one disabling conditions in the mind, the possibility to reject both the MP and MT inferences increases (Cummins et al., 1991; Thompson, 1994). The second type of knowledge is about possible alternatives to the premise. For example, throwing chairs to the window can also be an alternative premise. For the disabling conditionals, the number of alternative antecedents in memory has a strong effect on responses to the AC and DA inferences. For example, concerning the statement "If stones are thrown into the window, the window will break." the tendency to accept AC inference is less possible in contrast to the statement "If your finger is cut, it bleeds." Because in the first case, the possibility of alternative premises to come to mind, such as a window to which a chair was thrown, the window of a car in an accident, or a glass broken in a storm, may be higher than in the second case. In short, it is about accessing information in semantic memory during reasoning. In other words, the possibility of the reasoner to produce an alternative antecedent in the situation of bleeding except the possibility of cutting the finger may be lower than if the window is broken other than stone throwing (Brisson and Markovits, 2020).

Truth-table tasks

Conditionals can be used to express many pragmatic relationships, such as making promises or threats, as well as to express a number of hypotheses or assumptions in both mathematics and scientific processes (Evans and Twyman-Musgrove, 1988; Wing and Scholnick, 1981). However, here the important point is how the conditionals are interpreted. Debate on this topic is still going on. One of the assumptions on this topic is the probabilistic approach. This approach argues that people see the if-then states as an indication of a very likely relationship between antecedents and conclusions (Evans, Over and Handley, 2003; Evans, Thompson and Over, 2015). On the other hand, the rule-based theories (Braine, 1978) or mental model theory (Johnson-Laird and Byrne, 1991) reject this view of the probabilistic approach. Instead, these approaches argue that if-then are not overt probabilistic situations, but shows the certainty of the relationship (Goodwin, 2014). Especially in order to minimize the effect of pragmatic situations, the types known as basic conditionals are used in the conditional inferences process. Basic conditionals have concrete references both in antecedents and in consequents. However, there is no a clear relationship between these referents (for instance, if something is

blue, then it is round.)

One of the common ways to interpret the conditionals is the use of the truth-table tasks. In such tasks conditional statements are given and then four combinations in which there are true and false antecedents conclusions. For each combination the participants are asked whether or not the conditional sentence show the conclusion is true, false and uncertain. For instance, a conditional sentence like "If P then Q" is presented. The participants are given four combinations which include the true or false forms of antecedents and conclusions: P&Q, not-P & not-Q, P & not-Q and not-P&Q. Next, the participants are asked whether or not the conditional sentence show the conclusion is true, false and uncertain.

For conditional interpretation of if-then statements, individuals should be able to think of three combinations, including the antecedents and the conclusions are correct according to the notation in the truth table (P&Q; not-P&Q and not-P&not-Q). Therefore, P&not-Q indicates that the sentence is false. It is an example of the material conditional interpretation. This type of interpretation is preferred by logicians, but it causes a paradox in daily life. Because not-p is interpreted as true. The other reasoning activities are called biconditional and defective. In biconditional interpretations the conditional sentence "if p then q" is interpreted as "p if and only if q". Defective interpretations have two types: conditional and biconditional interpretations. Defective conditional interpretations include the following: In the case of P&Q if it is said that the conditional sentence is true; in the cases of not-P&Q and not-P&not-Q if it is said that the conditional sentence is not clear and in the case of P&not-Q if it is said that the conditional sentence is false. The defective biconditional interpretations include the following: if the answers in the case of P&Q the conditional sentence is stated to be true; in the cases of not-P&Q and P&not-Q the conditional sentence is false, and in the case of not-P&not-Q the sentence is uncertain, these answers are categorized under the defective biconditionals. Another interpretation includes the answers, which are called conjunctive, where the P&Q state is true and the others are false.

For instance, when the condition sentence like "If a square is pink, then the table is purple." is given, four combinations are presented, including true and false forms of antecedents and conclusions. These are given as follows:

Conditional sentence: If a square is pink, then the table is purple. (If P then Q)

A square is green and the table is purple. (not-P & Q)

A square is pink and the table is purple. (P & Q)

A square is pink and the table is white. (P & not-Q)

A square is blue and the table is green. (not-P & not-Q)

When individuals are given such statements they are expected to choose three combinations for which the conditional sentence is true (i.e., P&Q; not-P&Q; not-P&not-Q). In other words, those individuals who identify the fact that the sentence is true for the statements 1, 2 and 4 make a material inference which is logically desired. Similarly, individuals are expected to state that the conditional sentence is false for the third item which includes the case of P & not-Q. The conjunctive interpretation occurs when an individual states that for the second item the sentence is true, but it is not true for the other items. In the defective conditional interpretation it is stated that it is unknown for the items 1 and 4, it is true for the item 2 and it is false for the item 3. In the defective biconditional interpretation it is stated that the sentence is false for the items 1 and 3, it is true for the item 2 and it is not clear for the item 4.

In this study, which aims to examine the conditional reasoning processes of the pre-service elementary teachers in two different problems in the form of inferences tasks and truth-table task, the following research questions are developed:

- How do the pre-service teachers' conditional inference performances differ according to the inference types and contexts?
- How do their conditional inference performances differ based on various variables (gender, grade level, whether to take logic lesson in high school and booklet type)?
- How do the frequency of pattern of responses (defective conditional, defective biconditional, conjunctive) in the truth-table task (imaginary categorical and basic conditionals) distribute?
- Is there any relationship between the production of defective conditionals (conditional and biconditional) on the truth-table tasks and logical reasoning scores?

In regard to the conditional inferences the performance of the pre-service teachers is analysed taking into their logical responses to four types of reasoning types. They are expected to accept the results of the MP and MT types, but to reject the results of the AC and DA types. Based on the previous findings it appears that in order to give these logical answers one should understand the whole situation which is the basis of the conditional. The defective response pattern given in the truth table task is the most frequent response by the adults. Research suggests that the defective conditional pattern is at the more developed level in terms of the

conjunctive and biconditional interpretations. The defective conditional interpretation is considered to be compatible with the interpretations of the basic types of inference and necessary to provide logical answers to the four types of inference. Therefore, it is hypothesized in the study that there is a positive correlation between the pre-service teachers' logical responses to the basic deduction types and their interpretations for the defective conditionals.

One of the most significant factors which has effects on the conditional reasoning skills in daily interactions is the appropriateness of counterexamples (Cummins, 1995). For instance, we may give the statement "If the radio is turned off, then you will not hear the music." as an example. When the question "The radio is not turned off. Is it necessary that you will hear music?" is positively answered, it is an an example for the invalid DA reasoning. However, there can be a negative reasoning about it. Because it is possible to hear music from television or from another sources such a neighbor listening to loud music. On the other hand, when it is difficult to find alternative examples, people generally tend to accept the AC and DA reasoning. Therefore, in the study concerning the cases of the abstract conditionals it is thought that the reasoning levels of the pre-service teachers would be lower in contrast to the familiar conditional statements. It expected that such cases will be much more frequent in regard to the invalid AC and DA reasoning.

There are different types of reasoning such as familiar and abstract. The conditional reasoning also differs based on the variations of the alternative antecedents. Reasoning in the familiar conditionals involve alternative antecedents that are easy to access. Therefore, it is possible to have logical reasoning for the AC and DA types. However, in the conditional inferences with the abstract contexts it is not so easy to access the alternative antecedents and the reasoners mostly use the statement given. For instance, concerning the statement "if there ise a kop, then there is a kofur" due the fact that the items kop and kofur are not meaningful, it is not possible to develop a connection between them. Thus, in such cases the only way is to make use of the antecedents given. In order to analyse the conditional reasoning skills of the pre-service teachers the statements with different forms (MP, MT, AC and DA) and with different meanings (abstract and familiar) are employed.

MATERIALS AND METHODS

Research Model

Since this study aims to determine the relationship between pre-service teachers' inference skills and defective interpretations, the study is designed as a correlational design research. Correlational research is a

study design in which the relationship between two or more variables is examined without manipulating these variables.

