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Message from the Editor

I am very pleased to publish second issue in 2020. As an editor of Turkish International Journal of Special Education and Guidance & Counselling (TIJSEG) this issue is the success of the reviewers, editorial board and the researchers. In this respect, I would like to thank to all reviewers, researchers and the editorial board. The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to Turkish International Journal of Special Education and Guidance & Counselling (TIJSEG), For any suggestions and comments on TIJSEG, please do not hesitate to send mail.

Prof.Dr. M. Engin DENİZ
Editor in Chief

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ROLE OF HEAD TEACHER IN THE WHOLE SCHOOL DEVELOPMENT

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Abstract

Role of head teacher in the whole school development plan is very crucial and pivotal. All the activities of the school development revolve around the role of the head teacher. The dynamic and effective role of the head teacher materializes the concepts of Whole School Development into reality. The role of head teacher is important as he/she sets clear goals, manages time, effectively utilizes the instructional and non-instructional material; involve community and family for the inclusive betterment of the child and shares best practices of other institutes for whole school improvement. However, human and material resources and their sufficient availability are necessary to materialize the concept of whole school development theme.

Keywords: School development Plan, head teacher, effective role, instructional and non-instructional material and inclusive betterment.

INTRODUCTION

Since the inception of Pakistan education sector is the most deprived area. None of the governments has ever made any serious efforts to raise quality and standard of education except in files. Aligning quality education with trained head of schools has not been given enough attention in Pakistan irrespective of public or private schools. It is very common observation that length of service or academic qualification makes an individual eligible for the position of head teacher. Education system consists of various components. One of the components is a school. If a school is thoroughly examined its different aspects remain integrated. In Pakistan a school is ignored to be considered as a total or a whole. When we talk about school as a total or as a whole a very famous approach comes to our mind i.e., a whole school approach.

The whole school approach aims at raising quality and standard across the entire school. The present government is focused to increase the quality and standard of the school as a whole. Bryk (2010) states five essential supports for school improvement i.e., a coherent instructional guidance system, the professional capacity of its faculty, strong parent-community school ties, a student-centered learning environment, and leadership that drives change. A whole school approach is inclusive of all school staff, students and education partners and touches all aspects of school life. It should endorse positive mental health and academic attainment and include social-emotional learning in school practices, policies and partnerships.

One of another component of educational system is the head teacher. The role of head teacher is not only supervisory but also a role of leader. But, unfortunately in Pakistan the situation is very worse. Concepts such as instructional leadership and pedagogical leaders are commonly used in western contexts which still vague in Pakistan. If a head teacher is aware of the importance of whole school development and its strategies then it is easy task to implement this approach. This can enhance the standard, quality,

student's achievements family and community participation at large. The role of head teacher in school development is to support and nurture the professionalism of teachers.

The present study aimed at exploring the perception of a key character of school i.e., head teacher. The role of head teacher determines ranking of the School. The school development plan (SDP) started with assessment to identify opportunities, challenges, and constraints within and outside the school environment (Power, 1997). It is a continuous process and a variety of approaches: interviews, discussions, staff meetings, and surveys are used to enrich SDP by focusing on three key elements: the environment, internal resources, and the culture and values of the school (Fidler, 1996). These elements guide the school to identify priorities, targets, and design the development plan that is implemented, monitored and evaluated regularly by key stakeholders. The time scale of development plans is determined by school priorities, resource availability, and national and local education policies. The time scale for school plans range from 1 to 15 years reflecting aspects of operational planning (1-2 years), strategic planning (3-5 years) and future thinking (5-15 years) (Davies and Ellison, 2003).Whereas the contents of development plans vary according to the school context, it is important to be realistic and focus on three or four manageable priorities (Hargreaves and Hopkins, 1991). The advantages of few priorities include: easy monitoring; high level of involvement of stakeholders; and clear focused objectives, targets and outcomes (Stoll and Fink, 1996). There appears a general consensus that priorities do not differ considerably across schools within a given context (Broadhead et al., 1999).It should be noted that resources play a key role in the SDP process. The major resources for schools include time, personnel, equipments, instructional materials and funds. Variations in resource availability and utilization have a bearing both on the outcomes and impact of development plans. Research shows that SDP promotes effective utilization of resources to achieve educational goals such as improved teaching and learning (Hargreaves and Hopkins, 1994).

Based on quantitative and qualitative measures that reflect the diversity of activities for which schools are responsible and the different starting point/contexts in which schools operate e.g. trying to measure the added value. In a whole school approach all members of the school community (school leader, middle management, teaching and non-teaching staff, learners, parents and families) feel responsible and play active role in tackling educational disadvantage and other related matters.

A whole school also implies a cross-sectorial approach and strong cooperation with a wide range of stakeholders (Social services, youth services, outreach care workers, psychologists, nurses, speech and language therapists, guidance specialists, local authorities, NGOs, business unions, volunteers etc.) and the community at large, to deal with issues, which schools do not have the relevant expertise for.

Competent and effective school leadership and governance are necessary to promote a positive and collaborative culture and ethos, which involves all school actions and to establish strong bonds with the community around the school. The present study aimed at exploring the role of head teacher in implementation and promotion of whole school approach in public sector schools of Pakistan.

Review of Literature

There are very rare studies on the role of head teachers in the whole school development in the context of developing countries. The studies done in the western contexts are frequent claiming marvelous achievements in schools either reality or illusion…many claims of school improvement are illusory. Nevertheless, there are some improvement strategies that are well-defined, feasible and strongly shown to be effective (Sadruddin, Khaki 2014). In future, we need more exactness and agreement about what constitutes success (Coea, 2009). These are the ground realities of school improvement and role of head teachers in the context of West and we can, probably learn a great deal from these lessons. However, in the context of the developing countries, specifically in Pakistan, this area is yet has not been explored (Khaki, 2005; Khaki & Safdar, 2010; Khaki, 2010; Memon, Nazirali, Simkins, & Garret, 2000; Shafa, 2004; Simkins, Sisum, & Memon, 1998). There have been few studies

on the head teachers' role on the whole school development philosophy. Khaki (2005) explored the effective head teachers of three types of schools in Pakistan: Public, Community (Qutoshi, 2006) and individually owned schools. But, the head teachers' generalized role in the whole school development has not been explored. Khaki and Qutoshi (2014) conducted the case study of a community school to explore the role of head teacher. One of the respondents in both the studies of Khaki (2005) and Qutoshi (2006) was a community school head teacher that provides some basic factors of effectiveness of head teacher in school improvement context.

These studies show that head teachers work under pressure due to management structure, financial hurdles, parent's pressure, communal conflicts and sectarian issues which often burst into armed conflicts (Moos, 2013). In the socio-cultural context head teacher has a pivotal position as a community school leader in the whole process of school development (Sullivan, 2013). Head teachers' leadership role is seen in many forms as gatekeeper and responsible person to transform the schools to the highest levels while not always seeing his or her challenges (Qutoshi, Khaki, 2014). Where the head teacher works within the community network in a participatory collaborative approach in the dynamics of specific socio-cultural context and historical processes in which leadership is embedded: the practice, structure, values and norms of the local and greater communities that emerged over time and are still present as a sounding board for new perceptions and influences (Sullivan, 2013). His/her role is seen, on the one hand, as a moral agent – a leader with high levels of commitment, patience, care and facilitator, and on the other, an effective manager to run the affairs of school efficiently by fulfilling expectations of the stakeholders in a participatory approach (Lizotte, 2013; Sergiovanni 2000; Williams, 2006). Khaki's study (2005) calls this model as Prophetic Model. Often we see this model manifested in the Christian schools context as servant leader (Greenleaf, 1991, 1971).

The holistic school improvement is a completely delicate process of creating an environment where students' learning takes precedence over everything else (Lizotte, 2013) and aimed at accomplishing educational goals more effectively within the perceived philosophy of the whole school development. And in doing so, the head teachers' leadership role is central because they are important and powerful people (Coulson, 1978; Alexander, 1997). Their role in whole school development is to support and nurture the professionalism of teachers (Day (1993) in order to ensure this aim of improving results to excellent level with developing skills of learners.

Moreover, school development is not only limited to improving teaching and learning conditions but to improve overall aspects relating to students, employees, resources, environment and relationships within school and in wider community which directly or indirectly involve in the matters of school entity. However, to ensure this improvement to happen head teacher needs essential support for school development. In the context of our prevailing school system it is obvious for all stakeholders especially school management committee (SMC) members to understand the common core of essential support elements for school development. When SMC members realize the need for school development within their own cultural context the essence of participatory and collaborative decision making environment evolves and this way of working can influence other supporting institutions within the network of the community (Sullivan, 2013; Supovitz, & Tognatta, 2013). It was found that once community members have the opportunity and mindset to choose and participate in decisions that affect their lives, they gain the ability to lead and to take the initiative to make policy decisions that distribute benefits equitably and effectively through collective and collaborative efforts and actions (Sullivan, 2013).

The effectiveness of the school has been observed highly dependent on the role of head teacher (Ayaz Muhammad Khan & Munawar S. Mirza, 2012). But there was no exact picture of this role in action as stated by Michael Fullan. Fullan has characterize the nature of school improvement in relation to the head teacher's role and emphasized on how to produce more effective leadership. Newmann, King and Young (2000) presented an important framework for understanding continuous school improvement that targets on student achievement. According to them school capacity- the collective competency of the school as an entity is the critical factor to bring effective change. To understand school capacity is to understand the work of successful school head teachers. There are four core components of capacity according to Newmann et al:

Knowledge, skills and spirit of individual staff members
A professional community to set clear goals for students learning, assessment, and develop action plans to increase students attainments through a collaborative way and engaged in inquiry and problem solving.
Program coherence: "the extent to which the school's programmes for student and staff learning are coordinated, focused on clear learning goals, and sustained over a period of time"
Technical resources–high-quality curriculum, instructional material, assessment instruments, technology, workspace etc

Moreover, both in the context of developed and less-developed countries, it has been recognized that job related training for principals is one of the essential elements of quality instruction (Bush, 2008; Grauwe, 2004; Herriot, 2002; Bajnud, 2000). However, aligning quality education with trained principals has not been given enough attention in Pakistan, whether or not the schools are public or private. In most of the cases, length of service or academic qualification (not relevant to leadership) makes an individual eligible for the position of a principal. As a result, the head teachers seem to be less proactive and more interested in maintaining the status quo (Memon, Ali, Simkins & Garrett, 2000). Concepts such as instructional leaders and pedagogical leaders are commonly used in the western context when redefining the role of school principals because of the instruction-oriented nature of the two concepts. "Instructional leader makes instructional quality the top priority of the school and attempts to bring that vision to realization" (Jenkins, 2009).

The literature on school effectiveness in developing countries overwhelmingly indicates the significance of resources in school improvement strategies (Scheerens, 2000, Ward et al., 2006). In many developing countries resources determine the contents of the development plans. Literature suggests that lack of the most basic facilities in many third world schools causes depression amongst teachers and students and ineffective teaching and learning (Vulliamy, 1987). What complicates matters is the fact that poverty, illiteracy, and ignorance incapacitate parents to contribute resources such as exercise books and pens to facilitate learning. Many parents incapable of meeting such obligations end up withdrawing the children from school leading to high dropout rates. Research shows that a school's resources level in itself is not what is important, rather…the ways schools transform their available resources into staffing, structures, and organizational cultures is what matters (Oakes, 1989). However, many researchers argue that resources at least in developing countries remain a significant factor in school improvement. A recent study of perceptions of stakeholders in Namibia confirm that the quality of education can only be improved through provision of adequate resources such as desks, libraries, classrooms, furniture, trained teachers, and instructional materials (Barrow, 2006). Similarly, studies in Uganda show that investment in teacher training, classrooms and textbooks are effective in improving the quality of education (IOB, 2008). In Pakistan the books are free for students and many schools have their social support programs to provide financial assistance. Therefore it is necessary to explore the role of head teacher in the whole school development. Although these are very basic needs but can a head teacher bring a positive change in school improvement context taking all components of the school as a whole.

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The whole school development is an ideal concept where everything is perfect and caters all the needs of students encompassing physiological, psychological and social aspects. This is not possible to achieve all the attributes of the whole school development but one can strive to achieve minimum standards to meet the basic needs of the students and it is a step towards the whole school development.

Statement of the Problem

In the present study we made effort to explore and investigate different dimensions of the role played by head teachers along with their in-depth perceptions about whole school development.

Rationale of the Study

Since the inception of our country many educational policies focusing on school development have been framed but no policy could be implemented in its true letter and spirit due to one or the other reasons. Whereas, in advance countries every year many school development plans have been organized and executed under the ambit of their education policy to improve the achievements. The whole system of school revolves around the role of the head teacher. The head teacher plans, manages and implements all the activities of the school development. The reflection of the school image in the community depends on the effective role of head teacher. This investigation explored the role of head teacher in the whole school development would be helpful to all head teachers working across the country to improve their skill and knowledge and ultimately school development milestones will be achieved. The whole school development is an ideal concept where everything is perfect and caters all the needs of students encompassing physiological, psychological and social aspects. Though this is not easy task to achieve all the attributes of the whole school development but one can strive to achieve minimum standards to meet the basic needs of the students and it is step towards whole school development, so the present study would open the doors of awareness for head teacher that whole school development is not impossible but an arduous task to achieve with efforts.

Research Objectives

In the present study the following objectives were addressed:

To dig out the role of head teacher in the whole school development.

To measure the perceptions of head teachers about the whole school development.

Research Question

In the present study the following research questions were answered:

What is the role of head teacher in the whole school development?

What are the perceptions of head teachers about the whole school development?

METHODS

The current study aimed at exploring the role and perception of head teachers in the whole school development. So, keeping in view the objectives and research questions of the study the suitable philosophical prospective that could help to address the research problem was Post-positivism. The post-positivism is a meta-theoretical opinion that critiques and amends positivism. Positivists promulgate that the researcher and the researched person are independent of each other while post positivists accept that theories, backgrounds, knowledge and values of the researcher can influence what is observed. They are of the opinion that human knowledge is based not on unchallengeable, concrete foundations, but rather upon human conjectures. As the research problem comes under social sciences approach. Social science approach refers to a standardized set of techniques for building social knowledge on the basis of scientific principles, such as how to make valid observations, how to interpret results, and how to generalize those results. This allows researchers to independently and impartially test preexisting theories and prior findings, and subject them to open debate, modifications, or enhancements. It must satisfy four key characteristics:

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Logical: Scientific inferences must be based on logical principles of reasoning.

Confirmable: Inferences derived must match with observed evidence.

Repeatable: Other scientists should be able to independently replicate or repeat a scientific study and obtain similar, if not identical, results.

Scrutinizable*:* The procedures used and the inferences derived must with stand critical scrutiny (peer review) by other social scientists.

Any branch of inquiry that does not allow the scientific method to test its basic laws or theories cannot be called science. And any social phenomenon that is undergone through above mentioned stages then it comes in the domain of social science approach.

Population of the Study

For the current study the population covered four provinces, AJ & K and GB. There are approximately 0.300 Million head teachers working across Pakistan from primary to Higher secondary level (Number has been deduced from AEPAM annual report 2016-17).

Sample of the Study

In this study we applied purposive sampling technique. Purposive sampling is considered a useful strategy in which particular settings, persons or events are selected deliberately in order to provide important information that cannot be gotten as well from other sources (Maxwell, 1996. p.70). At EPAM 25 male and female education managers are attending 15th "Educational Leadership and Institutional Management" training of four weeks. Among these 25 participants 01 belong to ICT, 06 belong to Punjab, 06 belong to KP, 04 belong to Sindh, 06 belong to Baluchistan, 01 belong to AJ&K & 01 Belong to Gilgit-Baltistan. Therefore, it was convenient to collect data from the participants of 15th Educational Leadership and Institutional Management Workshop.

Research Procedure

From the participants of 15th ELIM workshop with the help of both qualitative and quantitative research method information was collected. It was a mixed type of research. The term "mixed method" refers to an evolved methodology of research that proceeds with the systematic integration, or "mixing," of quantitative and qualitative data within a single analysis or persistent plan of inquiry. The advantage of this methodology is that such integration allows a more complete and synergistic use of data than do separate quantitative and qualitative data collection and analysis.

Mixed method research originated in the social sciences and has recently expanded into the health and medical sciences and other fields. In the last decade, its procedures have been developed and refined to suit a wide variety of research questions (Creswell and Plano Clark, 2011). These procedures include advancing rigor, offering alternative mixed method designs, specifying a shorthand notation system for describing the designs to increase communication across fields, visualizing procedures through diagrams, noting research questions that can particularly benefit from integration, and developing rationales for conducting various forms of mixed methods studies.

Data Collection Tools

As a result of intensive literature review, the researchers decided to develop a questionnaire along with an interview to find out and measure the role of head teacher in the whole school development. The questionnaire was designed as Likert scale. The Likert scale ranges from Strongly Disagree, Disagree, Agree, and Strongly Disagree. The interview questions were designed in such a way that they help to explore the in-depth perception of head teachers about their role in the whole school development. Research suggests that the ability to tap into the experience of others in their own natural language, while utilizing their value and belief frameworks is virtually impossible without face-to-face and verbal

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interaction with them (Guba & Lincoln, 1981). The duration of each interview, which was transcribed varied from 5 to 10 minutes.

Validity and Reliability of Questionnaire:

The questionnaire was developed with the consultation of faculty of AEPAM and was checked by the senior faculty member to ensure its validity and reliability.

Data Analysis

For the analysis of data simple descriptive statistical techniques employed to draw inferences from responses acquired through questionnaire. The responses against each statement were tabulated and results were drawn as under:

Table 1. Head teacher plays important role to set clear goals

% of SDA	% of DA	% of A	% of SA
n=0	**n=1**	**n=6**	**n=18**
0	4%	24%	72%

Table given above indicates that 72% of respondents strongly agreed while 24 % agreed that the head teacher plays important role to set clear goals for whole school development. Only 4% disagreed which is negligible. To set clear goals is one of the basic functions to achieve the targets of whole school approach. The above results show that about 96% respondents were agreed to the statement that head teacher plays important role to set clear goals. This percentage is very significant.

Table 2. Head teacher plays important role to create collaborative environment.

% of SDA	% of DA	% of A	% of SA
n=0	**n=0**	**n=10**	**n=15**
0	0	40%	60%

The above table shows that 60% of respondents strongly agreed while 40% agreed that the head teacher plays important role to create collaborative environment for whole school development.

Table 3. Head teacher develops action plans to increase students' achievements.

% of SDA	% of DA	% of A	% of SA
n=0	**n=0**	**n=15**	**n=10**
0	0	60%	40%

The above table indicates that 40% of respondents strongly agreed while 60% agreed that the head teacher develops action plans to increase students' achievements.

Table 4. Head teacher helps to develop school culture.

% of SDA	% of DA	% of A	% of SA
n=0	**n=5**	**n=14**	**n=6**
0	20%	56%	24%

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The above table depicts that 80% of respondents agreed that the head teacher helps to develop school culture. Only 20% respondents disagreed with the statement.

Table 5. Head teacher appropriately manages instructional material.

% of SDA	% of DA	% of A	% of SA
n=0	**n=5**	**n=14**	**n=6**
0	20%	56%	24%

80% respondents agreed that the head teacher appropriately manages instructional material to achieve the targets of whole school development. 20% respondents disagreed with the statement.

Table 6. Head teacher improves physical outlook of the school.

% of SDA	% of DA	% of A	% of SA
n=1	**n=1**	**n=14**	**n=9**
4%	4%	56%	36%

92% respondents agreed that the head teacher improves physical outlook of the school. 8% respondents disagreed with the statement.

Table 7. Head teacher properly utilizes school budget/funds.

% of SDA	% of DA	% of A	% of SA
n=0	**n=2**	**n=10**	**n=13**
0	8%	40%	52%

92% of respondents agreed that the head teacher properly utilizes school budget/funds. 8% disagreed with the statement.

Table 8. Head teacher monitors the quality of teaching and learning.

% of SDA	% of DA	% of A	% of SA
n=0	**n=3**	**n=13**	**n=9**
0	12%	52%	36%

86% of respondents agreed that the head teacher monitors the quality of teaching and learning for whole school development. 12% oppose the statement.

Table 9. Head teacher makes assessment about the teaching-learning process.

% of SDA	% of DA	% of A	% of SA
n=0	**n=3**	**n=13**	**n=9**
0	12%	52%	36%

86% of respondents agreed that the head teacher makes assessment about the teaching-learning process for whole school development. 12% disagreed with the statement.

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Table 10. Head teacher ensures leadership among students.

% of SDA	% of DA	% of A	% of SA
n=1	**n=2**	**n=18**	**n=4**
4%	8%	72%	16%

88% of respondents agreed that the head teacher ensures leadership among students. 12% disagreed with the statement.

Table 11. Head teacher appropriately manages workload of teaching staff.

% of SDA	% of DA	% of A	% of SA
n=1	**n=1**	**n=9**	**n=14**
4%	4%	36%	56%

92% of respondents agreed that the head teacher appropriately manages workload of teaching staff. 8% disagreed with the statement.

Table 12. Head teacher effectively manages time.

% of SDA	% of DA	% of A	% of SA
n=0	**n=3**	**n=6**	**n=16**
0	12%	24%	64%

88% of respondents agreed that the head teacher effectively manages time. 12% disagreed with the statement.

Table 13. Head teacher keeps record of all activities.

% of SDA	% of DA	% of A	% of SA
n=1	**n=3**	**n=8**	**n=13**
4%	12%	32%	52%

84% of respondents agreed that the head teacher plays keeps record of all activities.16% disagreed with the statement.

Table 14. Head teacher supervises classroom teaching and learning.

% of SDA	% of DA	% of A	% of SA
n=1	**n=3**	**n=15**	**n=6**
4%	12%	60%	24%

84% of respondents agreed that the head teacher supervises classroom teaching and learning. 16% disagree with the statement.

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Table 15. Head teacher takes measures for discipline in policy and practices.

% of SDA	% of DA	% of A	% of SA
n=0	n=4	n=14	n=7
0	16%	56%	28%

84% of respondents agreed that the head teacher takes measures for discipline in policy and practices. 16% disagreed with the statement.

Table 16. Head teacher arranges all curricular and co-curricular activities as per academic calendar.

% of SDA	% of DA	% of A	% of SA
n=1	n=4	n=13	n=7
4%	16%	52%	28%

80% of respondents agreed that the head teacher arranges all curricular and co-curricular activities as per academic calendar. 20% disagreed with the statement.

Table 17. Head teacher provides opportunities for Continuous Professional Development.

% of SDA	% of DA	% of A	% of SA
n=0	n=6	n=15	n=4
0	24%	60%	16%

76% of respondents agreed that the head teacher provides opportunities for Continuous Professional Development. 24% disagreed with the statement.

Table 18. Head teacher effectively engages community and family.

% of SDA	% of DA	% of A	% of SA
n=0	n=6	n=12	n=7
0	24%	48%	28%

76% of respondents agreed that the head teacher effectively engages community and family. 24% disagreed with the statement.

Table 19. Head teacher mobilizes all school committees for school improvement.

% of SDA	% of DA	% of A	% of SA
n=0	n=3	n=12	n=10
0	12%	48%	40%

88% of respondents agreed that the head teacher mobilizes all school committees for school improvement. 12% disagreed with the statement.

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Table 20. Head teacher shares good practices of other institutes.

% of SDA	% of DA	% of A	% of SA
n=0	n=9	n=11	n=5
0	36%	44%	20%

64% of respondents agreed that the head teacher mobilizes shares good practices of other institutes. 36% disagreed with the statement.

For the analysis of narrative data obtained through Interview the interactive model was used in which data is reduced, displayed and conclusions are down. Recorded interviews were transcribed and saved in computer in a word file. For the purpose of analysis of transcribed data all transcriptions were thoroughly read by each member of the research team. Later on the transcripts were re-read thoroughly and reflectively in group so that data may be understood and categories may be identified.

Initially various categories were identified which were later on reduced to 03 major themes as under:-

Overall Achievements.
Effective utilization of instructional and non-instructional material.
Effective engagement of community and family for the inclusive betterment of a child.

For the purpose of displaying data all drawn categories were presented as the answer of questions (themes).

The responses against each question were as under:

The head teacher 1 responded against above indicted themes as:

Over all achievement of the Students

The head teacher can improve the school environment for teaching and learning. Students should not feel a sense of hostile in the school. Head teacher should be aware of modern trends in education. He should visit other schools to share best practices to improve over all achievements.

Effective utilization of instructional and non-instructional material.

The head teacher should conduct meetings with all stakeholders for proper utilization of instructional and non-instructional resources.

Effective engagement of community and family for the inclusive betterment of a child

The head teacher should arrange functions and celebrations of national days. He should also take part in community functions (social gatherings). School management committee or parent teacher association may involve for inclusive betterment of a child.

The involvement of stakeholders in planning of utilization of instructional and non-instructional resources was valuable. The involvement of school and community in their functions establishes a strong bounding and this can be used for inclusive betterment of a child.

The head teacher 2 responded against above indicted themes as:

Over all achievement of the Students

The head teacher can improve the overall achievements of the students by providing a role of instructional leadership and educational manager.

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Effective utilization of instructional and non-instructional material

The instructional and non-instructional resources can be effectively utilized by following the professional standards for head teachers and teachers.

Effective engagement of community and family for the inclusive betterment of a child

For inclusive betterment of a child parent-teachers' meetings could be arranged and by arranging curricular activities.

The responses show that the head teacher did not get the essence of questions clearly and replied in vague.

The head teacher 3 responded against above indicted themes as:

Over all achievement of the Students

The head teacher can improve the overall achievements of the students by conducting curricular and co-curricular activities. Quizzes, assignments and tests could improve the achievements.

Effective utilization of instructional and non-instructional material

The response for the theme was nil.

Effective engagement of community and family for the inclusive betterment of a child

Arrange parent-teachers' meetings. Celebrate annual result day and encourage best performer. Motivate students through awards.

Celebration of different programs at school level to involve community and family was considerable. The no response for theme effective utilization of instructional and non-instructional material shows that the head teacher did not have any clear idea about it.

The head teacher 4 responded against above indicted themes as:

Over all achievement of the Students

The head teacher can improve the overall achievements of the students by constituting committees and take follow up of all their activities. Involve parents, staff and students for shared caused. Use collaborative approach. Give special attention on basic skills of listing, reading, speaking and writing.

Effective utilization of instructional and non-instructional material

Through planning prioritize the activities.

Effective engagement of community and family for the inclusive betterment of a child

Motivate community. Create sense of ownership among stakeholders. Involve school council and school management committees for inclusive betterment of a child.

Constitution of different school committees was a good idea to improve the achievements of the students. And to motivate community for inclusive betterment of students was fair and appropriate.

The head teacher 5 responded against above indicted themes as:

Over all achievement of the Students

The head teacher can improve the overall achievements of the students by putting him/her self as role model. He should bound teacher to complete syllabus. He should address the financial issues of students so that they may perform well.

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Effective utilization of instructional and non-instructional material

The head teacher should constitute committees and define their term of references to effectively utilize instructional and non-instructional resources. He should involve and consult school management committee and Mother support Groups.

Effective engagement of community and family for the inclusive betterment of a child

The head teacher should share progress report of students with their parents. The community should be invited on different national eves in the school. In all important issues of school parents and community should be involved.

The consultation and involvement of parents for effective utilization of instructional and non-instructional resources is important. They can help in the best use of those resources. The involvement of school management committee and mother support group is also important for inclusive betterment of a child.

