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Message from the Editor

I am very pleased to publish second issue in 2021. 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 The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to Turkish International Journal of Special Education and Guidance & Counselling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. The countries of the authors contributed to this issue (in alphabetical order): Indonesia, Nigeria, North Cyprus, and Turkey.

Prof.Dr. M. Engin DENİZ
Editor in Chief

Vol 10, No 2 (2021)

Table of Contents

Research Articles

POSTTRAUMATIC GROWTH FROM THE PERSPECTIVE OF MOTHERS WITH SPECIAL NEEDS CHILDREN: A QUALITATIVE STUDY

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Abstract

This study aimed to conduct an in-depth analysis of post-traumatic growth experiences based on the perception of mothers with children with special needs in primary school. As a qualitative research method, the phenomenological design was used because the study focused on how the participants made sense of this growth process. Eight volunteer mothers of children with special needs participated in the study. The data were collected through three-stage semi-structured interviews and analyzed with the phenomenological analysis technique carried out in five stages. The findings of the mothers' post-traumatic growth experiences were collected under five sub-themes with 28 codes, including relationships with other individuals, personal strength, spirituality-religion, appreciation of life, and life opportunities.

Keywords: Posttraumatic growth, individual with special needs, trauma.

INTRODUCTION

Throughout their lifetime, individuals may encounter unexpected difficult life events that no one wishes to experience. According to the data of 2019-2020 of the National Education Statistics Formal Education report, the number of students with special needs (including sight, hearing, physical, mild mental disability and the first grade of the special education school) in primary school was 12.831 (Ministry of National Education, 2020). The results and implications of this statistical data concern not only the individual but also the family and even the society. Such painful experiences, which have the power to reconstruct life, are handled around the title of trauma.

According to Briere and Scott (2016), trauma is a challenging experience that exceeds an individual's resources for a short time and leads to psychological and emotional symptoms that spread over time. A traumatic event can be experienced in various ways. Accordingly, trauma can also be experienced by direct exposure, as a witness, by learning that it happened to a family member or close friend, and by repeated exposure to the unpleasant details of the traumatic event related to professional necessity (American Psychiatric Association, 2013). Based on this information, it can be said that mothers who have children with special needs experience trauma. Although traumatic experiences are defined as painful experiences and matched with negative outcomes, not every traumatic experience results in maladjustment or negative outcomes. When a trauma is reconstructed successfully, it may even turn into a positive transformation (Altınsoy, 2020; Levine & Frederick, 2013). Accordingly, painful experiences can be the initiator of radical changes in the individual through integration with inner experiences. In the psychology literature, such experiences are termed as 'posttraumatic growth'.

Posttraumatic growth is defined as "positive changes in the functionality of the individual as a result of combating traumatic life crises" (Calhoun & Tedeschi, 2006; Linley & Joseph, 2004). The individual literally reconstructs his/her life story of change as a result of combating the traumatic event (Jayawickreme & Blackie, 2016). In this sense, the individual discovers deep meanings about life, establishes more intimate social relationships, experiences spiritual and existential changes, opens new windows of opportunity by reviewing life priorities, appreciates life better, and realizes personal power by reviewing self-perception (Tedeschi & Moore, 2016).

The concept of post-traumatic growth is examined by applying various models. Tedeschi and Calhoun's post-traumatic growth approach based on "Functional Descriptive Model" is one of the models that have been successful in explaining the concept in various aspects. This model was first introduced into the literature by Calhoun and Tedeschi in 1995 and then revised in 2004 and has become the most widely recognized growth model in psychology literature (Tedeschi & Calhoun, 1996; Werdel & Wicks, 2012). According to this model, post-traumatic growth represents a five-dimensional structure. These dimensions are relating to others, new opportunities, personal strength, appreciation of life, and positive spiritual and existential change (Tedeschi, Cann, Taku, Şenol-Durak, & Calhoun, 2017).

The related research literature has focused on the function of the concept of post-traumatic growth in individuals with disabilities or their relatives. For example, in a study conducted with nursing college students with a congenitally disabled parent, family resilience and ego strength were found to predict post-traumatic growth (Li, Bai, Lou, & Cao, 2019). Another study examining the spiritual change dimension of post-traumatic growth in individuals with disabilities found that individuals discovered a spiritual meaning (Shariati, Naeimi, & Kalantar Hormozi, 2019). In a qualitative study conducted with athletes with disabilities, participants reported that they experienced post-traumatic growth (Day, 2013). In another qualitative study conducted with individuals with physical disabilities, the participants reported having experienced post-traumatic growth (Hammer et al., 2019).

Trauma affects the immediate environment of these individuals as well as the individuals who are directly exposed (Levine & Frederick, 2013). Although there very limited amount of research conducted with parents with children with special needs, a few studies on the subject have been published. For example, a qualitative study conducted with the mothers of children with physical disabilities reported post-traumatic growth related to self-perception, relationships with other individuals, life philosophy, and spirituality (Konrad, 2006). Another study conducted with mothers of children with special needs, found that they experienced post-traumatic growth, and the participants reported that self-efficacy and religious and problem-focused coping facilitated their post-traumatic growth (Byra, Żyta, & Ćwirynkało, 2017). In another study conducted with the mothers of mentally retarded children, it was observed that the participants experienced both post-traumatic growth and post-traumatic stress disorder (Bargiel-Matusiewicz, Kiełb, & Pisula, 2019). In a qualitative study conducted with parents with children with special needs, the participants reported having experienced post-traumatic growth (Young, Shakespeare-Finch & Obst, 2020). The studies conducted with mothers with children with Down syndrome (Counselman-Carpenter, 2017) and mothers with autistic children (Zhang, Yan, Barriball, While & Liu, 2015) found that these mothers experienced post-traumatic growth in terms of life philosophy, appreciation of life, relationships with other individuals, personal strength, and spiritual change. These studies show that the trauma experienced by parents can trigger positive radical changes.

Trauma affects not only the individual but also the close social network of individuals and restructures their assumptions about life. Considering that there were 12.831 students with special needs in primary school in the 2019-2020 academic year in Turkey (Turkish Ministry of National Education, 2020), how mothers with such special needs children make sense of their difficult life experiences and how this system functions in the individual is an important question that needs to be answered. The current study is expected to shed light on the effects of trauma experienced by families and contribute

to the field of trauma counseling. Thus, the current study aims to examine the post-traumatic growth experiences of mothers who have primary school children with special needs.

METHOD

Research Design

The study focuses on the post-traumatic growth experiences of mothers who have children with special needs in primary school. The phenomenological research design (Johnson & Christensen, 2014; Patton, 2002; Yıldırım & Şimşek, 2016), a qualitative research method, was used in this study because the study deeply discusses how the participants make sense of the experiences related to growth after the traumatic event they have experienced.

Participants

The participants of the study include eight mothers who have children with special needs in primary school. The participants were determined using the criteria sampling technique (Patton, 2002). These criteria are having a child with special needs in primary school and agreeing to voluntarily participate in the study. An above-average score from the Posttraumatic Growth Scale (PTGS) (Tedeschi et al., 2017) was another criterion used. The scale consists of 25 items and is a 6-point Likert type scale. The score range that can be obtained from the scale is 0-125. The reason behind reaching out to mothers is that mothers are the primary care providers of special needs individuals and take responsibilities that will require radical changes in their lives. As such, the participants of the study included eight mothers who met these criteria. The detailed information about the participants is presented in Table 1.

Table 1. Participant Profiles

Participants	Age	Mother Education Status	Child's Special Needs Type	PTG Scale Score
P1	37	Primary school	Language and Speech	108
P2	32	Mıddle School	Language and Speech	98
P3	43	Primary school	Language and Speech	106
P4	31	High school	Mental, Physical Insufficiency	103
P5	40	No Graduation	Language and Speech	115
P6	34	High School	Mental Insufficiency	73
P7	43	High School	Learning Difficulty	92
P8	38	High School	Learning Difficulty	99

Researcher Roles

Researcher roles and personality traits are important in studies conducted by applying qualitative research methods. In this sense, the researcher who conducts the qualitative study is himself/herself a data collection tool rather than someone that records the phenomena experienced by the participants as it is (Creswell, 2013). Accordingly, the roles and demographic characteristics of the researcher have an important function.

One of the researchers who conducted this study completed her undergraduate, graduate and doctoral studies in the "Guidance and Psychological Counseling" department, and during this period she also took courses on qualitative research. She also wrote her doctoral thesis on the subject of post-traumatic growth. The researcher also continues her therapy education in different schools and

conducts qualitative research in the field. In addition, she maintains group and individual psychological counseling sessions.

The other researcher received her undergraduate degree in the field of "Guidance and Psychological Counseling", earned her master's degree in the field of psychology, and continuing her doctorate studies in the same field, and is conducting qualitative research in this field. In addition, she maintains group and individual psychological counseling sessions.