Participants

A total of 147 preservice teachers (43 male and 104 female and their average age = 22 years) from second grade (49%) and fourth grade (51%) was recruited. Of them 32% took logic courses in high school (n=47) and 68% of them did not take any logic course (n=100). All participants were volunteers.

Data Collection Tool

The data of the study were collected through the conditional inferences and truth-table tasks. The data collection tool was developed based on the study by Markovits, Chantal and Brisson (2018). In the first booklet the conditional inferences were given first. In the second one the truth-table tasks were given first. The items on the conditional inferences include both abstract and familiar contexts. The truth-table tasks, on the other hand, contain the basic conditionals and imaginary categorical conditionals.

Conditional inferences with familiar categories

Before presenting the items in this category the participants were given instruction asking them to accept that the rule presented is correct. Next, the rule was given to the participants. Then, the antecedent was given. It was followed by four inferences and the participants were asked to either accept or reject the conclusions. An example of this task is as follows:

Rule: If an animal is a dogs, then it will have legs.

1. An animal is not a dog. One can conclude that:	2. An animal does not have legs. One can conclude that:
The animal has legs.	The animal is dog.
The animal does not have legs.	The animal is not dog.
One cannot conclude if the animal has legs or not.	One cannot conclude if the animal is dog or not.
3. An animal is a dog. One can conclude that:	4. An animal has legs. One can conclude that:
The animal has legs.	The animal is dog.
The animal does not have legs.	The animal is not dog.
One cannot conclude if the animal has legs or not.	One cannot conclude if the animal is dog or not.

Conditional inferences with abstract content

As stated earlier the items on the conditional inferences contain antecedents in abstract contexts. Two items on the conditional inferences

with abstract content were given in the same format that was used for the conditional inferences with familiar categories. The main difference here is that the premises contain abstract and meaningless expressions.

If there is a kop, then there is a kofur.

If there is a zur, then there is a trif.

Truth-table task with basic conditionals

Before presenting the truth-table task the participants were given the following instruction: Different conditional statements are given in the following pages. Some of them contain meaningless words. These words were produced within the scope of this activity. For each statement, you are presented with different situations. For each of these situations, you need to decide whether the situation indicates that the statement is true, or it is false, or whether it does not show that the statement is true or false. Check *true* if the situation shows that the statement is true, check *false* if the situation shows that the rule is false, and check *uncertain* if the situation does not allow you to know whether the rule is true or false. Then, two if-then statements which were produced using the basic conditionals are given on top of the page. These were developed based on the related studies (Markovits, Brisson and Chantal, 2016; Markovits, Chantal and Brisson, 2018).

Conditional sentence 1: If a square is pink, then the table is purple.

Conditional sentence 2: If Elif wears a green sweater, then she will wear yellow pants.

Regarding the conditional sentences given above, four situations were presented in accordance with the combinations that included the acceptance or rejection of the antecedents or the conclusions. Three options were provided for each combination. For instance, following the sentence“If a circle is red, and then the star is black.” the following inferences were given together with the options true, one cannot know, false. Inferences and alternatives were developed in the same format for the second sentence.

1. A square is pink and the table is purple.

This statement shows that the rule is:

True

One cannot know.

False.

Other three statements:

A square is red and the table is purple.

A square is red and the table is white.

A square is blue and the table is pink.

Truth-table task with imaginary categorical conditionals

The items were given in the same format that was used for the basic conditionals and the rules were changed to include imaginary categories. The rules containing imaginary categorical conditionals are as follows:

Conditional sentence 1: If a vehicle is a mandola, then it has black tires.

Conditional sentence 2: If an animal is a kozi, then it has blue wings.

Truth-table task has two types, namely basic conditionals and imaginary categorical conditionals. Basic conditionals are consisted of meaningful terms without a meaningful relation. Imaginary conditionals, on the other hand, include meaningless terms with a meaningful relation.

Procedure

The implementation was carried out in a classroom environment, and the participants were told that they could use as much time as they needed to answer the items. The data of the study were collected in the spring term of 2018-2019 academic year.

Data analysis

Truth-table task

In the truth-table task, the participants' defective reasoning was grouped as conjunctive, defective conditional and defective biconditional. Any example of the material interpretations was not found in the study. Responses which were not categorized under the defective and conjunctive categories were included in the "other" category. The definitions of the participants' defective and conjunctive interpretations are given in Table 2.

Statements	Conjunctive Interpretations	Defective conditional Interpretations	Defective biconditional Interpretations
P & Q	True	True	True
Not-P & Q	False	Irrelevant	False
Not-P & Not-Q	False	Irrelevant	Irrelevant
P & Not-Q	False	False	False

Table 2: Definitions of Defective and Conjunctive Interpretations

Those participants who made the defective conditional and defective biconditional interpretations were given two points since they provided two correct answers in a four-item set about a conditional sentence. Those participants who made the conjuctive interpretations were given 1 point since they provided only one correct answer in a four-item set about a rule.

Conditional inference tasks

In the second step, the responses to the conditional inference items were analyzed. Each of the sixteen conditional inference items containing familiar and abstract contexts was coded as being logically correct or not (1 or 0). Scoring for the MP inference was one point if the answer is "Q is true." Scoring for the MT inference was one point if the answer is "P is false." And scoring for the AC and DA inferences was one point if the answer is uncertain. For all the remaining cases the participants were given 0. In some cases, the participants rejected the basic if-then relation which was also the rejection of the MP inference. However, such an answer also involves the rejection of other inferences indicating that the AC and DA inferences are answered correctly. For each antecedent if the MP inferences are not accepted the logical reasoning score is given as 0. If the MP inference is accepted the logical reasoning score is the total scores for the AC, DA and MT inferences. In this case, a score ranging from 0 to 6 was reached for the two abstract and two familiar antecedents in the inference items.

The total score obtained by the preservice teachers from the conditional inferences items is defined as their logical reasoning score. How these scores, which reflect the inference skills of the participants, changed based on the abstract or familiar context of the items or the types of inference was analysed through descriptive statistics. The correlations between the scores were examined through the correlation analysis. The independent samples t-test was employed to analyse how the preservice teachers' logical reasoning scores differ based on other variables. The distribution of defective conditional, defective biconditional and conjunctive interpretations in the truth-table task items of the participants was defined according to the percentage and frequency values. In addition, the relationship between the scores obtained by the participants in regard to the defective interpretations and the logical reasoning scores was tested by correlation analysis.

RESULTS

In order to answer the first research question the difference between the participants' skills based on the inference types (MP, MT, AC, DA) and based on the contexts given (abstract and familiar) was analysed. It is found that their inference skills in the familiar contexts (M = 4.08 SD =

1.59) is much higher than their inference skills in the abstract contexts (*M* = 2.14 *SD* = 1.38). The total logical reasoning scores of the participants are significantly and positively correlated with their inference scores in the abstract contexts (r = 0,719, p<.01) and familiar contexts (r = 0.80, p<.01). Considering the difference of the participants' logical reasoning scores by type of inference (Tablo 3) it is seen that their inference performance for the DA and AC types is very low with abstract contexts.

Conditional inferences (context)	Inferences types							
	DA		MT		MP		AC	
	M	SD	M	SD	M	SD	M	SD
Abstract	0.37	0.73	1.31	0.87	1.84	0.49	0.62	0.87
Familiar	1.31	0.85	1.48	0.78	1.97	0.21	1.97	0.21

Table 3: Participants' Logical Reasoning Scores by Inference Types

The relationship between the preservice teachers' inference performance in abstract and familiar contexts and their performance in the AC, DA, MP and MT inference types are also investigated (Table 4). The results of the correlation analysis indicate that there is a significant and positive relationship between their inference performance in abstract contexts and their inference performance in all types of inferences. There is a positive and significant correlation between the participants' inference performance in familiar contexts and their inference performance in the MT, AC and DA type inferences. Their inference performance for the MT type inference and their performance for the AC and DA types inferences are found to be significantly, but inversely correlated. In addition, there is a significant and positive correlation between the DA and AC types inferences.