FINDINGS, RECOMMENDATIONS AND CONCLUSION

Findings

Following are the key findings of the study:

96% head teachers agree that the head teacher plays important role to set clear goals for whole school development.
100% respondents agreed that the head teacher creates a collaborative environment and develops action plans to increase students' achievements.
80% respondent agreed that head teacher helps to develop school culture and appropriately manages instructional material while 20% respondent disagreed with both themes.
92% respondents agreed that the head teacher plays his/her role to improve physical outlook of the school and properly utilizes school budget/funds.
86% of respondents agreed that head teacher monitors the quality of teaching and learning and makes assessment about the teaching-learning process.
88% respondents agreed that head teacher ensures leadership among students, effectively manages time and mobilizes all school committees for school improvement.
92% respondents agreed that head teacher appropriately manages workload of teaching staff.
84% respondents agreed that head teacher keeps record of all activities, supervises classroom teaching and learning and takes measures for discipline in policy and practices.
80% respondents agreed that head teacher arranges all curricular and co-curricular activities as per academic calendar.
76% respondents agreed that head teacher provides opportunities for continuous professional development and effective engagement of community and family while 24% disagreed to both the themes.
64% respondents agreed that head teacher shares good practices of other institutions while 36% disagreed.

Recommendations

Although it is difficult to make definite recommendations based on this small scale study, however, following are some of the ways in which all the stakeholders may think achieve the target of the whole school development which is so critical for their hopes and aspirations for their children's quality education.

The head teachers should promote school culture.
The head teachers should take appropriate steps for continuous professional development of her/her staff.

The head teachers should share best practices of other institutes for the whole school development.
The head teacher should engage the community and family for the inclusive betterment of the child.
The head teacher should focus on curricular and co-curricular activities for holistic development of child.
The head teacher should effectively manage instructional and non-instructional material.
The head teachers should be provided training on the theme" the whole school development".
The human and material resources are very vital to bring rapid change therefore, they should be sufficient enough for the whole school development.

Conclusion

It is a new venue of research in our countries context. The role of head teacher was not explored in whole school development plan. The researchers have tried to unveil the topic in a mixed type of research and explored the philosophy of whole school development in the prevailing context of our country. Most of the public or private sector head teachers focus on only one or two aspects of school improvement and many important areas of it remained untouched. Thus, could not achieve the target of holistic development of the child. Therefore, this concept should be promulgated across the country to promote the idea of whole school development and so that they will struggle to achieve the objectives of whole school development. This will give them a clear direction towards the target of whole school development.

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Annexure-A

QUESTIONNAIRE FOR ANALYSIS OF HEADT EACHERS ROLE IN THE WHOLE SCHOOL DEVELOPMENT PLAN

Basic Information

Name of HeadTeacher:_____
Total Experience as Head Teacher:_____
Qualifications (Academic / Professional) _____
Province/ Region_____
Contact No. _____
Signature: _____

Kindly mark the scale against each question according to your organizational context. The scale ranges from Strongly Agree (**SA**), Agree (**A**), Disagree (**DA**), and Strongly Disagree (**SDA**).

S. No.	Statements	SA	A	DA	SDA
1.	Head teacher plays important role to set clear goals				
2.	Head teacher plays important role to create collaborative environment.				
3.	Head teacher develops action plans to increase students' achievements				
4.	Head teacher helps to develop school culture				
5.	Head teacher appropriately manages instructional material.				
6.	Head teacher improves physical outlook of the school				
7.	Head teacher properly utilizes school budget/funds				
8.	Head teacher monitors the quality of teaching and learning				
9.	Head teacher makes assessment about the teaching-learning process				
10.	Head teacher ensures leadership among students				
11.	Head teacher appropriately manages workload of teaching staff.				
12.	Head teacher effectively manages time				

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13.	Head teacher keeps record of all activities				
14.	Head teacher supervises classroom teaching and learning				
15.	Head teacher takes measures for discipline in policy and practices				
16.	Head teacher arranges all curricular and co-curricular activities as per academic calendar				
17.	Head teacher provides opportunities for Continuous Professional Development				
18.	Head teacher effectively engages community and family				
19.	Head teacher mobilizes all school committees for school improvement				
20.	Head teacher shares good practices of other institutes				

Annexure-B
Interview questions

1. How can head teacher improve the overall achievements of the students?
2. How can head teacher effectively utilize instructional and non-instructional resources for whole school development plan?
3. How can head teacher effectively engage community and family for the inclusive betterment of a child?

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THE EFFECT OF SELF-CONSTRUAL, HOPEFUL THINKING AND PROBLEM-SOLVING ON LIFE SATISFACTION IN TEACHER CANDIDATES

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Abstract

Increasing life satisfaction has become a quite topical subject today with the effect of positive psychology trend. Psychological studies try to determine the factors which are related to life satisfaction. This study aims to examine the effect of self-construal, hopeful thinking and problem solving on life satisfaction. To that end, multiple regression analysis was performed to determine the variables that predict life satisfaction. Then, stepwise regression analysis was performed with variables that predict life satisfaction. When the regression coefficients for predictor variables of research findings, R^2 and F values were examined, in predicting life satisfaction, it is seen that agency thinking is the first, autonomous self in the second, relational self in the third, autonomous relational self in the fourth, and problem solving in the fifth rank effective.

Keywords: Life satisfaction, self-construals, dispositional hope, stepwise regression

INTRODUCTION

Humankind has struggled for a more satisfying life since the first day of its existence. Particularly psychology, various disciplines such as, philosophy, business, health, and tourism examine the concept of life satisfaction in line with their own paradigms, conduct research and obtain findings. As a matter of fact, it is inevitable that psychological studies aimed at understanding human beings are also concerned with life satisfaction. Psychological studies provide data on to what extent life satisfaction is related to which factors and what the determinants of life satisfaction are.

Life satisfaction is one of the components of subjective well-being (Diener, 1984; Huebner & Dew, 1996). It has been evaluated as the cognitive dimension of subjective well-being in addition to positive and negative affect components. Thus, life satisfaction is a cognitive process that evaluates both the quality of the individual's life as a whole (Pavot & Diener, 2008) and their feelings and attitudes towards their life (Özmete, 2011). It has been observed that life satisfaction (Dolan, Peagood, & White, 2008), which is one of the basic indicators of individual well-being, plays an important role in psychological health (Proctor, Linley, & Maltby, 2009), good social relations, productivity at work and long life expectancy (Lyubomirsky, King, & Diener, 2005). Since subjective well-being is an important component of quality of life, both the reasons for well-being and the consequences of well-being are among the subjects that are frequently researched. There are consistent findings that subjective well-being significantly improves life in the areas of social relationships, work and income, healthy and longevity, and social benefit (Lyubomirsky, King, &

Diener, 2005). Besides, life satisfaction is related to optimism, less behavioral problems, and higher cognitive functions (Proctor, Linley, & Maltby, 2009). In order to determine the factors affecting life satisfaction, the relationship of demographic characteristics such as gender, marital status, education, and employment with life satisfaction was examined. When the findings were analyzed, it was seen that there was no consistency in the findings related to the variables of gender, education and age that could create a relationship. On the other hand, it was observed that it was associated with variables such as income level and marital status. Since life satisfaction is closely related to human psychological health, numerous studies have been conducted on it in different groups and different cultures. Many studies point to the effects of culture on subjective well-being (Diener & Ryan, 2009). In addition to culture, personality and temperament are also among the factors that affect individual differences in life satisfaction (Emmons & Diener, 1985).

Emerging adulthood, which is the transition period of individuals from adolescence to adulthood and includes university students, is frequently investigated in terms of life satisfaction due to its characteristics. Socioeconomic status / Financial security (Simons, Aysan, Thompson, Hamarat, & Steele, 2002); self-image and values (Chow, 2005; Kirişoğlu, 2016); academic performance and achievement (Cheung, 2000); personality / self-building (Kaya-Şen, 2019; Yetim, 2003), family structure (Kirişoğlu, 2016); Self-sufficiency (Peker, 2018) are some of the variables related to life satisfaction. Schoenecker (2010), in his comprehensive research to determine the factors affecting the life satisfaction of university students and their order of importance, identified fifteen factors including factors such as economic security / stability, success, family, self-image and values, acceptance and belonging, independence / ownership (Schonecker, 2010). Proctor et al. (2009) state that personality and temperament variables explain a significant part of individual differences in well-being.

In this study, self-construal, hope level and problem solving skill were taken as predictive variables of life satisfaction. The emerging adulthood, which emerges as a developmental transition period in which university students are in, is determined by cultural standards (Santrock, 2014). One of these cultural standards is self-construal. Since the self reflects the self-perception of the individual, it has a cognitive and insightful aspect and at the same time, it is a social product since it is the result of a social interaction and also a culturally shared model of the person (Kağıtçıbaşı, 2000). Markus and Kitayama (1991) express the self-construal as the effect of both relationships with other individuals and individuality on the process of structuring the knowledge of the self. In self-construal, there is a structure formed by the sum of feelings, thoughts and actions belonging to the relationship and the self (Singelis, 1994). In other words, every culture shapes its own human model. The most known distinction in the relationship between culture and self-construal is independent self-construal and interdependent / relational self-view. Independent self-construal is more associated with Western culture, and people define themselves with their own inner thoughts, feelings and actions, not the feelings, thoughts and actions of others. In the relational / interdependent self-construal which is mostly associated with Asian and non-Western cultures, it is possible to define oneself with the actions of others (Aronson, Wilson, & Akert, 2010). Kağıtçıbaşı (2000), as a result of his long years of research in Turkish society, revealed a third self-structure in addition to these two types of self. This self-structure, which is called the autonomous-relational self-type, is relational in terms of the continuation of emotional attachments and autonomous due to the decrease in material relations between generations. According to Kagitcibasi (2000), the coexistence of these two structures is not a contrast, but an indicator of harmony with the environment and functionality. On the other hand, Ryan and Deci (2001), state that both autonomy and relationality need are not specific to culture but universal, while Sinha and Tripathi (1994) state that both individualist and collectivistic features can be together (as cited in Kağıtçıbaşı, 2010). Self-structures of individuals are related to emotions (Kuyumcu, 2011), life satisfaction and subjective well-being (Koydemir & Schütz, 2014; Özdemir & İlhan, 2013) and psychological help seeking behavior (Yalçın, 2016). Positive experiences can also be seen in individuals with dependent self-construal. However, individuals with independent

self-construal keep their positive emotion levels high in the face of difficult situations as their self-esteem increases while individuals with dependent self-construal can only have this positive emotional state with family support (Lam, 2005).

One of the factors related to life satisfaction in university students is hope. Hope is one of the important protective factors for continuing to live and quality of life (Sarı & Tunç, 2016). Hope was sometimes seen as cognitively based, sometimes emotionally based, and in some models both its cognitive and emotional aspects were emphasized (Tarhan & Bacanlı, 2016). Besides, according to Snyder and Pedrotti (2003), conceptualizations about hope also emphasize the individual's thoughts and feelings about the future in general, as well as the individual's thoughts and feelings about the capacity to make the future better (Lopez, (cited in Reichard, Avey, Lopez and Dollwet, 2013). In this study, hope, as defined by Snyder (1994), was accepted as a cognitive and motivational structure that reflects individuals' perceptions of their capacities. This structure has three dimensions; "having clearly conceptualized goals", "pathways thinking" and “having the motivation to use and maintain these strategies, in other words, agency thinking” (Snyder, 2002). Although almost all of the twenty-four character strengths in positive psychology are related to traits such as life satisfaction and competence, in several studies love, hope, curiosity, gratitude and sense of pleasure are character strengths that are observed to be highly associated with life satisfaction (Peterson, Ruch, Beermann, Park and Seligman, 2007). In the study conducted by Magaletta and Oliver (1999), hope predicted life satisfaction much better than the other two variables in the study, self-efficacy and optimism. Studies show that positive characteristics such as hope, life satisfaction, self-efficacy, and optimism are related to each other, and the coexistence of these features will provide positive life outcomes such as higher psychological well-being (Jones, 2011). Permanent hope was discovered to be related to subjective and psychological well-being (Bailey & Synder, 2007) high academic achievement and high graduation levels (Curry, Synder, Cook, Ruby, & Rehm, 1997; Rand, 2009) (Muyan-Yilik, 2017; Kocaman, 2019; Önder & Mukba, 2017).

In this study, another variable to be examined in relation to life satisfaction of university students was chosen as problem solving skills. Problems almost constitute an inevitable part of life. A problem is defined as; in a situation or task (present or expected) that requires a response for an adaptive functioning, situations where, due to the existence of one or more obstacles, an appropriate behavior that will help those facing this situation in any way is not accessible or visible (D'Zurilla, Nezu, & Maydeu-Olivares, 2002). Problem solving skill is defined in different ways in the sources (Kabasakal & Uz Baş, 2013). The common point of these definitions is to think about alternative ways to overcome an obstacle, and to choose and implement one of these ways. While the sources of the problems are sometimes our experiences in our daily lives, sometimes they can be related to the developmental periods we are in. The period of university students who constitute the sample of this study is the emerging adulthood period, which is a transition period (Atak, Tatlı, Çokamay, Büyükpabuşçu, & Çok, 2016). As stated above, emerging adulthood is a developmental period of transition from adolescence to adulthood. According to Arnett (2006), the emerging adulthood period is characterized by the search for identity, instability, self-focus, feeling in-between (unable to see themselves as full adolescents or full adults) and having the opportunity to transform their lives (cited in Santrock, 2014). The ability of individuals to solve both their daily problems and the problems they encounter in relation to the developmental period they live in affect their life satisfaction. Research findings show that there is a relationship between problem-solving skills, psychological well-being, competence, productivity and optimism (D'Zurilla & Chang, 1995; Kabasakal & Uz Baş, 2013). To be able to solve a problem is directly related to the individual's psychology and adaptation (Ferah, 2000). Some studies have shown that individuals who use cognitive and intellectual processes more in problem solving have higher life satisfaction (Khan, Tehmina, & Ashraf, 2016; Jung, Youn, & Kim, 2007).

In this study, self-construal, problem solving skills, and hope level were taken as predictive variables of life satisfaction. Despite the fact that there are many studies in the literature that examine the

variables related to life satisfaction of university students, studies examining the effects of both a culture-influenced structure like self-construal and individual differences like hope and problem-solving on life satisfaction are limited. Furthermore, it is significant to what extent self-construal, hope and problem solving skills predict life satisfaction in terms of the developmental period of the study sample. Determining the factors that contribute to individuals' high life satisfaction in this period will make them more willing to transform their lives. From this point of view, it is thought that the study will contribute to the field. The purpose of this study is to examine the effect of self-construal, hopeful thinking and problem solving on life satisfaction.

METHODS

Data Collection Tools

Dispositional Hope Scale: The DHS was developed by Snyder et al. (1991) and consists of 12 items and two sub-dimensions. Each of the sub-dimensions called Pathways Thinking and Agency Thinking is measured with four items. The Turkish adaptation of the scale was done by Tarhan and Bacanlı (2015). It was determined that the scale explains 61% of the total variance. As a result of the confirmatory factor analysis, the fit indices were calculated as GFI = .96, AGFI = .92, RMR = .08, NNFI = .94, RFI = .90, CFI = .96 and RMSEA = .077. It was found that the relationship between Life Satisfaction Scale and DHS is (r = .33; p <.001), the relationship between the UCLA Loneliness Scale and the DHS is (r = -.40; p <.001), the relationship between Trait Anxiety Scale and DHS is (r = -.17; p <.001) and the relationship between Beck Hopelessness Scale and DHS is (r = -.40; p <.001). Retest Reliability: It was found that the relationship between the first and last application of the items related to the Agency Thinking dimension in the DHS is (r = .81; p <.001), the relationship between the first and last application of the items related to the Pathways Thinking dimension is (r = .78; p <.001), and the correlation calculated using the total score obtained from the scale is (r = .86; p <.001).

Problem Solving Skills Perception Scale: The scale consists of 35 items. The original form was created by Heppner and adapted into Turkish by Şahin, Şahin, and Heppner (1993). The internal consistency of the original form ranges between .72 and .90, while the test-retest ranges between .83 and .89. The cronbachs alpha of the Turkish form is .88, and the sub-dimensions vary between .69 and .78.The correlation between items varies between -.46 and .52.There is a .33 correlation with the Beck Depression Scale and a .45 correlation with the trait anxiety scale. The scale consists of the sub-dimensions of impatient approach, thinking approach, avoidant approach, evaluative approach, self-confident approach, and planned approach.

Autonomous-Relational Self in the Family Scales: The scale was developed by Kağıtçıbaşı (2007). Its form for high school students was prepared by Özdemir and Çok (2011). The internal consistency coefficient of the autonomous self-scale in the family is (.69), the internal consistency coefficient of the relational self-scale in the family is (.77) and the internal consistency coefficient of the autonomous-relational self-scale in the family is (.73) which was found to be acceptable.

Life Satisfaction Scale: It was developed by Diener, Emerson, Larsen, and Griffin (1985) in order to measure the satisfaction of individuals with their lives. The adaptation of the scale to Turkish was made by Köker (1991) and the internal consistency coefficient of Cronbach alpha was found to be .85. The scale has a 7-point Likert type structure ranging from "1 = strongly disagree" to "7 = strongly agree". High scores on the scale indicate high life satisfaction.

Study Group

A total of 331 university students, 52 (15.7%) male and 279 (84.3%) female, participated in this study. The average age of the students is 22.19 (sd = 2.65) and the highest age is 40 and the lowest is 20. 105 31.7) 1st grade students, 108 (%32.6) 2nd grade students, 72 (%21.8) 3rd grade students, 41 (%12.4) 4th grade students participated in the study. 5 (%1.5) people did not state which grade they attended.

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Process

The application of the data collection tools used in the research was carried out directly by the researcher during the course hours. In every class where the application would be held, information about the application was given before. In the study which was based on voluntariness, extra points were given to each student participating in the application. Incomplete and carelessly filled forms were included in the study.

Analysis of Data

Data obtained from data collection tools were analyzed using SPSS 20.00 for Windows package program. Kolmogorov-Smirnov Test was used to test whether the variables show normal distribution or not and according to the test results, it was seen that the variables (p>.05) showed normal distribution. In the study, Pearson Product-Moment Correlation Coefficient was used to determine the direction and level of the relationship between variables, multiple regression analysis and stepwise regression analysis to determine the variables that predict life satisfaction.

RESULTS

Table 1. Descriptive data on the variables

	n	Mean	Std.Dev.
1.Life Satisfaction	331	22.94	6.34
2.DHS Pathways	331	26.52	3.70
3.DHS Agency Thinking	331	24.08	4.21
4.SCS Autonomous Self	331	21.98	3.72
5.SCS Relational Self	331	38.23	3.34
6.SCS Autonomous-Relational Self	331	15.63	1.22
7. PSS Avoidant	331	10.45	3.69
8. PSS Impatient	331	28.07	6.41
9. PSS Thinking	331	11.93	3.99

As seen in Table 1, the average of life satisfaction scores of the whole group was found to be 22.94 (sd = 6.34). In addition, the pathways average score is 26.52 (sd = 3.70),agency thinking mean score is 24.08 (sd = 4.21), autonomous self-score average is 21.98 (sd = 3.72), relational self-score average is 38.23 (sd = 3.34), autonomous relational self-score average is 15.63 (sd = 1.22), avoidant problem solving score average is 10.45 (sd = 3.69),impatient problem solving score average is 28.07 (sd = 6.41), and the thinking problem solving score average is 11.93 (sd = 3.99).

Table 2. Table of relationship between variables

	1	2	3	4	5	6	7	8	9
1. Life Satisfaction	-	.31**	.56**	-.23**	.24**	-.13*	-.25**	-.24**	-.28**
2. .DHS Pathways	.31**	-	.70**	.15**	.04	.12*	-.39**	-.46**	-.50
3. DHS Agency Thinking	.56**	.70**	-	.03	.09	.01	-.35**	-.41**	-.45
4. SCS Autonomous Self	-.23**	.15**	.03	-	-.27**	.07	-.08	-.08	-.15
5. SCS Relational Self	.24**	.04	.09	-.27**	-	.12*	.24**	-.02	.02
6. .SCS Autonomous-Relational Self	-.13*	.12*	.01	.07	.12*	-	-.05	.02	-.21**
7. PSS Avoidant	-.25**	-.39**	-.35**	-.08	-.02	-.05	-	.60**	.34**
8. PSS Impatient	-.24**	-.46**	-.41**	-.08	.02	.02	.60**	-	.36**
9. PSS Thinking	-.28**	-.50**	-.46**	-15**	-.05	-.21**	-.34**	.36**	-

Life satisfaction has a significant relationship at the r = .31 level with pathways, at the r=.56 level with agency thinking, at the r = -23 level with autonomous self, at the r=.24 level with relational self, at the r = -. 25 level with avoidant problem solving, at the r = -. 24 level with impatient problem

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solving, at the r=-28 p<.001 level with thinking problem solving, and at the r=-.13 p<.05 level with autonomous relational self. Pathways has a significant relationship at the r=.70 level with agency thinking, at the r=.15 level with the autonomous self, at the r=-.39 level with avoidant problem solving , at the r=-.46 level with impatient problem solving, at the r=-50 p<.001 level with thinking problem solving and at the r=-.12 p<.05 level with autonomous relational self while it doesn't have a significant relationship at the r=.04 p>.05 level with the autonomous self. While agency thinking has a significant relationship at the r=-.35 level with avoidant problem solving, at the r=-.41 level with impatient problem solving, and at the r=-46 p<.001 level with thinking problem solving, its relationship is insignificant at the r=.03 level with autonomous self, at the r=.09 level with the relational self and at the r=.01 p>.05 level with the autonomous relational self. Autonomous self has a significant relationship at the r=-. 27 level with the relational self and at the r = -15 p <.001 with thinking problem solving, while its relationship is insignificant at the r=.07 level with the autonomous relational self, at the r=-.08 level with the avoidant problem solving and at the r=-.08 p>.05 level with the impatient problem solving. Relational self has a significant relationship at the r=.12 p<.05 level with the autonomous relational self, while its relationship is insignificant at the r=-.02 level with the avoidant problem solving, at the r=.02 level with the impatient problem solving, and at the r=-.05 p>.05 with the thinking problem solving. Avoidant problem solving has a significant relationship at the r=.60 level with impatient problem solving and at the r=-.34 p<.001level with thinking problem solving. Impatient problem solving has a significant relationship at the r=.36 p<.001 level with the thinking problem solving.

Before proceeding with the regression process, it was examined whether the assumptions were met for the regression process. It was determined that the distribution is normal and linear. Skewness and kurtosis values vary between ± 1. Durbin Watson was found to be .04.. VIF values were calculated below 10.VIF values vary between 2.30 and 1.10.Tolerance statistics are also above 0.2. Tolerance statistics range between .91 and .43. 6 residual values were found. Since it is less than 10% of the data, it seems that it does not pose a problem. None of the Cook's Distance values are greater than 1.

Table 3. Dispositional hope scale & self-construal scale sub-dimensions' predictive power on life satisfaction

Predicted Variable	Predictive Variable	B	St. Error	β	R	R^2	t
	Fixed	19.951	6,062				3.291**
	DHS Pathways	-.234	.109	-.136			-2.140*
	DHS Agency Thinking	.866	.092	.576	.658	.433	9.376**
	SCS Autonomous Self	-.339	.076	-.199			-4.441**
Life Satisfaction Scale	**SCS Realtional Self**	.289	.084	.152			3.437**
	SCS Autonomous Realtional Self	-.762	.229	-.147			-3.334**
	PSS Avoidant	-.154	,092	-.090			-1.677
	PSS Impatient	.011	.055	.011			.203
	PSS Thinking	-.173	.082	-.109			-2.111**

Note: R^2 for model = .43 (p <.001)

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Regression analysis results about variables examined as predictors of life satisfaction are given in the table. It is observed that life satisfaction is significantly predicted by pathways (t = -2.140, p <.05), agency thinking (t = 9.376, p <.001), autonomous self (t = -4.441, p <.001), relational self (t = 3.437, p <.001), autonomous relational self (t = -3.334, p <.001), and problem solving thinking sub-dimension (t = -2.111, p <.001). It is seen that avoidant problem solving (t = -1.677, p> .05) and impatient problem solving (t = .203, p> .05) don't significantly predict. Agency thinking has the highest regression coefficient (.866) while the problem solving scale has the lowest regression coefficient (-.173). As a result, 8 variables explain 43% of life satisfaction (R^2 = .43, $F_{(8.322)}$ = 30.73 p<.001). Since avoidant problem solving and impatient problem solving, which are two sub-dimensions of the PSS, did not significantly predict life satisfaction, they were not included in the stepwise regression analysis.

Table 4. Stepwise regression results

Predictive Variable	B	St. Error	β	R	R^2	t	R^2 change	F change	Df1	Df2
Dependant Variable Life Satisfaction	2.500	1.675								
Step 1:	.849	.069				1.493				
DHS Agency Thinking	11.411	2.250	.564	.564	.318	12.392**	.318	153.552**	1	329
Step 2:	.862	.066				5.073**				
DHS Agency Thinking	-.419	.074	.572	.615	.379	13.142**	.060	31.822**	2	328
SCS Autonomous Self	.834	4.182	-.246			-5.641**				
Step 3:	.841	.065				.199				
DHS Agency Thinking	-.357	.076	.559	.628	.395	12.907**	.016	8.918**	3	327
SCS Autonomous Self	.254	.085	-.209			-4.685**				
SCS Relational Self	9.898	5.017	.134			2.986**				
Step 4:	.839	.064				1.973*				
DHS Agency Thinking	-.332	.076	.557	.643	.413	13.055**	.018	10.073**	4	326
SCS Autonomous Self	.293	.085	-.195			-4.394**				
SCS Relational Self	-.707	.223	.155			3.455**				
SCS Relational Autonomous Self	15.698	5.750	-.136			-3.174**				
Step 5:	.769	.073				2.730**				
DHS Agency Thinking	-.355	.076	.511	.648	.421	10.606**	.007	4.137*	5	325
SCS Autonomous Self	.291	.084	-.208			-4.661**				
SCS Relational Self	-.811	.228	.153			3.441**				
SCS Relational Autonomous Self	-.160	.079	-.156			-3.564**				
PSS Thinking	2.500	1.675	-.101			-2.034*				

In the first step of the stepwise regression, the standardized regression coefficient in life satisfaction of the agency thinking was found to be = .564. Agency thinking predicts life satisfaction at a significant level. In the first step, agency thinking explains 32% of life satisfaction ($R^2 = \Delta.32$, $F_{(1, 329)}$ = 153.552 p <.001). In the second step, while the regression coefficient of the agency thinking in

predicting life satisfaction is the highest with β = .572, the regression coefficient of the autonomous self, the second variable, is β = -. 246. In the second step, variables explain 8 of life satisfaction (R^2 = Δ.38, $F_{(2.328)}$ = 31.822 p <.001). In the second step, the regression coefficient of the agency thinking in predicting life satisfaction is the highest with β = .559, the regression coefficient of the autonomous self, the second variable, is β = -. 209, and the regression coefficient of relational self, the third variable, is β = .134. The variables in the third step explain 9 of life satisfaction (R^2 = Δ.39, $F_{(3,327)}$ = 8.918, p <.001). In the fourth step, the regression coefficient of the agency thinking is β = .557, the regression coefficient of the autonomous self is β = -. 195, the regression coefficient of the relational self is β = .155, and the regression coefficient of the autonomous relational self is β = -. 136. In the fourth step, variables explain the 41% of life satisfaction (R^2 = Δ.41, F (4,326) = 10.073 p<.001). In the fifth step, the regression coefficient of agency thinking is = .511, the regression coefficient of autonomous self is β = -. 208, the regression coefficient of the relational self is β = .153, the regression coefficient of the autonomous relational self is β = -. 156, and the regression coefficient of thinking problem solving is β = -. 101. In the fifth step, the variables explains the 41% of life satisfaction (R^2 = Δ.41, $F_{(5.325)}$ = 4.137 p <.001). When the regression coefficients, R^2 and F values for the predictive variables are examined, it is seen that the agency thinking, autonomous self, relational self, autonomous relational self and thinking problem solving are respectively effective in predicting life satisfaction.