Collection and analysis of data

The data were collected through interview sessions held in three stages. The volunteer participants were reached in line with the criteria determined in the first step of the study. The participants were given detailed information about the content of the study, the procedure to be followed, and the protection of confidentiality. Then, the informed consent was obtained from the participants who volunteered for the study. In addition, the participants were informed about the ethical principles of the research. In the second stage, a semi-structured interview session on post-traumatic growth experiences was conducted with mothers who have children with special needs. While preparing the draft of the interview form, the growth areas of the "Functional Descriptive Model" axis approach that deals with post-traumatic development (Calhoun & Tedeschi, 2006) and the findings of the literature were used as well. In addition, the interview form was finalized by consulting three experts working on qualitative research methods. The participants were asked the following questions during the interviews:

1. After this event, what have you discovered/experienced in a positive sense related to your other self-perception (personality traits)? Can you explain with an example?
2. What has changed positively in your relationships with other people after this event? Can you explain with an example?

In order to get to the essence of the phenomenon examined in the current study, in-depth information was obtained with probes and open-ended questions. At the last stage, participant confirmation was received regarding the findings based on participant opinions. The interviews were conducted in the school's psychological counseling service. Interviews lasted approximately 45-60 minutes.

The data was transcribed and sorted. The data were inductively analyzed by using the phenomenological analysis technique in five stages. Phenomenological analysis is a technique based on describing experiences related to phenomena that participants have directly experienced (Moustakas, 1994). The steps of the analysis are determining the important structures, grouping the common expressions, theming the meaning units, creating the structural and textural descriptions, and combining these descriptions in the last step (Moustakas, 1994). The codes and themes obtained after the analysis process carried out in stages were submitted to the approval of the participants and then the findings were finalized. In this study, twenty-eight codes and five sub-themes were obtained from the transcribed participant statements.

Validity and Reliability

In this phenomenological study, a number of methods were applied to ensure validity and reliability (Creswell, 2013; 2017; Yıldırım & Şimşek, 2016). Participant confirmation was sought to ensure internal validity. For this purpose, the participants were interviewed again to make sure that the data were understood correctly by the researchers, and all the participants confirmed the accuracy of the codes and themes obtained. In addition, expert opinion was sought and the findings were reviewed in line with the feedback. Detailed description was also used for the external validity of the study and quotations of participant statements were included. For external reliability, the data and the findings obtained from these data were compared to make sure that they were consistent. In addition, detailed profile information of the participants is presented under the heading titled as participants. For internal

reliability, consistency analysis was applied to examine whether the research activities were consistent or not.

RESULTS

The findings obtained as a result of interviews with mothers who have children with special needs in primary school constitute the five dimensions of the phenomenon of post-traumatic growth. The dimensions reached regarding this phenomenon are appreciation of life, life opportunities, relating to others, personal strength, and spiritual- existential change. The sub-themes and main theme reached in this study are presented in Figure 1.
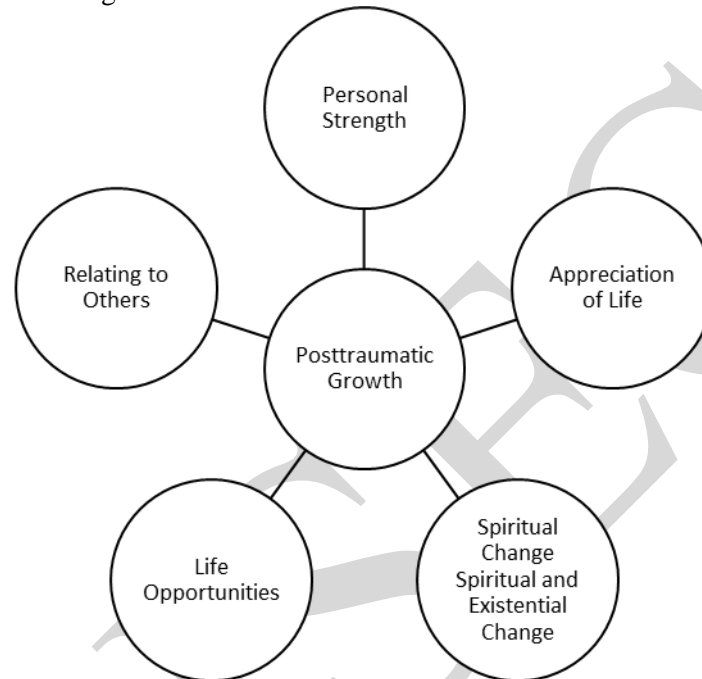
Figure 1. The main theme of the elements that constitute the post-traumatic growth experience of mothers with special needs children in primary school

Mothers who have children with special needs in primary school reported positive changes (family support, empathic understanding, etc.) they experienced in their relationships with other people in the theme of relating to others. Regarding the theme of personal strength, the participants stated the positive changes (self-confidence, survivors, etc.) they noticed in themselves. In the sub-theme of life opportunities, they expressed different life possibilities that they had not explored before. Concerning the spiritual and existential change, they talked about the changes they experienced on the meaning of life. Finally as regards the subtheme of appreciation of life, they reported that they felt the meaning of life with a deeper understanding.

Relating to others

The mothers who have children with special needs in primary school stated what the positive changes they had experienced in their relationships with other individuals were. The codes emerging in this dimension are classified as family support, tolerance in relationships, stronger family solidarity, teacher support, and empathic understanding. Some participant statements regarding the positive changes they experienced as a result of the traumatic experience in their relationships with other individuals are given below.
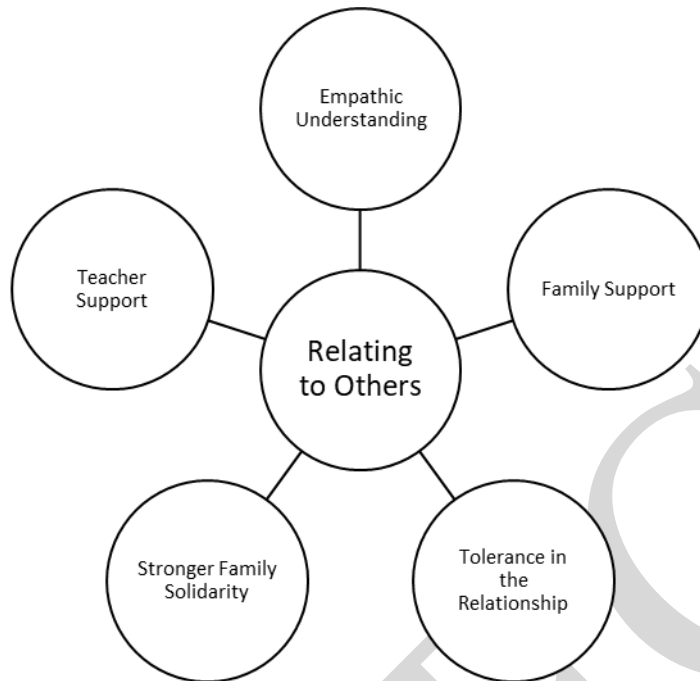
Figure 2. Relating to others subtheme and codes

"We are closer with my husband now, since Ahmet (nickname) is small and my husband can come home every day, he cares for the child, and we are closer. Since he was a truck driver while living in Istanbul, he could not come home every day, he could not see other children (of ours) growing up. But we are raising Ahmet together (P5)."

"My husband was very supportive, we researched (this problem) together. We stood together in solidarity (P1)"

Appreciation of Life
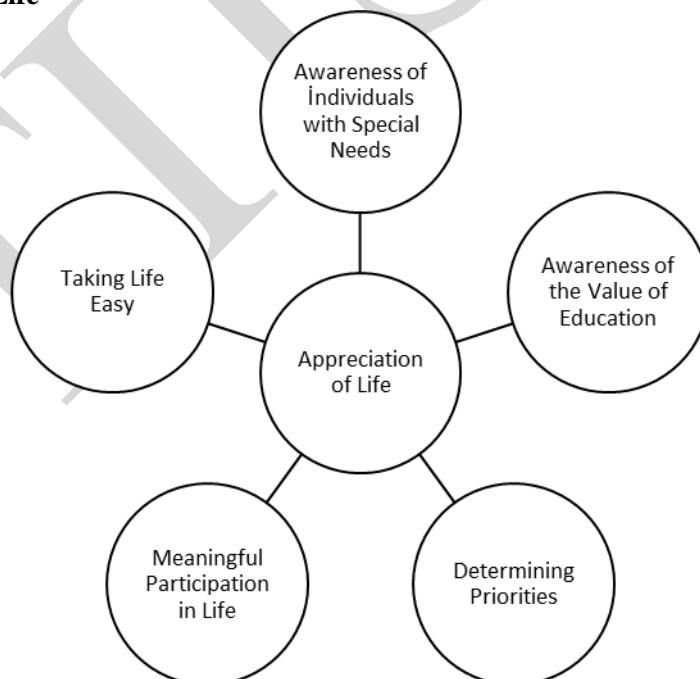
Figure 3. Appreciation of Life sub-theme and codes

The participants reported their experiences of positive changes in the appreciation of life sub-theme. The codes reached in this sub-theme are classified as awareness of the value of education, determining priorities, meaningful participation in life, taking life easy, and awareness of individuals with special needs. Some direct quotations related to positive change in appreciating life are given below.