	1	2	3	4	5	6
1.Abstract conditional inference	-					
2. Familiar conditional inference	0.159					
3. MP inference	0.422**	0.025				
4. MT inference	0.190*	0.230**	0.091			
5. AC inference	0.467**	0.548**	0.046	-0.264**		
6. DA inference	0.385**	0.538**	-0.150	-0.216**	0.345**	-

Table 4: Correlations Between Inference Performances by Inference Type and Context

In order to answer the second research question of the study the participants' inference skills are analysed based on the variables of gender, grade level, whether or not taking the logic course in high school and the booklet type. Their inference performance is found not to significantly vary based on gender, $t(145)=1.171$, $p>.01$. The logical reasoning score of the female participants ($M = 6.37$ $SD = 2.32$) is slightly higher than that of the male participants ($M = 5{,}88$ $SD = 2.12$). As stated earlier, the participants either attended the second grade or the fourth grade of a teacher training program. The logical reasoning score of the participants is found not to significantly vary based on the grade level, $t(145)=0.157$, $p>.01$. The logical reasoning score of the participants regardless of the grade level is found to be very similar (for those attending the second grade; $M = 6{,}19$ $SD = 2{,}28$ and for those attending the fourth grade; $M = 6.25$ SD=2.27). It is also found that taking a logic course in high school does not have any significant effect on their performance in regard to the conditional inferences items, $t(145)=0.586$, $p>.01$. Their inference performance is found to be very similar. The mean score of those who took a logic course in high school is found to be 6,06 ($SD = 2.14$), while that of the participants who did not take this course in high school is found to be 6.30 ($SD = 2.33$). Some of the participants were given the booklet containing first conditional inferences (52%) whereas the others were given the booklet which includes first truth-table tasks (%48). It is found that the booklet type has a significant effect on their inference performances ($t(145)=0.20$, $p<.05$). More specifically, the mean scores of the participants who were given the booklet containing first the conditional inference items ($M = 5.87$ $SD = 2.28$) are found to be significantly lower than those of the participants who first solved the truth-table task items ($M = 6.61$ $SD = 2.20$). This difference is statistically significant.

In regard to the third research question the answers of the preservice teachers to the truth-table task items (defective conditional, defective biconditional, conjunctive). As stated earlier no material interpretation was found in this activity. The answers of the participants are grouped into three categories: defective conditional, defective biconditional and conjunctive. As stated earlier some answers of the participants cannot be grouped into one of these categories, but into the category of "other". Table 5 shows the frequency of the answers in the basic and imaginary categorical conditionals:

Interpretation	Basic conditionals (%)	Imaginary categorical conditionals (%)
Defective conditional	29.06	42.5
Defective biconditional	34	19.7
Conjunctive	4.05	1.7
Other	31.6	31.95

Tablo 5: Percentage of Interpretations for Basic and Imaginary Categorical Conditionals

As can be seen in Table 5 the interpretations of the preservice teachers participated in the study in regard to the truth-table task items vary based on the antecedent categories (basic and imaginary). In regard to the basic conditionals the rate of the defective biconditionals is much higher, whereas for the imaginary categorical conditionals the rate of defective conditionals is much higher. The rate of the conjuctive responses is lower in both conditional situations.

In relation to the fourth research question the correlation between the participants' logical reasoning score for the conditional inference items and their defective interpretation scores for the truth-table task items is analysed. The results of the correlation analysis (Table 6) indicate that there is a significant and positive correlation between these scores.

	1	2	3
1.Logical reasoning score	-		
2. Imaginary categorical conditionals (defective inferences)	0.203*		
3. Basic conditionals (defective inferences)	0.200*	0.531**	-

Table 6: Correlations Between the Participants' Inference Performances in Conditional Inferences and Truth-table Task Items

DISCUSSION

In this study, it is aimed to examine the logical reasoning processes of preservice primary school teacher. In addition, the relationship between their inference skills and the frequency of defective interpretations in truth-table task items was examined. In this context, the effects of some variables, namely gender, grade level, whether or not taking the logic course in high school and the booklet type, on their logical reasoning scores are analysed. In addition, their inference performance in regard to the MP MT, AC and DA types is examined based on the antecedents with

abstract and familiar contexts. In the items for the truth-table tasks the frequency of the participants' defective and conjunctive interpretations is found. In addition, the relationship between the participants' performance in regard to the truth-table tasks and their logical reasoning scores is also analysed. Mental model theory assumes that if the answers to the AC and DA type inferences are "uncertain", it indicates a higher probability of reaching potential alternatives (de Chantal and Markovits, 2017). The proposition that supports the production of many possible alternative antecedents increases the probability of an "uncertain" responses for the AC and DC type inferences (Cummins, Lubart, Alksnis and Rist, 1991; Cummins, 1995). In the current study the inferences types were presented to the participants in two different contexts, abstract and familiar contexts. The analyses indicate that the participants have very lower levels of performance for the AC and DA type inferences in the abstract contexts. In other words, they unlikely provided "uncertain" responses for the AC and DA type inferences in the abstract contexts. For instance, when they were given a rule like "If there is a kop, then there is a kofur.", the rate of the possibility that they would give an "uncertain" answer is nearly 20% for the DA type inference. It is around 30% for the AC type inference. When they were given a rule like "If a plant is a cactus, then it will have thorns." the rate of the possibility that they would give an "uncertain" answer is nearly 60% for the DA type inferences. It is around 65% for the AC type inference. Consistent with the previous findings (Gazzo Castañeda and Knauff, 2020) in the present study it is found that in abstract contexts, where the participants could produce fewer alternatives, their performance for the AC and DA type inferences also decreased considerably. It is consistent with the previous findings (Daniel and Klaczynski, 2006; Venet and Markovits, 2001; Wong, 2018) in that the rate of giving correct answers to the MP and MT type inferences is higher and that individuals have difficulty in dealing with the AC and DA type inferences. It also coincides with the previous findings (Brisson, de Chantal, Forgues and Markovits, 2014; Jubin and Barrouillet, 2019; Markovits, Brisson, de Chantal and St-Onge, 2016; Venet and Markovits, 2001) in that the reasoning process of the participants was influenced by the context of the conditionals and the inference performance of the participants decreased in abstract contexts.

The basic component of the advanced reasoning is the skills of a reasoner which allows him to make correct inferences in regard to the unfamiliar topics. In other words, the ability to make correct inferences without taking into account one's knowledge about the antecedents is the most important component of logical thinking (Venet and Markovits, 2001). The most basic example of such a reasoning process is a reasoning form with abstract antecedents without any concrete referents. When a

reasoner makes an inference using the antecedent which includes abstract concepts he could not produce alternative antecedents. The use of such a strategy generally produces biconditional interpretations in which the MP and MT inference types are correctly answered, but the AC and DA inference types are incorrectly answered. It is found that the incorrect answers of the participants vary between 65% and %75 for the AC and DA type inferences with abstract contexts. It is found to be 25% for the AC and DA type inferences with familiar contexts. This finding indicates that the preservice teachers participated in the study are not able to adequately draw conclusions based on antecedents in abstract context cases, which is an important component of the logical reasoning process. However, teachers are expected to improve students' scientific perspectives in the fields of science and mathematics. Scientific reasoning, on the other hand, is defined as the ability to use logical inferences in order to comprehend the cases which are not known well and to make predictions about the mechanisms that cannot be observed (Venet and Markovits, 2001). Therefore, it is expected that teachers and preservice teachers will be able to reach true conclusions in the conditionals independent of the context of the subject by knowing the basic rules of logic. In this way, it is possible for the preservice teachers to support their understanding about the issues that they do not have enough information and about the newly learned subjects. It is suggested that logic courses should be added to the educational programs of the education faculties in order to overcome the shortcomings of the preservice teachers in this regard.