DISCUSSION and CONCLUSIONS

This study examines whether teacher candidates' life satisfaction is significantly predicted by hope self-construal and problem solving variables. The first finding of the study is that hope self-construal, and problem solving together explain life satisfaction with 43% variance percentage. When the variables that contribute significantly to the model are examined. It is seen that the variable that most predicts life satisfaction is the agency thinking, which is the sub-dimension of hopeful thinking. The findings show that life satisfaction is predicted firstly by agency thinking and then by the autonomous self, relational self, and autonomous-relational self sub-dimensions, respectively, and finally by the thinking problem solving sub-dimension, which is one of the components of problem solving. The first finding of the research is that agency thinking explains 32% of life satisfaction. The fact that dispositional hope predicts life satisfaction is compatible with the literature. In the literature, it is seen that hope is associated with positive forces such as life satisfaction, self-efficacy, and optimism. The coexistence of these positive strengths is also associated with positive life outcomes such as higher psychological well-being (Jones, 2011). Studies show that the level of dispositional hope increases individuals' well-being and problem solving skills (Gülten, 2014). Also, individuals with high levels of hope can perform their planning more effectively and display the ability to put them into action to increase their satisfaction (Reichard, Avey, Lopez, & Dollwet, 2013). In African American adolescents, hope not only facilitates academic and long-term life goals, but also makes it easier to tackle difficulties such as racial discrimination and procrastination (McClintock. 2015). When the research findings were examined, it was seen that pathways were highly related to agency thinking, as stated in the literature (Tarhan & Bacanlı, 2016). However, in this study, it was found that the important variable in determining life satisfaction is the agency thinking. In other words, participants' life satisfaction increases not when they seek for pathways but when they are motivated to do something. Agency develops as they learn to achieve goals, especially with the praise and support they receive while trying to accomplish their developmental tasks (McDermott & Snyder, 2000; cited in Grewal & Porter, 2007). People are goal oriented; they create a cognitive analysis through the idea of pathways and agency thinking in order to think about their goals (Snyder, 1995). Positive beliefs and assumptions about goal setting are related to the self and positive feelings about the whole of life (Snyder, 2002). In this study, the fact that agency thinking is the most predictive variable of life satisfaction is consistent with the literature as stated above. Likewise, seeing one's competence in self-fulfillment creates a positive emotional state and this perspective that the person looks at ensures that their perceptions towards life are also from the same positive perspective. Specific to this study, the

reason that agency thinking is the variable that most predicts life satisfaction may be due to the characteristics of the participants' emerging adulthood. As stated above, instability and being in-between are characteristic features of the period. Having the motivation to take action in such a period may increase life satisfaction.

The second finding of the study is that self-construal is related to life satisfaction. According to the findings, autonomous self, which is one of the sub-dimensions of agency thinking and self-construal, explains life satisfaction with 38% variance, while agency thinking, autonomous self and relational self-explain it with 41% variance. When autonomous relational self-variable is added next to these three variables, it explains 41% of life satisfaction. While the relational self-type is in a positive relationship with life satisfaction, the autonomous self and autonomous relational self-types are in a negative relationship with life satisfaction. At every stage, the power of agency thinking to predict life satisfaction is higher than that of the autonomous self. In this study, it was found that autonomous self-construal negatively predicted life satisfaction. This situation is not in line with the findings of studies conducted with emerging adults in the literature. In the literature, it is stated that individuals with autonomous self-construal take part in an active and independent process of self-management, organizing their own behavior, making their own decisions and putting them into action (Feldman & Rosenthal, 1991; Sessa & Steinberg, 1991). Therefore, since autonomous individuals initiate their behavior internally and perceive themselves as an output of their regulation it is stated that their self-esteem and well-being levels are high (Luyckx, Schwartz, Soenens, Vansteenkiste & Goossens, 2010). In addition, in another study, while it is observed that individuals who grow up in an environment where autonomy is supported have high levels of internal motivation, subjective well-being, self-esteem and life satisfaction, it is concluded that the self-regulation and internalization mechanisms of individuals who grow up in an environment where autonomy is not supported do not function effectively (Soenens, Park, Vansteenkiste, & Mouratidis, 2012). In the studies carried out in Turkey, autonomous relational self, relational self and autonomous self were found to be related to subjective well-being (Dönmezoğul in 2014; Garner, 2015; Karatekin, 2013; Koydem and Egypt, 2015; Koydem and Schütz, 2014; Ozdemir and Ilhan, 2013; Zorlu and Bacanlı, 2019).

In this study, the relational self was found to be positively associated with life satisfaction, unlike the autonomous self. Relational self-construal appears as an expression that is used to describe the situation in which individuals around a person are part of their self and care about close relationships, and is mostly used to describe individuals living in Eastern societies (Kağıtçıbaşı, 2007; Markus & Kitiyama, 1991). In this study, it was found that life satisfaction increases as individuals' level of seeing themselves as a part of their groups and close environment increases. When the literature is examined, it is seen that the relational self in collectivist cultures can be a predictor for life satisfaction as much as the autonomous self (Kwan et al., 1997; Suh et al., 1998). Beydoğan (2008) found that relational self-orientation predicts life satisfaction in his study, in which he examined perceived work environment and well-being according to differences in self-type, Kwan et al. (1997. 1049), in their research, discovered that life satisfaction can be predicted by emotions (an intrinsic private life) in individualist cultures and by adherence to social norms in collectivist cultures. Similarly, Suh et al. (1998: 510) showed that life satisfaction for people with high autonomous self can be predicted only by emotions (such as the balance of positive and negative effects), not by being evaluated by others that are important to them. For people with a stronger relational self, it was stated that both social values and emotions have an effect on life satisfaction (Suh et al., 1998). Morsünbül's (2013) study with adolescents between the ages of 14-17 shows that individuals with relational self-construal have higher life satisfaction than individuals with autonomous self-construal. These individuals with high life satisfaction are vulnerable to depression. However, in the autonomous relational self-construal that includes both autonomy and relationality, both individuals' life satisfaction is high and they are more resistant to depression. Özdemir (2012) discovered in his research that adolescents with relational and autonomous self-construal have higher life satisfaction than autonomous adolescents. In this study, the reason that relational self-construal is related to life

satisfaction, unlike other types of self-construal may be that the number of participants attending the 1st and 2nd grades of the university is higher compared to the participants attending the 3rd and 4th grades of the university. Individuals who freshly start university and who are between adolescence and emerging adulthood may not yet be able to fully develop a self-construct that differs from their family and immediate environment. Although the relational self-structure is interpreted as unhealthy in terms of personality theories. Kağıtçıbaşı (2007) stated that the relational self is a structure that is as significantly related to life satisfaction as the autonomous self.

In this study, it was seen that the fourth variable, which predicts life satisfaction and has a negative relationship with life satisfaction is the autonomous relational self. Kağıtçıbaşı (2007) expresses that this self-construal structure, which includes both autonomy and relationality, is healthier than the autonomous and relational self. In our study, it was found that individuals with autonomous relational self-construal have higher life satisfaction than individuals with relational or autonomous self-construal. This finding contradicts the findings of the study conducted by Özdemir and İlhan (2013) with the participation of university students. While Özdemir and İlhan (2013) could not find a relationship between autonomous self-construal, relational self-construal and subjective well-being, they found that there was a positive relationship between autonomous relational self-construal and subjective well-being. Also in the study conducted by Zorlu and Bacanlı (2009), it is seen that the autonomous relational self is in a positive relationship with life satisfaction. In the study of Morsünbül (2013), it was found that autonomous relational individuals are both higher in life satisfaction and more resistant to depression compared to individuals with other self-construal. It was stated that the reason for this situation is that the autonomous relational self-construal is to meet two basic needs; autonomy, and relationality. It is thought that the fact that relationality is positively associated with life satisfaction in this study may be related to the participants of the study. The fact that the number of first and second year university students is relatively higher than the upper grades may have caused the relationality to be positively associated with life satisfaction. The study of Morsünbül (2013) mentioned above shows that although relational individuals have low resistance to depression their life satisfaction is high. This situation was interpreted as the fact that the participants of the study could not make their own decisions yet and their acting in line with their parents' opinions would make them happier.

The fifth and last one of the findings of the study is that thinking problem solving, one of the sub-dimensions of problem solving, predicts life satisfaction. The thinking problem solving sub-dimension was found to be negatively related to life satisfaction. Problem solving, which is defined as approaching the situation by using mental functions (Arkonaç, 1990) in the face of a situation that a person cannot solve based on previous experiences, is seen as one of the social-emotional competences (Frey, Hirscgstein, & Guzzo, 2000). In line with other studies in the literature, this study shows that positive characteristics such as hope, life satisfaction, self-efficacy, and optimism are related to each other, and the coexistence of these characteristics will provide positive life outcomes such as higher psychological well-being (Jones, 2011).

In conclusion, it was seen that various variables that were discussed in this study and predicted life satisfaction predicted life satisfaction at a high rate of 43%, variables were presented according to the prediction priority of life satisfaction. The research has some limitations, one of these limitations is that the number of male participants is less than the number of female participants. For this reason, the study can be repeated by increasing the number of male participants. Another limitation is that the participants of the research are university students who continue to the education faculty. It is thought that comparisons can be made with participants from different faculties. The fact that the age group covers university students can also be seen as a limitation. Therefore, the relationships of variables in advanced age groups and different occupational groups can be investigated. Undoubtedly life satisfaction is an important issue that will continue to be researched and its relationship with different variables will be evaluated.

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A METHOD PROPOSAL FOR TEACHING STUDENTS WITH INTELLECTUAL DISABILITY TO READ AND WRITE: SENTENCE TARGETED SYLLABLE METHOD

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Abstract

Sound-based sentence method has been used to teach reading and writing (since the 2005-2006) in Turkey. This method, however, might pose difficulties in learning "sound-syllable-word-phrase" formations for students with intellectual disability. The aim of this research proposes a new method of literacy for students with intellectual disability. Conducted using document reviewing method, the study developed the "Sentence-Targeted Syllable Method" based on the language and cognitive development characteristics of children with intellectual disability and the Turkish language structure. This method firstly teaches syllables and words of a targeted sentence. For example, to teach "Ali lale al", the syllables "la-le-li" are taught to reach the word "lale", and then students are instructed to read/write the syllables "al-il-el" to form the targeted sentence. In the first stage, the targeted sentence is formed by highlighting the vowels "a, e, ı, i, o, o, u, ü" and the consonants "l, b, n, y, ç, t, s, k, ş" instructing students to read/write the syllables and then the words of the targeted sentence. New syllables-words-sentences are generated by splitting sentences into sounds. In the second stage, the sounds "p, r, m, z, g, v, d, f, c, h, ğ, j" are finally taught through synthesis, which is followed by other practices to improve children's literacy.

Keywords: Sentence targeted syllable method, students with intellectual disability, teaching reading and writing, Turkish language structure.

INTRODUCTION

Reading and writing skills are the biggest means for the child to adapt to the social life in today's world. The child who learnt to read and write, understands a written text which is given to him/her by reading and most importantly, gets the ability to express his feelings and thoughts to people by writing (Ataman, 2006). So, in the first grades, families' greatest expectation from the teacher is to teach the children to read and write as soon as possible. For the majority of the families, their child's learning to read and write is the criteria of whether he/she is adapted to the school life, and the first sign to whether he/she will be successful in school life later on.

Indeed, learning the first reading and writing has an important place in the individual's life both in school and in social life. With the first reading and writing study, the students acquire basic skills such as using Turkish language correctly, effectively and properly, communication skills, problem solving and decision-making abilities. Teaching first reading and writing; while causing important changes in students' intellectual, emotional and social skills, improves their lifelong intellectual skills such as understanding, applying, analysing, and evaluating. The methods and practices that are used in teaching literacy have a big role in acquiring these intellectual skills (Ministry of National Education [MoNE], 2005: 225).

Intellectual; try to use one term disability is a type of disability in which mental functions, conceptual, social and practical adaptability skills are low and these limitations appear before the age of 18 insufficient description (Akalın, 2018). Although it differs depending on the degree of being affected by disability, individuals with mental disability may differ significantly from their peers in terms of academic qualifications due to their different cognitive characteristics (Mastropieri & Scruggs, 2016; Mascolo-Glosser, 2015; Sucuoğlu, 2017). Since individuals with intellectual disabilities have attention and perception problems, these children may experience insufficiency in transferring

information from short-term memory to long-term memory and transferring information. Since they are not motivated enough about learning due to their deficiencies, they may have difficulties during reading studies (Alnahdi, 2015; Heward, Alber-Morgan & Konrad, 2017; Joseph & Konrad, 2009; Kirk, Gallagher, Coleman & Anastasiow, 2011). These disabilities cause these children to have difficulties in acquiring basic academic skills in reading and writing (Sucuoğlu, 2017). Therefore, in classrooms with students with intellectual disabilities, teachers should make special adaptations in the organization of the teaching environment and use different methods suitable for the child (Deliveli, 2020).

Children with intellectual disability have been taught literacy using similar methods used for other children because there are not any primary-literacy teaching methods developed specifically for the children with intellectual disability in Turkey, and depending on the type of the disability these children benefit either from special tutoring or inclusive education in first-grade classes (Başal & Batu, 2002; Çolak & Uzuner, 2004; Deliveli, 2020; Deniz & Sarı, 2017). After 1948, words, syllables, letters and such methods began to be abandoned and, teachers are recommended to use the sentence method, which is based on the principles of Gestalt theory in Turkey. The sentence method, one of the analytical methods, was included in the program for many years (from 1968 to 2004) and was used in teaching reading and writing (Öz, 2010). To give a brief insight into the sentence method, sentences are taught by making use of various flash cards of varying lengths, and each and every flash card sentence is split into words that are to be taught after making sure that students have read and written the sentences as many times as needed. Syllables of these words that have been taught are also learned while simultaneously teaching the sentences. Finally, sounds or letters are learned through these syllables (Çelenk, 2005; Güleryüz, 2002). Upon the criticism that targeted this method, since 2004, the phonics-based method has been in use in literacy teaching. Since the 2004-2005 academic year, the sound-based sentence method has been used for literacy teaching with teaching sounds, letters, syllables, words, and sentences through the sounds that have already been taught (Deliveli, 2006).

2005 Turkish teaching program indicates that the sound-based sentence method, which is a method quite similar to the alphabet method, is recommended as the only method. This new alphabet method is similar to the original alphabet method (MoNE, 2005). However, unlike the original alphabet method where sounds are taught in alphabetical order, sounds are taught in specifically-defined groups of sounds. In this new method, moreover, sentences can also be created using images in cases of inadequate word production at the stage of word teaching, which is preceded by teaching of open syllables and closed syllables respectively. However, as in the letter method, various abstract details are delivered to children at once in these practices and meaning is ignored (Deliveli, 2006). Children with learning disabilities might therefore experience some difficulties in learning literacy with the sound-based sentence method (Deliveli, 2014; Deliveli, 2020; Durukan & Alver, 2008; Güven, 2019; Saban &Yiğit, 2011; Şengül & Akçin, 2010).

Studies have indeed revealed that this method of teaching literacy by teaching sound-based syllable and word formations created out of groups of letters is meaningless for children with intellectual disability (Tokta & Avcıoğlu, 2012; Deliveli, 2020). It has been emphasized that such practices employed in literacy teaching result in understanding and comprehension problems for children with learning disabilities. This method was also criticized for involving the teaching of meaningless words and unfunctional sentences (Deliveli, 2014; Döngel, 2009). Moreover, structuralism underlines that teaching process should be managed based on the structures that are present in a student's own cognition. It is therefore necessary to make sure that students can clearly see "the whole", "the related pieces" of it, and "the relations between the whole and its pieces" if the literacy teaching is truly intended to make sure that students comprehend the information rather than memorize it (Deliveli, 2006).

Arguments about which method is superior in teaching reading and writing have brought on different methods and in time, these methods were given up and new ones were tried. However, arguments

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about which method should be used in the first grade for the first reading and writing education and the methods' superiority to one another are still going on today. Achieving the learning outcomes is related to choosing the proper method, but there is no always-valid, objective and teachable methods. Thereby, there is no such thing as the best method. Each method has its own advantages and weaknesses. There are different education methods and techniques suitable for different educational environments. The teacher must be able to achieve learning outcomes taking the subject and student characteristics and educational environment facility into consideration by using various methods, techniques and tools (Taşdemir, 2007: 127-129).

Regardless of their individual characteristics, it is important that all students acquire literacy skills in the contemporary education approach (Alberto, Fredrick, Hughes, McIntosh & Cihak, 2007; Deliveli, 2020). Students with intellectual disabilities may have difficulties in teaching reading and writing because they have different needs than their peers due to their cognitive and linguistic features. However, there is evidence that children with intellectual disabilities can be literate with different teaching methods when necessary support is provided (Allor, Mathes, Roberts, et. al., 2014; Arabacı, 2009; Browder, Gibbs, Ahlgrim-Delzell, et. al., 2009; Keefe & Copeland, 2011; Ruppar, Gaffney & Dymond, 2015). At this point, new teaching methods can be developed by examining the cognitive and linguistic features of children with different needs and mental disabilities and the specific features of each language. It may be useful to present the new methods to teachers who have mental disability students in their class and who are looking for different methods to teach reading and writing.

Purpose of the Study

It is expected that Sound Based Sentence Method will be used in teaching reading and writing for many years (since the 2005-2006) in Turkey. However some children who have different ways of perception can find this method difficult. Especially the mentally disabled children can have difficulty in comprehending the "vocal-syllable-word-sentence" formations (Deliveli, 2014; Deliveli, 2020). According to the modern education, it is not possible to talk about one type of method or practice in teaching reading and writing skills. During the process of producing the information, children may need different methods and practices due to their individual characteristics. Therefore, new methods must be developed and the teacher should have an opportunity to choose the best method suitable to the students' individual needs in teaching literacy. The present study thus proposes a new method for teaching literacy for students with intellectual disability. The method presented in this research are important in terms of offering an alternative perspective to teachers who want to try different methods.

METHODS

Qualitative research approach has been adopted in order to develop a new method for children with intellectual disabilities. The research was designed as a theoretical analytical research that allows the current situation to be determined and analyzed (Creswell, 2014; Punch, 2014).

In order to reach the analytical analysis, the document analysis method, one of the qualitative data collection methods, was used in accordance with the qualitative research. Document analysis is a method that includes the examination and analysis of written and visual materials related to the cases to be investigated (Yıldırım & Şimşek, 2013). In the document analysis method, all kinds of materials (books, articles, theses, pictures, etc.) are used as data with the subject of research (Balcı, 2013). Document analysis, explains the procedures performed in the process of collecting, reviewing, questioning and analyzing various documents (Bowen, 2009; Cardno, Rosales-Anderson, & McDonald).

Data Collection and Analysis

Researching in the field of Educational Sciences requires action to find an explanation (s) or response (s) related to a particular educational phenomenon. While trying to explain an educational

phenomenon in depth and within its own context, the document analysis method is used to collect the data needed. This process, in which scientific answers to the problem are sought, takes place in stages and correct and consistent ways should be followed (Özkan, 2019). In this study, it has been tried to determine what problems children with intellectual disability experience in the teaching process by examining books, articles, theses on teaching reading and writing. In addition, by searching the cognitive and linguistic features of children with intellectual disabilities and the structural features of the Turkish language, a new method that can be used in teaching reading and writing, "The Sentence Targeted Syllable Method" has been developed. While designing the stages of the method, first grade Turkish lesson textbooks and special education school textbooks, literacy practices and activities, sentence, syllable, sound methods were also investigated. Therefore, the new method can be considered as a mixed and special method. The author of this research who taught literacy teaching at the university, has experience in teaching reading and writing in classroom and benefited from teaching experiences in designing the method stages.

RESULTS

The children studying in primary schools have individual differences. These differences can be at physical, cognitive and affective level. Thereby, every child has his/her own physical, emotional learning style and learning pace differences. When these differences are at acceptable levels, the child can benefit from general educational services. However, when these differences affect the child's life distinctively, special educational services can be necessary.

The children with special needs require special practices that will remove their inadequacies during the education process that will improve their strong sides. Special training requires individualized and privatized practices. For this reason, special training is different from general training in terms of content (Ataman, 2006). Especially the methods, techniques and materials have to be different and be suitable to child's disability. Thereby, if the method is to be improved, the adequacy or inadequacy of the children that need special practices must be considered. By examining the mentally disabled children's characteristics, the practices for the "Sentence Targeted Syllable Method" will be determined.

Cognitive Characteristics of Children with Mental Disabilities

Intellectual and developmental disabilities in children result in some developmental conditions that are characterized by impaired cognitive functions, causing such children to experience limitations in learning adaptive behaviour and academic skills (Salvador-Carulla, et. al., 2011). Mentally disabled student shows significant deficiency from the kids with typical pattern of development in terms of mental function during the developmental process and deficit in adaptive behaviour (Güven, 2019). Mental disability occurs due to some problematic situations before birth, the moment of birth and after birth (Aral & Gürsoy, 2007). Cognitive deficit is expressed using various terms including "mental deficiency" and "developmental deficiency" in the field of special education. According to American Association on Intellectual and Developmental Diasabilities (AAIDD), mental inadequacy is described as follows: "inadequacy which is characterized as the meaningful boundedness in both adaptive behaviours that shows itself in cognitive, social and practical adaptive skills and mental function" (Luckasson et al., 2002).

When the Guide of Special Education Services that were published in 2006 in Turkey by MEB is examined, it is understood that the description of the mental inadequacy was based on AAIDD's description. According to that, the individual that has mental inadequacy is described as "the individual who shows differences that are two standard deviations below average in terms of mental function, and in parallel with this, who has inadequacies or boundedness in cognitive, social and practical adaptation skills, whose characteristics of this kind occur in the growing up periods before the age of 18 and who needs special training and support training services" (MoNE, 2006: 2) Besides, in the legitimate texts that were published in the field of special training, mental inadequacies are

classified as, mild, medium, severe and very severe mental inadequacies (MoNE, 2000; MoNE, 2006; MoNE, 2012).

Mild Mental Inadequacies: Individual's needing support education services in a limited stage and special arrangements during the education period. Medium Mental Inadequacies: Individual's needing dense special training in basic academic, daily life and working skills.

Severe Mental Inadequacies: Individual's needing support service and denser special training, including teaching self-care skills, which lasts lifelong and is consistent in every aspect of life. Very Severe Mental Inadequacies: Individual's needing lifelong care and surveillance as he/she has other inadequacies as well as mental inadequacy and doesn't have self-care, daily life and basic academic skills."

Mentally inadequate people are the most common among people that need special training and form such a heterogeneous group. Mostly, the children who have mild mental inadequacy are spotted by teachers in schools. The ones that have medium and severe mental inadequacies are spotted earlier (Sığırtmaç & Gül, 2008). The most striking features of children with mental disability are that they differ from their peers in terms of mental development and functions. In order to evaluate in general, students who have mental inadequacy differ from in terms of cognition due to their memory, attention, academic skills, metacognitive, motivation and generalization (Çiftçi-Tekinarslan, 2010; Hallahan & Kauffman, 2006; Werts, Culatto & Tomkins, 2007).

Children with mental disabilities have learning difficulties more than their peers due to their mental function deficiencies and adaptation problems. These children have attention and memory problems. These students have problems in information gathering both long-term and short-term memory and using these information (Metin, 2012). They have difficulty in using the information which is already in their mind in different occasions. Besides, to learn, they have to pay attention to the new information for a while and control the distracting stimuli. The children who have mental inadequacy have the problem of gathering attention to a certain stimuli as well as the difficulty of distinguishing the stimuli (Heward, Alber-Morgan, & Konrad, 2017). Children with intellectual disabilities have problems in generalizing, as they have difficulty transferring what they have learned in one situation to another. Insufficient mental functions make it difficult for these children to understand and comprehend difficult and abstract concepts. Giving examples from daily life, making the concepts concrete and using visual stimuli in education can facilitate understanding of concepts. Another problem of children with intellectual disabilities is the difficulty in learning complex knowledge and skills. They may not learn complex knowledge and skills because they have problems focusing attention on several stimuli at the same time. Because of that, the teacher should separate the new information which will be taught to students who have mental inadequacy to tiny steps. When teaching knowledge and skills in small steps, repeating often can be helpful. However, it should be noted that the number of repetitions should not be too low to cause forgetfulness or too many to cause boredom (Metin, 2012: 79-80).

Children with intellectual disabilities may have problems with language skills, or both speaking and language skills expressive language, language skills, or both speaking and language skills receptive and expressive language (Aksu, 2020). The students who have mental inadequacy (depending on the level of the inadequacy) have difficulty in understanding the language (Çiftçi-Tekinarslan, 2010). As the severity of disability increases in children with mental disabilities, language and speech problems can be observed more. In children with mild mental disability, speech can follow normal development steps with a delay of 6-12 months, and these children can express themselves even with simple sentences. Children with moderate mental disabilities have limited vocabulary because they are late talkers. The sentence lengths are shorter and can express themselves more in two word sentences. The language development of children with severe mental disabilities is also very slow, these children try to express themselves mostly with sign language or expressions developed by them (Metin, 2012:78).

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Receiving language levels of children with mental disabilities are higher than expressive language levels. However, they experience various degrees of difficulty in understanding long and complex sentences and distinguishing sounds. Due to mental disability, delayed speech, stuttering, articulation disorders (such as adding and lowering, adding and lowering syllables) are frequently observed in these children. Due to the inability to use the mouth and tongue muscles, they may have difficulty in pronouncing certain sounds and in the formation (production) of sounds (Metin, 2012: 78-79). The delay in their improvement in language and the fluency problems in their pronunciation and speech are too much. They have limitations in their enunciate language skills. Also these children have difficulty in using the language functionally. These children who cannot be motivated because of the fear of making mistakes to achieve a goal in educational environments differ from the children with normal pattern of development during the learning process because of their metacognitive limitations (Werts, Culatto & Tomkins, 2007).

The disabilities in their cognitive skills make it difficult for children with mental disabilities to learn and negatively affect their academic success (Çiftçi-Tekinarslan, 2010). They especially have metacognitive problems in planning how to solve a problem, checking the solutions, practicing and evaluating the solutions. Further, in generalization skills, after learning an idea or a mission, they have problems adapting them to other occasions. They have to work and practice more than their peers in order to gain academic skills (Aksu, 2020; Werts, Culatto & Tomkins, 2007). The teaching practices, curriculum provisions and school environments might require some modifications in general education for children with mental disabilities so such students with intellectual and developmental disabilities can be successful in academic terms (Chowdhury, 2011). The higher the level of literacy among those with intellectual disabilities, the better such individuals comprehend competence, compared to others without intellectual disabilities (Mosito, Warnick & Esambe, 2017).

Structural Features of the Turkish Language

Curriculum incorporates literacy as one of its integral component. It is therefore already obvious that literacy i.e. reading and writing skills are directly proportional with success in other areas of learning (Erickson, Hanser, Hatch & Sanders, 2009). While developing a method intended for the teaching reading and writing, the features of the language also must be known because during the teaching of reading and writing, language is also taught. Reading and writing have two important dimensions in terms of the language education. One is gaining reading and writing as a skill, the other is gaining the adequacy to use these skills functionally. Because of that, the studies that are carried out during the process of teaching reading and writing gradually become a part of language education (Alperen, 2001).

Teaching language processes has been proven to be effective in improving reading skills in learners with intellectual and developmental disabilities (Al-Otaiba & Hosp, 2004). The language education is targeted for the students to express themselves towards language, enrich their emotions, thoughts and dream worlds by reaching different sources (MoNE, 2006).

Turkish is a language that has the prosperity to easily express emotions, thoughts and dreams. Words, phrases, idioms, proverbs and conjugations are the elements that boost the expression prosperity. Turkish language's having stable rules and a rational pattern, both places the language in an academic structure and proves that it has improved (Keskinkılıç & Keskinkılıç, 2007).