"A lot has changed. I had a few dreams. I understood that everything is through education, even motherhood is through education. I discovered the importance of research and education. I want to study at high school, university. My diploma is in Kütahya. I made my application, I will start when my application is approved (P1)."

"I don't mind everything now. I do not feel sorry for everything. Things I used to cry about seem meaningless now (P2)."

"I used to eat (only) if they brought me something to eat. I would travel (only) if they took me somewhere. I grew up like that. They would drop me off at the open market by car and I would do my shopping there, they would pick me up from the same spot. I couldn't do anything on my own. ...Now I'm taking care of them. My view of life and my role have changed, I got stronger. Now I can do whatever I want (P4)."

Personal strength
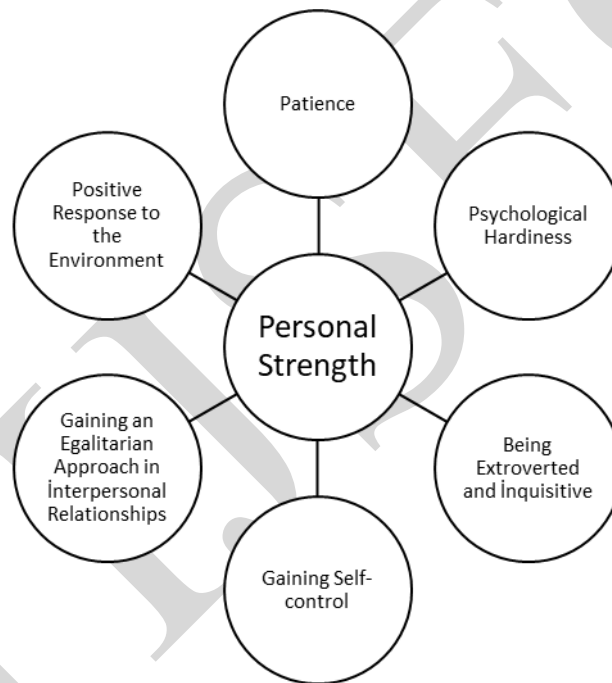
Figure 4. Personal strength sub-theme and codes

The mothers who have children with special needs in primary school stated what the positive changes they experienced regarding self-perception were. The codes obtained under this subtheme were classified as patience, psychological hardiness, being extroverted and inquisitive, gaining an egalitarian approach in interpersonal relationships, gaining self-control, and a positive response to the environment. Some direct quotations reported by the participants regarding the positive changes in their self-perceptions are presented below.

"I saw that I was patient, Ali (nickname) taught me patience. Waiting for it to develop taught me patience because it is hard to wait for him to develop, to learn (P2)."

"I realized that I wouldn't feel sorry for things and shy away, I learned to fight. I learned that there is no such thing I cannot bring or buy. I can do anything. I learned to fight (P3)."

"My sensitivity towards different children has increased. When we were in high school, we had a friend, we would not take him into our group, we did not want to sit next to him. I am thinking of finding him and asking for his forgiveness (P6)."

Spiritual and Existential Change
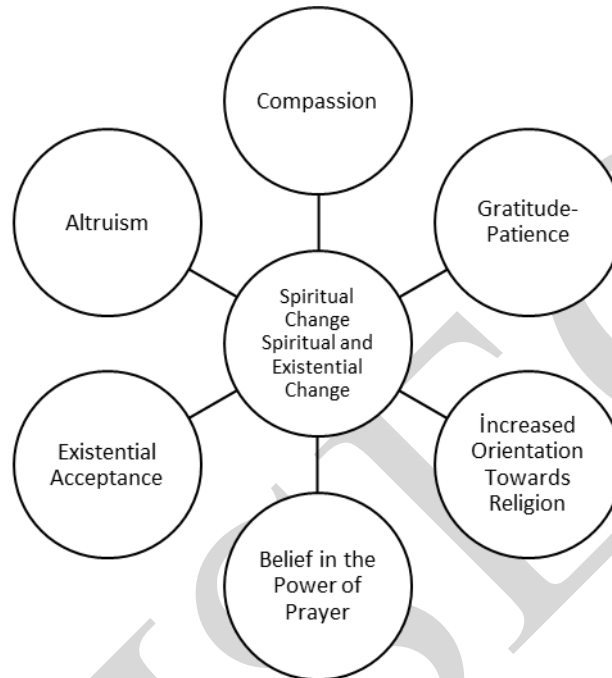
Figure 5. Spiritual and Existential Change sub-theme and codes

The participants stated what the positive changes they experienced in the spiritual and existential sphere were. The codes obtained in this dimension are gratitude-patience, increased orientation towards religion, belief in the power of prayer, compassion, existential acceptance, and altruism. Some sample statements from the participants about the spiritually and existentially positive changes they had are presented below.

"I saw worse ones. When we attend support education, you thank God, I am ashamed to tell the troubled mothers there what I came for. You are getting closer to God (P1)".

"You gravitate towards spirituality because everything comes from God, and you pray more because you already need it, but you realize that you are even needier (P2).

"I never rebelled, I thought everything was at the discretion of God. I learned to be patient and to fight (P2). "

Life Opportunities

The participants reported the gains they had regarding the life opportunities. The codes obtained under this dimension are gaining self-efficacy, being open to innovations, developing coping strategies, knowing oneself, enhancing knowledge and education, and gaining job skills related to child development. Some statements expressed by the participants regarding this sub-theme are presented below.
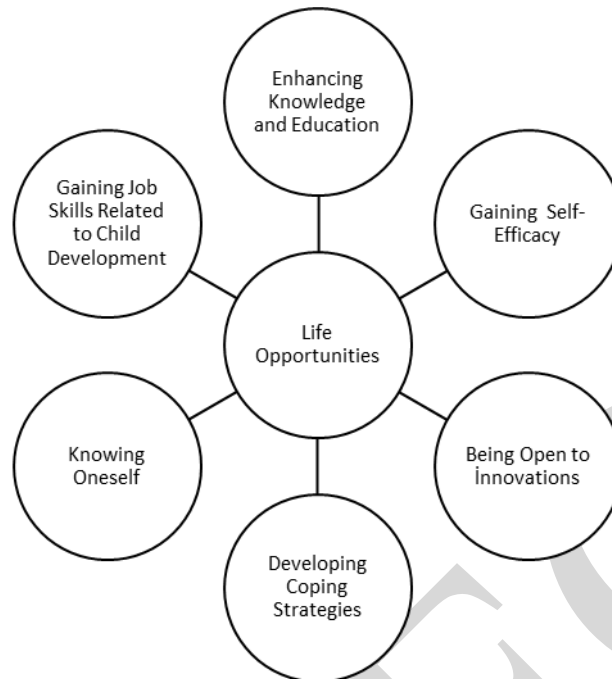
Figure 6. Life Opportunities sub-theme and codes

"First of all, people should be open to new things. You learn that the more things happen to you, the more you have to move forward. I am a primary school graduate. I urged my husband to study, and made my husband finish high school, who used to be middle school graduate. Why did not I apply to study at high school (I wish I did), now I am experiencing this regret. I noticed it with Ahmet (nickname) while I was busy taking care of him. Why didn't I do it? I learned to demand better (things) for myself (P2)."

"I am a child development (program) graduate. In this sense, my child development knowledge and practice skills have improved. I intend to start working in kindergartens after the children grow up a little (P6)."

"Gaining a love of reading, making education plans were opportunities that I have taken advantage of (P2)."

DISCUSSION and CONCLUSION

The mothers with special needs children are observed to have experiences regarding post-traumatic growth in all five dimensions. These themes are personal strength, relating to others, appreciation of life, existential and spiritual change, and life opportunities. This finding confirms the post-traumatic growth dimensions proposed in the Functional Descriptive Model (Calhoun & Tedeschi 1998; Calhoun & Tedeschi, 2006; Tedeschi & Calhoun, 1996). In addition, the findings also support the literature findings conducted with individuals with special needs (Bargiel-Matusiewicz, Kiełb, & Pisula, 2019; Can, 2018; Day, 2013; Hammer et al., 2019; Konrad, 2006; Li, Bai, Lou, & Cao, 2019; Shariati, Naeimi, & Kalantar Hormozi, 2019). These studies confirm that individuals with special needs or their parents experience post-traumatic growth. The results of the present study were consistent with the findings reported in the literature and contributed to the expanding on these findings. The literature has been enriched with these new findings by presenting evidence that mothers with children with special needs can experience post-traumatic growth in Turkish culture as well.