The findings of the study indicate that there is a significant and positive correlation between the participants' logical reasoning scores taken from the conditional inferences problems and their defective interpretation for the truth-table task items. Some researchers developed the following hypothesis: "the level of logical responding to abstract conditional inferences will be more strongly related to the level of production of defective conditional interpretations on the truth-table task with basic conditionals than the level of production of defective conditional interpretations on the truth-table task with imaginary categorical conditionals" (Markovits, Chantel and Brisson, 2019). Because researchers think that making reasonably appropriate but contrary to facts decisions in reasoning processes with familiar premises will increase the need for the cognitive effort (Markovits, Chantel and Brisson, 2019). Therefore, individuals can perform better in the reasoning process with higher cognitive effort (Espino and Ramirez, 2018; Wang and Yao, 2018), and as a result, the possibility of defective interpretation may decrease. However, in the study it is found that the correlation between the logical reasoning and defective conditional inferences is close in both contexts (abstract and

familiar contexts). In regard to the imaginary categorical conditional items the performance for the defective conditionals accounts for 41% of the total variance in the logical reasoning scores. In relation to the basic conditional items the performance for the defective conditionals accounts for 4o% of the total variance in the logical reasoning scores.

Truth-table tasks consist of the items in two different forms: imaginary categorical and basic conditional. Basic conditionals include unrelated and meaningful concepts, for instance, if a square is pink, then the table is purple. Imaginary categorical conditionals include some concepts that related each other but meaningless. (for instance, if a vehicle is mandola, then it has black tires.). It is found that the participants produced more defective conditional interpretations for the items in the imaginary categorical conditionals. This finding is consistent with the previous findings (Markovits, Chantal and Brisson, 2018, Markovits et al., 2016). Therefore, the inferential reasoning process seems to be affected from whether or not the relations between the concepts are familiar to the reasoner.

In addition, the participants who completed truth-table tasks initially had higher logical reasoning scores. A similar finding was also reported in the study by Markovits et al. (2018). This is an evidence that the truth-table activities contribute to the preservice teachers' reasoning process. Accordingly, it can be suggested that providing preservice teachers with an opportunity to make practices in regard to the logic activities independently of any course could significantly improve their reasoning process. This finding indicates the necessity to include courses on logic activities at teacher training programs and to carry out these activities in parallel with subject knowledge (science, mathematics, language etc.).

CONCLUSION

It is found that the logical reasoning performance of the pre-service teachers is significantly affected by the context of the antecedents. Their performance is better in dealing with the analysis of the correctness of inferences of which contexts are familiar to them. However, their performance is weak in dealing with the correctness of inferences of which contexts are not familiar to them blocking their ability to develop alternatives. It is another evidence about the fact that logical reasoning should be given independent of disciplines. Because the development of logical thinking skills through familiar situations or scientific content does not adequately support the reasoning skills. In familiar contexts, individuals prefer to develop inferences based on their prior knowledge. It does not help to improve the ability to make correct inferences in abstract situations. However, being able to make correct inferences without

considering one's prior knowledge about the premises constitutes the most important component of logical thinking. Therefore, the ability of pre-service teachers to make correct inferences regardless of their prior knowledge should be supported by including logic courses in teacher training programs.

There is no significant effect of whether or not the pre-service teachers participated in the study took logic lessons in high school on their inference performances. For this reason, it is recommended to extend the duration of logic course hours and to continue it during undergraduate education. In addition, the high school period is considered to be late in supporting the development of such skills. Therefore logic education should be started from an early age.

In the study it is found that truth-table based activities significantly contribute to the reasoning process, and those pre-service teachers who solve the truth-table tasks have higher inference performances. This situation clearly indicates the effect of truth-table activities on the logical thinking process in a short time. This result also reflects the positive effects of logic applications on the reasoning process. It is another evidence that teacher training programs should offer courses on logic applications, and these practices should be connected with other disciplines.

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Chapter 6

SPECIFIC LEARNING PROBLEMS

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Introduction

Strong evidence confirms the existence, i.e., the validity of the concept of specific learning problems (SLP). This evidence is somewhat impressive because it converges between different indicators and conceptualized methodologies. The central concept of SLP includes learning and cognition problems that are essential to the individual. SLPs are specific, because they without exception significantly affect the acquisition of academic knowledge and school achievements. They can occur in combination with other problems and impairments, but they are certainly not indicative of their existence, such as intellectual disability, behavioral problems, social deprivation, or primary sensory impairments.

Learning problems are not a specific term, but a category that contains many specific problems, and each of them is a cause of difficult learning, i.e., disruption in one or more basic processes involved in understanding speech and written language.

Achievement in one or more areas, which are unexpectedly bad in terms of the general intellectual potential, education and motivation of the child, is considered to be a common denominator of specific learning problems (Norman & Zigmond, 1980). Regardless of the slow development of some abilities or skills, children with learning difficulties have a general developmental potential that usually enables typical psychosocial development, and timely recognition and treatment are difficult (Kavale, 1995).

For linguistic reasons, the plural term "learning disabilities" is often used in the literature, which causes the SLP to be neglected as a specific independent condition different from other generalized learning disabilities. In practice, there are "many types of learning disabilities", making SLPs difficult to identify and difficult to distinguish from other "learning disabilities". If the term SLP is understood as a separate category, then a difference will be made in the terms: all students with SLP have learning problems, and all children with learning problems do not have SLP (Ysseldyke et al., 1982). SLP causes a series of confusions in the theory and practice of special education and rehabilitation, in extreme cases their existences are questioned, which is why they are sometimes referred to as "myth" or "imaginary disease" (Algozzine et al., 1995). It is necessary to separate the SLP as a different term, a special condition and to determine its parameters.

According to the Individuals with Disabilities Education Act (Yell et al, 2017), there are 13 categories in which people with special needs are classified: autism, deaf-blind, deaf people, people with emotional disorders, intellectual disability, multiple impairments, orthopedic impairments, health problems, specific learning disabilities, speech or language impairments, traumatic brain injury, and visual impairments and blindness. According to the immediate consensus, the SLP needs to exist

as a separate category that identifies the child as a child with disabilities. At the same time, there is another consensus that the type of disability should be specified, as "specific learning problems", in order to distinguish between children with Special Educational needs and children who have general problems in acquiring academic knowledge.

1. Defining the Specific Learning Problems- SLP

The main problem we encounter in explaining the SLP is its definition. The formal definition of SLP is controversial primarily because it fails to provide an answer to two problems: understanding the concept of learning disabilities, as well as explaining the reasons why a student has those problems. The number of alternative definitions of SLP is a confirmation of the existence of a permanent problem in finding a definition that will fully describe the state of SLP. The main remarks of the existing definitions are the ambiguity and lack of rigor that would enable its implementation in practice (Fuch et al, 2004). Specific learning problems (specific developmental problems in school skills) include a disorder that manifests itself with specific and significant problems in acquiring school skills (Wood, 1988).

The definition of SLP according to the Individuals with Disabilities Education Act is: SLPs indicate a disorder of one or more basic psychological processes involved in understanding or using speech (verbal or written), which can manifest itself through inadequate ability to listen, speak, read, write, spell, or perform. mathematical calculation. Causes can occur as a result of perceptual deficit, brain damage, minimal brain dysfunction, dyslexia, and developmental dysgraphia (Kavkler, 2003).

The Association of students with SLP in 1986 constructs the following definition (Broomfield & Dodd, 2004): SLP is a chronic condition of neurological origin that selectively affects the development, integration, and /or demonstration of verbal and/or nonverbal abilities. SLP exists as a special condition of disability that has different varieties of manifestations with different degrees of severity. Throughout life, the condition can affect self-esteem, education, occupation, socialization, and / or daily life activities.

In 1987. The Inter-Agency Committee on SLP defines the problem as follows (Schuele, 2004): SLP is a generic term that refers to heterogeneous groups of disorders manifested by significant difficulties in acquiring and using the process of listening, speaking, reading, writing, thinking, mathematical abilities, or social skills. These disorders are essential to the individual and are thought to occur as a result of central nervous system dysfunction. Although learning disabilities may occur in combination with other limiting factors (e.g., cultural differences, insufficient or inadequate education, psychogenic factors), and especially with attention deficits, which can cause learning disabilities, SLPs are not directly related to these conditions and their impact (Wallach & Ocampo, 2020).