One of Turkish's most important features is the relationship between voice and letter. Because the voice of the letter doesn't change neither in reading nor in writing, the words are written like they are read, and they are read like they are written. In Turkish, it is possible to produce words that have a meaning relationship with the fiction of "root + suffix + suffix". (Onan, 2009; Karadağ & Kurudayıoğlu, 2010). New words can be created by adding various roots and suffix to the roots in accordance with the vowel harmony or consonant harmony of the language (Cebiroğlu, 2002; Yılmaz, 2009).

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When new and meaningful words to be produced in Turkish, derivational affixes are added to word root. With derivational affix many nouns can be produced from nouns (-lik: zeytinlik, şekerlik; -li: köylü, mavili, -siz: evsiz, parasız; -cil: otçul, bencil, -cık: kulakçık, kitapçık; -daş: meslektaş, arkadaş; -inci: üçüncü, beşinci; -msı: acımsı, ekşimsi; -sal: kumsal, bilgisel; -ıt: yaşıt; -tı: cıvıltı, mırıltı) and many words can also be produced. Moreover, new and meaningful verbs can be produced from nouns with the derivational affixes (-le: başla, sula, terle; -al: azal, çoğal; -l: doğrul-, sivril; -a: kana, yaşa; -da: fısılda-; -at: yönet-, gözet; -kır: fışkır-, haykır; -lan: evlen; -laş: çocuklaş;-(a)r: karar-; -se: önemse) . When derivational affixes added to verb roots, new words can be produced (-im: seçim; -gi: vergi; -gın: bilgin; -ı: yazı, doğu; -ıcı: satıcı; -ca: eğlence; -ecek: yakacak, açacak; -ak: yatak, kaçak; -ga: süpürge, -gan: çalışkan; -gıç: dalgıç; -ik: kesik; -ın: tütün, ekin; -nç: gülünç; -ıntı: döküntü;-(e)r: okur; -maca: bulmaca; -sel: görsel, işitsel; -anak: seçenek; -ış: dikiş; -ıt: geçit, yakıt; -ma: dondurma; -mak: çakmak, ekmek; -tı: kızartı). When derivational affixes added to verb roots, new verbs can be produced (-t: anlat; -(a)r: çıkar-, uçur; -dır: yazdır; -ıl: yazıl; -ın: yıkan; -ele: itele; -ı: kazı; -msa: anımsa-, gülümse).

The derivational affixes that are added at the end of the words and that are for reproducing new words enrich the language's expression prosperity. While refering to words, inflectional suffixes are used (Çelenk, 2005).The inflectional suffixes do not change the meaning of the word, it changes its form. In Turkish, apart from the sentences established with the second person order mode (atla, yap, at vs.), it is absolutely necessary to use the affix suffix when creating sentences (Emel balığı yakaladı. Ayşe eve/evden gidiyor. İki liraya ekmek aldık. Defterimi okulda unuttum. Okulun ikinci kattadır.). Plural suffixes -ler ve -lar can add another meaning except making plurality to the words they are added (çiçekler, bebekler).

The realization of word derivation in Turkish with derivational affixes and inflectional suffixes can be used while developing a new method in teaching reading and writing. Considering the suffixes in Turkish as a teaching unit can provide effective use of short term memory. When we teach to read a word by dividing it into its roots and suffixes, the word can become more easily perceptible in short-term memory (Onan, 2009). Word stem in the Turkish language generally is monosyllabic and is related to verb stem. Different sentences are made by forming new words through adding derivational or inflexional suffixes to the word stems which are the smallest and meaningful structural units. Various new words can be reproduced this way and the meaning of the sentence can be altered. Turkish language's syntax is in the form of "Subject-Object-Predicate" and so even if the syntax changes, the meaning does not. Sentences like this are described as inverted sentences (Güleryüz, 2002; Keskinkılıç & Keskinkılıç, 2007; Tazebay & Çelenk, 2008). Realizing the teaching of literacy based on holistic understanding can prevent the occurrence of the problems related to the wrong combining of sounds. Instead of following a path based on making syllables and words based on sound for children with mental disabilities, teaching the concept of syllable and sound, making the word as a whole, and emphasizing the syllable and sound in the word can provide necessary repetitions in the process of storing information in memory. Also, with syllable and sound, syllables can be useful in terms of including applications to support word development and language development. Demonstrating the formation of a sentence based on the word may provide the child with an opportunity to express herself, even in short, with spoken language-specific sentences.

In Turkish, the alphabet has 29 letters, 8 of them being vowels (a, e, ı, i, o, ö, u, ü). Consonants are constant consonants "f, h, s, ş, j, m, n, l, ğ, r, z, y, v" and inconstant consonants "p, ç, t, k, b, c, d, g". While teaching reading and writing "a, e, i" letters from the vowels are constantly used. The usage level of the vowels should not be below %40, the usage level of the consonants must be between % 50-60 (Güneş, 2000: 128-129). In Turkish, one of the eight vowels can be seen in the first syllable of the word. The muchness of the vowels in the first syllable does not exist in the consonants. Words in the Turkish language does not begin with "c, ğ, l, m, n, r, v, z". Only the "c" and "z" vocals can begin

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words that are reflecions of the sounds in nature. There can't be "b, c, d, g" consonants at the end of the words in Turkish. These vocals in the loan words become "p, ç, t, k" consonants. The words that have "f, h, j, v" in them are the words that are borrowed from other languages. The vocals that form the basis of the syllable in Turkish are vowels. Syllable is the formation of vocals that are made in a trice, with the movement of the speech organs in the same way. Whereas vowels can form syllables by themselves, consonants cannot do so without having a vowel with them. Thereby, the number of the vowels and the syllables in the Turkish language is the same. Syllables in the Turkish language can be formed in six different ways: "one vowel, one vowel one consonant, one vowel two consonants, one consonant, one vowel, one consonant one vowel one consonant and one consonant, one vowel, two consonants" (Yılmaz, 2006: 5-6). Putting forward vowels and consonants, which can produce strong syllables during literacy activities, can facilitate the forming of more words and more sentences. Continuous emphasis on syllable, word, sentence relationship, and practices that will grasp Turkish syntax are included, while frequent repetition of part-whole relationships can contribute to the development of language-based skills of children with intellectual disabilities.

Reading and Writing Education with the Sentence Targeted Syllable Method

The purpose of the Sentence Targeted Syllable Method is to teach reading and writing with the practices that ease the learning process for the mild and medium level mentally disabled children. Visualizations are mostly utilized to attract students' attention and to use the visual memory in this method's practices. During the learning process, while teaching the syllable, word and sentence formations, teachers try to improve the students' listening, speaking, reading and writing skills and teach the structural features of the language discerningly. Since the mentally disabled students have problems in gathering and using information, studying harder is required. So, "little steps principle" is practiced during the formation of vocal-syllable-word-sentence. Considering the children's having problems in understanding the language and using it functionally, teachers try to improve their linguistic skills. For that purpose, while teaching reading and writing, emphasis and intonation practices are carried out. Vocal-syllable-word-sentence formations are emphasized in front of a mirror. To get correct pronunciation during the speeches, teachers attract their attention to the formations of each vocal and syllable in the mouth.

Once the target sentence is formed through the syllables, apprehending and expression practices are carried out. While putting emphasis on each word's meaning, teachers give examples of these words from daily life. When the sentence is formed, by emphasizing its subject and predicate, teachers try to reify the action in the sentence. As the sentences are formed, as new words are formed through synthesis-analysis practices; teachers try to improve the students' reading and speaking skills to be more fluent by utilizing proper texts. In this whole process, while considering each student's learning speed and capacity, education principles like easy to hard, basic to complex, known to unknown, close to far are practiced. Most importantly, teachers don't insist on the practices that are made to reduce their worries in academic level and that they cannot succeed in; they try to make learning fun by playing games, organizing contests and listening music.

To explain the method's process steps; primarily the target sentence is formed by teaching the syllables and words that form the sentence. For example, after forming the word "lale" with the syllables "la-le-li" for the sentence "Ali lale al.", the target sentence is formed by making the students read/write the "al-il-el" syllables. After they read and write the sentence, they group the words of the sentence like (Ali-lale-al) and repeat each word separately. After emphasising the syllables like "A-li" by choosing the given word, the sentence is analysed. After analysing, when "l" and "a, i, e" vocals are formed, vowels and consonants are separately hung on the "vocals board" and syllables on the "syllables board". By utilizing the syllables on the syllables board, after repeating their pronunciations/spellings, new words are formed by combining syllables. As students reach new sentences through words, they hang these structures on the "words board" or the "sentences board" (Figure 1.- Figure 2.- Figure 3.)

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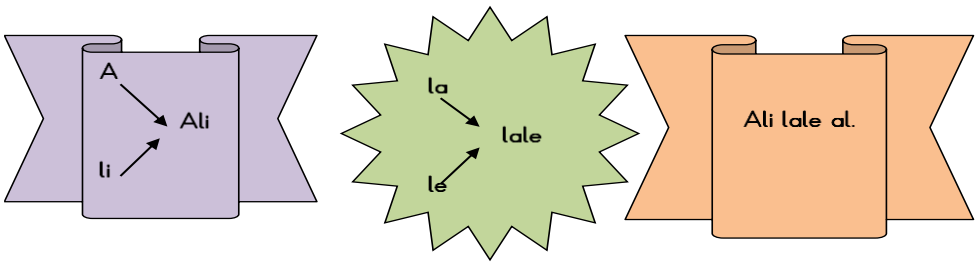

Figure 1. Teaching of syllable, word, sentence

As each target sentence is formed/analysed, vocals of 1. Group and of 2. Group are formed. After analysing, students hang them on the "vocals board" (Figure 2.).

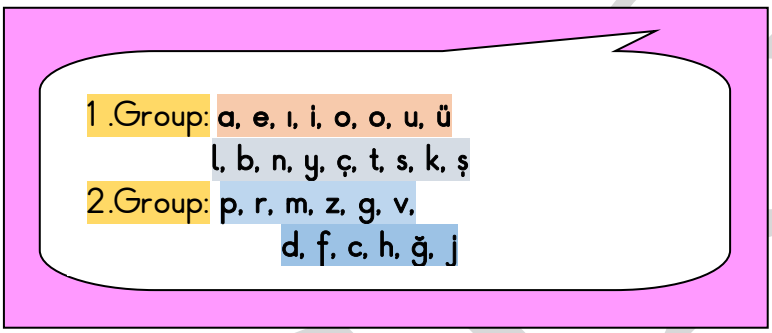

Figure 2. Groups of vocals and consonants

The recommended 1. Group target sentences respectively are 9 sentences being; "Ali lale al. Baba bal al. Anne nane al. Önay bal ye. Ela çok aç. Tuna atı tut. Suna su iç. Kenan oku, anla. Işıl şişe şişe süt iç." By analysing these sentences, students reach 1. Group vocals (a, e, ı, i, o, o, u, ü, l, b, n, y, ç, t, s, k, ş). They get syllables, words and sentences through vocals (Figure 3).

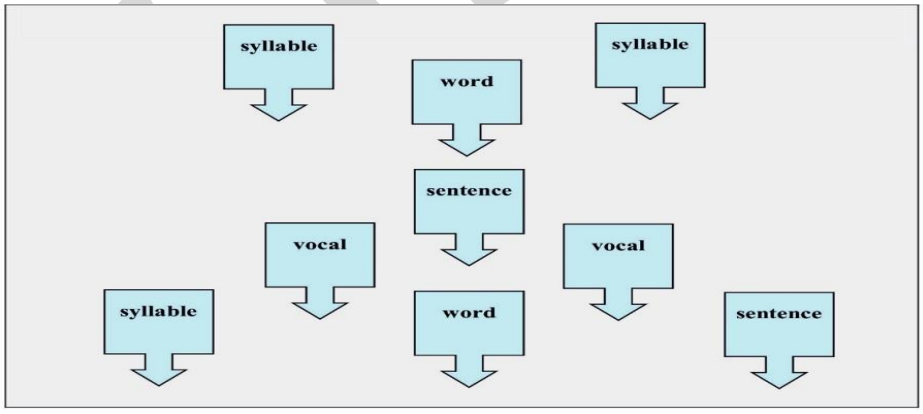

Figure 3. The vocal and syllable based sentence method synthesis and analysis stages

Formation relationships are repeated continuously in the partition-analysis-partition-based applications. The principle of small steps is applied during syllable-word-sentence formations. While forming new words or sentences, "syllables board", "words board" and "sentences board" are utilized. For example, when the children are to form different words with the syllables they learned, the teacher points at the word "nane" on the words board and says; "Take the word nane.", and then he/she points at the "li" syllable on the syllable board and says "Add the -li syllable to it and write naneli." The teacher tries to simplify the process of forming new words for the students by reading/emphasising the

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formed word like "na-ne-li". The teacher leads the children with clues by drawing attention to the words board or the syllables board while similarly forming sentences. As sentences are formed with words, the teacher forms texts that are pertinent to their level. The teacher hangs these texts which he/she prepared on a 60x70 size collared cardboard with visualizations. When occasion arises, the teacher utilizes these texts during the individual practices (Figure 4).

Syllable	Word	Sentences	Vocal	Syllable	Word	Sentences
la-le-li	lale	Ali lale al. (l) (a) (i) (e)	Ll, Ae Ee, İi,	il-el-al la-le-li	ele-elle-elele-Ela ala-Ali-elli	Ali, Ela elele. Ali, lale al. Lale al. Ali al.
ba	Baba	Baba bal al.(b)	Bb Aa	ab-eb-ib ba-be-bi	bil-bel-beli-belli-bebe ebe-bal bele-abalı-ebeli	Ali bil. Lale bil. Ela bil. Baba bil. Belli belli.
ay-ye	Önay	Önay bal ye. (y) (ö)	Yy Öö	ya-ye-yi- yö-ay- ey-iy-öy	yaya-aya-yay-iyi- öyle-iyilik-bilye-böl- böyle-yaylı-	Baba bana bilye al. Önay bilye oyna. Ali bilye oyna.
aç-ço an-ne	çok aç	Ela çok aç. (ç) (o) (ç) Anne aç. (n)	Çç Oo Nn	ça-çe-çi- ço-çö- aç-eç-iç na-ne-ni- nö-no	çay-çene-Açelya-bol- ilaç-boy- ay nane-nine-öne-anı- eni-yana-yalı-yay-bay Nilay-Nalan-nal-nallı- çaylı-olaylı-alaylı-çile- niçin-?-yeni-yanı-bayıl ayı-çek-çok-çil-çal-çöl	Açelya ilaç iç. Açelya çeneni tut. Nalan elini tut. Nine ilaç iç. Önay ilaç iç. Nalan çay iç. Nilay bal ye.
tu-tı-ot- lat	Tuna- tut	Tuna atı tut. (t) (u)	Tt Uu Iı	ta-te-ti- tı- to-tö- tu-at-et	Ata-çatı-çalı-tut-tuttu- ayı-attı-itti-tay-bul- boylu-Talat-taç-çatı- çatal-çit-çıta-ataç- anıt-telli-atı tel-tanı-tane-Tuna	Talat atı otlat. Ali anlat. Önay çatıya bak. Önay çayını iç. Tuna balı ye.
su	Suna- iç	Suna su iç. (s)	Ss	sa-se-si- so-sö-su	saç-suç-suçlu-sus-ses- sil-tas-söyle-sula-Sıla salı-seni-sana-bana- say söyle-soy-sini-sen- sayın	Önay Ela'ya seslen. Önay aya bak. Suna suçlu. Açelya çenesini tuttu.
ke-ku	Kenan -oku	Kenan oku, anla. (k)	Kk	ka-ke-kı- ki-ko-kö ku-kü- ak-ek-ik-	uçak-kaç-kan-kin-kon- ekin-çiçek-keçi-çanak- kilit-küçük-köy-kayık- kıyı-kulaç-bellek-kus-	Kenan küçük atı otlat. Açelya bak uçuk. Açelya uçak uçtu. Açelya kuş

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				ok-ök- uk-ük	kule-kelek-bebek- benek-binlik-bolluk- oluk-kısa-çanak- benek-sinek-sokak	uçtu. Kenan kuşu yanına koy. Bu bebek. Ali bak bu bebek.
şi-şe-şı	Işıl- şişe- süt	Işıl şişe şişe süt iç. (ş) (ü) (ı)	Şş Üü Iı	şa-şe-şı şi-şo-şö şu-şü-aş- eş-ış-iş- oş-öş-uş- üş	şaş-aşı-şaşı-şok-koş- Şule-kaşık-aşık-şelale- şal-beş-beşlik-başlık- aşçı-aşçılık-kaşık-kış- kışlık-taş-tuş-şık-şıklık- Koşar-aşar-aşır-kaşı- başı-başın-şarkı	Şule ata, taya bak. At koştu. Tay koştu. Kuşa bak. Kuş uçtu. Uçtu uçtu beş kuş uçtu. Kuş bana uçtu. Kuş ona uçtu.

Figure 4. Carts of first group synthesis and analysis practices
(a, e, ı, i, o, o, u, ü Vocals and l, b, n, y, ç, t, s, k, ş Consonants)

When the first group practices are complete, second stage starts. Also, in the second stage, similarly through the syllables, analyses are carried out after respectively forming target sentences in pursuit of the teaching of the words (Figure 5).

Figure 5. The sentence targeted syllable method

As the analyses are complete, 2. Group vocals (r, m, p z, g, v, d, f, c, h, ğ, j) are formed. For this stage, 11 sentences being, Berna bak arı. (r) Ümit birkaç mısır ye. (m) Petek patik ör. (p) Mete azar azar üzüm ye. (z) Gamze gazete oku. (g) Veli eve gel. (v) Yıldız odaya gir. (d) Funda fidan dik. (f) Cemil cici kuş öttü. (c) Bayram dağa çıktı. (ğ) Jale jandarma görmüş. (j) are recommended. If the teacher wants, he/she can change some of the target sentences for the first and the second group or can handle different words in sentence formations. When the synthesis-analysis-synthesis practices for both stages are complete, the vocals in these groups and the syllables that are formed with these vocals are memorized by repeating them. For example, syllables are formed by recombining the "l, b, n, y, ç, t, s, k, ş" consonants that belong to the 1. Group with the "a, e, ı, i, o, o, u, ü" vocals and these syllables become the syllable board. The teacher hangs the syllable board on the wall in the classroom, and uses the board during the repetition practices. The syllables given in the form of coupons are cut and converted into words (Example: la,le, ba-ba, ya-ya, aslı, kule) during the joining works. By adding consonant sounds to the end of closed syllables, new syllables and words consisting of three sounds (lak, lek, lik, kat, sat, çat, süt, kıt) are obtained (Figure 6).

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al	el	ıl	il	ol	öl	ul	ül
ab	eb	ıb	ib	ob	öb	ub	üb
an	en	ın	in	on	ön	un	ün
ay	ey	ıy	iy	oy	öy	uy	üy
aç	eç	ıç	iç	oç	öç	uç	üç
at	et	ıt	it	ot	öt	ut	üt
as	es	ıs	is	os	ös	us	üs
ak	ek	ık	ik	ok	ök	uk	ük
aş	eş	ış	iş	oş	öş	uş	üş

la	le	lı	li	lo	lö	lu	lü
ba	be	bı	bi	bo	bö	bu	bü
na	ne	nı	ni	no	nö	nu	nü
ya	ye	yı	yi	yo	yö	yu	yü
ça	çe	çı	çi	ço	çö	çu	çü
ta	te	tı	ti	to	tö	tu	tü
sa	se	sı	si	so	sö	su	sü
ka	ke	kı	ki	ko	kö	ku	kü
şa	şe	şı	şi	şo	şö	şu	şü

Figure 6. 1. Grup syllables cupons

During the component education studies, teachers draw attention to the formations by forming syllables/words/sentences. Besides, after determining the vocals which the children have problems reading-writing; the syllables, words and sentences in which these structures are repeated are formed and the children are made to read and write them. All the structures that are formed during these practices are hung on the "syllable-word-sentence" boards (Figure 7).

Figure 7. Reading cards

On the phase of passing through the individual reading and writing, practices which improve the students' reading and writing skills are carried out. For that purpose, the syllables or vocals that each student has problems with are determined. By preparing special reading texts for them to remember/repeat these structures, the students are made to read/write these texts. Besides, these texts that are changed to reading cards by the teacher are used to improve their skills of fluent reading (Figure 8).

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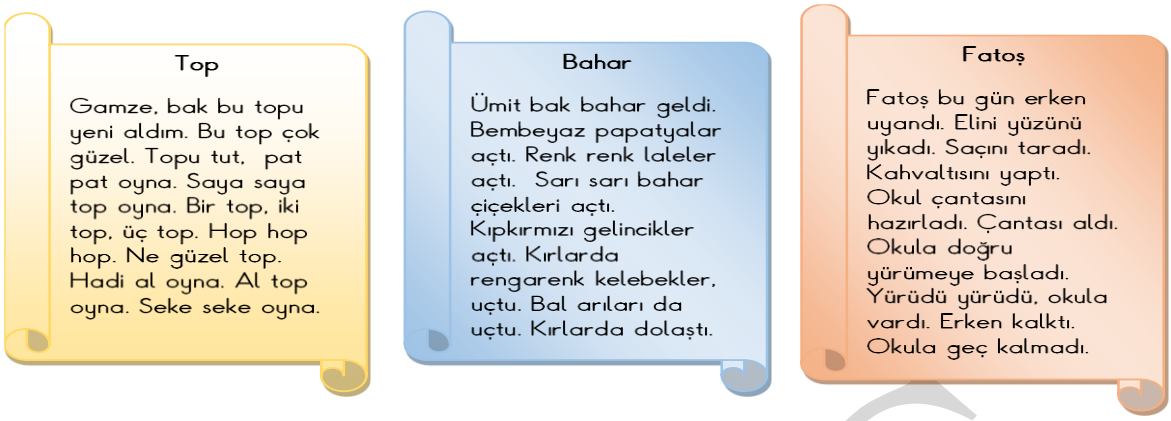

Figure 8. Texts of fluent reading

DISCUSSION and CONCLUSIONS

Many of the educational activities are based on literacy, comprehension, expression, and speaking. The individual needs to learn to read and write so that she/he can control herself/himself and her/his environment, adapt to society and act independently. Many methods are used in teaching primary reading and writing. These methods have their own advantages and limitations (Döngel, 2009). The mental state of the child may require the teacher to choose one of the different methods in teaching literacy (Deliveli, 2020). Since teaching reading and writing is the basic skill for functional academic skills, like the other skills reading and writing instruction should be carried out in accordance with the performance and needs of the child with intellectual disability (Browder & Snell 2000). It is possible for students with intellectual disabilities to acquire literacy skills when using methods and techniques appropriate for their individual characteristics (Akçamete, Gürgür & Kış, 2003; Eroğlu, 2010). For this reason, when there is a delay in gaining reading and writing skills of students with mental disabilities, their situations should be taken into consideration and the correct method should be tried to be chosen (Sarı, 2005).

In Turkey, one type of method practice is preferred for the first grades in teaching reading and writing. In special training, the teacher is given two choices about the methods of teaching reading and writing and is asked to use the "Sound-Based Sentence Method" or "Sentence Method". The sentence method based on deductive understanding, which has been in use since 1948, has been abandoned with the new first reading and writing program put into practice in the 2005-2006 academic year; sound based sentence method based on inductive understanding (where syllables, words and sentence structures are taught based on sounds) has begun to be used. But there are individual differences between children. The tutors who know better about this subject have to consider the students' individual differences during the education process. Cognitive disabilities in children with mild and moderate mental disabilities affect their academic success negatively and this causes them to be behind their peers in academic activities.

Students with intellectual disabilities have difficulties in learning many information and behaviors that children who develop normally due to their individual characteristics learn almost by themselves (Dündar, 2006). The fact that these children have difficulties in recognizing and mixing written symbols, their attention being scattered and short-term memory causes them to have difficulty transferring information to long term memory during teaching activities (Yılmaz, 2009). The reason for learning to read and write late and slowly may be related to their individual characteristics or the method used while presenting the reading programme in the process. Perceiving the visual complexity of these children; having difficulties in perceiving whole-parts and distinguishing letters may cause

difficulties during reading-writing activities. Perceiving whole word is visually more complex than perceiving a letter.

Due to their individual characteristics, they may have difficulties in learning the letter-sound relationship, and since letters and sounds are abstract stimuli, these children may have difficulty understanding the relationship between letters and sounds. Letters are abstract in the single letter form or in group form which is called word or sentence.

While the pronunciation of sounds alone is different, the sound that occurs when combined with other sounds is different so we blend them and letter sounds are the same. For this reason, these children may have problems combining sounds and forming words or distinguishing sounds in words so we use phonological awareness skills before starting reading (Hoogeveen, Smeets & Lancioni, 1989).

Children with mental disability generalize using the same elements in learning rather than general principles. The fact that many learning activities require abstract thinking and concept development makes it difficult for children with intellectual disabilities to make generalizations. In addition, since reading methods are generally programmed according to the pre-skills of children with normal development, students with intellectual disabilities learn to read late and difficult when using a teaching method that is not suitable for their individual characteristics (Şengül, 2008).

Limitations in cognitive skills of children with mental disabilities make it difficult for them to express themselves in linguistic skills. In these children, problems such as stuttering, articulation disorders (adding sound-lowering, adding syllable-lowering), as well as delayed speech, can often be seen in the production of sounds. As the severity of mental disability increases, learning becomes harder to slow down and its scope is limited (Metin & Işıtan, 2014). Children with intellectual disabilities have difficulties in understanding the reading passages and reading the texts and the grammar rules in the receptive language activities. They experience problems with their skills such as making meaningful sounds in expressive languages, limited vocabulary, limited variety of used words and sentence structures, grammatical errors, and conveying what they read and listen.

The fact that there are limitations in cognitive skills prevents the development of expressive language skills. In some cases, children with mental disabilities may have vocal errors in more than one sound. For example, if the child sounds "t" instead of "k" sound, "t" instead of "ç" sound, and "d" instead of "c" sound, it will sound the word "çocuk" as "todut." In addition, mental children have problems using the roots and suffixes (morphology) in words correctly. Since Turkish is an incremental language, words with suffixes are often used.

However, children with intellectual disabilities have difficulty in using word suffixes in proper places. This difficulty manifests itself more intensely, especially as the number of suffixes in the word increases (Aksu, 2020). Therefore, making applications that start with sounds for these children in literacy activities may cause them to make more mistakes. Poor memory affects the language development of children with intellectual disabilities.

The inability to organize information, limited generalization skills, limited attention to common attention affect communication and language development, and in some cases, hearing impairment and slowness in motor development also cause problems in language development of children with intellectual disability. The phonological periods of these children may take longer than their peers with normal pattern of development, and the phonological error patterns related to development can continue until later ages. The sentences of children with intellectual disabilities who use limited words and more limited words in terms of word types are also short and they have difficulties in all areas of the language (Ünverdi, 2019: 97). For this reason, it may be useful to start teaching with short sentences in reading and writing activities in order to support the linguistic development of these children. The students who have mental disabilities have different characteristics of memory, attention, language, academic skills, metacognitive, motivation and generalization. These students have problems in understanding and using information both in long-term and short-term memory.

These students who have problems in paying their attention to a certain stimuli, learn the information through tiny steps. These children who have problems in their linguistic skills have problems in using the language functionally. Thereby, the mentally disabled students who have different characteristics than their peers, need different methods or practices while teaching reading and writing. To answer the need, in this study "Sentence Targeted Syllable Method" was improved by examining the developmental characteristics of the mentally disabled children and the structural features of the Turkish language. While teaching reading and writing to mild level and medium level mentally disabled children, this method is recommended to the teachers who do not want to try different practices.