The dimension of relating to others emphasizes deepening of relationships and empathy, appreciation of family and friends, and social support (Altınsoy, 2021; Linley & Joseph, 2004; Tedeschi, Park, & Calhoun, 1998; Tedeschi & Calhoun, 1995). In the present study, the mothers with children with special needs were found to experience post-traumatic growth in the dimension of relating to others. The participants defined the positive changes they had in relating to others as family support, tolerance in relationships, increase in family solidarity, teacher support and empathic understanding. The studies conducted with parents of children with various disabilities report growth gains in relationships with others, increased family resilience, and increased attachment to others and social support (Counselman-Carpenter, 2017; Konrad, 2006; Li, Bai, Lou, & Cao, 2019; Zhang, Yan, Barriball, While & Liu, 2015). These results support the findings in the current study regarding the sub-theme of relating to others. The findings can be interpreted to indicate that the participants strengthened their relationships with both family members and other individuals over time and restructured their relationship dynamics.

The dimension of personal strength emphasizes positive changes in self-perception as a survivor, the idea that difficulties can be overcome, and self-confidence (Calhoun & Tedeschi, 2006; Tedeschi, Park, & Calhoun, 1998). In the present study, the participants defined personal strength as patience, psychological hardiness, being extroverted and inquisitive, gaining an egalitarian approach in interpersonal relationships, gaining self-control, and a positive response to the environment. The studies conducted with individuals with different types of disabilities and their parents have found positive self-transformations, developing various internal resources, viewing the self as a survivor, strengthened self-efficacy, acquiring coping skills, and improvements in self-perception (Byra, Żyta, & Ćwirynkało, 2017; Counselman-Carpenter, 2017; Hammer, et.al., 2019; Konrad, 2006; Li, Bai, Lou, & Cao, 2019; Young, Shakespeare-Finch & Obst, 2020; Zhang, Yan, Barriball, While & Liu, 2015). Based on these findings, it can be said that the findings regarding the personal strength dimension have been consistent. The findings can be interpreted as that the difficulties arising from the painful experience of the participants made them stronger and having a special child helped them gain a more egalitarian perspective towards all people.

Appreciation of life emphasizes reconstructing the meaning of life such as discovering deep meanings about the value of life, knowing the value of life, and developing priorities (Calhoun & Tedeschi, 2006; Tedeschi & Moore, 2016). The participants explained the sub-theme of appreciation of life as awareness of the value of education, determining priorities, meaningful participation in life, taking life from easy, and awareness of individuals with special needs. The studies conducted with individuals with different disabilities and their parents have reported the discovery of deep and new meanings about life, knowing the value of life and reviewing priorities (Counselman-Carpenter, 2017; Day, 2013; Konrad, 2006; Young, Shakespeare-Finch & Obst, 2020; Zhang, Yan, Barriball, While & Liu, 2015). When the findings obtained from these studies are considered, it can be said that common codes have been reached. The finding obtained from the life appreciation dimension can be interpreted as that trauma helps participants to reconsider the meanings they attribute to life and create new schemas regarding the value of life.

The life opportunities dimension includes actions such as making discoveries that will change the direction of life, seeing new possibilities in life, developing new interests, and developing hidden skills (Altınsoy, 2021; Calhoun & Tedeschi, 2006; Tedeschi & Calhoun, 1996). The participants explained this sub-theme as gaining self-efficacy, being open to innovations, developing coping strategies, improving self-knowledge, enhancing knowledge and education, and gaining job skills related to child development. The research conducted with individuals with different disabilities and their parents has reported that individuals discover new opportunities for life, gain new skills, gain maternal skills and ensure personal growth (Counselman-Carpenter, 2017; Konrad, 2006; Young, Shakespeare-Finch & Obst, 2020; Zhang, Yan, Barriball, While & Liu, 2015). Overall, the findings obtained from these studies appear consistent. The findings can be interpreted as the new

responsibilities brought by having a child with special needs contributed to the development of various skills that the participants had not experienced before.

Change in the spiritual and existential sphere includes actions such as positive changes in the belief system, belief in the existence of a transcendent power, existential questioning, and facing death (Tedeschi & Calhoun, 1996; Tedeschi & Moore, 2016). The participants defined this sub-theme as gratitude-patience, increased orientation to religion, belief in the power of prayer, compassion, existential acceptance, altruism. In studies conducted with different disability groups and the parents of individuals in these groups, the participants stated that they found new meanings in spiritual sense, experienced spiritual development, reviewed their belief system, and examined existential issues (Counselman-Carpenter, 201; Konrad, 2006; Shariati, Naeimi, & Kalantar Hormozi. , 2019; Young, Shakespeare-Finch & Obst, 2020; Zhang, Yan, Barriball, While & Liu, 2015). These can be interpreted as similar gains in common themes regarding spiritual and existential change. The finding obtained in the sub-theme of spiritual change can be interpreted as that the participants made radical changes in their belief systems.

Limitations and Suggestions for Further Research

Even though conducting the study only on mothers might be considered as a limitation, the current study obtained some important findings about how parents make sense of the trauma they experienced, and how they achieved positive changes beyond the acceptance stage by passing through the stages of shock and denial. Focusing on the experiences of mothers who provide primary care to individuals with special needs in particular has revealed some significant findings on the effects of these traumatic life experiences on mothers. The findings of this study can be used in counseling processes with individuals with special needs and their parents, both with individuals and groups. For example, in intervention programs, individuals can be assisted to make sense of trauma by adding components related to self-perception, relationships with other individuals, spirituality, new possibilities, and appreciating life. In addition, policy makers and practitioners can benefit from these findings in the improvements to be made regarding the teaching environments at the primary education level. The findings show that mothers achieved positive gains in five areas with their growth experiences. In order to further expand these findings, changes in mothers' growth perceptions can be examined with longitudinal studies.

Acknowledgments

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PARETO-CRITERION AND IMPACT EVALUATION OF COVID-19 PANDEMIC ON NIGERIA EDUCATIONAL SYSTEM

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Abstract

Impact evaluation of COVID-19 challenges on Nigeria educational system is the focus of this paper. There are various reasons for assessment of this pandemic; however, the major reason is to document it for future generation. This study therefore, examined the impacts of COVID-19 pandemic on Nigeria educational system. The study was conducted using volunteering sampling technique and 1080 participants were used using telephone and online methods of inquiry. Those who completed the interview were 654 (60.6%) males and the rest 426 (39.4%) were female respondents. The instrument has 32 items and a reliability coefficient of .78. Some of the impacts of COVID-19 on Nigeria educational system are: school closure, stoppage of teaching-learning process, disruption of school calendar, wastages on destructive materials bought for teaching-learning process, salaries were paid for job not done, some academic staff lost their jobs most especially those in private schools due to lack of salary to pay them, many students had died due to COVID-19, it leads to wastages of students time, some students cannot embark on their education due to the facts that some of them had been put into family way, both internal and external examination had been suspended for future date, educational school calendar has to be readjusted, virtual learning and open distance learning are the order of the day, its leads to extra budget to the education stake holders, the learners have been divided into two-the cities and rural dwellers where the virtual learning are not practicable. Based on these findings it was concluded that COVID-19 had negative impact on Nigeria educational system.

Keywords: Pareto-criterion, impact evaluation, covid-19, pandemic, educational system.

INTRODUCTION

Pandemic can defined to be an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people. In order words the covid-19 pandemic is defined as outbreak of disease in the year 2019-2020 which is known as coronavirus disease 2019 caused by severe acute respiratory syndrome. The virus that causes Covid-19 infects people of all ages. However, evidence to date suggests that two groups of people are at a higher risk of getting severe Covid-19 disease. These are older people (that is people over 60 years old) and those with underlying medical conditions such as cardiovascular disease, diabetes, chronic respiratory disease and cancer.

The preventive measures that can be taken against the Coronavirus disease are the following: washing of hands regularly with soap and water or clean them with alcohol based hand rub, maintains of 1 meter distance between you and people coughing or sneezing, avoid touching ones face, to cover ones mouth and nose when coughing or sneezing, stay at home if one feels unwell, to refrain from smoking and other activities that weaken the lungs and finally practice of physical distancing by avoiding unnecessary travel and staying away from large group of people. The impacts of the Covid-19 on education can be divided into five parts: namely the impacts on the students, on the pact of the staff, the school, the government and campus economy.