The National SLP Council in 1997 proposes few changes in the definition (Jovanovic- Simic, 2004): SLP is a generic term that refers to heterogeneous groups of disorders manifested by significant difficulties in acquiring and using the process of listening, speaking, reading, writing, thinking, mathematical abilities, or social skills. These disorders are essential to the individual and are thought to occur as a result of central nervous system dysfunction and persist throughout life. Behavioral problems, social perception, and social interaction problems occur that are common in students with SLPs but are not in themselves learning problems. Although SLPs can occur accompanied by other disorders (sensory impairment, intellectual disability or emotional problems), SLPs do not occur as a result of these conditions and their impact.

Since 1997, an operational definition has emerged that seeks to define SLPs according to the "criterion of distinction": The student with SLP does not achieve proportional results in relation to his age and relevant school experiences, he has a significant, pronounced difference between achievement and intellectual development in one or more areas related to communication skills and mathematical abilities (Hrnjica et al, 1991).

The process of student identification also depends on the way the SLP will be defined. The most common way to operationalize existing definitions is by using the achievement diversity model, according to Barns and Mercer (1997) 90% of countries use the achievement diversity component in identifying these students (Blake et al, 2004). Appropriate standardized tests are used to assess the compatibility of the achievement of the IQ assessment tests and the academic skills assessment tests (Beitchman et al., 1986).

The generalization of the concept of SLP and the inconsistency in the identification criteria leads to problems in the distinction between students with SLP and students with poor achievement. For a long time, it was considered that there was no difference between these two categories of students. This idea was supported by the results of a study in Minnesota that found a number of identical achievements and overlaps in test scores between these two groups of students (Trebjesanin, 2000). However, the identification of the two groups by many authors (Algozzine, Ysseldyke & McGue, 1995) is considered inadequate, and despite similar results, people with lower school achievement have different characteristics and qualitatively different needs, and thus different treatment (Levandovski et al., 1992).

As a result of the problems with the identification of the SLP, the question arises as to the usefulness of using the "model of differences in achievement" as an appropriate identification criterion. Due to that, there has been a need to change the model, and to introduce the "intervention response model" (IRM). According to this model, it is necessary to replace the traditional psychometric methods with a protocol that will emphasize the abilities of the student (Potkonjak, & Pijanovic 1996). IRM

is essentially a model where identification and intervention are closely related (Trebjesanin, 2000).

Students with SLP generally belong to the category of persons with disabilities, who show severe problems in acquiring academic knowledge, as well as neurological delay or dysfunction. The problems they manifest are not the result of intellectual disability, sensory impairment or social deprivation.

In general, it was determined by consensus that students with SLP have the following common characteristics:

1. Unexpectedly poor results in terms of skills or abilities;

2. Deficiency or specific changes in the cognitive process;

3. Neurological basis of changes (Siegel, 2003).

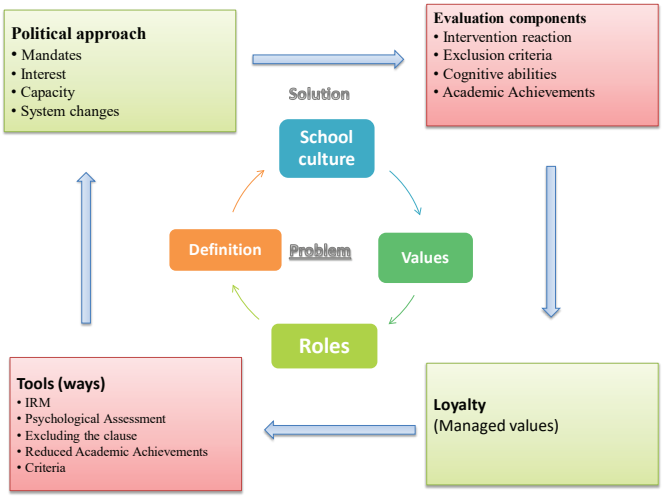
Experts agree that although there is a valid SLP concept, in practice in the identification process teachers encounter problems in determining the existence and intensity of these characteristics (Reynolds, 1985).

2. Identification of students with SLP

The first step in the process of identifying students with SLP is to understand the problem, which essentially involves consulting with state and local education agencies, as well as schools that need to identify the factors and values within their education system that will influence the identification process (Boyadzhieva-Deleva, 2021).

The following graphic shows how a multifactorial problem requires a multifactorial solution. The identification of the SLP includes a number of components (Hale et al., 2010):

Figure 1: SLP components



Definition - how schools interpret and operationalize the definition of SLP.

School culture - does the culture in the school support innovations and challenges or are there barriers in the process of implementing innovations?

Perceived roles - How the professional team understands its role in the concept of SLP.

Values - the beliefs and values that guide the actions and decisions of key people.

When all these factors are combined with each other, together with a different definition of SLP and different identification methods, the result will be the emergence of a very heterogeneous group of students with SLP.

The solution to this problem is certainly complex. Among the factors that must be taken into account (Hale et al., 2010):

- Evaluation components - determining the information, criteria used in the comprehensive evaluation;
- Reliability - the intervention method needs to be reliable in the way it is planned and determined;
- Ways - finding an appropriate methodology, such as IRM for identification of students with SLP;
- Political approach - identifying, empowering individuals to adopt new practices or providing initiative processes to identify SLP-related issues.

To identify the problems associated with the identification of SLPs, schools must develop a strong concept for interpreting the objectives as well as identifying alternative mechanisms through which the set objectives would be realized. However, a better concept of work will not eliminate conflicts and controversies, but it will significantly improve the identification process of SLP, prudence and credibility, and thus reduce irrelevant and self-determining policies in schools for identification of students with SLP (Trebjesanin, 2000).

The US National Learning Problems Research Center (NICU) has developed a three-step procedure to reach a consensus in the SLP identification process (Hale et al, 2010):

1. Discussion and development of consensus for working definition (conceptualization) of SLP. This step includes revising the existing definitions, building consensus, setting priorities, setting criteria for distinguishing students with Special educational needs from students with low achievement.

2. Operationalization of the methods for identification of students with SLP.

3. Data collection and analysis of current practical experiences in the identification process.

3. SLP and reading problems

The link between SLPs and reading problems often increases as the models we use place a great deal of emphasis on reading skills. The model interpreted in this way is wrong, although a large number of students with SLP will manifest problems in reading, but they can still see a wide range of problems in the adoption of teaching content, especially mathematical problems (MacMillan & Siperstein, 2002). In the early stages of explaining the SLP, this condition has been often equated with reading problems, under the pretext that all students with reading problems have SLP, but reading problems are not the only parameter covered by SLP, so any identification with them is inadequate and inappropriate (Boyadzhieva-Deleva, 2020).

4. Intervention Response Model (IRM)

Intervention response is an educational model that promotes early identification of students with learning disabilities. IRM is one of the components used by the school in the process of identifying students with special educational needs. In a classroom most students manage to master a satisfactory level of academic knowledge, IRM is used for those students who show learning difficulties and offers intervention in those academic areas where the student shows problems (Frost et al., 2017).

The official document on "Understanding the Response to Intervention in Identifying Learning Disabilities" defines the following features of IRM (Fuchs & Fuchs, 2006):

- High quality research based on school instructions;
- Student assessment by focusing on the classroom;
- Universal screening of academic characteristics and student behavior;
- Continuous student monitoring process;
- Implementation of appropriate research-based interventions;
- Monitoring during the intervention and
- Reliability in the teacher's behavior.