In the process steps of Sentence Targeted Syllable Method, syllables and words that will form the sentence are taught. For example, after forming the word "lale" with the syllables "la-le-li" for the sentence "Ali lale al.", the target sentence is formed by making the students read/write the "al-il-el" syllables. According to sequence of the target sentence; in the first group, by attracting attention to the "a, e, ı, i, o, o, u, ü" sounds and the "l, b, n, y, ç, t, s, k, ş" consonants, the sentence is formed after making the students read/write the syllables and words of the target sentence respectively. These sentences are; "Ali lale al. Baba bal al. Anne nane al. Önay bal ye. Ela çok aç. Tuna atı tut. Suna su iç. Kenan oku, anla. Işıl şişe şişe süt iç." After repeating each sentence, the voice is formed by analysing respectively. By forming new syllables-words-sentences with these sounds that are integrated to the vowels, they are hung to the "sound-syllable-word-sentence" boards with their visualizations that evoke each structure. In the second stage, by emphasising the "p, r, m, z, g, v, d, f, c, h, ğ, j" sounds, the students are made read/write the new syllables and words for the target sentence. These 11 sentences are; "Berna bak arı. Ümit birkaç mısır ye. Petek patik ör. Mete azar azar üzüm ye. Gamze gazete oku. Veli eve gel. Yıldız odaya gir. Funda fidan dik. Cemil cici kuş öttü. Bayram dağa çıktı. Jale jandarma görmüş." When reached to the independent reading and writing stage, teachers try to improve the children's reading and writing skills by starting with basic texts.

There is no single method to be recommended in any case in teaching literacy. Therefore, the Sentence-Targeted Syllable method may also have its advantages and limitations. When this method is applied to children with mild and moderate mental disabilities, successful results can be obtained, and some children may have difficulty in the steps of the method. In further studies, semi-experimental studies with single subject design (multiple probe design among subjects) can be conducted and make comparisons between the methods and the changes in students' performance level before and after training can be determined. With these studies, it is possible to reveal advantages and limitations of the methods. Of course it is possible to use different methods to teach the students to read and write. For this reason, the researchers must improve different first reading and writing methods that answer the need of the special education literature. MoNE must let different methods to be used and leave the decision about method-choosing to the experience teacher.

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EMOTIONAL INTELLIGENCE AND EMOTIONAL EXPRESSION AS PREDICTORS OF DEPRESSION IN UNIVERSITY STUDENTS

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Abstract

In this study, the degree of predicting depression of university students' emotional intelligence and emotional expression was investigated. For this purpose, the sub-dimensions of the research, the differentiation of depression level according to some demographic variables and the relationship between depression level and emotional intelligence and emotional expression were also examined. The participants of the study were 370 students who studying at Biruni University. To the participants, prepared by the researcher; Personal Information Form; including gender, number of siblings, parental status or separation, faculty and grade level was applied. In addition, Beck Depression Scale (Hisli, 1988), Emotional Intelligence Feature Scale (TEIQue-SF) Short Form (Deniz et al., 2013) and Emotional Expression Questionnaire (Kuzucu, 2006) were applied. In the study, no significant difference was found between depression and the demographic variables of the study. In the results related to depression and emotional intelligence; emotional intelligence and depression of students were negatively related. Accordingly, as students' emotional intelligence increases, their depression levels decrease. In addition, it was found that students' emotional intelligence significantly predicted their depression levels. According to this result, it may be possible to estimate the depression levels by looking at the emotional intelligence levels of the students. In the results related to depression and emotional expression, positive emotional expression and proximity expression were found to be negatively related to depression. In addition, there is a positive relationship between negative emotion expression and depression. Accordingly, as the students' proximity expression and positive emotional expression increase, their depression levels decrease and as negative emotional expression increase, their depression levels increase. At the same time, it was determined that students' emotional expression significantly predicted depression. Accordingly, it may be possible to predict depression levels by looking at students emotional expression.

Keywords: Depression, emotion, emotional intelligence, emotional expression

INTRODUCTION

Major depressive disorder (major depression, MD) affecting approximately 350 million people or, in other words, approximately 5% of the world population, is reported as the second major problem that also lowers the quality of life and leads to a decrease in performance (Ergüler, 2017). As reported in a study, close to 54% of mental health-related cases are directed to psychiatry due to conditions that are directly related to depression (Durisko, Mulsant and Andrews, 2015). However, in the same study, the genetic dimension of depression is also mentioned and it is emphasized that inter-generational genetic transfer of this disorder can reach up to 37%. As can be understood from these rates, depression is a condition that negatively affects human life and should be taken into consideration.

The negative effects of depression in a research; In the field of affect, it has been stated as depression, indifference, unwillingness, lack of pleasure, slowness in behavior, pessimism, worthlessness, guilt, regret thoughts, disruption in psycho-physiological functions such as sleep, appetite (Küey 1998; Akt. Kaya & Kaya, 2007). It is possible to say that these effects will decrease the efficiency of the person in daily life considerably.

In another study, the effects of depression on students were mentioned, and it was stated that the disorder negatively affected students' motivation, concentration, self-perception and emotional states (Sokratous et al., 2013). In their research, Deniz and Sümer (2010) emphasized that depression

significantly affects their learning, study attitudes and habits, reduces their cognitive performance and affects their self-acceptance levels. In another study, the negative effects of depression on students are stated as alcohol or drug use, non-community behavior, decreased ability, absenteeism, motivation disorder and decreased success (Cai, 2000). As the negative effects of discomfort in daily life are quite high, the negative effects of students on their academic lives as an undeniable reality related to this ailment when considering the effects such as decrease in motivation and decrease in concentration.

When we investigate the studies of depression, the ages in which the diagnosis of the disease is seen most frequently appear as the interval between 15 and 29 (Richards, 2011). It is stated that the prevalence in Turkish society is close to 20%, women are at a significantly higher risk than men, and depression is among the most common psychiatric diagnoses in university students (Özdel, Bostancı, Özdel, & Oğuzhanoğlu, 2002). As will be understood, it is very important to take precautions against the disease in late adolescence and emerging adulthood and to conduct the necessary scientific studies on the treatment of the disease.

Scientific evidence shows that depression has increased noticeably since the 1950s (Williams and Neighbors 2007). Kaya (2007) also emphasized the necessity of understanding the causes of depression, which has important negative and permanent effects, in his study examining the depression socially and culturally. Again, in this study, it is emphasized which factors facilitate the emergence of depression or have a protective effect, and this issue is of interest. In the light of these studies, when the publications made in order to prevent the spread of depression in recent years are examined, some of the variables studied with this ailment are anxiety (Bozkurt, 2004), stress (Çeliksular, 2018), motivation (Demirci, Acar and Erdoğan, 2017), empathy (Kışlak and Göztepe, 2017), anger (Şahin, Batıgün & Koç, 2011), physical activity (Yıldırım et al., 2016), internet use (Odacı and Cikrikci, 2017) and emotional intelligence.

We investigated the researches conducted on depression and emotional intelligence abroad, studies examining emotional intelligence and depression are encountered. For example, in one of their studies, Lombas, Albo and Salas (2014) included emotional intelligence, stress and depression variables. Its participants consisted of 661 high school students with an average age of 14 from 5 schools in Spain. Emotional intelligence, depression and perceived stress scales were applied to the participants. In this study, 323 participants consisting of the students of Sultan Qaboos University were reached as a sample group in this study, which was conducted in the Sultanate of Oman and where emotional intelligence, depression and psychological cohesion were investigated. Emotional intelligence, depression and psychological adjustment scales were applied to the participants. The findings obtained from the study showed that emotional intelligence is positively associated with psychological adjustment and negatively related to depression (Sulaiman, 2013).

When we investigated the national researches on depression and emotional intelligence, it is seen that there are few studies on this subject. In the thesis study of Gürdere (2015), which is one of the studies that directly deal with depression and emotional intelligence, the level of emotional intelligence and styles of coping with stress, anxiety and depression symptoms were investigated in university students. The sample of the study consisted of 300 university students aged between 17-35. In the findings of the study, it was found that emotional intelligence had a negative relationship with depression. In this case, we can say that emotional intelligence has an important role on depression.

When the literature is examined, it is possible to find a small number of studies in national studies where depression and emotional intelligence are investigate together, while depression and emotional expression. However, there is a study examining the relationship between depression and expressed emotion, and a psycho-education program on expressed emotion was applied to the participants. As a result of this study, it was determined that the expressed emotion program reduced the level of depression (Çutuk, 2017). In the foreign literature, there are studies in which depression was studied together with emotional expression. Kuzucu (2011) stated that there are studies in his study that adapted the Emotional Expression Scale to determine that the instability experienced in emotional

expression is related to depression (Collins and Miller, 1994; Katz and Campbell, 1994). The sources in the foreign literature indicate that emotional expression is related to depression and that depression has an effect on emotional expression, which indicates that these studies should also be conducted domestically.

Statement of the Problem

In addition to concentrating on the treatment of depression, it is necessary to focus on prevention, taking into account that genetic transfer among generations can be up to 37%, and its negative effects on society and people. Accordingly, it will be very important to conduct studies investigating the factors of depression and the measures that can be taken against these factors. At the same time, considering the negative effects of depression on people between the ages of 15-29 and the negative effects of depression on students, this study was conducted to demonstrate to what extent depression was explained by emotional intelligence and emotional expression in university students. In the study, besides researching the factors that enable university students to cope with depression, measures to be taken to prevent depression were also revealed. Bunun için depresyonun yordayıcısı olarak duygusal zeka ve duyguları ifade etme kavramları çalışılmıştır. For this reason, emotional intelligence and emotional expression have been examined as predictors of depression. Given the scarcity of resources in the relevant literature, this study is thought to contribute significantly to the literature.

Basic Research Questions

1. Do the depression levels of university students differ significantly based on their variables of gender, parental separation, number of siblings, faculty and grade levels they study?
2. Is there a significant relationship between university students' sociability, emotionality, selfcontrol, well-being which are the sub-dimensions of emotional intelligence, emotional intelligence total scores and depression values?
3. Is there a significant relationship between positive emotional expression, negative emotional expression and affinity expression levels which are the sub-dimensions of emotional expression, total emotional expression scores and depression levels of university students?
4. Do university students' emotional expression and emotional intelligence levels significantly predict their depression levels?

METHODS

Design of the Study

The model of the study was determined as a quantitative study model, which is a descriptive study model in order to examine the power of emotional intelligence and emotional expression in university students to predict depression. T-test and ANOVA analyzes were used to examine the degree of differentiation of participants' depression levels according to demographic variables. Correlation analysis was used to examine the relationship between depression and emotional intelligence and emotional expression. Regression analysis was conducted to determine to what extent university students' emotional expressions and emotional intelligence predict depression levels.

Participants

The universe of the research was determined as all students studying at the university. The sample was formed through easy sampling, with 382 students studying at Biruni University in the 2018-2019 academic year. The study was carried out with students enrolled in different faculties at every grade level in terms of diversity of participants. When the gender distribution of the research participants is analyzed, it is seen that 258 (67.4%) are women and 124 (32.4%) are men. Other demographic information of the participants is given in Table 1.

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Instruments

In the study, **Personal Information Form** was used which prepared by the researcher and containing the participants' gender, age, number of siblings, parental leave status, class level and the faculty information they studied.

Beck Depression Inventory (BDI), which was developed by Beck (1961; act. Hisli 1988) and aimed to measure the risk of a person's depression, its predisposition and rate change related to depressive symptoms, was used. The scale consists of 21 items with 21 depressive symptoms. The first item is related to the mood. The second item is pessimism and other items, respectively, failure, guilt, punishment, insatiability, self-hate, self-blame, desire to self-punishment, crying spells, irritability, social introversion, indecisiveness, physical image, inhibition of operability, sleep disorders, fatigue is related to decreased appetite, weight loss, somatic complaints. The last item is associated with loss of sex drive. Each item in the scale is rated with 0 to 3 points. The highest score in the inventory was determined to be 63. The higher the score from the inventory, the higher the depression level of the person.

Emotional Intelligence Feature Scale – Short Form (DZÖÖ-KF), which was developed by Petrides and Furnham (2001) in order to measure emotional intelligence and measures the level of self-observation related to the person's emotional abilities and skills, and adapted in Turkish by Deniz et al. (2013) . The scale is a 7-point Likert-type data collection tool designed to measure the total emotional intelligence feature, composed of a total of 30 items (1: Absolutely not agree, 7: Absolutely agree). The sub-dimensions of the scale consisted of the titles "Self control" "Emotionality" and "well-being", "Sociability". The sub-dimensions of the scale are identified as being neurotic personality trait with openness to experience, soft-headedness, extraversion and responsibility personality traits, and negatively significant relationship with positive correlation for total score, selfcontrol, emotionality and sociability (Petrides et al., 2010). . Cronbach Alpha coefficients in the studies show a value between .59-.75 for self-control, .66-.69 for emotionality, .74-.80 for well-being, .60-.69 for sociability, and .87-.90 for total VESQ. The high scores obtained from the scale suggest that the emotional intelligence feature is also high.

Finally, the **Emotional Expression Scale (DIS)**, which was developed by King and Emmons (1990), which was adapted to Turkish by Kuzucu (2006) and which use purpose was to measure the level of emotional expressions was used. The scale, which consists of 16 items, has three different sub-dimensions. These; As a tendency to express positive, negative and intimate emotions, it was determined as "positive emotion expression", "negative emotion expression" and "affinity expression". The scale is a 7-point Likert-type scale. The rating is from 1 (Strongly disagree) to 7 (Strongly agree). Items scored inverted in the scale are items 6 and 14. The scale is applied to measure emotional expressions in interpersonal relationships as well as emotional expressions independent of interpersonal relationships. In exploratory factor analysis, it was observed that the items differed from the original scale. Accordingly, the original scale 6. 7. 8. 1 and 12. While described with substances proximity factor, scale the adaptation Turkey 1. 3. 6. 7. 8, and 16 is illustrated by the proximity factor. Similarly, in the original scale, 3. 4. 9. 11. 13. 15. 16. items were explained with a positive emotion factor, while in the adaptation of the scale, 4. 9. 11.13. Articles 15 and 15 are explained with positive emotion. The items of the only negative emotion factor are the same as the items of the original scale.

Data Analysis

In this research, “IBM SPSS Statistics 24.0” program was used to analyze the data and analysis methods were determined for each sub-group. ANOVA and t-test analyzes were used to examine whether depression differs according to demographic variables. Pearson Moments Product Correlation Analysis was carried out to determine the relationship between students' depression scores, emotional intelligence scores and emotional expression scores. In addition, Multivariate Regression Analysis was

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applied to determine the degree of emotional intelligence and emotional expression predicting depression.

RESULTS

In the study, it was found that the depression levels of university students did not show a statistically significant difference according to the demographic variables in the personal information form of the study. The results found according to other hypotheses are as follows;

Table 1. Depression and Emotional Intelligence Relations' Mean Points and Standard Deviation Results

Variables	Depression		
	n	Mean	Std.Dev.
Depression	370	16.0	9.10
Emotional Intelligence	381	18.27	4.57
Well-being	380	19.68	4.38
Self-control	381	15.91	4.80
Emotionality	381	18.85	4.20
Sociability	381	19.48	4.69

Table 2. Related to Depression Levels and Emotional Intelligence Relationship' Pearson Moments Product Correlation Coefficient Analysis Results

Variables	Depression	
	r	p
Emotional Intelligence	-.532	.000**
Well-being	-.589	.000**
Self-control	-.483	.000**
Emotionality	-.223	.000**
Sociability	-.247	.000**

**p<.01

According to Table 2, it is seen that there is a statistically negative relationship between the depression levels of the university students and the total scores of emotional intelligence (r = -. 532, p <.01) and the scores they received from the sub-dimensions of emotional intelligence. Accordingly, high emotional intelligence of university students provides low depression levels.

Table 3. Averages and Standard Deviation Results for the Relationship between Depression and Emotional Expression

Variables	Depression		
	n	Mean	Std.Dev.
Depression	370	16.0	9.10
Emotional Expression	370	75.52	11.11
Positive Emotion Expression	370	32.96	6.28
Negative Emotion Expression	370	18.54	3.93
Affinity Expression	370	24.06	4.45

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Table 4. Related to Depression Levels and Emotional Expression Relationship' Pearson Moments Product Correlation Coefficient Analysis Results

Variables	Depression	
	r	p
Emotional Expression	-.089	.043
Positive Emotion Expression	-.091	.041
Negative Emotion Expression	.098	.030
Affinity Expression	-.184	.000

p<.05

According to Table 4, between the the depression levels of university students, total scores of emotional expression (r = -. 089, p <.05) and positive emotion expression and affinity expression(r = -. 184, p <.05) which are the sub-dimensions of emotional expression (r = .-. 091, p <.05) relationship investigated that was determined that there was a statistically negative relationship. In addition, a statistically significant positive relationship was found between the negative expression levels, which are the sub-dimension of emotional expression, and depression levels (r = .098, p <.05). Accordingly, as the depression levels of university students increase, negative emotional expressions increase, positive emotional expressions and proximity expressions decrease.

Table 5. Regression Analysis Results on Depression Level Prediction of Emotional Intelligence and Depression Level Prediction of Expressing Emotions

	B	T	p	R2	F	p
Regression Coefficient	43.499	20.502	.000			
Emotional Intelligence						
Well-being						
Self-control	-.401	-3.434	.001			
Emotionality	-.848	-8.188	.000			
	-.467	-5.302	.000			
	.017	.176	.860			
				.446	57.54	.000
Sociability	.189	2.033	.043			
Positive Emotion Expression	-.624	-2.264	.024			
Negative Emotion Expression	-.088	-.390	.697			
Affinity Expression	-.881	-2.991	.003			
Emotional Expression	.519	2.076	.039			

p<.05

According to Table 5, emotional intelligence levels, well-being levels levels which is subdimension of emotional, self-control levels levels which is sub-dimension of emotional and sociability levels which is sub-dimension of emotional intelligence predict depression levels of university students statistically significantly (p<.05). In addition, emotional expresion levels, positive emotional expression levels which is sub-dimension of emotional expressions and affinity expression levels which is subdimension of emotional expressions predict depression levels of university students statistically significantly (p<.05). However, the level of negative expression, which is the sub-dimension of expressing emotions, and the level of emotional intelligence, which is the sub-dimension of emotional intelligence, are not significant predictors of depression (p>.05). This finding shows that an estimation

of depression levels can be made by looking at the emotional intelligence levels and emotional expression levels of university students.

DISCUSSION AND CONCLUSION

In this study, the results of whether there is a significant relationship between university students' the emotional intelligence, sociability, emotionality, self-control, well-being levels and depression levels was investigated. Accordingly, it has been concluded that there is a negative relationship between university students' sociability, emotionality, self-control, well-being, emotional intelligence levels and depression levels. When the literatüre is examined, it is seen that there are similar studies with this subject. Fernandez-Berrocal et al. (2006) examined the relationship between emotional intelligence and depression in their work. According to the findings of this study, the level of emotional intelligence has a negative relationship with the level of depression. In the doctoral dissertation by Özçelik (2007), families of martyrs formed the universe of the research and emotional intelligence education program was applied to these families. At the end of this program, changes in the depression levels of families were examined. As a result of the research, it was found that increasing the emotional intelligence levels of the families significantly decreased their depression levels. Batool and Khalid (2009) examined the possibility of emotional intelligence to predict depression in their studies. As a result, they found a negative relationship between total emotional intelligence score and depression. Salguero et al. (2012) investigated whether the relationship between emotional intelligence skills and depression varies according to gender. According to the results of this study, it was found that while depression level was high in men with low emotional intelligence level, there was no relationship between these two variables in women. In his master thesis study, Gökdağlı (2014) examined the relationship between emotional intelligence levels of university students and their depression states. According to the results of the research, it was determined that the levels of depression decreased with the increase of emotional intelligence levels of the participants. In his master thesis, Gürdere (2015) examined the relationship between emotional intelligence level of university students and depression symptoms. At the end of the research, it was revealed that individuals with high level of emotional intelligence showed depression symptoms less and individuals with lower level of emotional intelligence showed symptoms of depression more. In her master thesis study with university students, Uzuner (2018) examined the relationship between emotional intelligence and depression among university students. According to the results of the research, it was determined that the level of depression decreases as the students' emotional intelligence level increases. In another study, Stough et al. (2018) showed that depression level decreased with increasing emotional intelligence level. The results of the other research that have been viewed are similar to those obtained in this research. When the literature is examined, no research was found whose results differ from the results of this study.

In the research, whether there is a significant relationship between the positive expression, negative expression, affinity expression levels, total emotion expression scores, which are the subdimensions of expressing emotions of university students, and depression levels. As a result, it was determined that the levels of positive emotion expression and proximity expression, which are the subdimensions of the students' expressing their emotions, have an inverted relationship with the levels of depression. Accordingly this when the level of depression increases, positive emotional expressions and affinity expressions decrease. It was determined that the negative emotional expression levels and depression levels of the students were related in the same direction, as the higher the negative emotional expressions as the higher the depression levels. When the literature is examined, there is no one-to-one study on this subject in the national literature but similar studies are available. Tükçapar et al. (2004) examined the relationship between depression and anger in patients with antisocial personality disorder, and found that as the level of depression of patients increased, their introverted anger and extroverted anger scores also increased. However, in his thesis study, Cömert (2004) examined the anger states of depressed patients and people who were not depressed and found that patients in the depression group were more angry than the control group. But despite this he has found that patients'

negative emotional expressions were less than the control group. Accordingly, the result of this study which is the people who are depressed express their anger less is different from our study result that as the level of depression increases the negative emotional expression increases as well. In studies conducted abroad, studies investigating the relationship between emotional expression and depression were found. In their study, Uchida and Yamasaki (2008) examined the mediating role of social support in women in the relationship between emotional expression and coping with depression. According to the findings, it was determined that positive relationship between the women's depression score and during situational coping score which is sub-dimension of emotional expression and quitting score which is sub-dimension of emotional expression. According to this, it can be said that as the depression levels of individuals increase, their ability to cope with their emotions and to manage their emotional expression decreases accordingly. In their meta-analysis study by Bylsma, Morris and Rottenberg (2008), they examined how Major Depressive Disorder changed emotional reactivity. As a result of the study, according to the analysis of the findings of 19 laboratory studies comparing the emotional reactivity of depressed individuals and healthy individuals, it was found that depression reduced emotional reactivity against both positive and negative stimuli, and further reduced responses to positive stimuli. The results were found to be similar when analyzed separately for self-reported experience, expressive behavior and environmental physiology, which are the 3 main emotion response systems. Accordingly, it can be said that patients who are depressed are more susceptible to negative emotional expressions than positive emotional expressions. The results of other studies mentioned and the result of this research that depression increases the negative emotional expressions and decreases the positive emotional expressions are similar to each other.

In this study, finally, it was investigated that the degree of emotional intelligence levels and emotional expression levels of university students to significantly predict depression levels. For this reason, it was examined that whether the total emotional intelligence scores of university students and the sub-dimensions of emotional intelligence predicted by sociality, emotionality, self-control and well-being levels predicted depression levels. As a result, it was concluded that the students' total emotional intelligence levels and sub-dimensions of emotional intelligence, which are sociability, selfcontrol and well-being levels can significantly predict depression levels. However, students' scores from emotionality, which is the sub-dimension of emotional intelligence, do not predict depression levels significantly. Accordingly, it can be said that it is possible to estimate depression levels by looking at the emotional intelligence levels of the students. When the studies on the subject in the literature are examined, it is seen that the results are similar to this. Extremera et al. (2006) confirmed in their study that if view emotional intelligence levels of university students can predict their depression levels. In their study, Downey et al. (2008) examined the relationship between the two in order to show the importance of emotional intelligence for depression disorder. As a result of the research, they determined that the level of depression can be predicted by looking at the emotional intelligence level of the person and that emotional intelligence skills can be accepted as an important data in the diagnosis of depression disorderBatool and Khalid (2009) investigated the possibility of emotional intelligence to predict depression. As a result of the research, it was determined that the level of depression decreased with the increase of emotional intelligence score and emotional intelligence could predict depression. Accordingly, it can be said that individuals with low emotional intelligence skills have a higher risk of depression. Lloyd et al. (2012) investigated the possibility of emotional intelligence to predict depression by focusing on strategies to predict depression in the elderly. According to the results of the research, it was found that increasing the total emotional intelligence score was beneficial for depression. Yıldız (2016) investigated the level of emotional intelligence in predicting depressive symptoms, and found that elevated emotional intelligence decreased depressive symptoms. In their study, Kousha, Bagheri and Heydarzadeh (2018) showed that high emotional intelligence can predict low depression among candidate doctors. Accordingly, it can be said that candidates with high emotional intelligence are less at risk of getting depression. The results obtained in this study are similar to each other in the literature.

As a result of this research, it was determined that positive emotional expression and affinity expression, which are the sub-dimensions of emotional expression among university students, can significantly predict depression levels. In this result positive emotional expression and affinity expression explain the level of depression. In addition, it was concluded that total emotional expression of students can significantly predict their depression levels and emotional expression in university students explains their depression levels. When the literature is examined, similar to this subject, the work done in the country is not much. The aim of Motan and Gençöz's (2007) studies is to investigate the relationship between alexithymia (insufficiency in defining and explaining feelings) with depression. According to the findings of the study, only depression complaints were associated with an increase in the "Difficulty in Emotion Communication" dimension of alexithymia. In addition, as a result of the increase in complaints of anxiety, an increase in "Difficulty in Recognizing and Identifying Emotions" dimension and a decrease in "Difficulty in Emotion Communication" dimension were detected. Accordingly, it can be said that the difficulties individuals experience in emotional communication will cause an increase in symptoms of depression. This result is similar this reserch result that decreased emotional expression cause of increases the level of depression. Accordingly, the decrease in affinity expression and positive emotional expression may provide for the prediction of depression level. The aim of Çutuk (2017) 's research is to examine the effect of emotional expression psychoeducational program prepared by the researcher on the level of depression, anxiety and stress of adolescents. According to the findings, the program aimed at emotional expression decreased the levels of depression, anxiety and stress of the participants. Accordingly, it can be said that the correct expression of emotions is effective in reducing symptoms of depression, anxiety and stress. The result of this study shows that expressing emotions can predict depression, and this two study results is similar to each other. Accordingly, it can be said that the level of depression can be estimated by looking at the level of expressing emotions.

Suggestions

According to the results of the research, in different studies, doing different researches in which depression, emotional intelligence and expressing emotions are studied together will contribute positively to the literature. Experimental or qualitative studies on the subject are especially important. Group or individual studies aimed at developing emotional intelligence will be effective in preventing depression and reducing the level of depression among university students. For example, for this purpose, psychological counseling with groups activities can be conducted with university students to develop emotional intelligence. Preparing psycho-education programs for university students to support their emotional intelligence sub-dimension sociability skills and to be able to communicate correctly will increase the socialization levels of students while preventing their depression levels from increasing. Psychological counseling studies can be conducted with university students aiming to express their feelings correctly. In this way, these psychological counseling efforts will help them cope with depression and reduce their risk of developing depression. Psycho-education programs to be prepared for university students to increase their positive emotions and affinity expressions will help them to cope with depression and reduce their risk of developing depression.

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INVESTIGATION OF THE RELATIONSHIP BETWEEN LIFELONG LEARNING TENDENCIES AND THE TECHNOLOGY LEADERSHIP COMPETENCE OF PUBLIC EDUCATION CENTER ADMINISTRATORS[1]

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Abstract

The aim of this study was to examine the relationship between lifelong learning tendencies and the technology leadership of public education center administrators. A relational survey model with two scales was used as the data collection tool in the research. A Mann Whitney U test and Kruskal Wallis tests were used for the analysis. It was concluded that lifelong learning tendency did not differ according to gender, age, and seniority variables. Similarly, technology leadership competence did not differ according to gender and seniority, but it did differ according to age. Furthermore, there was a moderate negative correlation between lifelong learning and technology leadership competence (r = -382).