The impacts of Covid-19 can be seen on the part of education on students' issue. On the part of students the academic calendar was completely disorganized in the sense that those students that ought to have completed one level and move to other level are still at the same level without any movement. This has led to wasting of time. Many of the students have turned to orphan or half orphan due or Covid-19 pandemic. Many of the parents have kicked the pocket without having anybody to cater for their educational needs of their children anymore. Many students too have lost their lives due to Covid-19 disease. Also, many students have been put into family way as a result of idle hands which is the devil's workshop. Many female students are now carrying baby or babies in their wombs due to Covid-19. Because they are always sitting down at home doing nothing, an idle hand is the devil's workshop. Furthermore, some of the students had fall a victim of ritual killers, while some fall into the hands of kidnapper and some in to the hand of the terrorists.

Some students unknowingly had fall into the hand of terrorists by joining think to perpetuate evils in their place of abode. In Nigeria some students were got recruited into the terrorists group by deceiving them into it that they will help them to get some token by assisting them to do one thing or the others. Before they got to know that they have joined the terrorist group it was too late for them as a result of lockdown. The joined the terrorist thinking that they are joining a lawful group where they can be get some amount to help themselves and their parents by a way of hypnotized them. And they continue to commit atrocities, killings and maiming innocent people. Some of the students have lost contact with their colleagues due to lockdown order as a result of Covid-19 vis-à-vis closure of the schools-students at home were forced to be wearing face mask and face shield to avoid being affected by Covid-19 pandemic. Also, in order to keep the students busy and to ameliorate decline in the reading and learning-leading process the students were expose to virtual learning which is very strange to the students. Many students did not know what Webinar, internet teaching-learning process is, some do not have computer be it personal computer or laptop before Covid-19 pandemic. As a result of Covid-19, many students gets to know the various methods that the teaching-learning process can take place viz: through radio, television set, internet teaching, distance learning through the internet, webinar, telephone method and etc.

Impact of Covid-19 on the parts of teaching and non-teaching personnel on Nigeria educational system. The staffers have to adjust to new normal situation in the sense that instead of face-to-face teaching-learning process everything turned to virtual learning. The conference that used to serve as means of improving the staff by a way of exchanging ideas, cross fertilization of knowledge and the so on and so forth quickly turned to zoom, internet conference and virtual learning which in the real sense cannot be compared to face-to-face conference on the advantages to be gained from it. On the job learning and training ceased while the pandemic last except the issue of virtual learning and virtual assessment which become the order of the day happened to be the only thing that one can say that the staff gained during the Covid-19 pandemic. Apart from this there is nothing gained by the staff during this pandemic period.

All the lecture notes, practical manuals and schedules prepared at the beginning of the session or semester become wasteful as a result that the knowledge is static it is dynamic. All the teaching staffers have to review their notes to be in line with the new normal. Staffers that have travelled abroad could not come back home after their programme due to Covid-19 lockdown effect and some that are yet to complete their program cannot come home as well and neither can they continue with their programme. Also, those that suppose to embark on further study abroad and at home could not do so due to lockdown order as a result Covid-19 pandemic. In addition, some staff lost their job most especially those that are working with private institutions due to lack of money to pay their salaries. Because students are not on school and it is impossible to collect fees from students that are not on campus to receive lectures. Some lecturers and non-teaching staff died as a result of Covid-19, making it impossible for the schools to retain many competent hands. However, the only positive impact to the school personnel during this Covid-19 is that

some of them have time to rest and to rejoice and for the academic staff they have time to complete some of their ongoing researches using telephone inquiry and internet method of data collection.

On the part of the school, the budget prepared by the school owners like the federal government, state government, private institution owner be it mission and individual become wasteful because the over head cost on each student can be used again. The consumable and expired materials bought to take care of the students since the school was closed down become wasteful. Because some of the materials may not be useful again while some might be expired due to time-shelves of such materials. The building, furniture, etc that were renovated at the beginning of the year become useless as a result of not putting them in to use due to Covid-19 school closure.

The school campus become busy and dirty due to school closure and the cleaners that suppose to take care of the campus were lockdown due to Covid-19 pandemic. In some schools rodents, reptiles and other dangerous animals have occupied the campus due to the fact that the campus is deserted, people have been lockdown at home and this give rooms to other living things to take over power of our campuses. Also, night maroonda i.e. thieves have counted away many valuable things due to lockdown order of Covid-19 pandemic. Money paid for school fees, on hostel accommodation and some other miscellaneous on campus become debt on the part of the school management. Because the students will claim that they have not enjoy the money paid and that such money will be used at future date. Many schools incurred debt which was not prepared for by turning to virtual teaching-learning process. Some schools have to train their staff first, before the staff starts to train their students on virtual learning. This makes many schools to buy materials that will make their staff to embark on virtual learning.

The impact of Covid-19 pandemic on government as a major stake holder in education, foremost, as a result of lockdown which is a burnout of coronavirus disease, the government spent a lot on the parts of students and on academic and non-academic staff by providing palliative measures. Also, the government paid the salary of the staff despite the fact that they did not work. The government and other owner of schools spent a lot of money in paying for the time spent on the air by the various school in teaching the learners on radio, television houses, buying data for both the teachers and the students as well as to enable them shuffle the net. Government and other school owners cough out money at all cost to carry out virtual learning by first of all trained the teachers and there after the students.

On the part of the people that are selling goods on the campus, the typist, book binders, the campus shuttle drivers, the food vendors and etc. Many of them that stock their shops at the wake of the pandemic become debtors by now due to damages, expiry of products or materials. Rodents have destroyed some of the goods bought to be sold to the students. The typists are completely out of business making it difficult to finance their families. Some of the campus shuttle drivers were seeing once in a while warning their vehicles, while some have their battery spoilt due to lack of use of the vehicle. The food vendors were seen lamenting seriously because they do not have other means of getting their livelihood. The typist, the photocopiers and the book binders that are working inside the campus rendering services to students, and staff are now penury.

The burnout of the Covid-19 on the parts of the parents of the learners are enormous more than what we could enumerate during the pandemic era and post pandemic even when the schools are about to reopen and when it is reopened. The following are the roles concerning the parents as schools are about to reopen. There is need for the parents to start rehearsals now. If their state of residence is among the ones that have announced the resumption of schools in two weeks' time, The researcher will advise you start now to rehearse with them how to wake up early again after six long months of over sleeping. Check whether their school uniform is still their size. You know some of them have added weight. Let them go back to their usual daily schedules before the lockdown came. Help them, especially the very young ones to adjust

gradually. Do not wait for resumption week otherwise they may find it extremely difficult to pick up. The very young ones may even experience some disturbances in their health if they are suddenly forced to start waking up early, and without proper adjustment they are forced to leave the house early to school after months of enjoying the warmth of the bedroom till much later in the morning. Gradually work on their feeding habit, which I know that in many homes, has changed drastically. Everyone now eats when they feel like it.

Prepare them mentally as well. Check their books. Ask them to write goals and give to you before they resume. Take this time to address them on those subjects where they need to improve. They may put you under pressure to buy this and that because they are going to a new class. Please, don't spend beyond your purse/pocket. New academic session is not synonymous with new shoes and bags, especially now that people are just trying to come out of the economic effects of the lockdown. Do not borrow to make your children happy, otherwise they will never learn to live within their means. Wash what they have, mend the ones that need to be mended, work on their hair and nails. A neat child will always be neat whether the school uniform is old or new. If your child is neat only when you buy new things for him or her then you still have a long way to go. Plan for their school fees; many teachers have been without salary for these numbers of months. Please do not elongate their suffering by owing the school.

The problem of CORONA Virus started suddenly from far country (China) to Nigeria as a pandemic. All of a sudden it spread too many Asia countries, Europe and finally to Africa and all other continents of the world. Therefore, the researcher is interested is study the impact of it on Nigeria educational system. The idea behind it is to be able to plan ahead of future occurrence of such natural disasters.

Purpose of the Study

The aim of this paper is to assess the impacts of COVID-19 pandemic on educational system of Nigeria. The specific aim are to determine the impacts of Covid-19 pandemic on education stakeholders: the students, parents, the teaching and non-teaching staff, schools managements, government and those that are working inside the school that are not official staff of the schools due to school closures. One research question is set to guide this study:

Research Question: What are the impacts of COVID-19 pandemics on Nigeria educational system?

METHOD

Research Model

Descriptive research design of survey type was adopted for this study. Among other things, the purpose of a descriptive research design of survey type is to provide an in-depth description of a phenomenon or the relationships between two or more phenomena. Documentation of planned programme works which include the inputs and activities and intended programme results which are the outputs, outcomes, and impacts without any manipulation(s).