Consensus and common views on IRM in all schools would be very important and significant. It is recommended that the concept of IRM contain the following (Hale et al., 2010):

- Students should receive high quality instruction in the regular educational process;
- The basic educational process should be based on appropriate research;

- The educational staff, teachers and special educators should have a significant role in the process of student assessment;
- School staff should conduct universal screening of academic performance and student behavior;
- Continuous process of monitoring student achievement;
- Continuous process of monitoring specific learning problems;
- Teaching staff should implement specific, science-based interventions to identify student problems;
- The teaching staff should evaluate the effectiveness of the particular intervention and make additional changes if it seems necessary;
- Systematic assessment should be complete through the use of worthy and integrative instructions in the intervention process;
- The IRM used needs to be described, which would make a comparison between the procedures used and the criteria;
- IRM should be designed through the use of a "standardized protocol" or through an individual approach to problem solving.

5. SLP and the model of differences in achievements

According to Vaughn and Fuchs (2003) "At the heart of the controversy in the process of identifying SLPs is the use of differences in IQ achievement." If the concept is properly perceived, the presence of achievement problems is a necessary but not sufficient criteria for identifying a SLP. For the identification process to be adequate, the pattern of differences must be related to the weight of the SLP (Case, 1992).

Another caveat is that students with differences in achievement do not differ from other students. This observation is based on inaccurate assumptions that differences in IQ achievement do not affect academic achievement. Students with or without achievement differences may show low achievement as well as the same level of academic performance. From that point of view, if the groups show similar functional problems and achieve similar academic performance then they should belong to the same group of students with "learning difficulties". According to Keogh (1994), unexpected learning problems are one of the basic elements in defining SLP. However, the differences in student achievement are very heterogeneous, so care must be taken in determining this criterion - learning difficulties.

If the student does not demonstrate significant learning problems, then we can place him/ her in the category of "slow learning students" (these are students with an IQ of 70-85). About 14% of the school population belong to this category. These students have never been, nor should they be, placed in the category of students with SLP. Students who learn slowly do not show unexpected learning problems but their level of achievement

is consistent with the quantitative value of IQ (Corona et al., 2005).

The model of differences in achievement can occur in a range of IQ rankings. Siegel points out the fact that if the student has an IQ of 130 and a reading achievement of 110, then according to the model he has differences in achievement. However, this model should cover only those students who, in parallel with the differences in IQ achievements, have shown problems in adopting academic achievement (Eisenmajer et al., 2005). When identifying students with ASD, care should be taken to ensure that there is another condition that affects the child's overall personality, not just academic performance, such as ADHD or intellectual disability. The pattern of differences in achievement has also been criticized for posting unreliable data with controversial arguments. Students were often classified as SLPs through the use of complete statistical procedures. Therefore, the method itself did not provide adequate identification and real identification of these students (Piaget, 1952). The problem arose after the use of comprehensive studies that examined individuals who had already been identified as students with SLP and the results showed that in some cases over 50% of students did not meet the criterion of differences in achievement (Hinojosa, & Kramer, 1993). Hence the question: Why were students who do not meet the criteria for differences in achievement identified as students with SLP? The problem is not the reliability of the criterion of differences in achievements, but the lack of rigor, rigor in its implementation within the school environment (Krstic, 1999).

The presence of measurement errors in the differentiation model increases the risk of false negative as well as false positive student identifications. Measurement errors most often occur when identification is given to the student without further reassessment. For example, if 15 points are taken as a measure of a differentiation criteria as a limit, then a student who has a difference of 14 points may have SLP as well as a student who has a difference of 16 points, but he or she will automatically be excluded from the category of students with SLP. According to clinical assessment, students who show a difference in achievement, for example between 10 and 20, need to be assessed for other indicators of learning disabilities, such as family history, phonemic problems, poor speech development, or limited working memory. The differentiation model must provide realistic and valid classification information. Creating effective identification instructions should be the primary focus, highlighting only those students who really have a SLP and who need special education (Krstic, 1999).

6. Intervention models and SLP

IRM is an appropriate first step in the SLP identification process. At the end of the implementation of this model as a conclusion we can point out that the student has problems with reading and does not respond positively to the offered intervention. However, non-response to the intervention must not be used as the sole criteria for identifying the SLP. Reading problems

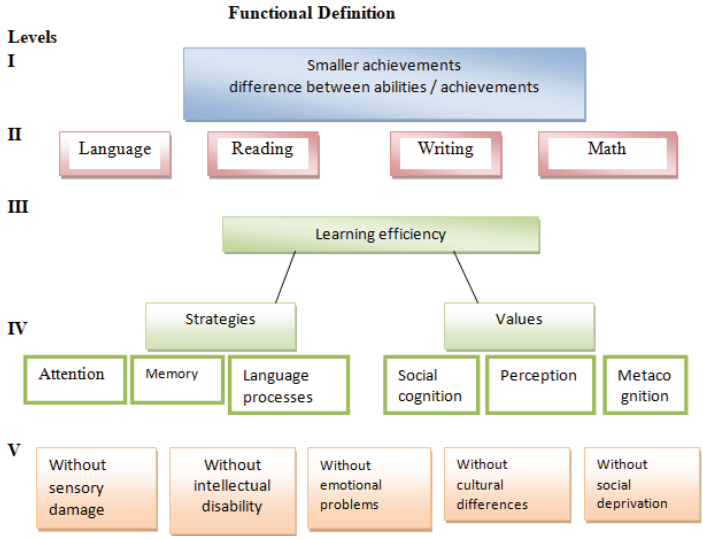
can occur as a consequence of SLP, but must not be the primary cause in the identification process. SLP is a complex problem, and the IRM model presents only one criterion, which by itself cannot present the complex nature of SLP. The same problem exists with the model of differences in achievements, and it presents only one aspect of the concept of SLP. The advantage of this model over IRM is that it detects the existence of problems in school achievement in general, while IRM indicates problems in only one aspect, i.e., reading. Using the model of differences in student achievement we can conclude two things (Frost et al., 2017):

1. Has an average IQ (necessary component of SLP problems),
2. The presence of problems in school achievement was unexpected.

If achievement problems are seen as necessary, but not the only ones in the classification of students with SLP, then the diagnostic process should strive for the validity of other prescribed criteria in order to finally identify the student as a student with SLP (Maceshic- Petrovic, 1996). Kavale and Forness (2000) offer a scheme of components that in combination with the functional definition attempt to explain the complexity and complexity of the SLP. Hierarchically set in five levels define the identification process through (Ocic, 1998):

1. Smaller achievements defined by the difference between abilities and achievements;
2. Significant deficit in basic skills (reading, writing, language, mathematics);
3. Problems in learning efficiency;
4. Problems in psychological processes (attention, memory, perception, metacognitive processes and social activities) and
5. Exclusion of students whose learning problems are not unexpected, i.e., as a result of intellectual disability, emotional problems, sensory impairment or social deprivation.

Figure 2: Presentation of the functional definition of learning problems



Each level is a necessary characteristic of students with SLP, and in order to make a diagnosis of SLP it is necessary to note all 5 levels in the student.

Flanagan, Ortiz, Alfonso and Mascolo (2006) consider that such a functional definition is of great importance for new paths in practice, but point out that the model does not directly include theoretically set paradigms and there is no specially set model that can be used to effectively measure problems in learning. To extend this model, these authors use the Cattell-Horn-Carroll Cognitive Theory (CHC) as a framework for understanding the nature of cognitive and academic abilities. They propose that the functional definition of SLP be incorporated into this theory, and that they be used to interpret intelligence and achievement tests. The functional definition of the SLP together with the components is shown in the following table (Case, 1992).

Table 1: Comprehensive framework for determining the SLP:

Level	Components	Results
I-A	Analysis of individual academic abilities	Documented specific academic skills or knowledge deficit
I-B	Evaluation of exceptional factors	Identification of alternative explanations for learning problems
II-A	Analysis of individual cognitive abilities	Documented specific cognitive skills

II-B	Re-evaluation of exceptional factors	Identification of alternative explanations for cognitive problems
III	Integrative analysis of abilities - evaluation of reduced abilities	Documents to identify the nature of academic problems (empirical or logical problems)
IV	Functional disability evaluation	Documenting the level of identified disability deficit with functions
	Related skills	Identification of limited abilities in the field of social skills, motor abilities, visual and auditory abilities
	Recommended eligibility	Determining the eligibility for SLP classification

Once learning problems have been documented through informational methods (classroom observation), a compression-based assessment based on CHC theory is performed. For example, at level I-A, an assessment of academic skills is made as shown in the following figure.