Keywords: Lifelong learning tendencies, technology leadership competence, public education center administrators

INTRODUCTION

Lifelong learning is not new concept, and it constitutes an important part of human life. With the rapid development of science, individuals need to acquire the necessary skills, knowledge, and competencies to adapt to these changes. The concept of lifelong learning "refers to all kinds of learning activities attended throughout his/her entire life out of formal education in order to develop the individual's knowledge, skills and competences with an approach related to individual, social and employment" (Education Reform Initiative, 2012).

In recent years, several top policy documents have been published that pursue common strategies for the development of education and training systems in the field of lifelong learning, such as the Lisbon Strategy, established within the scope of the European Union (EU); the Education and Training 2010 Training Program; the Copenhagen, Maastricht, Helsinki, Bordeaux, and Bruges Declarations; Europe 2020; and the Education and Training 2020 Training Program. The strengthening of lifelong learning systems plays an important role in these common strategy documents.

Individuals can participate in lifelong learning activities for different purposes. For example, they may want to develop their knowledge and skills to advance in the labor market, improve their life skills, and/or become self-sufficient. Lifelong learning does not aim to develop a different learning culture, however. An approach is adopted that combines the different types of learning individuals experience throughout their lives and that leads to continued learning throughout adult life (The Lifelong Learning Development Project in Turkey Action Planning Guide, 2013).

In conjunction with the lightning progress of technology, a rapid transformation is also occurring across Turkey and the entire world. The field of education has also been affected by this

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transformation, and the technological competencies of teachers and administrators affect the quality of their services and their visions related to lifelong learning. Providing effective use of technology can only be achieved by teachers being technologically literate (digital competence) and applying the skills they acquire. In this way, educators have positive tendencies towards changing and developing technological innovations and reflect these tendencies in educational processes.

It is necessary to ensure the continuity of education to support the social and economic development of adults, to facilitate their adaptation to changing living conditions, and to ensure their transition from school to work. When thinking of such learning, non-formal education comes to many people's minds, such as educational activities that teach adults reading and writing or a little mathematics gaining basic citizenship information, courses that help people with sewing, embroidery, and handicrafts, and programs that inform citizens about various subjects through the mass media (Bülbül, 1987). Individuals take part in an ongoing learning process from the cradle to the grave, however.

In the 21st century, non-formal education has been transformed into lifelong learning. As the knowledge, skills, and competencies acquired in formal education cannot be kept up-to-date, individuals need to adapt to the current age to develop socially, culturally, and economically. Therefore, the achievements in formal education will be updated and completed with lifelong learning activities.

Variables such as globalization, increasing competition between countries, and the employment conditions of individuals reveal the importance of lifelong learning. The individual qualifications required by the labor market are changing day by day, and information is produced as quickly as it becomes out of date. Being a lifelong learning individual is not only important for individual development but also for the development of societies.

One of the most important skills expected from lifelong learners is being able to take technological opportunities and access technology. The people who make the necessary coordination in effective and efficient use of technology in the organization, influence, direct and manage the organization in this regard come to the forefront in business environments and become technology leaders (Akbaba-Altun, 2008). The use of information technology in school environments and the integration of these processes into education only occurs when managers actively learn these processes and support their staff. For example, Turan and Şişman (2000) stated that as standardization in education management is a very difficult process, it is important to determine the technology leadership roles of school administrators and to standardize these roles. Indeed, the amount of research looking at the identification and evaluation of the qualifications that school administrators should have in relation to technology leadership is continually increasing (Afshari et al., 2008; Can, 2008; Yu & Durrington, 2006).

A meeting of the Council of Europe was held in Lisbon in 2000 where a 10-year strategy was signed by the leaders of the member states of the council. The concept of lifelong learning was open for discussion with all member states and candidate countries in the Lifelong Learning Memorandum announced by the European Commission in 2000. In the memorandum, the scope of lifelong learning is defined as all formal and informal learning starting from preschool years to post-retirement. It has been mentioned about implementing lifelong learning is the top priority. This rationale as to Europe's knowledge-based society and the correct orientation of the economy, strengthening the competitiveness of individuals they want to be active in the community by planning their own lives and the differences (cultural, ethnic, linguistic) the necessity of learning to live together harmoniously is shown.

The following basic strategies are thought to be necessary for the definition and dissemination of lifelong learning:

1. New basic skills for everyone,
2. More investment in human resources,

3. Development of innovations and new methods in education,
4. Giving value to learning/documenting,
5. Review of guidance and counseling services.

The use of information and communication technology in order to reach those who have difficulty in access with bringing closer of education to the learners as far as possible is determined the approach for local and regional based initiatives of Lifelong Learning, multi-purpose learning centers and the utilization of the information networks for learning community (CEC, 2000; Counted, 2013; Güleç, Çelik, & Demirhan, 2012; Lifelong Learning Strategy Document, 2014).

Leadership characteristics such as developing school managers' vision for the school, generating ideas about the goals and priorities of the school, and creating support structures within the school culture have a direct impact on how technology is integrated into education in schools. In this context, determining the lifelong learning tendencies of managers is critically important. The lifelong learning tendencies of teachers and course managers who play an active role in the formation of lifelong learning processes help ensure the integration of individuals in social change processes and in becoming strong individuals in developing world conditions. Varış (1998) stated that 21st century teachers are expected to have a multi-faceted perspective, continuously renew themselves, and have the knowledge, skills, and behaviors required by the teaching profession in accordance with the changing conditions.

Znidarsic and Jereb (2011) found a positive relationship between the development of lifelong learning and the amount of investment in innovation. Therefore, the current research examines the relationship between the lifelong learning tendencies of public education center administrators and technology leadership. The main research questions are:

- Do public education center administrators' lifelong learning tendencies show significant differences according to gender, branch, age, and seniority?
- Does public education center administrators' technology leadership competence show a significant difference according to gender, branch, age, and seniority?
- What is the relationship between lifelong learning tendencies and the technology leadership competence of public education center administrators?

METHODS

This research was designed using a relational survey model, which is a quantitative research method.

Participants

The participants were 993 public education center administrators in Ankara, Turkey. One of the purposeful sampling methods criterion sampling and easily accessible status sampling were used.

Data Collection

Two scales were used for data collection. The first was the Lifelong Learning Tendencies Scale developed by Coşkun in 2009. Validity and reliability studies have been carried out for this scale on a sample of 2,100 people: 600 pilots and 1,500 principal applications. The scale consists of four dimensions:

- Motivation
- Persistence
- Lack of regulation in learning
- Curiosity deprivation

The first two dimensions consist of positive items, and the last two dimensions consist of negative items. The negative dimensions were reverse scored. The responses to the 27 scale items were made

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according to a six-point Likert scale: "1. very suitable;" "2. partly suitable;" "3. Very slightly suitable;" "4. Very slightly not suitable;" "5. partly not suitable;" and "6. not suitable." The minimum score that can be obtained from the scale is therefore (27x1) 27 and the maximum score is (27x6) is 162. The reliability of the scale was determined by calculating the Cronbach Alpha (μ) internal consistency coefficient. The reliability of the pre-trial scale of 74 items (μ) was calculated as .93. In the event that another study conducted in order to determine the reliability of the scale was to perform item analysis based on the differences of the highest and lowest score average of 27% group as the scale score. Therefore, the non-significant items according to the results of the t tests were removed from the scale. The reliability coefficient in this study was .934, which indicates high reliability.

The second scale used was the Technology Leadership of Education Administrators, which was developed by Banoğlu in 2011. This scale consists of 32 items and all the statements are positive. The maximum score that can be obtained is (32x5) 160. The reliability coefficient was .969, indicating high reliability. The sub-dimensions of the scale are:

- 1-12 Visionary leadership
- 13-15 Learning culture of digital age
- 16-23 Perfection on professional development
- 24-26 Systematic development
- 27-32 Digital citizenship

The necessary permissions were obtained for both scales. The two scales were given to the administrators of public education centers in Ankara in October 2019 by obtaining the necessary permissions from the General Directorate of Lifelong Learning. In addition, the managers who participated in the research were asked to fill in an information form regarding their gender, age, and seniority.

RESULTS

The results were evaluated at the 5% significance level. Kolmogorov-Smirnov and Shapiro-Wilk tests were used to check the normality of the data. Tables 1 to 3 provide the demographic information of the participants, while Table 4 shows result of the normality tests. The data was found to be non-normally distributed (Table 5), therefore, non-parametric tests were used.

Table 1. Distribution of Managers by Gender

Gender	Frequency	Percentage
Female	7	24.1
Male	22	75.9
Total	**29**	**100**

Table 2. Distribution of Managers by Age

Age	Frequency	Percentage
25–34	7	24.1
35–44	10	34.5
45 and over	12	41.4
Total	**29**	**100**

Table 3. Distribution of Managers according to Seniority

Seniority	Frequency	Percentage
0–10	4	13.8
11–20	9	31.0
21–35	16	55.2
Total	29	100

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Table 4. Descriptive Statistics Results

	n	Average	Median	Skewness	Kurtosis
LLL Tendencies	29	49.4	42.5	1.3	.972
Technology Leadership Competence	29	138.8	147	-1.1	.453

Table 5. Kolmogorov-Smirnov and Shapiro-Wilk Statistics Results

Scales	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistical value	df	p value	Statistical value	df	p value
LLL Tendencies Scale	.180	24	.042	.827	24	.001
Technology Leadership Competence Scale	.234	26	.001	.845	26	.001

In addition to the normality assumption is not supported in the Kolmogorov-Smirnov test, the histogram graphs and Q-Q plot graph examined also do not meet the normality assumption in the distribution of variables. When the tables are examined and the results of the tests are examined, non-parametric tests were applied since the total scores of both scales did not show normal distribution.

Mann Whitney U and Kruskal Wallis tests were applied to determine whether the managers' Life Long Learning tendencies and technology leadership competencies differ significantly according to gender, age and seniority.

As a result of the non-parametric Mann Whitney-U test conducted to determine whether the scores obtained by the Managers' Lifelong Learning Tendencies scale differentiated according to the gender variable, no statistically significant difference was found at the level of $p < 0.05$ (p value, 367).

As a result of the Kruskal Wallis test conducted to determine whether the Lifelong Learning Tendencies mean rank of differ according to age and seniority variables, the difference between the rank averages of age groups and seniority was not statistically significant (p value for age 480, p value for seniority .461) .

As a result of the non-parametric Mann Whitney-U test conducted to determine whether the scores obtained by the administrators from the Technology Leadership Competencies Scale differed according to the gender variable, no statistically significant difference was found at the level of $p<.05$ (p value, 461).

As a result of the Kruskal Wallis test conducted to determine whether the average of the Technology Leadership Proficiency Scale rankings differ according to age and seniority variables, a significant difference was found between the age groups (p value .031). Mann Whitney U test was applied to find out the difference is which groups favor? Managers between the ages of 25-34 have a higher rank average than those aged 35-44. Similarly, managers aged 35-44 have higher rank average than managers aged 45 and over. The difference between the mean rankings of seniority was not statistically significant (p value .868).

The Spearman correlation coefficient was calculated to determine whether there is a relationship between the total scores obtained from the two scales ($r = -382$). A negative number indicates that there is a reverse relationship .30 - .49 shows a medium level relationship.

DISCUSSION and CONCLUSIONS

This study aimed to determine the lifelong learning tendencies and technology leadership competence of public education center administrators. It was found that the public education center administrators' lifelong learning tendencies scores were below average and did not differ according to gender, seniority, or age. This suggests that public education center administrators are unwilling to search for

new information and are not open to learning. In contrast, the results of the technology leadership competence scale were at a generally good level, indicating that administrators consider themselves sufficient at technology leadership. The technology leadership scores also did not differ according to gender and seniority, but there was a significant difference according to the age of the participants.

Make informative and encouraging publications by written and visual media in order to expand of lifelong learning understanding for their executives for public education centers. Public education centers can conduct studies to increase the awareness of executives regarding lifelong learning. More generalizable results could be obtained by expanding the participant sample, and qualitative data could be collected for a more in-depth look at lifelong learning.

Various results can be obtained using different data collection tools. Analyses related to the sub-dimensions of the scales could be conducted, and the lifelong learning tendencies of teachers, administrators, and academics from different branches could be analyzed according to the sub-dimensions. The lifelong learning tendencies of administrators working in different countries could also be compared.

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EVALUATION OF THE MATHEMATICAL THINKING PROCESSES OF A GIFTED AND 4TH GRADE STUDENT ON GEOMETRY

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Abstract

In this study, the mathematical thinking processes of a gifted 4th grade student regarding geometry were examined. Based on the thought that the geometric thinking level of the student will affect his mathematical thinking skills, it was determined that his geometric thinking level is the second level. While studying mathematical thinking processes, the theoretical framework of the three worlds of mathematics was used. According to this theoretical framework, mathematical thinking is divided into three levels: the conceptual embodied world, the perceptual symbolic world and the axiomatic formal world. While examining the mathematical thinking processes of this student named Alp, two semi-structured interviews were conducted. In the first, his prior knowledge of geometry was questioned and a verbal expression of triangle inequality was presented. In the second interview, an activity that is expected to create knowledge structures about triangle inequality was presented. As a result of the research, it was seen that Alp was able to carry out a thinking process towards proof processes, even at a simple level. His thinking skills are generally limited to the conceptual embodied world dimension.

Keywords: Gifted student, mathematical thinking, three worlds of mathematics

INTRODUCTION

Gifted students can be described as individuals with special academic skills, leadership qualities and creative thinking (Davis and Rimm, 2004; Gardner, 1993; Guilford, 1967; Kirk and Gallagher, 1989; Renzulli, 2003; Sternberg, 2003). Giftedness in mathematics can be defined as individual talent that manifests itself in mathematics (Krutetskii, 1976). Krutetskii (1976) describes these capabilities as the acquisition, processing and retention of mathematical information. Individuals with mathematically gifted abilities demonstrate their mathematical thinking skills with extraordinary speed and accuracy. In addition, these individuals can see the different relationships between the concepts (Heid, 1983). Individuals with mathematical giftedness focus on how and why a problem is solved rather than how it is solved (Sheffield, 1994).

Students' judgments about concepts in mathematics are related to mathematical thinking (Doğan, Güner, 2012). During mathematical thinking, mathematical processes such as reasoning, problem solving, prediction and abstraction are applied (Henderson, 2002). Mathematical thinking is individual. It is an individual process. It is the process of creating new concepts within the knowledge structures of individuals.

Geometric thinking is part of mathematical thinking. Geometric thinking is the process by which individuals perceive and interpret shapes. When the individual first encounters geometric concepts, he/she tries to make sense of it in his/her mind. He/she analyzes the properties of the shapes and divides the shapes into groups. In short, he/she creates structures in his mind for geometric concepts and relationships. This process is a geometric thinking process. In geometric thinking, there is a transition from the physical world to the abstract world (Akarsu Yakar, 2019). According to Gündoğdu Alaylı (2012), geometric relations and structuring mathematical relations are related. All levels involved in mathematical thinking processes are also valid for geometric thinking.

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It is seen in the literature that the development of geometric thinking is generally based on the Van Hiele approach (Alyeşil, 2005; Bobango, 1988; Fidan, 2009; Gündoğdu Alaylı, 2012; Olkun, Toluk, Durmuş, 2002; Özcan, 2012; Usiskin, 1982). Van Hiele (1986) states that the development of geometric thinking in children takes place in five stages. These; visual level, analytical level, informal deduction (inference based on experience), formal deduction (inference) and the most advanced level. According to this theory, thinking proceeds sequentially. According to the first level, individual can name the shapes and make measurements. At the second level, the individual analyzes and explains the properties of shapes. At the third level, he/she can compare shapes and classify shapes. At the fourth level, the individual can make abstract thinking and make a geometric proof with the help of axioms. At the fifth level, he/she can put forward his/her own theorems. According to the studies in the literature, secondary school students generally perform geometric thinking between the 1st and the 3rd level (Breen, 2000; Gündoğdu Alaylı, 2012; Fidan, 2009; Fuys, 1985; Karakarçayıldız, 2016; Özcan, 2012). Therefore, at the beginning of the study, it was thought that the geometric thinking level of the gifted 4th grade student would also be within these ranges.

In this study, while examining student's mathematical thinking skills, the theoretical framework of the three worlds of mathematics was discussed. The three worlds of mathematics deal with mathematical thinking in three stages. These phases are assumed to occur sequentially (Tall, 2007). Each world of thinking expresses the transition from concrete thinking to abstract thinking. According to this theory, the first thinking phase is the conceptual-embodied world. In this world of thinking, the individual expresses the concrete properties of objects. In this world of thinking, the visual-spatial properties of objects are at the forefront (Jukić, Brückler, 2014). The second thinking phase is the proceptual-symbolic world. In this world of thinking, there is a concept-thinking phase during the process. It includes expressing the concept with symbols and algebraic thinking. The individual expresses the concept symbolically as a result of repetitive actions. The third stage of thinking is the axiomatic-formal world. Proof is involved here. The individual expresses the concepts in their own sentences. He/she creates his/her own definitions of concepts as a result of mathematical proof (Akarsu Yakar, 2019).

When the researches are examined (Jukić, Brückler, 2014; Kashefi, Ismail, Yusof, 2010; Tall, Lima, Healy, 2014; Vandebrouck, 2011), there is no field study that eliminates the three worlds theory of mathematics and geometric thinking together. Therefore, the examination of the theoretical framework of the three worlds of mathematics within the geometry learning area has formed the importance of this research. In addition, there has been no research that addresses the theoretical framework of the three worlds of mathematics at primary school level. According to the theoretical framework of the three worlds of mathematics, elementary school students cannot be expected to fully realize the axiomatic formal world-scale thinking process. However, in the context of mathematical thinking, it is thought that a gifted 4th grade student can develop a simple proof process. The aim of the research is to reveal the thinking process that the student will perform towards the proof process. Therefore, considering that he can express the proof processes even at a simple level and can use his own definitions to express the concepts, this dimension is also discussed in the study.

METHODS

This study was designed with a mixed pattern model. In other words, quantitative and qualitative designs were used together. Quantitative design was used to determine the research participant according to his geometric thinking levels. Singular scanning method was determined as a quantitative research design. Qualitative design was used to determine student's mathematical thinking skills. The case study was chosen as a qualitative research design. Student's mathematical thinking skills were determined using the semi-structured interview technique.

Purposeful sampling method was used to determine the participant of the study. Students' geometric thinking level and giftedness were considered as criteria. The "Geometric

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Thinking Levels Scale" developed by Alyeşil (2005) was used to determine student's geometric thinking levels. The scale was prepared by using the Van Hiele Geometry Test. The scale consists of 20 questions in total, 5 questions for each level. The alpha-reliability coefficient of the scale is 0.81. It was accepted that the students showed that level of thinking as a result of correctly answering four of the five questions at each level.

This scale was applied to gifted and 4th grade student in Kocaeli province Izmit district. In this study, only a gifted 4th grade student with a level of geometric thinking at the second level was selected. The student was given the nickname Alp. Alp's gifted diagnosis was made in the field of general mental talent and he is studying in science and art center. He has a basic knowledge of algebra and the concept of variable.

Two semi-structured interviews was conducted to determine the mathematical thinking skills of the student. In the interview questions, it was aimed to reveal the mathematical thinking skills of the student towards geometry. In the first interview, the student was first asked to explain the triangle. Thus, it was aimed to reveal the knowledge structures of the student about the triangle. Then he was asked to explain why the sum of the dimensions of the interior angles of the triangle is 180^0. Finally, a verbal statement about the conceptual structure of triangle inequality, which is among the 8th grade achievements, was presented and asked to question its accuracy. In the second interview, an activity on triangle inequality prepared by Akarsu Yakar (2019) was presented. In this activity, the student was expected to form the triangle inequality in the process.

Two semi-structured interviews took about 45 minutes. In the analysis of the data, the theoretical framework of the three worlds of mathematics was discussed. Student responses are evaluated in three thinking worlds.

The audio recordings of the interviews made in this study were transferred to the computer by the researchers. In the process of ensuring the validity and reliability of the semi-structured interview process, the variation method (Creswell, 2013) was used. Interview, document review and observation process formed the variation method. The documents of the audio recordings of the interview process and student answer sheets were evaluated and analyzed together.

RESULTS

In this section, Alp's mathematical thinking skills were evaluated based on student responses in semi-structured interviews. The student was first asked to explain the triangle. The interview is as follows.

Researcher: *Can you tell me about the triangle?*

Alp: *Hmm ... the triangle has three sides. it also has three corners.*
Researcher: *Does every shape with three sides or three corners show a triangle?*
Alp: *It should be closed. There must also be three interior angles.*

The aim of the meeting was to reveal Alp's existing knowledge structures about the triangle. Alp said that a triangle should have three sides, three corners and three interior angles. In addition, he was able to express the feature of being closed, which is one of the geometric shape features.

Then Alp was asked why the sum of the dimensions of the interior angles of the triangle is 180 degrees. The interview process is as follows.

Researcher: *"The sum of the dimensions of the interior angles of the triangle is 180 degrees." Do you think his statement is correct?*

Alp: *Yes true.*
Researcher: *So why? Can you show it correct?*
Alp: *Let's call it a triangle. The interior angles are 50, 60, 70.The sum is 180.*

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Researcher: *So why 180, not 140? Why did you choose the dimensions of the interior angles that way?*
Alp: *I have never thought about that. Can i think?*
Researcher: *Of course.*
(4 minutes later)
Alp: *Now I'm going to draw a triangle. It will also be an equilateral triangle. Look now this is 4 cm. This is 4. Then this is 4. If I measure now. Yes, it's 60 degrees. 60 degrees here. Here too. Their total is 180. It turned out to be correct.*

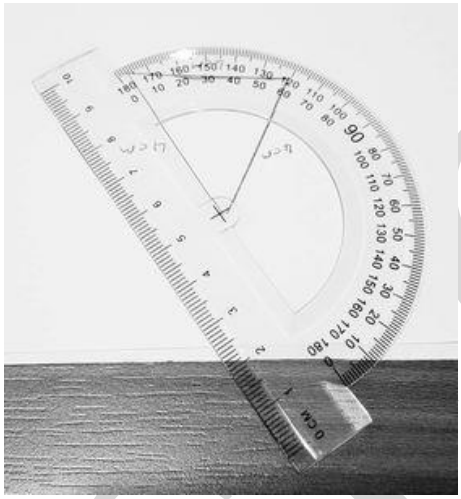

Figure 1. The figure drawn by Alp while expressing the sum of the dimensions of the interior angles of the triangle

Alp was able to explain why the sum of the interior angles of the triangle is 180 degrees by drawing an equilateral triangle. In the thinking process, he first realized the process of thinking about the conceptual embodied world dimension. He tended to explain the statement given before. So he wanted to describe the conceptual structure. Later he showed the skill of experimenting with numbers. All these skills can be thought of as skills belonging to the conceptual embodied world dimension. Then he developed a proof process to show the correctness of the conceptual structure. Therefore, he realized an axiomatic thinking process towards the formal world dimension.

Finally, in the interview with Alp, a verbal statement about the triangle inequality was presented to him. It is expected to show accuracy. The interview process is as follows.

Researcher: The length of any side in a triangle is less than the sum of the other two side lengths but greater than the difference. Provided that you subtract the short side length from the long edge length while getting the difference. Do you think his statement is correct?

Alp: *May be. I can actually draw a triangle and measure it.*

Researcher: *So do you want to think of a triangle with one side 9cm and the other 5cm long?*

Alp: *(He drew a triangle) Now this edge is 9, let this side be 5. (drawing) Yes let's measure it ok this is 10. yes it is true.*

Researcher: *Can you explain?*

Alp: *This is the 9 and this is the 5. He says it will be less than the sum of the two. Yes, little. because the two add up to 14. the differences are also 4. Bigger than 4. that's right.*
Researcher: *Is it always true?*
Alp: *So I drew it and it was correct. Is it always true? Yes it must be right. I don't know. I have to try all the time.*

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Researcher: *So how would you think of this expression if you didn't know the side lengths of the triangle?*

Alp: *If I didn't know the side lengths I guess I wouldn't*
Researcher: *If you gave letters to the lengths of the sides, for example if this was a, this was b, and this was c?*
Alp: *Then I couldn't.*

Alp was able to explain the verbal statement regarding the triangle inequality; however, it has only shown its accuracy with an example. He had difficulty developing a proof-of-accuracy process. The symbolic expression was also unable to write. It can be said that the thinking process is limited to the conceptual embodied world dimension.

In the second interview, an activity was presented to Alp. In this activity, he was expected to discover the triangle inequality. The meeting process for the event is as follows.

Researcher: *"One day, his teacher gives Efe a project assignment. According to the project homework, Efe has to design a triangular garden. Efe's teacher states that the length of one side of the garden should be 9 cm and the length of the other side should be 5 cm.*

What kind of path does Efe follow when he thinks about how to draw the triangle?
Alp: *Draws the lengths. I just drew it before.*
Researcher: *Do you think Efe can choose the third edge as 4 cm?*
Alp: *There are 4 differences between 5 and 9. It can happen. We need to look.*
(Trying again and again)
Doesn't seem to be less than 5. It just doesn't seem to coincide.

Researcher: *Do you think Efe can choose the third edge as 14 cm?*

Alp: *This time their total is 14. we can try again. But there was an expression saying it could not be in our previous meeting. Give me a try*
(trying)
Like it's not happening.

Researcher: *If we want to generalize this, how would you explain it?*

Alp: *I'm not sure exactly. but if we say it like this. It doesn't work if we subtract two of them, it doesn't work if we add them together. In fact, it seems to overlap anyway. If we add 5 to 9, it makes 14. the edges overlap. yes yes edges overlap. No way. yes they don't have sums. If we take it out, it will not.*

Alp made a process of thinking about creating the triangle inequality by testing the lengths of the sides of the triangle. He implemented the conceptualization process of triangle inequality by applying the instructions included in the activity. The instructions in the process of the activity helped him. He carried out the process of thinking towards the proof process but his thinking skills were limited to the conceptual embodied world dimension.

DISCUSSION and CONCLUSIONS

One of the biggest difficulties in mathematics education is the process of making sense of abstract concepts. In this process, we first use our concrete perceptions. We first think concretely. We evaluate abstract concepts within our existing mind schemas. In this study, the mathematical thinking skills of a gifted 4th grade student regarding some geometric structures were examined. When the relevant literature was examined, it was seen that the mathematical thinking processes of individuals were generally examined in terms of different theoretical frameworks such as APOS, SOLO taxonomy, RBC theory (Açıl, 2015; Bağdat, Saban, 2014; Köse, 2018; Mudrikah, 2016; Türnüklü, Özcan, 2014). In this study, the three worlds of mathematics are used as the theoretical framework.

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According to the theoretical framework of the three worlds of mathematics, mathematical thinking takes place in three stages. These stages follow a path from concrete to abstract. In this study, the reason why the gifted and geometric thinking level of the 4th grade student was chosen as the second level is to evaluate the progress of thinking processes towards the axiomatic formal world dimension. At primary school level, students are not expected to be able to demonstrate fully. However, it was thought that they could show the proof process within their thinking processes. Therefore, the results of the study also support this idea. The student was able to develop a proof process while explaining why the sum of the dimensions of the angles of the triangle is 180 degrees. Based on the example, he was able to show the accuracy of the statement and generalize the statement. He developed a thinking process from the conceptual embodied world dimension to the axiomatic formal world dimension.

Triangle inequality is among the 8th grade achievements according to the MEB (2019) mathematics curriculum. The student was able to interpret the verbal statement about inequality correctly. He wanted to explain the expression with an example and made a drawing. He showed the accuracy of the statement through an example. However, he could not generalize the geometric structure and show it symbolically. Alp has some prior knowledge about algebra. However, mathematical thinking skills did not reach the level of creating symbolic expressions. Therefore, the thinking process was limited to the conceptual embodied world dimension. Alp's thinking process could not reach the perceptual symbolic world and the axiomatic formal world dimension.