Participants

All education stake holders in Nigeria states about hundred million are the potential participants in this study, with a telephone connected and the telephone number of friends and colleagues in various universities, Colleges of Education, Polytechnics, primaries and post-primaries institutions in Nigeria were participated, staff of both federal and state Ministries of Education in Nigeria were used for the study and finally some selected students in tertiary institution in the country and students in Secondary schools were used for the study. Parents of some students were also used for the study. Telephone numbers were selected randomly using National Telephone directory. There were no replacements for non-contactable

persons. A sample of 1080 participants' was made used and losses occurred due to network problem by not hearing the participants well. From the eligible sample of 1080, completed interviews were conducted with 719 persons (66.6%) were male and the rest 361(33.4%) were female.

Measures

Respondents provided information about their experience during this COVID-19 and how it affects the educational system in Nigeria, was measured using the research instrument prepared by the researcher on Impacts of COVID-19 on Educational system on Nigeria populace comprising of 28 items which require respondents to indicate to what extent they agree or disagree with the statement on a four-point scale. The scale comprises of two sections, Section "A" is made of respondents demographic data and Section 'B' is made up of 32 items measuring impacts of Covid-19 on education system in Nigeria on a four point scale: Strongly Agree (SA = 4); Agree (A = 3); Disagree (D = 2 and Strongly Disagree (SD =1). The instrument was trial tested for reliability analysis and it was found to have reliability coefficient of .78.

Procedure

In carrying out this survey study the researcher introduced himself to the individual participants of each selected telephone number. The researcher informed them of the purpose of the survey and indicated that they could expect a telephone call within a defined time frame. Before the conduct of the main survey, the questionnaire was pilot tested (n = 50) and where appropriate applicable, wordings of the items were amended slightly. The results of pilot test were used in this study; however, the presentation of the whole results is not part of this study.

Research Question: What are the impacts of COVID-19 pandemics on Nigeria educational system?

FINDINGS

This research question was answered using frequency counts with the data obtained from the respondents.

Table 1a. Frequency counts on impacts of COVID-19 on Nigeria educational system of the respondents

The following are the impacts of COVID-19 on Nigeria educational system	Agree	Disagree
1. School closure	762 (70.6%)	318 (29.4%)
2. Disruption of school calendar	906 (83.9%)	174 (16.1%)
3. No specific time to reopen the schools	761 (70.5%)	319 (49.5%)
4. Some teaching materials that have time shelves are already expired	793 (73.4%)	287 (26.6%)
5. Staff salaries are being paid for the job not done	666 (61.7%)	414 (38.3%)
6. Some staff have lost their job, most especially those from private institution	904 (83.7%)	176 (16.3%)
7. Many students have lost their lives due to covid-19 pandemic and vehicular accidents during school closure	1052 (97.4%)	28 (2.6%)
8. Lockdown order leads to mental health depression	1014 (93.9%)	66 (6.1%)
9. Lecture notes, practical manuals and some other materials have become obsolete	1002 (92.8%)	78 (7.2%)
10. It leads to wastages of time on the part of the students	590 (54.6%)	490 (45.4%)
11. Some students had been put into family way	644 (59.6%)	436 (40.4%)
12. Some students become sick because of regimental life/lockdown order	972 (90%)	108 (10%)
13. Suspension of internal and external examination	962 (89%)	118 (11%)

Table 1b. Frequency counts on impacts of COVID-19 on Nigeria educational system
of the respondents

The following are the impacts of COVID-19 on Nigeria educational system	Agree	Disagree
14. Suspension of teaching-learning process on campuses	629 (58.2%)	451 (41.8%)
15. Extra curricula activities in the school are affected	656 (60.7%)	424 (39.3%)
16. Schools have to adjust their school calendar and time-table to pay for the time lost	617 (57.1%)	463 (42.8%)
17. Both schools and students have lost one term or semester or one academic session	563 (52.1%)	517 (47.9%)
18. Some schools results to virtual learning style	762 (70.5)	318 (29.5%)
19. Government and parents results to buying of data for online teaching-learning process	620 (57.4)	460 (42.6%)
20. Parents and government are subjected to extra budgets in buying laptop, desktop and data for online educational process	717 (66.4)	363 (33.6%)
21. Educators, funders and policy makers are rethinking the way education is delivered and accessed by the students	617 (57.1%)	463 (42.8%)
22. Covid-19 has divided Nigeria students into two groups-the cities and rural dwellers where the virtual learning are not accessible	940 (87%)	140 (13%)
23. Education system are shifted from face-to-face to media houses like radio station, television station and online teaching	681 (63.1%)	399 (36.9%)
24. Children living in rural areas are less likely to have resources to adapt and implement measures needed to continue education during school closure	812 (75.2%)	268 (24.8%)
25. Caregivers with low level or no formal education have greater difficult supporting children with home learning	793 (73.4%)	287 (26.6%)
26. Lack of access to radio, television, computers, internet facilities and data left many students unable to engage in remote learning	617 (57.1%)	463 (42.8%)
27. Many parents are over burdened by costs associated with continue education of their children during school closure	681 (63.1%)	399 (36.9%)
28. Many students shared feelings of stress, anxiety, isolation and depression which they linked to the lack of contact with their school community	1052 (97.4%)	28 (2.6%)
29. Many children received no instruction, feedback or interaction with their teachers throughout the covid-19 pandemic last	666 (61.7%)	414 (38.3%)
30. Some learners will never return to classroom again	904 (83.7%)	176 (16.3%)
31. Lack of motivation of teachers to take up remote teaching due to non-payment of salaries and job insecurity	617 (57.1%)	463 (42.8%)
32. Poor digital literacy of school owners, leaders and teachers	563 (52.1%)	517 (47.9%)

It was discovered that the following among others were the impacts of COVID-19 on Nigeria educational system as shown in the above table: school closure, stoppage of teaching-learning process, disruption of school calendar, wastages on destructive materials bought for teaching-learning process, salaries were paid for job not done, some academic staff lost their jobs most especially those in private schools due to lack of salary to pay them, many students had died due to covid-19, it leads to wastages of students time, some students cannot embark on their education due to the facts that some of them had been put into family way, both internal and external examination had been suspended for future date, educational school calendar has to be readjusted, virtual learning and open distance learning are the order of the day, its leads

to extra budget to the education stake holders, the learners have been divided into two-the cities and rural dwellers where the virtual learning are not practicable, our education is no longer face-to-face system, lack of internet facilities and lack media signals make many students unable to engage in remote learning and many learners received no instruction nor feedback nor interaction with their teachers nor colleagues throughout the covid-19 pandemic lasts. All the above mentioned factors are the impacts or challenges of Covid-19 on Nigeria educational system.

DISCUSSION and CONCLUSION

In Nigeria, the President closed all schools throughout the country until further notice; including children's daycare facilities. According to NPE (2020), primary or elementary education typically consists of the first six years of formal education. Kindergarten is the first time children participate in formal education. The Joint Admission and Matriculation and West African Examination Councils canceled the examinations for its Entrance Examination and General Certificate of Education. The respondents stated that it would be better if WASSCE could award candidates their certificates based on "their coursework" and "the established assessment expertise, rigor, and quality control already built into the programme. Tertiary education, also known as higher education, refers to the non-compulsory educational levels that follow completion of secondary school or high school (NPE, 2020).

Because the budgets set aside for the staff and students for this year become wasted in that students will not pay another tuition fee for next year, the money for the accommodation cannot be collected again for the period in which the students are not around to enjoy the money paid for these facilities. It means that for this period of lockdown the hostel accommodation is not fetching the management any money. Also the staffers are being paid for the work not done.

Lack of access to technology or fast, reliable internet access can prevent students in rural areas and from disadvantaged families. Lack of access to technology or good internet connectivity is an obstacle to continued learning, especially for students from disadvantaged families. In response to school closures caused by Covid-19, the respondents recommend the use of distance learning programmes and open educational applications and platforms that schools and teachers can use to reach learners remotely and limit the disruption of education. To aid in solving the problems of Covid-19 on educational respondents suggested the use of internet and use of socio-media. The major problem with this method is that majority of towns and villages where these students come from are not on the national electricity grid and some students are without internet at home, this increases the difficulty of keeping up with distance learning. Fehintola (2011), asserted that majority of the students that are reside in the cities and some town are not buoyant enough to extend of being able to buy computer be it desk top or laptop. In some cases where students are capable to get laptop or desktop computer some do not buoyant enough to buy data. And students cannot even ask for money for data from their parents because parents are living from hand to mouth. It is not uncommon to hear parents willing to sell their belonging during the lockdown so as to get what the family will eat. Some families who do not have what to sell are ready to offer themselves for money so as to feed their children. For such parents, the children cannot even afford to ask for money to buy data. Lack of limitations and exceptions to copyright can also have an impact on the ability of students to access the textbooks and materials they need to study. Some of the postgraduate students that have one reagents or the other to observe inside fridge could not do it again due to lockdown order. Majority of experiments that are ongoing have got spoilt and which these students have got to starts all over when the lockdown order is over are there. All these wastages are accrued due to Covid-19 lockdown order.