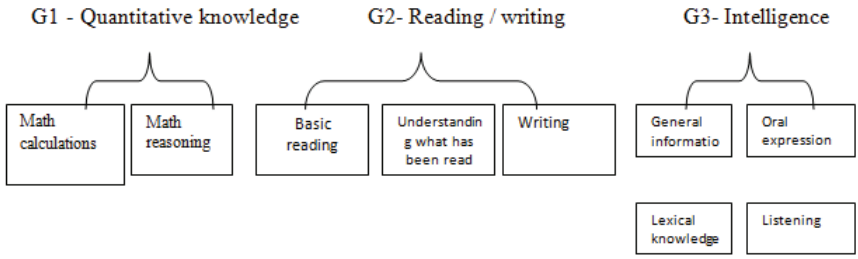


Figure 3: Level I-A: Assessment of specific academic skills and acquired knowledge - Analysis of academic abilities:

The next step is to assess each academic skill separately. Example reading will be assessed using the CHC capabilities shown in the following table:

Table 2: SLP identification capabilities

SLP abilities	Definition
Decoding in reading	Ability to recognize words in the reading process
Verbally Linguistic understanding	General development, or comprehension of words, sentences or paragraphs in the native language, through reading vocabulary measurement and reading comprehension tests.
Reading speed	Time needed for reading certain excerpts or sentences
Phonetic coding: Analysis	Ability to segment a larger set of voices into a smaller one
Phonetic coding: Synthesis	Ability to merge smaller language units together into larger ones

The last step is to select an appropriate test to assess a particular ability. Unlike the hierarchical model of Kavale and Forness (2000), Flanagan and co-workers (2006) use a more feedback and repetitive process because "the information we received in the evaluation at one level can help us make decisions at another level."

Both models demonstrate the possibility of using the theoretical and psychometric model in the process of identifying students with SLP. This confirms the possibility of accepting the concept of SLP together with the theoretical understandings of cognitive and academic functions, in order to create a comprehensive and systematic framework for making a definitive diagnosis of SLP. The set functional definitions provide practical methods for identifying the SLP, which at the same time have the potential to increase consensus on the validity of the SLP classification. Establishing an expert system based on practical experience will provide a diagnostic process for more reliable identification of persons with SLP. Such a process will enable the assessment of academic and cognitive skills, but at the same time will identify the factors that hinder the student's progress. By identifying the goals for intervention, the possibilities for a quality individual approach increase. Even if the student is not included in the special education system, the regular teacher, the parents and the student will have significant information about the problems the student faces in acquiring academic knowledge and recommendations for intervention and the need for special education (Corona et al, 2005).

Cognitive-behavioral therapy is mentioned as one of the effective ways to support students with learning difficulties, and Snyder, Bossomaier and Michell (2004) have confirmed its effect, finding that this therapy enables the achievement of better academic skills, especially in those who show difficulty.

7. The importance of special education for children with SLP

Students with SLP need special education. As defined in the Learning Disabilities Act, the term "special education" itself refers to special instructions adapted to the needs of children with disabilities, which do not represent a financial cost to parents (Fuchs et al, 2004).

Experts and researchers in this field firmly believe in the need and importance of providing special education and appropriate services for all students who have been identified with specific learning problems, i.e., students whose individual characteristics indicate that this type of education is necessary. Research has shown that many schools in the United States use the wrong procedures to identify students with STLs. This wrong approach has resulted in an increase in the number of students with secondary education, because students who achieve lower success, and have no disabilities, are classified as students with secondary education and are considered suitable for inclusion in special educational programs.

Schools should implement a special systematic model for prevention, which should include:

I. Primary prevention: to provide a high-quality education system for all students;

II. Secondary prevention: to identify the specifics of students who are not sensitive to primary prevention;

III. Tertiary prevention: to provide intensive individual services and interventions for those children who cannot be included in the high-quality educational program and who do not respond positively to the additional activities and interventions of the teacher. Such children suitable for tertiary prevention are essentially children with SLPs who need special educational services.

The current classification criteria must be improved in order to provide special education and appropriate services depending on the identified characteristics and needs of the student (Vaughn & Fuchs, 2003).

8. Etiology of specific learning problems

The etiology of specific learning problems is not yet sufficiently known. It is assumed that some biological factors interact with non-biological factors (such as learning circumstances and the quality of the teaching process). Specific learning problems occur as a result of problems occurring in the prenatal, perinatal, and postnatal periods, resulting in problems with nervous system dysfunction at one or more stages in information processing (Norman & Zigmond, 1980). To date, there have been a number of studies aimed at finding abnormalities and asymmetries in the temporal lobe. The results of previous studies have concluded that there are obvious brain abnormalities, but they do not always have to be present and if they are present, they do not always have to be the same (Reynolds, 1985). In the phase of receiving information, there are difficulties in processing or interpreting the received information - their discrimination, distinguishing between plan and background, and establishing the order of the information. Problems in integration, in the process of identifying and linking information, most often reflect on the order, abstraction and organization of information. Attention problems most often occur during the transition from short-term to long-term memory, so children need much more repetition to memorize information. Difficulties in responding are reflected in motor (problems in gross and fine motor) and speech-language activities (Norman & Zigmond, 1980). Etiological factors include: brain lateralization abnormalities, brain maturation delay, environmental deprivation, genetic factors, minimal cerebral dysfunction, and brain damage.

Abnormalities of brain lateralization - Each hemisphere has its role; it has a greater participation in performing some and less in performing other functions. That is, we call the hemisphere "dominant" or "leading" to certain mental functions. The left hemisphere is dominant for language functions in most right-handed people (over 95%). However, the right hemisphere is not always dominant in left-handed people. In over 60% of cases in left-handed people, the left hemisphere is either dominant in language functions or inseparable from the language process ("combined" dominance). The left hemisphere as dominant is responsible for solving analytical tasks, logical organization, information sequencing, complex motor functions and language. The right hemisphere is responsible for maintaining attention and compiling global patterns, for the relationship of parts to the whole, spatial orientation, sensibility, musical forms, and emotional development (Çolak, 2021).

Delay in brain maturation - Cognitive functions such as speech development, reading and other abilities are developed hierarchically, and the stages of this hierarchical development are arranged individually during ontogeny. If a hierarchical level develops more slowly, a slow overall hierarchical development occurs because the higher functions depend on the integration of the lower ones (Reynolds, 1985).

Specific speech impairment - There are a number of studies that show that specific learning problems occur due to specific language, speech disorders. Rapin and his co-workers (2009) described six different subtypes of developmental speech impairment as the basis for clinical assessment of preschool children's speech:

- Expressive damage- Verbal dyspraxia; Deficiency of phonological programming,
- Impairment that includes comprehension and expression- Mixed receptive-expressive or phonological-syntactic deficit; Verbal auditory agnosia or blindness to words,
- Impairment of central processing and formulation- Semantic-pragmatic deficit; Lexical-syntactic deficit.

Environmental deprivation - It is one of the important factors that affect learning, because the environment in which children grow up can indirectly affect behavior and alter brain development. According to Kavkler (2003), children who start early in first grade are more often classified as children with learning disabilities, compared to those who start school later.