Within the activity that is expected to create the triangle inequality, there is a progress in mathematical thinking skills from the conceptual embodied world to the axiomatic formal world. Since he was a 4th grade student, his symbolic expression skills were not questioned. However, it has been observed that it reveals the ability to prove through trial and error. The student was able to create a knowledge structure about triangle inequality in the activity.

It was thought that the geometric thinking level and giftedness of the student affected his mathematical thinking skills. Geometric thinking is part of mathematical thinking. Their processes are similar. Both involve a thinking process from the concrete to the abstract. Individuals with second-order geometric thinking skills can explore the properties of geometric shapes and their parts. Having a second level geometric thinking level may have enabled the student to perceive the given instructions correctly. In addition, the giftedness of the student positively affected the thinking processes he developed towards geometry. According to Krutetskii (1976), giftedness in mathematics includes the components of acquiring, processing and remembering mathematical knowledge. These components are also thought to affect the student's geometric and mathematical thinking skills.

As a result of the research, it is thought that examining the mathematical thinking skills of the students is important in revealing their existing knowledge structures. Therefore, it is thought that it is important to enable them to explore the concepts in the activities instead of directly presenting them to the students in the teaching process. According to Fidan and Türnüklü (2010), instead of giving geometric concepts directly to the student, the student should be encouraged to find and create these concepts and should be given education appropriate to their level. Measurement and evaluation processes can also be evaluated in this context. Since it is thought that the theoretical framework of the three worlds of mathematics can be studied in the field of geometry, similar studies are recommended.

Thinking dimensions progress sequentially according to the three worlds of mathematics. As skills in mathematical thinking increase, mathematical thinking levels increase. Therefore, it is thought that the basic mathematical thinking skills of the student studying in the 4th grade of primary school also affect his mathematical thinking level. Monitoring the progress of mathematical thinking level in the future is thought to be important in terms of examining the development of mathematical thinking. In this context, studies involving processes can be conducted.

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ON THE USAGE OF CONCEPT CARTOONS IN TEACHING GEOMETRY: THE STUDY OF THE GEOMETRY ACHIEVEMENT OF MIDDLE-SCHOOL FIFTH GRADERS

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Abstract

İn this study; we examined the influence of concept cartoons on academic achievement in the 5th grade geometry class. Quantitave research method is used in the research. Randomized paired control-group pretest-posttest design from experimental research methods was used in the research. Experimental study was carried out with 24 fifth grade students studying in Aşağı Göndelen Secondary School in Ereğli Country of Konya Province. Experts have examined the materials of Geometry Achievement Test, have been tested for reliability and validity, and as a result the ‘‘Geometry Achievement Test’’ has been established to be reliable and valid. GBT was applied to a group of 24 students. Based on the results of the results of the pre-test GBT, the experimental group with 12 member, in which the geometry was tough with concept cartoons, and the control group with 12 member, in which the geometry was tough with traditional teaching was established so that the successes of students would be homogeneous. In the analysis of the data obtained from the experimental study; Independent samples t-test was used. As a result of the experimental research, it was seen that the students of the experimental group using the concept cartoons had higher geometry achievements than the geometric achievement of the control group students who were taught traditional geometry.

Keywords: Geometry education, concept cartoons, the level of success

INTRODUCTION

The sub-discipline that enables Mathematics to be disengaged from its abstract nature and turn into a visible concrete form, thus establishing a meaningful place in individuals' minds, is geometry (Keşan and Şahin, 2017). In order to free Geometry from that abstractness, it is required to associate it through perceivable-level finite objects from one's observable immediate surroundings (Dağlı & Peker, 2011). The individual who forms the geometric concepts in his/her mind would possess the ability of spatial reasoning in the geometric space. According to Duatepe Paksu (2013), the individuals who have the ability of spatial reasoning can look at their surroundings in a more meaningful way, and can solve the geometry problems that they might face in the daily life with more ease. Geometry is a discipline that equips the individual with sight, eases thinking, and enables reaching the solution via visualizing the objects (Hızarcı, 2004). The Geometry discipline, which can shape individual's life and helps people overcoming problems that they might face, is the indicator of how seriously the Plato's saying "Let no one ignorant of Geometry enter here" is grounded. According to Şahin (2018), the most ideal way for individuals to demonstrate their existence is through basing their emotions and ideas upon rationalism and science. To this end, one must possess different standpoints.

We notice that most of the time, teachers apply the conventional methods of teaching while explaining the relationships between theorems or providing axioms. Developing the new concepts that are necessary for students to be able to generalize through induction is another problem at the conventional fixed environments (Güven & Karataş, 2003). The utilization of concept cartoons in geometry for minimizing these problems, establishing a positive student attitude towards geometry,

and providing permanence in education is an alternative starting point (Şahin, 2018). Concept cartoons were first suggested at 1991 by Brenda Keogh and Stuart Naylor. Concept cartoons strategy was outlined in 1993 (Keogh and Naylor, 1993, transf. Keogh and Naylor, 1999).According to Uğurel, Keskin, and Karahan (2013), it was determined that the usage of concept cartoons would be an alternative way for Mathematics and Geometry teaching. It was detected that the concept cartoons affect the mathematical success positively, and change the attitude towards mathematics in a positive manner (Şengül & Dereli, 2013).

With regards to Dale's cone of experience, for permanent learning to occur the most effectively, it is required for individual to take part actively in the process. Yet, the portion reserved for these attitudes in the conventional teaching approaches is very limited. Rather than the conventional methods, the learning environments that are based on new approaches enable the learning to be permanent. Some studies that support this thought are available in the literature.

Türkoğuz and Cin (2013) have examined the students' levels of perception in the classroom environment assisted with concept cartoons at a study they conducted with 54 seventh-grade students in a science and technology class. As a result of the research, they have observed that there is a significant difference between a concept cartoon-assisted teaching environment and a conventional method-applied teaching environment in terms of success. It was observed that there was an academic success augmentation in the educational environment that was assisted by the concept cartoons.

Seçkin, Yalvaç, and Çetin (2010), in the study they conducted with a 100 eight-graders, have researched the concept cartoon-assisted educational environment's impact on the students' perception. At the end of the research, it was spotted that students knew most of the environmental issues but could not explain their relationships with regards to each other. In order for them to be able to establish the relationship between the concepts and ensure the permanence, it was concluded that concept cartoons must be used in elementary school desks. It was stated that concept cartoons are strong materials in terms of making the teaching process more entertaining, as well as giving advice, and that they are an effective educational material since they can be easily perceived by students.

In the published postgraduate thesis of Evrekli (2010), 34 elementary school students were used in order to examine the usage of concept cartoons' effect on student success in science and technology class. At the end of the study, there was a significant difference between the students who studied in a concept cartoon based educational environment and the students who studied in a conventional educational environment in terms of their success in the posttesting. It was observed that the success in the concept cartoon-assisted educational environment was greater. In addition, the students who presented their questioning skills thanks to the concept cartoons were more successful. In conclusion, the educational environments in which the concept cartoons are used affect the students' academic success and questioning skills positively.

As well as affecting the students' attitude towards geometry positively, concept cartoons are alternative educational tools that can be applied for the supplying of permanent teaching, and the elimination of possible misconceptions. The thought that how important the concept cartoon-assisted educational environments are in terms of enhancing the geometry achievement academically was the source of inspiration that led to this research. Accordingly, the purpose of the study is to examine the effects of concept cartoons on the geometry success in fifth-grade level geometry teaching. In accordance with this purpose, the problem statement "Does the concept cartoon-assisted education have effect on students' geometry achievement in geometry class?" is the foundation of our study. Based on this problem statement, the sub-thoughts "The examination of experimental group students' geometry achievement" and "The examination of control group students' geometry achievement" have emerged.

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METHOD

Design of the Study

For the analysis of the data collected from the experimental study, out of the experimental designs, "Pretest - Posttest Matched Pair Control Group Randomized Design" and "Unrelated Samples t-test" were utilized.

Table 1. Randomized design with pretest-posttest matched control group

G_1	R	$O_{1.1}$	X_1	$0_{1.2}$
G_2	R	$O_{2.1}$	X_2	$O_{2.2}$

G1: The Concept Cartoon usage-based geometry teaching applied group
G2: The conventional education-based geometry teaching applied group
X1: The Concept Cartoon-assisted education-based geometry teaching
X2: The conventional education-based geometry teaching
O1.1, O1.2: Pretest
O2.1, O2.2: Posttest
R: Indicates that the experimental objects were assigned randomly.

In order to increase the chances of groups being equivalent, the matched pair randomized design was utilized (Büyüköztürk, Akgün, Karadeniz, Demirel and Kılıç, 2012).

The concept cartoons were applied to the experimental group according to 2016-2017 academic year Mathematics class geometry learning outcomes. And for the control group, the conventional method-based geometry teaching was used. Before the commencement of educational applications, the geometry test was applied to the groups as the pretest, and reapplied as the posttest after the ending of educational applications. The findings were noted and included in the analysis process.

Study Group

24 fifth-grade students from Aşağı Gündelen Middle School in Konya, Ereğli constituted the study group of the research. 14 students of the group were girls, and 10 were boys. The Experimental Group that the concept cartoon-assisted education shall be used is composed of 7 girls and 5 boys, in total of 12 students, and the Control Group that conventional education shall be used is composed of 7 girls and 5 boys, in total of 12 students. Groups were formed homogeneously according to the pretest results, and were arranged to be equal in terms of achievement levels.

Data Collection Tools

The "Geometry Achievement Test", which was prepared by Şahin and Keşan (2017) via its application on 513 sixth-grade students, is used in the study. The reliability coefficient of the test results are determined as KR20 (alpha) 0,87 and KR21 0,847. In the conducted item analysis test (ITEMAN), the test's item difficulty index was determined as 0,470 and its index of distinctiveness was determined as 0,486. These results indicate that the developed "Geometry Achievement Test" is a reliable and valid measurement tool.

Data Analysis

The data was examined under the S.P.S.S. program and Tuition Assistance Program. Unrelated samples t-test was applied to the data groups that demonstrated normal distribution at the end of the examinations. And for the non-normal distribution data groups, Mann Whitney U-test and Wilcoxon signed-rank test were applied. Interpretations were made on the basis of the obtained findings and the results of the experimental research emerged.

RESULTS

The findings obtained from the research and the interpretations are presented in this section.

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Table 2. Geometry achievement test normality distributions

Measurement	Group				Shapiro-Wilks		
Geometry Achievement Test		**N**	**Mean**	**Std.Dev.**	**Statistics**	**df**	**p**
	Experimental Group Pretest	12	13.58	5.4	.914	12	.242
	Control Group Pretest	12	12.16	4.3	.917	12	.263
	Experimental Group Posttest	12	17	6.38	.933	12	.414
	Control Group Posttest	12	16.33	7.84	.936	12	.454

Since the Shapiro-Wilk values are p>.05, the data demonstrates normal distribution. Of the cartoon-assisted geometry teaching-applied experimental group and conventional education-based geometry teaching-applied control group;

a. In order to find the answer of the question "Is there a significant difference between geometry gain levels pretest score averages?", the "Geometry Achievement Test" was applied to 24 fifth-grade students. The findings that were obtained as a result of the application have been determined as the pretest score average and have been depicted at the Table 3.

Table 3. Geometry gain level pretest score averages

Group	N	Mean	Std.Dev.	df	t	p
Experimental	12	13.58	5.4	22	.711	.485
Control	12	12.16	4.3			

Since the data depicted in the Table 2 demonstrated normal distribution, we have applied the unrelated samples t-test. According to the Table 3, there is not a significant difference between the groups' "Geometry Achievement Test" pretest score averages, meaning that the groups demonstrated a homogeneous distribution ($t_{(22)}$=.771, p>.05). The cartoon-assisted geometry teaching-applied experimental group's achievement average (13.58) turned out to be higher than the conventional education-based geometry teaching-applied control group's achievement average (12.16).

It is possible to interpret this outcome as a result of the experimental and control groups' readiness levels being close. Groups answering or interpreting the questions in the "Geometry Achievement Test" similarly is because they were taught Mathematics by the same teacher and the same methods in the fourth-grade in primary school.

b. In order to find the answer of the question "Is there a significant difference between geometry gain levels posttest score averages?", the "Geometry Achievement Test" was applied to the cartoon-assisted geometry teaching-applied experimental group and to the conventional education-based geometry teaching-applied control group. The findings that were obtained as a result of the application have been depicted at the Table 4.

Table 4. Geometry gain level posttest score averages

Group	N	Mean	Std.Dev.	df	t	p
Experimental	12	17	6.38	22	.228	.821
Control	12	16.33	7.84			

In order to detect whether or not there is a significant difference between the cartoon-assisted geometry teaching-applied experimental group and the conventional education-based geometry teaching-applied control group in terms of posttest score averages, unrelated samples t-test was applied since the measurements demonstrated a normal distribution. The results obtained are given in Table 4. It was observed that there is not a significant difference between the groups' "Geometry Achievement Test" posttest score averages ($t_{(22)}$=.228, p>.005).

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The experimental group's posttest achievement average (17) turned out to be higher than the control group's posttest achievement average (16.33). Even though there is not a significant difference, it can be said that the concept cartoons affect the achievement positively.

c. In order to find the answer of the question "Is there a significant difference between the cartoon-assisted geometry teaching-applied experimental group's geometry gain levels pretest-posttest score averages?", Table 5 was created by benefiting from Table 3 and Table 4.

Table 5. Experimental group geometry achievement test pretest-posttest score averages

Experimental Group	N	Mean	Std.Dev.	df	t	p
Pretest	12	13.58	5.40	11	8.71	.000
Posttest	12	17	6.38	11	9.22	

Unrelated samples t-test was implemented since the pretest-posttest score averages demonstrated a normal distribution after the observation of "Geometry Achievement Test" results. The results of the test are presented in Table 5. It is observed that there is a significant difference between the pretest and posttest score averages of the cartoon-assisted geometry teaching-applied experimental group when the Table 5 is examined. The posttest score average (17) is greater than the pretest score average (13.58). The concept cartoons have made a positive contribution to the augmentation of experimental group's achievement.

d. In order to find the answer of the question "Is there a significant difference between the conventional education-based geometry teaching-applied control group's geometry gain levels pretest-posttest score averages?", Table 6 was created by benefiting from Table 3 and Table 4.

Table 6. Control group geometry achievement test pretest-posttest score averages

Control Group	N	Mean	Std.Dev.	df	t	p
Pretest	12	12.16	4.30	11	9.79	.000
Posttest	12	16.33	7.84	11	7.21	

Unrelated samples t-test was implemented since the pretest-posttest score averages demonstrated a normal distribution after the observation of "Geometry Achievement Test" results. The results of the test are presented in Table 6. It is observed that there is a significant difference between the pretest and posttest score averages of the conventional education-based geometry teaching-applied control group when the Table 6 is examined. The posttest score average (16.33) is greater than the pretest score average (12.16).

DISCUSSION AND CONCLUSION

After the analysis of the data obtained from the experimental application, it was detected that there is a significant difference between the cartoon-assisted geometry teaching-applied experimental group's success and the conventional education-based geometry teaching-applied control group's success. The experimental group was more successful than the control group. When these results are examined, it can be said that the concept cartoon application affects the students' geometry achievement positively. This results show parallelism with the studies conducted by Uğurel, Keskin and Karahan (2013), Şengül and Dereli (2013), Erdağ (2011).

Among the reasons of this positive effect, factors such as alluring the students' attention, concept cartoons providing a meaningful image in students' minds, ensuring students to focus on the related learning outcome, motivating students for the class can be exemplified.

While preparing the concept cartoons; elements such as students' ages, learning skills, readiness levels, educational environment, the learning outcome to be taught, or ability must be taken into consideration. And in terms of content, the concept cartoons must be prepared appropriately with regards to the environment that the student lives in, the sociocultural structure, and the family's

internal structure. In this context, the internal structure of the concept cartoons must be prepared exquisitely. The inappropriately prepared concept cartoons might divert the students from the intended message. Should such factors that affect the student's psychology be disregarded, a negative educational environment would get established instead of a positive one.

Based on the results of the research, the following recommendations can be made;

-the concept cartoons can be used as an alternative method for fifth-grade geometry education.

-the learning environments that are created via the preparation of concept cartoons can be augmented in the literature.

-the prospective teachers can be informed about the concept cartoons.

-more information about the concept cartoons can be provided to the teachers on duty via in-service trainings.

-the concepts in the Mathematics textbooks can be given via the concept cartoons.

-different practicable learning environments can be established through the combination of the concept cartoons and technology-supported platforms.

-the studies about alternative educational environments that can be used to change students' attitudes towards geometry for the better can be enhanced.

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SCALE FOR DESIGNING THE FUTURE VALIDITY AND RELIABILITY STUDY

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Abstract

The purpose of this study is to research the validity and reliability of the Turkish version of Designing my Future Scale developed by Di Maggio et al (2017) for the adolescents. Study had been carried out with 360 students in total who randomly selected from grades 9 and 10 from Namık Kemal High School, Bekir paşa High School and Erenköy High School at the Northern part of the Cyprus. The scale has been translated into Turkish by three experts who are advance in English language to provide the linguistic equivalence. Translation of the scale into Turkish is done by two persons who are advanced in English and a person whose mother language is English and advance in Turkish. Final version is drafted by two researchers by comparatively evaluating the developed scale. Before the exploratory factor analysis, normality test, Barlett's tests for sphericity are carried out to see if the scale is factorable or not and then exploratory factor analysis are carried out by examining the Kaiser-Meğer-Olkin (KMO) coefficient. To test the construct validity, structures are tested with confirmatory factor analysis. It is identified that original scale that has 19 items has 18 items and two factors structure in Turkish culture. Criterion-related validity is found related with the Satisfaction with Life Scale and Career Adaptability Scale in a positive way. For reliability analysis of the Designing my future Scale, Cronbach alpha test and split-half test and total item correlations are researched. Internal reliability coefficient is found 88 in total, future orientation dimension 87, resilience dimension 77 of the Designing my future Scale. Those findings show that Turkish version of the Designing my future Scale is a valid and reliable measurement tool that can be used career training studies and counselling services during adolescence period.

Keywords: Future designing, future orientation, resilience, life designing

INTRODUCTION

When the business world goes far from the stable structure and permanence, career change becomes more common. (Watson and Stead, 2017). Together with the fragmentization and diversification of the employment structure, well-known meanings of the working lost their validity for the working class. This situation makes employees to move forward in more uncertain, unstable, vulnerable socio-economic life (Yılmaz, 2019). Together with a career change, individuals have to gain new skills in order to adapt to the changes while needing to learn and be in interaction during their work lives (Tuckett, 2017). By taking into consideration the uncertainty raised for the identification of the individual career paths of the future and youth, focusing on a life project is a development duty that youth needs to give an important decision during the last years of the school for their educational and professional future. This duty is close related with the duty of personal and professional self-identification of an individual. (Aleni Sestiko et al, 2015).

"Complexity of the labour force is seen as a risk factor for development of the future thinking skills of the youth (Stoddard et al 2011). In this regard youth should develop their skills to dream of possible several scenarios for the future in order to indentify and direct their professional identities and careers (Atane and O'Neill 2001, Savickas and others, 2009). In this regard many studies that were conducted till today make emphasis to the importance of the Future orientation and resilience. (Fusco et al, 2018; Hatala et al 2017; Maggio et al 2017, Santilli et al 2017). There are limited scales on the future orientation and resilience during adolescence period (With Adolescent resilience dimension; Baruth &

Carroll, 2002; Connor & Davidson, 2003; Hjemdal, Friborg, Stiles, Martinussen, & Rosenvinge, 2006; Sapienza &Masten, 2011; Prabhu, Shekhar, & Phillip, 2016; Bluth, Mullarkey, & Lathren, 2018) Also limited measuring tool had been developed regarding the future orientation dimension (Gjesme, 1979; Stratman, Gleicher, Boninger, & Edwards, 1994; Zimbardo, Boyd, 1999; Husman & Shell, 1996; Rapange, Brouwer, Van Exel, 2009; Miguel, Paixão, Silva, Machado, 2017; Banerjee, Sharma, Chaterjee, 2008; Topa, Zacher, 2018). During the literature research, only scale that consists both dimensions in a single structure during the adolescence period was developed by Maggio et al (2017). Since it is thought that developed scale is going to provide cross-cultural verification with this adaptation study, it is important. Besides during the literature research no single structured scale is found in the Turkish culture that measures the future orientation and resilience. It is thought that an important gap in the field will be filled with this adapted scale. This adapted scale can be especially important for the individuals during adolescence period. It can be effective to identify and support the students who need support during the decision making processes and implementation of the precautionary measures.

According to career development theory firstly, Life Designing Approach that was developed to help individuals to construct their career lives within existing changing societies is a paradigm for the career counselling that based on the social structuring and takes the career development into consideration as a result of dynamic interaction between humans and environment. It encourages people to reflexively dream and construct a life organized with multiple roles and that is applicable to guarantee the welfare and harmonic functioning. (Savickas, 2015). Future orientation and resilience are accepted as two main dimensions that are required to be taken into consideration while making assessment especially the personal future creation possibilities according to life designing approach of the individuals. (Savickas et al., 2009). According to Crockett et al (2011), identification and creation of the professional identity is one of the most important duties of the adolescence. In this period, adolescent starts to think and make plans about the adult life. In the process adolescents need to gain experiences that help them to shape their perceptions about future including the possibilities and opportunities and their own expectations (Nurmi, 2004). Development of more sophisticated and realistic perspective according to the period takes place Within those new skills. Future time perspective is a personality trait including thoughts, feelings and actions of the people about the future (Lyu and Huang; 2016). Future orientation is creation of a perception about near and far future wishes, plans and expectations of an individual (Nuttin and Lens, 1985; Seginer and Schlesinger, 1998; Seginer and Shoyer, 2012). All of those are required to determine personal targets, evaluation of future possibilities and taking important decisions and obligations. Thinking about the future is a foundation of human motivation and behaviours in the daily life (Gao and Chan, 2015).

Gao and Chan (2015) found in the study they conducted among 677 adolescents from grades 7 and 9 that future orientation had positive relations with school bonds and negative relations with school bullying. Hilpert and Husman notified that future orientation plays an important role in improvement of the learning behaviours from the study they conducted with 546 engineering students. Barber and Munz (2009) in the study they conducted with 255 students; Peetsma and Van der Veen (2011) in the study they conducted with 584 students found that there was an increase in the learning behaviours of the individuals who had future time orientation and they had higher academic success. Cabras and Mando (2018) with the data obtained from the study they conducted (373 Italian-Spanish students) stated that future orientation and career adaptability were the important factors for the individuals to cope with difficulties and increase the satisfaction with life. Finally in the studies conducted it was identified that future time orientation and resilience increase the satisfaction with life and career adaptability. (Santilli et al, 2017; Maggio et al., 2017).

Resilience is being understood as a positive adaptation situation generally in the middle or after an important stress, difficulty or risk (Masten,2014). Resilience is defined as individials' characteristics to cope with difficulties, capacity of coping with difficulties by using own resources and awareness about the talent to contribute their own personal development (Greenberg, 2011). This term does not

only being used to define the successful adaptation period after traumatic situations, but also it express the abilities required to cope with the uncertainties of our era (Sapienza and Masten, 2011). Indomitable individuals have the ability to recover from failures, be more resilient to diseases and adapt or improve when they face with problems (Smith et al, 2008). Adolescents realize their inner thoughts and feelings more with increasing age (Weil et al, 2013) and start to formulate the concept of selfhood (Byrne and Shavelson, 1996). This development phase is characterized with multiple transitions related to physical, cognitive and socio-emotional progress that causes physiological and environmental difficulties and also most of the time opportunities. Developing strategies to cope with difficulties as strengthen the resilience and being open to new experiences may potentially ease to pass this development period through. (Bluth et al, 2018). Resilience means also "motivation power that everybody has inside and push them run after to the wisdom, self realization, altruism and to be harmonized with a spiritual power source. Increasing the understanding of resilience is vital for improvement of the lives of the people of all ages (Neville, 2017). Future orientation and resilience are accepted as two main dimensions that need to be taken into consideration while evaluating especially the personal future creation possibilities according to life designing approach of the individuals (Savickas et al., 2009) Studies show that adolescents with higher resilience level adopt healthier behaviours (Murphey et al 2013). It is believed that resilience plays an important role to increase the satisfaction with life of an individual as an important positive psychological element (Mak et al., 2011; Hu et al., 2015).

Purposes of the Current Studies

The reason of our new scale adaptation is the lack of developed measuring tool to assess both the future orientation and resilience dimensions under a single structure for the individuals in adolescence when a literature screening in Turkish culture is carried out. Upon the emphasis of career structuring theory future designing approach on the importance of the matter, as a reply to the call of Fulko et al (2010), Di Maggio et al. (2017) to verify cross-cultural differences regarding the future orientation and resilience perception, we think that assessment with a single scaling tool is especially important by saving time from this two dimensional time. For this purpose in the study; after providing linguistic equivalence, validity of confirmatory factor analysis of Designing my future scale , Satisfaction with life and Career adaptability scale and criterion correlation validity and reliability of the scale are analyzed.

METHOD

In this part, information on working group, preparation of the scale items, validity and reliability studies were provided.

Adaptation Process

In the study it was decided that this scale is necessary for our country and then required permissions for the adaptation are taken from the developers of the original scale. Original version of the scale was translated into Turkish by three experts who have advanced English. Then translated scale was back translated into English by two persons who have advanced English and one expert (Three in total) whose mother language is English and has advanced Turkish. Translations were assessed by two expert researchers and final version was completed. To define the psychometric features of the Turkish form developed, implementation phase of the scale adaptation process was started.

Working Group

Working group of the study is determined randomly from 3 different state schools at Famagusta that are coincidentally selected. Working group of the study consists of 376 students in total who participated voluntarily by random sampling from grades 9 and 10 during the spring period of 2018-2019 school years. It is defined that 33.89% of the students are 14 years old, 48.06% are 15 years old and 18.06% are between the ages of 16-19, 63.61% of the students are female and 36,39% are male,

27.50% of the students are from Namık Kemal High School, 38.06% are from Bekir Paşa High School and 34.44% are from Erenköy High School, 68.61% of the students are from grade 9 and 31.39% are from grade 10.

After students are informed and required explanations are given about the study that their names will not be received, personal information will be kept confidential, the students who accepted to participate to the study filled the scales. After this practice, obtained data is examined and 16 scales are kept out of the assessment due to identification of problems as incomplete or over share marking.

Data Collection Tools

Designing my future Scale. It is a 5 point likert scale consisting of 19 items developed by DiMaggio et al (2017) to evaluate future orientation and resilience of the individuals in adolescence period. It comprises of two subscales as future orientation and resilience. Satisfaction with Life Scale, Career Adapt-Abilities Scale and Visions about Future scale were used to provide construct validity of the scale. Two factors scale with 19 items comprises of 38,47% of the variance. First factor consists future orientation with 11 items that comprise of 22.62% of the variance. Second factor consists of 8 items that express resilience and comprise of 14.97% of the variance. Factor loads differ between 40 and 77. Cronbach alpha internal consistency reliability was found 88 for future orientation and 80 for resilience. Distinctive validity of DMF was tested by examining the correlations with Career Adapt-Abilities Scale, Visions about Future and Satisfaction with Life Scale measurements. Future Orientation and resilience and Career adapt-Abilities resources (anxiety, control, curiosity and trust; CAAS) showed correlation with Visions for Future SubScales Hope and Optimism and Satisfaction with Life. Besides negative and poor correlations were observed between DMF factors and pessimism (VAF). Strong correlations were found between future orientation and Hope (VAF).