Fehintola (2014) opined that if you cannot see a student's face, it is impossible to tell if they understand the material. Consider interactive elements such as short quizzes. Students might also miss on-campus

social interaction, so it helps to engage them with opportunities to talk to one another during a live session. Research suggests that almost every student experiences some type of 'performance penalty'- they earn a lower grade than they might have otherwise, or fail to complete the course-when they switch to remote learning, even under the best circumstances, it's worse for the most vulnerable students." To identify those students, instructors can ask whether class members have adequate Wi-Fi and access to devices, and how concerned they are about the transition to online learning. The most successful virtual teachers conduct frequent assessments, and check in by phone, text or e-mail with each student-most often with those who are struggling.

School closures put a blessing in disguise on parents and guardians to provide necessary childcare and manage their children as they like. Because working parents often leave children alone when schools close and this can lead to risky behaviours, including increased influence of peer pressure and substance abuse. The issue of timing the time the children are to eat, when mother will be release to visit her child to breast feed, and time to close from work to come and her baby is completely eradicated due to lockdown order, mothers now have ample of time to take care of their children as they like. Awoyemi & Fehintola (2008) asserted that majority of Daycare centres are not taking care of the babies as expected. Majority of them will not give food when they suppose, they will not attend to the children as expected, some do not have time as expected to the extent that the peers do inflict bruise on one another. Some children at times come home with broken hands, legs and different grade of injuries. According to Fehintola (2009), some children will fall sick without being attended to and if at all the kind of care given may not be adequate and appropriate. But with the pandemic lockdown effect the mothers have time to attend to their children. The mothers are able to feed their children with good food they could afford at appropriate time, since nutrition plays a critical role in cognitive development and academic performance for children. There is no way we can liken the care to be giving by the mothers to the one the children are to receive in the day care centers (Nwagwu & Fehintola, 1999). Therefore, the lockdown order provides ample chance for the mothers to cater for their children. Though the kindergarten children and all learners in the country did loose literacy ability during the Covid-19 school closures, because the mothers are not trained to handle cognitive development of their children.

School closures negatively impact student learning outcomes. According to Fehintola (2013), schooling provides essential learning and when schools close, children and youth are deprived opportunities for growth and development. Many months and years are lost due to closure of school making the time and year of planned graduation not realistic. The disadvantages are disproportionate for under-privileged learners who tend to have fewer educational opportunities beyond school. When schools close, parents are often asked to facilitate the learning of children at home and can struggle to perform this task. This is especially true for parents with limited education and resources, while children whose parents are illiterate will not even have any opportunity of such. Students gain slower during school closures than in a business-as-usual academic year. Student drop-out rates tend to increase as an effect of school closures due to the challenge of ensuring all students return to school once school closures ends. Some students will not be able to return to school due to pregnancy as a result of sexual abuse and sexually transmitted diseases. It is a challenge to ensure children and youth return and stay in school when schools reopen after closures. This is especially true of protracted closures and when economic shocks place pressure on children to work and generate income for financially distressed families. Many may not be able to come back as a result of fallen a prey into the hands of ritual killers and kidnappers. When schools shut down, early marriages increase, more children are recruited into militias, sexual exploitation of girls and young women rises, teenage pregnancies become more common, and child labour grows. This is especially true of protracted closures. Disadvantaged, at-risk, or homeless children are more likely not to return to school after the closures are ended, and the effect will often be a life-long disadvantage from lost opportunities.

Schools are also hubs of social activity and human interaction. When schools are closed, many children and youth miss out of on social contact that is essential to learning and development.

School closures carry high social and economic costs for people across communities. Their impact however is particularly severe for the most vulnerable and marginalized boys and girls and their families. The resulting disruptions exacerbate already existing disparities within the education system but also in other aspects of their lives (Gilbert, Pullano, Pinotti, Valdano, Poletto, Boelle, and Colizza, 2020). These include: Health-care workers with children cannot easily attend work because of childcare obligations that result from school closures. This means that many medical professionals are not at the facilities where they are most needed during a health crisis. Schools are hubs of social activity and human interaction. When schools close, many children and youth miss out of on social contact that is essential to learning and development.

The university teaching staffs are learning very fast, some university teachers who cannot boast of use of technology for teaching and learning process are now learning very fast. Sullivan, Strickland, and Howard (2020) said that at the inception of lockdown order due to Covid-19 pandemic the only way and means to keep the learners busy and to be teaching them is to resort to the use of technology in teaching the students. Therefore, teachers who do not have adequate knowledge of teaching via technology, internet, television and radio stations have to seat down to learn this skill so as to be compliance to the situation they found themselves. Many conferences where the teaching staff needs to attend to update themselves are not possible due to Covid-19 pandemic. Some of these conferences were conducted using zoom, social media, factual conferencing and YouTube as means of carrying out academic and non academic conference. Both the teaching and non-teaching staff are now relaxing and free of excess work load and as a result for now there is nothing like heart attack and drop dead as it use to be when school was not closed. Some of the teaching staff are now busy facing research and publication as parts of the duties of teaching staff in tertiary institutions which as to do with teaching, research and publication and community service. Lecturers are resilience in preparation towards the reopening of the schools as the teaching staff would not like to keep on repeating the former lecture note.

Majority of our higher institutions and secondary schools are now turning to be the den of robbers. Majority of the hostels properties, laboratories properties, classrooms and lecture rooms properties had been carted away by night maunders. By the time when the school reopens the management and the government will face the problem of replacement of these properties and if not done on time could lead to delay in doing the appropriate things.

Conclusion

The researcher concludes that all the challenges discussed in this paper like, school closure, stoppage of teaching-learning process, disruption of school calendar, wastages on destructive materials bought for teaching-learning process, salaries were paid for job not done, some academic staff lost their jobs most especially those in private schools due to lack of salary to pay them, many students had died due to covid-19, it leads to wastages of students time, some students cannot embark on their education due to the facts that some of them had been put into family way, both internal and external examination had been suspended for future date, educational school calendar has to be readjusted, virtual learning and open distance learning are the order of the day, its leads to extra budget to the education stake holders, the learners have been divided into two-the cities and rural dwellers where the virtual learning are not practicable, our education is no longer face-to-face system, lack of internet facilities and lack media signals make many students unable to engage in remote learning and many learners received no instruction nor feedback nor interaction with their teachers nor colleagues throughout the covid-19 pandemic lasts. All these impacts are the burnout of Covid-19 on Nigeria educational system.

Recommendations

The government has to train school heads and teachers of public and private schools, preparing them for this task of taking firm control of preventing the spread of Covid-19 into our schools as we resume.

Each school must be mandated to strictly enforce social distancing and observe other protocols against Covid-19 among teachers and students as laid down by NCDC.

Students must come to school with their facemasks and follow instructions on the guidelines from the management, these are imperative the government cannot lock down the schools forever and education is an aspect of life that should not be allowed to suffer backwardness.

Also, all the students must be taught to observe the compulsory hand-washing points at the school entrances and at the entrance of each classroom as well as alcohol-based sanitizer for the use of students and teachers.

Limitations of the study

The study is limited to sample size of participants who participated in the study, out of 2.5 million people living in Nigeria, only 1080 participants were used in this study.

The researcher made use of telephone method to collect data, this is an indication that the study was carried out among affluent people in the society who could afford to buy telephone.

Monetary problem is another limitation in this study, because during the period of data collection respondent were very broke. They taught the researcher got research grant for the study, therefore, they were demanding for incentive from the researcher. Regardless of these limitations, the result of this study remains valid.

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EXAMINING THE VIEWS OF PARENTS WITH SPECIAL NEEDS CHILDREN REGARDING THEIR CHILDREN'S SEX EDUCATION (NORTH CYPRUS SAMPLE)

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Abstract

The purpose of this study is to examine the views of parents with special needs children regarding their children's sex education. Convergent parallel design, one of the mixed research methods, has been used in the study. Quantitative data were obtained from 200 parents and qualitative data from 15 parents from the same sample group who volunteered to do face-to-face interviews. Descriptive statistics and the Chi-Square test have been used for analyzing the quantitative data. In the analysis of the parents' views on the necessity of sex education, it was found that 94.5% of parents consider sex education necessary. In the qualitative analysis, 13 parents stated that they consider sex education necessary, while two stated that they do not consider it necessary. When the parents' views regarding by whom/at what age sex-related information should be provided, both quantitative and qualitative findings revealed that they think parents should provide sex-related information, and teachers and doctors took the second place in this sense. Quantitative analysis of parents' views on the content of sex-related information revealed that they think sexual organs, changes in the body, and sexual abuse should be the main topics included in sex education. Both quantitative and qualitative findings have shown that there is a lack of information in parents. In line with research findings, it is recommended to prepare qualified programs and carry out awareness-raising activities for sex education of children with special needs.