9. Medical approach

Historically, SLPs have been thought to occur primarily as a result of brain damage. James Hinshelwood coined the term "blind for words" to describe a child with unexplained learning difficulties despite an average IQ and normal sensory function. According to Hinshelwood, the child's problems are due to a defect in the angular gyrus region (Delahunty & Garvey, 2010). Another researcher, Samuel Orton, noted that students with learning disabilities often have confusion in reading and writing the letters b and d, p and q, respectively. This phenomenon was termed "strephosymbolia" (inverted symbols) by Orton and occurs in those individuals in whom we do not have a dominant hemisphere, or none of the hemispheres has developed dominant functions (Golubovic, 2000). Research of this type has been continued by other researchers such as Kirk Goldstein (1936) and Alfred Strauss (1947). Goldstein worked with soldiers who suffered brain injuries during World War II. He observed that these soldiers often manifested problems of perception, impulsivity, distraction, and hyperactivity (Golubovic, 2005). Strauss noted that students with intellectual disability have very similar characteristics and theorized that problems occur as a result of brain damage. At that time, the term "children with brain damage" or "minimal brain dysfunction" was used for those students that today we call students with SLP. Strauss speculated that perhaps some extremely subtle brain damage was a major cause of the child having learning difficulties (Bishop & Donlan, 2005). Such assumptions were very unpopular among parents and their relevance was often questioned. The medical impact on the understanding of SLP is still very strong. In practice, for example, the terms dyslexia and dyscalculia are often used to denote reading and counting problems. Today in the research of the connection of the brain with the SLP, very sophisticated methods are used and we are at the beginning of discovering new relations and characteristics of their interconnection (Young et al., 2002).

10. SLP as an academic problem

A turning point in the history of SLPs occurred in 1963, when a meeting of concerned parents in Chicago publicly expressed dissatisfaction with the approach of medical practitioners who described their children as children with brain damage or minimal cerebral dysfunction (Blake et al., 2004). Samuel Kirk (1981), a psychologist with many years of experience working with students with academic problems, coined the term "learning disabilities" to describe those students who have reading difficulties. This has resulted in a change in the perspective of learning problems. Instead of attributing it to organic brain damage, they began to see the connection between these problems and cognitive processes. There were no neurological changes in the students, but they still had problems with psychological processes (e.g., perceptual problems such as visual or auditory discrimination), did not receive visual and auditory stimuli properly, and learning problems occurred.

In this way, the perceptual-motor approach began, which shifted the focus from the medical approach to the academic understanding of learning problems, which resulted in the establishment of criteria for assessment and measurement of basic deficits, as well as appropriate intervention programs (Jerome et al., 2002). The idea was to fix the problems in the perception of the sensory impressions and their processing, and to enable the child to adequately progress in the adoption of the teaching contents. A number of programs have been created and implemented. Unfortunately, designed troubleshooting programs have proven ineffective and assessment tools inadequate. However, the changes that have taken place have influenced the development of SLPs, their understanding and solution in practice (Ripley & Yuill, 2005).

11. Behavioral and cognitive approach

During the 1960s, '70s, and' 80s, new, influential perspectives on learning problems emerged. The first of these was behaviorism. This approach was developed by B. F. Skinner and is based on the theory that there is a functional relationship between behavior (e.g., reading) and the environment. Learning is seen as a hierarchical process in which the child must master the skills in the prescribed order. In this approach the academic assignments are broken down into their component parts and each part is studied in sequence. Learning problems will be best attacked by changing the learning environment. From a behavioral point of view, a highly structured learning environment that responds directly to the student's problems is essential to achieving academic progress. Thus, if the child has reading difficulties, it is necessary to learn the direct skills needed to master that skill, through the use of highly structured instructions. Representatives of the behavioral approach have developed several highly effective teaching approaches: DISTAR (Engelman & Bruner, 1974) and Precision Teaching (Lindsley, 1964) (Mithaug, 2007).

In the 1970s, cognitive approaches to teaching and learning began to influence SLPs. The cognitive perspective focuses on the role of the individual in the learning process (Blake et al., 2004). From this perspective, the key is the interrelationship between the requirements of the environment (for example, assignments and teaching materials) and how the student processes the information. Learning disabilities can result in cognitive deficits such as memory problems and failure to process information effectively (e.g., failure to use an appropriate or effective strategy), or a combination of both. Metacognition (knowledge of one's own cognitive processes) has become especially important. In the 1980s, cognitive approaches became very influential and a number of studies were conducted to determine the cognitive characteristics of students with SLP. Memory research has enabled the development of new models for solving cognitive problems. Perhaps the most important is the information processing model, which was extremely influential because it focused attention on the processes involved in memory and learning (Jerome et al., 2002).

12. Prevalence of SLP

It is difficult to determine the frequency of SLP among students. However, based on research on reading ability conducted in primary schools, it can be noted that:

- High-quality educational instructions are of particular importance to meet the individual needs and abilities of the student with SLP.
- Additional small group work with "problematic" students can reduce the prevalence of learning disabilities (Vaughn et al., 2003).

As previously noted, problems in defining and identifying SLPs often lead to the identification of SLPs with poorer student achievement, thereby increasing the population with SLPs. In some countries this policy has led to an increase of students with SLP by as much as 150% (Keogh, 1994). In general, the frequency of SLPs is usually 10-15% in school children, with reading difficulties occurring in 10-25%, in writing in 8-15%, and in mathematical operations in 6-10% (Mellard, 2004). Some authors, using selective criteria, suggest that the prevalence of learning disabilities is 5% (Kavkler, 2003). In addition to the increasing number of students with SLP, there is a large difference in the percentage of these students in different countries, as well as in different areas within a country. Again, the reasons for this difference are sought in the lack of consensus in the process of identifying the students themselves. Recent research conducted by the National Agency for the Evaluation of Educational Progress in the United States has found that 37% of students in fourth grade do not have adequate reading skills sufficient to complete fourth grade (Vaughn et al., 2003). Regarding all the categories of students with disabilities, greater consistency in prevalence items was found in persons with hearing impairments as well as with physical and multiple impairments (Drew & Hardman, 2004).

13. Conclusion

There is strong evidence that points to the positive effects of the treatment of many students with SLPs when its implementation is consistent and appropriate. In addition to these findings, there are approaches and interventions in these individuals that have proven to be useless and ineffective, but are still used. The education system should cover the following categories:

1. Determining the nature of specific learning problems;
2. Identification of individuals with SLP;
3. Access to appropriate services;
4. Intervention and
5. Professional development.

A series of characteristics should be determined in relation to all categories.

The nature of specific learning problems: The SLP concept should be valid, and supported by strong evidence; SLPs have a neurological basis and are a congenital condition; Individuals with SLP differ in terms of their skills and abilities; SLPs persist throughout life, manifesting themselves through problems of varying intensity in the functioning of the person as well as in responding to the demands of the environment; SLPs may occur in combination with other developmental problems, but are not in themselves an indicator of another condition, such as intellectual disability, behavioral problems, social deprivation, sensory impairment, or multilingualism; SLPs meet in different ethnic, cultural, linguistic and economic groups.

Identification. In the process of identification, the student should take the central place, with a complete evaluation of the child's personality, as well as an appropriate approach to solving or reducing the identified problems. The educational process must be based on high quality instructions and interventions with students at risk, as well as constant cooperation with special educators and appropriate personal services.

Eligibility. The difference in achievements must not be used in the process of determining abilities; Decisions on determining an eligible educational service must be based on a prior assessment of the person, i.e., his or her individual abilities; Decisions must be made by an interdisciplinary team, based on appropriate assessments and in accordance with the needs and abilities of the student; Decisions must be timely; The student who is identified as a student with SLP may need different levels of special education during his / her school experience, the decision for the appropriate service is made on the basis of individual evaluation and constant process of observation.

Intervention. Constant engagement is required for the use of scientifically proven practice. In areas where there is no adequate research and scientific support, activities should be organized on the basis of successful practices. Schools, teachers and special educators must have access to information related to scientifically based practices. Students with SLP need intensive, repetitive and scientifically based treatment. Students with SLP need a continuous process of interventions during regular or special education, throughout all grades. The interventions must be timely and respond to the SLP as well as to the needs of the student. The efficiency of the interventions will be greater if they are implemented consistently, with sufficient intensity and duration. The teacher and the special educator must be coordinated as part of the coherent system, as the main bearers of the responsibility for achieving positive results in the work with the students with SLP.

Professional development. Personal development refers to the need for appropriate knowledge, skills, continuous education in relation to the implemented effective interventions in students with SLP. It is also necessary to ensure a current, coherent and integrated system of professional development.

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