Career Adapt-Ability Scale. Shorter version of CAAS (Maggiori et al, 2017) was developed by selecting three items having the higher factor loads for each subscales from 24 items version of the CAAS. Confirmatory factor analysis with selected 12 items supports four factors structure that is the same with the one used in the longer version. CAAS-SF shows almost perfect correlation with 24 items version and convergent validity that has good internal reliability. Career Adapt-Ability Scale- a short version with 12 items of a Short Version was verified in three different age groups in Turkey by Işık, Yeğin, Koyuncu, Eser, Çömlekçiler, Yıldırım; 2018). Scale points were at the sufficient level, had high internal consistency and 4 weeks test and retest reliability, showed good fit with original four factor model, factorial invariance was determined among gender and age groups.

(Reliability coefficients differed between .70 and .85 for high school sample, .76 and .90 for undergraduate sample, .80 and .91 for working adults sample). It showed strong convergence feature with 24 items version. It showed negative relations with Continuous Anxiety Inventory and Work Stress Scale. Also it showed positive relations with Career Self Efficacy.

Satisfaction with life Scale. Turkish adaptation of the “Satisfaction with Life Scale” that original version was developed by Diener, Emmons, Larsen and Griffin (1985) was done by (Dağlı and Baysal, 2016). Cronbach internal consistency coefficient was determined as .88 and test-retest reliability was determined as .97. Factor analysis results prove that scale shows a single factor structure and comprises of 5 items as the original version of the Satisfaction with life Scale. Original version of the Scale was a self assessment scale comprises of single factor, five items and 7 point likert type grading. Each item was being evaluated in accordance with the respondence system (1:Strongly Disagree- 7: Completely Agree) that graded with 7 point likert type. Relevant scale was adapted into Turkish by Köker (1991) and used by different researchers in Turkey as 7 point grading. Scale that was translated into Turkish by Dağlı and Baysal (2016) was in 5 point likert type.

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FINDINGS

Following practices were carried out within the scope of validity reliability study of the Designing my future Scale used in the Study.

Construct Validity of the Designing my Future Scale

Exploratory Factor Analysis and Confirmatory Factor Analysis were used to examine construct validity of the Designing my Future Scale.

Exploratory Factor Analysis

First of all Exploratory Factor Analysis was used to out forward the factor structure of Designing my Future Scale. In accordance with the data obtained from the field, exploratory factor analysis was used to identify theoretical relations came out from the measurements observed or whether the concepts that were presumed measured by the elements of the scales comprises of series of items really measure this structure or concept and most importantly to identify independent factors that comprise this structure. (Büyüköztürk, 2012)

Before the exploratory factor analysis, normality test, Barlett's tests for sphericity were implemented and Kaiser-Meğer-Olkin's (KMO) coefficient was examined to assess whether the scale is factorable or not. KMO coefficient gives information if the data matrix is appropriate for the factor analysis or not and on the fitness of the data structure for identification of the smallest factor number. KMO is expected to be higher than 0,60 for factorability. Barlett test examines if a relation exists between the variables on the basis of partial correlations (Büyüköztürk, 2009).

Table 1. Results of KMO and Bartlett's test for sphericity

Kaiser-Meyer-Olkin Coefficient		.904
Bartlett's Test for Sphericity	Estimated χ^2	2192.818
	sd	153
	p	.000*

**p<.05*

It was determined that data related to the Designing my future Scale conformed with the multivariate normal distribution, chi square value belongs to Barlett test was 2192.818 (p<.05) and KMO coefficient was .904. Thus it was determined that exploratory factor analysis can be implemented for Designing my Future Scale. While exploratory factor analysis is being implemented to the Designing my future Scale, principal component analysis method was used and varimax rotation was applied to the data, item "10. I have certain targets for the future" that was below .30 factor loading was taken out from the scale and exploratory factor analysis was repeated. Final findings regarding the factor structure of the scale is given in Table 2.

Table 2. Designing my future scale exploratory factor analysis results

Component	**Initial Eigenvalues**			**ExtractionSums Of SquaredLoadings**			**RotationSums Of SquaredLoadings**		
	Tot.	**% of Var.**	**Cum %**	**Tot**	**% of Var.**	**Cum %**	**Tot.**	**% of Var.**	**Cum %**
Factor 1	6.17	34.29	34.29	4.66	25.89	25.89	6.17	34.29	34.,29
Factor 2	1.84	10.24	44.53	3.36	18.64	44.53	1.84	10.24	44.53

According to Table 2 it was determined that there were two factors that eigen values were higher than 1 which conformed with the original version of Designing my Future Scale. Eigen value of the first factor that took place in the scale is 6.17 and this factor by itself could explain the 34.29% of the total variance. Eigen value of the second factor in the scale was 1.84 and variance that it could explain was

found 10.24%. Two factor structure of the Designing my Future Scale explained 44.53% of the total variance.

Table 3. Designing my future factor matrix with rotated factor loadings

	F1	F2
1. Imagine my future makes me feel energetic.	.68	
2. I like to think about where I will be in a few years	.72	
3. About my future I have many dreams.	.60	
4. I am passionate about realizing my dreams in the future	.68	
5. Think about the future makes me feel excited.	.75	
6. Think about my future makes me feel very hopeful	.71	
7. I like to dream about what the future will bring me.	.71	
8. I frequently think about what I can do to have a good future.	.57	
9. I like to think about my targets for the future	.72	
11. when I think about my future I pay attention to the type of person I'd like to be	.40	
12. I think I'm a strong person.		.59
13. I do my best to reach my goals		.60
14. I think I can overcome all the problems that I face		.67
15. Even if I am under pressure I can concentrate on what I want to do and do it.		.56
16. I can see the unexpected and different sides of the things.		.41
17. I can cope with the difficulties to reach my goals.		.70
18. Overcoming the stressful events makes me stronger.		.67
19. When I fail I don't easily give up		.60

When Table 3 was reviewed it was determined that in the first factor that explained 34.29% of the total variance, 10 items exist as

"1.Imagine my future makes me feel energetic",

"2. I like to think about where I will be in a few years",

"3. About my future I have many dreams.",

"4. I am passionate about realizing my dreams in the future",

"5. Think about the future makes me feel excited.",

"6. Think about my future makes me feel very hopeful"

"7. I like to dream about what the future will bring me."

"8. I frequently think about what I can do to have a good future."

"9. I like to think about my targets for the future" and

"11.when I think about my future I pay attention to the type of person I'd like to be." and factor loadings of those items differ between .40 and .75 and this factor is named as "Future orientation".

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In the second factor of the scale, it was determined that there are 8 items whose factor loadings differ between .41 and .70 as "15. Even if I am under pressure I can concentrate on what I want to do and do it.",

"16. I can see the unexpected and different sides of the things.",

"17. I can cope with the difficulties to reach my goals.", "18. Overcoming the stressful events makes me stronger." And

"19. When I fail I dont easily give up". This factor is names as Resilience.

Confirmatory Factor Analysis

After identification of factor structure of the Designing my Future Scale, confirmatory factor analysis was applied to determine the appropriateness of the factors defined. Conformity Factor Analysis was used to define whether the variance groups that contribute to the determined factors are sufficiently represented by those factors or not (Aytaç and Öngen, 2012; Eryilmaz, Satici, & Deniz, 2020).

Table 4. Designing of future scale CFA goodness of fit values (Model 1)

Goodness of Fit Index	Calculated values	Fitness
χ^2/sd (Chi square / Degree of Freedom)	1.676	Good Fit
The Root mean Square Error of Approximation (RMSEA)	.043	Good Fit
Normed Fit Index (NFI)	.903	Acceptable
Comparative Fit Index(CFI)	.958	Good Fit
Goodness of Fit Index (GFI)	.936	Acceptable

According to Klein (2005) when the degree of χ^2/sd is below 3 it shows a good fit. Accordingly, it was observed that χ^2/sd degree of the Designing my Future Scale is 1.868 and scale has a good fit in terms of χ^2/sd. The Root mean Square Error of Approximation (RMSEA) value of the Designing my Future Scale was found .0043. According to Brown (2006) when The Root mean Square Error of Approximation value is lower than .50 it shows a good fit. In this regard it was determined that scale is at the good fit level in terms of The Root mean Square Error of Approximation (RMSEA).

Tabachnick and Fidell (2001) indicated that when Normed Fit Index (NFI), Comparative Fit Index and Goodness of Fit Index (GFI) values are between .90-.95 scale has an acceptable fit, if value are above .95 scale has a good fit. Regarding the Designing my future Scale NFI=.903, CFI=.958 and GFI=.936 were found and Scale has a good fit in terms of CFI and acceptable fit in terms of NFI and GFI. After determining the Goodness of Fit Indexes regarding the first model, second model was created and findings were given below.

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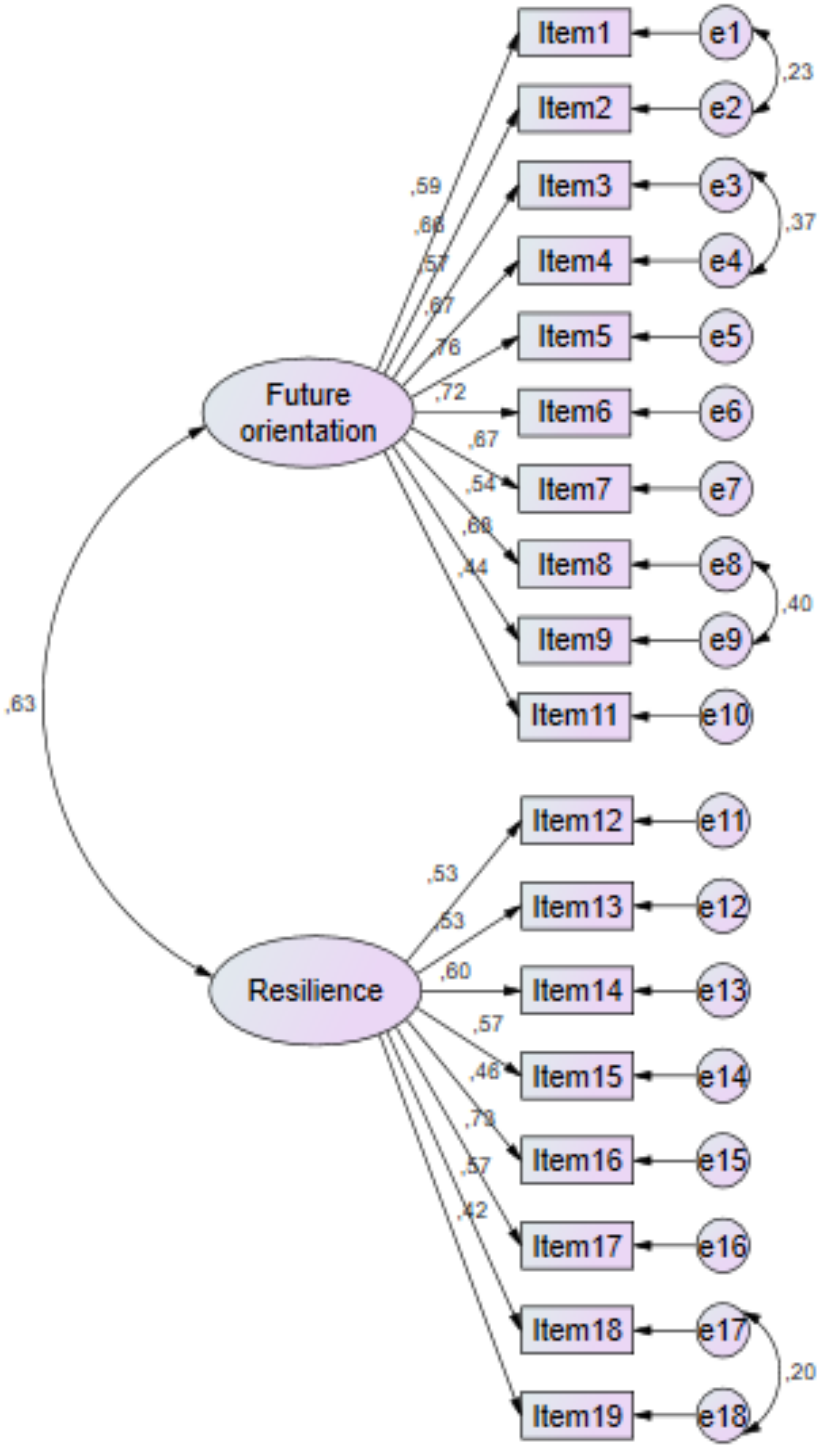

Figure 1. Designing my future scale, CFA (Model 1)

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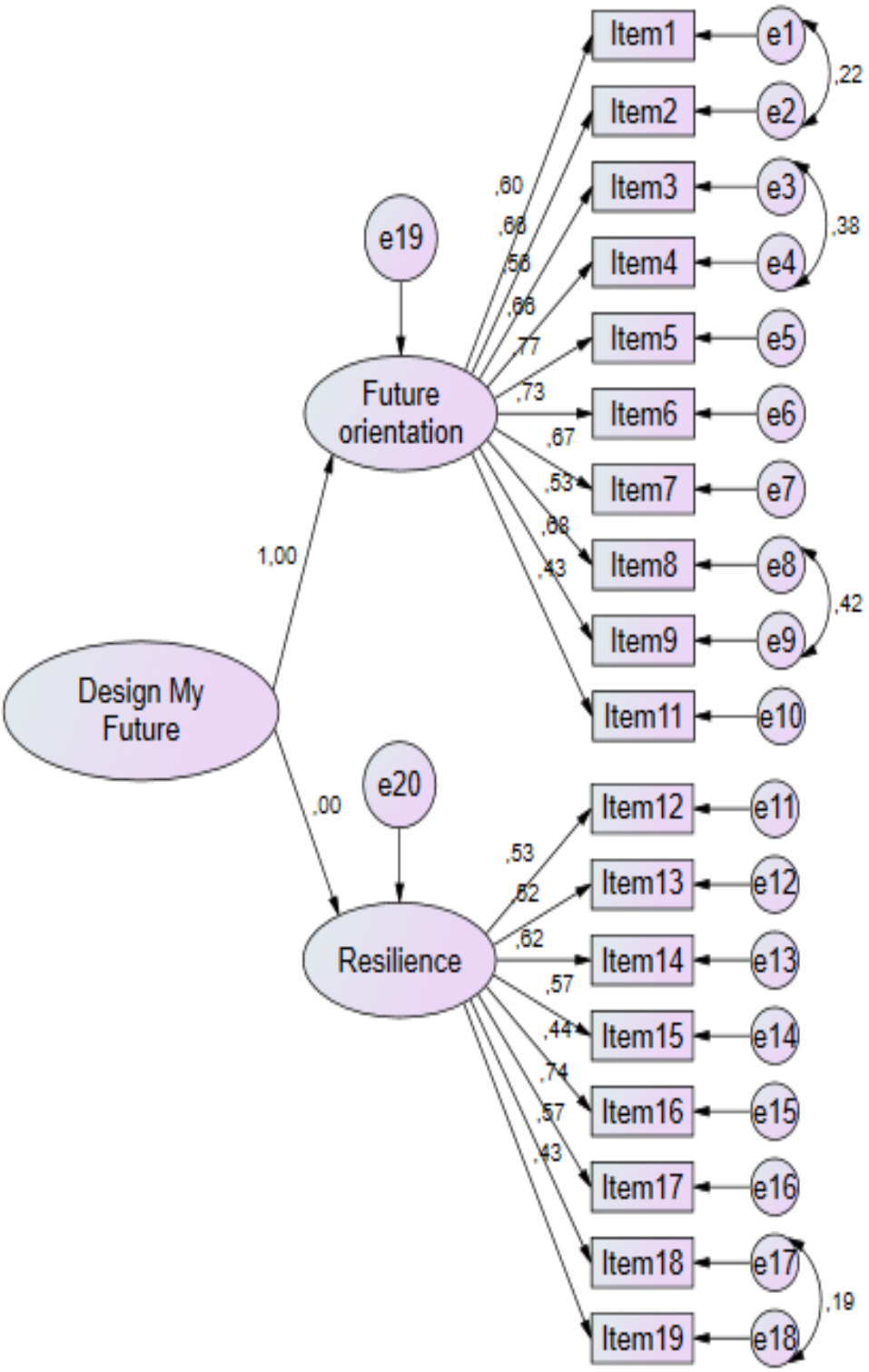

Figure 2. Designing my future CFA (Second Model)

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Table 5. Designing my future CFA goodness for fit values (Second Model)

Goodness for Fit Indexes	Calculated value	Fitness
χ^2/sd (Chi square / Degree of Freedom)	2.517	Good Fit
The Root mean Square Error of Approximation (RMSEA)	.065	Acceptable
Normed Fit Index (NFI)	.853	Bad Fit
Comparative Fit Index(CFI)	.905	Acceptable
Goodness of Fit Index (GFI)	.913	Acceptable

When goodness of fit indexes given in Table 5 were observed; χ^2/sd value of the Designing my future Scale was found 2.517 and scale has a good fit in terms of χ^2/sd and it was determined that The Root mean Square Error of Approximation (RMSEA=0,065) shows an acceptable fitness according to goodness of fit index. While Designing my Future Scale is not within the acceptable levels in terms of Normed Fit Index (NFI=.853), Comparative Fit Index (CFI=.095) and Goodness of Fit Index (GFI=.913) have acceptable fitness.

When Exploratory and Confirmatory factor analysis findings related to the examination of the Designing my Future Scale given above were evaluated, it was observed that construct validity of the scale is ensured.

2. Reliability of Designing my Future Scale

Cronbach Alpha Test, split half test and total item correlations were examined to analyze the reliability of Designing my Future Scale and findings obtained are given below.

Table 6. Designing my future scale reliability analysis results

			Value
Designing my Future Scale in General			.883
Future Orientation			.874
Resilience			.777
Cronbach alpha	Part 1	Coefficient	.876
		No of items	9
	Part 2	Coefficient	.781
		No of Items	9
Correlation between parts			.551
Spearman-Brown Coefficient			.710
GuttmanSplit-Half Coefficient			.704

When Cronbach Alpha test results were examined related to the Designing my Future Scale; it was determined that coefficient related to the Future Orientation sub-dimension that takes place in the Designing my future scale is .874 and coefficient of the resilience sub dimension is .777 and alpha coefficient that belongs to the general of the scale is .883. According to Büyüköztürk (2009) when Cronbach alpha coefficient is higher than .70 it shows that it is reliable. Thus designing my Future Scale has an internal consistency and it is a reliable measuring tool in terms of Cronbach Alpha test.

When the results of Split half test that applied to Designing my Future Scale were examined; Cronbach Alpha value which was calculated for the first half of the scale consisting of 9 items was found .876, Cronbach Alpha value was found .777 for the second half of the scale consisting 9 items

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and it was determined that correlation coefficient between two halves is .551. Designing my Future Scale was found reliable in terms of split half test.

Table 7. Designing my future scale total item correlations

	Total Item Correlation
1. Imagine my future makes me feel energetic.	.493
2. I like to think about where I will be in a few years	.576
3. About my future I have many dreams.	.533
4. I am passionate about realizing my dreams in the future	.617
5. Think about the future makes me feel excited.	.638
6. Think about my future makes me feel very hopeful	.603
7. I like to dream about what the future will bring me.	.557
8. I frequently think about what I can do to have a good future.	.545
9. I like to think about my targets for the future	.635
11. when I think about my future I pay attention to the type of person I'd like to be	.433
12. I think I'm a strong person.	.434
13. I do my best to reach my goals	.445
14. I think I can overcome all the problems that I face	.447
15. Even if I am under pressure I can concentrate on what I want to do and do it.	.452
16. I can see the unexpected and different sides of the things.	.408
17. I can cope with the difficulties to reach my goals.	.571
18. Overcoming the stressful events makes me stronger.	.466
19. When I fail I don't easily give up	.338

Besides, it was determined that total item correlations of all the items take place in the Designing my Future Scale are important ($p<.05$) and lower correlation coefficient is .338 and highest correlation coefficient is .635. As a consequence of the validity-reliability study which the details were given above, it was determined that designing my Future Scale is a valid and reliable measurement tool.

Criterion-related validity of the Designing my Future Scale

Satisfaction with Life Scale and Career Adaptability Scale were used to examine criterion-related validity of the Designing my Future Scale. Within the scope of criterion-related validity, correlations between Designing my Future Scale and Satisfaction with life and Career Adapt-ability Scales were reviewed.

When Table 8 was reviewed it was determined that there is a positive, statistically meaningful correlations with medium and low power between the points obtained from Designing my Future Scale in general ($r=326$; $p<.05$) and Future orientation ($r=.262$; $p<.05$) and Resilience ($r=.341$; $p<.05$) sub dimensions of the scale and points obtained from Satisfaction with Life Scale. When the points taken from the Designing my Future Scale in general and its sub dimensions' increase, points obtained from the Satisfaction with Life Scale also increase.

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Table 8. Correlations between designing my future scale and satisfaction with life and career adaptability scales

		Future Orientation	Resilience	Designing my Future Scale
Satisfaction with Life Scale	r	.326	.262	.341
	p	.000*	.000*	.000*
Anxiety	r	.567	.441	.585
	p	.000*	.000*	.000*
Control	r	.452	.511	.543
	p	.000*	.000*	.000*
Curiosity	r	.403	.431	.472
	p	.000*	.000*	.000*
Trust	r	.385	.425	.458
	p	.000*	.000*	.000*
Career Adaptability Scale	r	.579	.577	.659
	p	.000*	.000*	.000*

*p<.05

It was determined that there is a positive, statistically meaningful correlations with high power between the points obtained from Designing my Future Scale in general (r=.579; p<.05) and Future orientation (r=.577; p<.05) and Resilience (r=.659; p<.05) sub dimensions of the scale and points obtained from Career Adaptability Scale in general.

Accordingly, when the points taken from the Designing my Future Scale in general and it's sub dimensions increase, points obtained from the Career Adaptability Scale also increase.

Table 9. Comparison of designing my future scale points of the students according to their ages (n=360)

	Age	N	Mean	Std.Dev.	Bottom	Top	F	p	Diff.
Future Orientation	14 Age	122	40.56	6.93	21	50	3.295	.038*	a-b
	15 Age	173	38.36	7.61	16	50			
	16-19 Age	65	39.85	7.83	10	50			
Resilience	14 Age	122	30.66	5.67	13	40	.050	.951	
	15 Age	173	30.58	5.00	18	40			
	16-19 Age	65	30.40	6.18	12	40			
Designing My Future Scale	14 Age	122	71.22	11.00	43	90	1.475	.230	
	15 Age	173	68.94	10.94	43	90			
	16-19 Age	65	70.25	12.87	22	89			

*p<.05 a:age 14, b:age 15, c:age 16 and between 19.

At Table 9 ANOVA results are shown regarding the comparison of designing my Future Scale points of the students participated to the research according to their ages.

When Table 9 is reviewed it is identified that difference between the points that students obtained according to their ages from sub factor Future orientation of Designing my future scale is statistically at a meaningful level (p<.05). Points obtained by the students at the age of 14

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($\bar{x}$=40.56±6.93) from Future orientation sub factor are higher than the students at the age of 15($\bar{x}$=38.36±7.61). It is seen that there is no difference which is statistically at a meaningful level between the points that students got from Resilience factor of the designing my future scale and the scale in general (p>.05).

Table 10. Comparison of designing my future scale points of the students according to their ages (n=360)

	Gender	n	Mean	Std.Dev.	t	p
Future	Female	229	39.51	7.36		
Orientation	Male	131	39.14	7.70	.450	.653
Resilience	Female	229	30.58	5.49		
	Male	131	30.58	5.38	.006	.995
Designing	Female	229	70.08	11.16		
My Future Scale	Male	131	69.72	11.69	.294	.769

At Table 10, independent Sample t-test results were shown that applied to compare points obtained by the students according to their ages from designing my Future Scale.

When Table 10 is reviewed, it was identified that there is no difference statistically at a meaningful level between the points that students got according to their ages from Designing my Future Scale in general and Future Orientation and Resilience sub factors (p>.05). Designing my Future Scale points of the male and female students are similar.

DISCUSSION

Designing my Future Scale was tried to be verified with the current study for the adolescents during the high school period within the Turkish culture. With this aim, linguistic equivalence was provided, factor structures were tested, reliability values were calculated and relations with career adaptability and satisfaction with life scales were examined. Different than the original scale, item "10. I have certain targets for the future" of the adapted scale was taken out which factor load is lower than .30 according to the Exploratory Factor Analysis result and it is identified that scale has 18 factors and 2 hierarchical structures. When Designing My Future (2017) Scale is implemented in the Turkish culture, full version shows similar psychometric features. Existing findings provide the first and only support for the tool developed by.

Di Maggio et al (2017). Cronbach alpha coefficient value was found highly high .88 and for the sub dimensions it was found satisfactory until the high levels (For Future Orientation .87 and Resilience dimension .77). It was determined that that there is a positive, statistically meaningful correlations with high power between the points obtained from Designing my Future Scale and points obtained from Career Adaptability Scale in general. Accordingly, when the points taken from the Designing my Future Scale in general and it's sub dimensions increase, points obtained from the Career Adaptability Scale also increase. It was determined that there is a positive, statistically meaningful correlations with medium and low power between the points obtained from Designing my Future Scale and points obtained from Satisfaction with Life Scale. In the original scale which was developed by Di Maggio et al. (2017) and also in the similar the scale study conducted by Santili et al. (2017) it was identified that Scale is correlated with Satisfaction with Life Scale and Career Adaptability Scale. When the points taken from the Designing my Future Scale in general and it's sub dimensions increase, points obtained from the Satisfaction with Life Scale also increase. As a result, positive relation with Career Adaptability and Satisfaction with Life Scales was found.

Inferences for Implementation

Uncertainties of the business world, development of the technology, creation of new work fields and adolescents who can't not for a see the future make the development of future orientation and resilience dimension essential for the career development. When the time limitations of the business

world of today is taken into consideration measuring the future orientation and resilience dimensions with this tool in one single structure may provide convenience and practicality. It is thought that for the development of career training programmes, assesment of the career development, identification of individuals who need career development and education, taking necessary precautions, using them as pretests and posttests for assesment of the effectiveness of the developed programmes may give advantages. Existing results; show that Turkish version of the Designing my Future Scale is available to use for the researchers and implementers who are willing to evaluate measurability sources for the adolescents at the high schools. Results are important to examine the future orientation and resilience especially during adolescence period since they have a role in life designing and they contribute to the career adaptability and satisfaction with life (Masten & Tellegen, 2012). Researchers can use them in the studies to identify the individuals who need career counselling training and to monitor the improvements of the individuals who get career training. Especially in today's conditions with time limitations, having the tool short, current, with less number of items and to measure both dimensions (future orientation and resilience) in one single structure may give many advantages. Also in our research future orientation was found higher for the age group of 14 than age group of 15, and resilience was found equal for other age groups. Resilience was evaluated in terms of gender. According to the analysis results, it was identified that there was no meaningful statistical difference between the points students got according to their genders from designing my future Scale in general and sub factors as Future Orientation and Resilience. In contrary to our study, according to the research of Cannor and Davıson's (2003) resilience dimension was found higher in female adolescents. The reason can be explained by not having equal number of male and female students in our study. Findings need to be confirmed with many studies to be conducted.

Limitations and Orientations for the Future

While evaluating this research, limitations should also be taken into consideration. First and only implementation of the Designing my Future Scale in different culture was in Turkish culture. Implementation of the scale in different cultures is required for cross cultural validity and reliability. As a consequence, designing my Future Scale looks a valid and reliable tool to measure future designing sources for adolescent people in the Turkish culture. Especially it is thought that it will provide advantages to career development and counselling studies in terms of time limitation and practicality. In our study gender invariance and measurement invariance assumptions were not tested. In further studies it will be beneficial to evaluate those two assumptions. More studies are needed for repeatability of the factor structure and verifiability of the psychometric features.

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