Keywords: Sex education, special education, children.

INTRODUCTION

Sex education is a process that should begin in infancy and continue until adulthood. Sex education includes topics such as controlling sexual impulses, learning about sexual identity, becoming aware of one's own physical characteristics, and being able to practice sexual protection (Koran, 2018). Sex education includes topics such as gender, interpersonal relationships, love, privacy, bodily perception, and reproductive health (SIECUS, 2000; Namkung,Valentine, Warner, & Mitra, 2021).

The purpose of sex education is to know and embrace one's sexual identity, to learn that sexual emotions are natural, and pay attention to sexual health. It takes a long-term process until the attitudes and behaviors of individuals with special needs reach the acceptable maturity for social life. However,

families who receive education and start this process as early as possible achieve better results compared to other families (Bilge & Baikal, 2008; Scott, Smith, & Formby, 2020).

Sex education must start in the family first and continue at school. However, it is not known whether individuals with disabilities are given sex education by their families, and if so, how it is given or what its content is (Michielsen & Brockschmidt, 2021). Moreover, some families do not find it healthy to provide sex education (Ariadni, Prabandari, & Sumarni, 2018). Yet, the effects of parents on children's sex education and sexual identity are quite profound.

Many parents who have a child with special needs do not have enough knowledge on sex education to provide it to their children and do not know how to intervene if a problem occurs (Ariadni, Prabandari, & Sumarni, 2018). Parents need support in the subject of sex education (Börf, 2017). Lack of information also prevents access to resources from which children could benefit. The inadequate sexual knowledge of individuals with special needs makes them vulnerable to sexual abuse (Gürbüz, 2018). For qualified sex education, it is very important get support from relevant experts or institutions. Therefore, parents should participate in sex education programs, receive the necessary information, and eliminate their inadequacies (Ram, Andajani, & Mohammadnezhad, 2020).

Parents' views are important in shaping the education since they are the first who will provide it to the child at a young age. In order to plan an effective education process, the parents' views should be examined first.

When the literature is examined, it is seen that there are only a few studies on this subject. However, knowing the views of parents will also affect the measures to be taken and the projects and practices to be carried out. Based on this, it is considered that examining the views of parents with a special needs child regarding their child's sex education will contribute to the literature. The purpose of this study is to analyze the views of parents with a special needs child regarding their child's sex education. In line with this purpose, answers to the following questions have been sought:

1. What are the views of parents who have a child with special needs regarding the necessity of sex education?
2. What are the views of parents who have a child with special needs regarding at what age/by whom sex-related information should be given?
3. What are the views of parents who have a child with special needs regarding the content of sex education?

METHOD

Research Model

Convergent parallel design, one of the mixed research methods, has been used in the study. In the Convergent Parallel Design, quantitative and qualitative data are examined simultaneously. Both quantitative and qualitative data are given equal priority. In the analysis phase, quantitative and qualitative data are analyzed separately, and the results are combined for interpretation. For example, questionnaire data are analyzed quantitatively, and interview data are analyzed qualitatively, and results are combined for interpretation (Creswell & Clark, 2012). In the study, quantitative data were obtained by using the questionnaire method, and qualitative data were obtained through face-to-face interviews.

Sample

In the study, all institutions in Northern Cyprus that provide education for children with special needs were identified on a district basis, and after the necessary permissions were obtained, meetings were held with the institutions and questionnaires were distributed to the institutions that volunteered to carry out the study. Institutions distributed the questionnaire forms to the parents, and the questionnaire forms were filled out by the parents. The filled-out forms were submitted to the

researcher by the institutions. Parents who filled out the questionnaire constituted the quantitative sample of the research. Among them, 15 parents who volunteered for a face-to-face interview, who has a child attending one of these institutions that provided a place for face-to-face interviews, were included in the qualitative part of the research.

In this context, quantitative data were obtained from 200 parents, and qualitative data were obtained from 15 parents from the same sample group who volunteered for face-to-face interviews. Based on the number of students attending, a total of 384 questionnaire forms were distributed to institutions that agreed to participate in the study, and 200 parents have replied. For face-to-face interviews, appointments were made with the institutions and voluntary interviews were carried out with the parents at agreed hours. The purpose of the study was explained to the parents during face-to-face interviews, and the questions were asked in the form of question-answer. Of the 15 parents participating in face-to-face interviews, 10 are women and five are men. The reason for the unequal number is because male parents visit the school less frequently and female parents have a more willing attitude for interview. Since the subject is sex education, many parents did not want to volunteer for face-to-face interviews, and the researcher interviewed all the parents who volunteered. The demographic information of the Quantitative and Qualitative sample group is given in Table 1, Table 2, Table 3, Table 4, and Table 5.

Table 1. Distribution of parents in the sample by gender

	Variable	Frequency (n)	Percentage (%)
Gender	Female	145	72.5
	Male	55	27.5
	Total	200	100.0

When the distribution of the parents in the sample by gender is examined, it is seen that 72.5% are women and 27.5% are men.

Table 2. Distribution of parents by the gender of their special needs child

	Variable	Frequency (n)	Percentage (%)
Gender	Female	75	37.5
	Male	125	62.5
	Total	200	100.0

When the distribution of children by gender is examined, it is seen that 37.5% of them are girls and 62.5% are boys.

Table 3. Distribution of the special needs children by age

	Variable	Frequency (n)	Percentage
Age Group	0-6 Years	75	37.5
	7-12 Years	85	42,5
	13–18 Years	31	15.5
	19 Years or above	9	4.5
	Total	200	100.0

When the distribution of the children by age is examined, it is seen that 37.5% of them are in the 0-6 age group, 42.5% are in the 7-12 age group, 15.5% are in the 13-18 age group, 4.5% are in the 19 or above age group.

Table 4. Distribution of children by disability status

	Variable	Frequency (n)	Percentage (%)
	Mental Disability	37	18,5
	ASD	49	24.5
	Hearing Impairment	10	5.0
	Visual Impairment	3	1,5
	Specific Learning Disability	16	8.0
Disability	ADHD	19	9.5
	Down Syndrome	18	9.0
	Other	24	12
	Multiple Disabilities	16	8.0
	Physical Disability	4	2.0
	Language Delay	4	2.0
	Total	200	100.0

When the distribution of children by their disability status is examined, it is seen that 18.5% have a mental disability, 24.5% have ASD, 5% have hearing impairment, 1.5% have visual impairment, 8% have a specific learning disability, 9.5% have ADHD, % 9 have Down Syndrome, 12% have other type of disability (Cerebral Palsy, Robert Syndrome, Apert Syndrome, Phenylketonuria, William Syndrome, Microcephaly, etc.), 8% have multiple disabilities, 2% have a physical disability, and 2% have language delay.

Table 5. Demographic information of the qualitative sample

Code Name	Age	Gender	Educational Background	Occupation	Employment Status	Number of Children	Child's Age	Child's Gender	Child's Disability Status
E1	40	Female	High school graduate	Housewife	Unemployed	3	19	Male	Autism Spectrum Disorder
E2	33	Female	Secondary school graduate	Housewife	Unemployed	3	6	Male	Autism Spectrum Disorder
E3	35	Female	Primary school graduate	Housewife	Unemployed	1	10	Male	Autism Spectrum Disorder
E4	45	Female	Primary school graduate	Housewife	Unemployed	4	9	Girl	Down Syndrome Cardiac Patient
E5	30	Female	Secondary school graduate	Attendant	Employed	2	7	Girl	Developmental Retardation
E6	40	Female	High school graduate	Housewife	Unemployed	3	10	Girl	Autism Spectrum Disorder
E7	31	Female	Primary school graduate	Housewife	Unemployed	3	8	Girl	Developmental Retardation
E8	56	Male	High school graduate	Retired	Unemployed	3	12	Male	Autism Spectrum Disorder
E9	49	Male	High school graduate	Electrician	Employed	2	7	Male	Autism Spectrum Disorder
E10	41	Male	Primary school graduate	Self-Employment	Unemployed	2	6	Male	Autism Spectrum

									Disorder
E11	37	Female	Literate	Housewife	Unemployed	3	2	Girl	Mental D. Hemophilia-Epilepsy
E12	29	Female	Primary school graduate	Housewife	Unemployed	2	4	Girl	Physical D.
E13	34	Male	Secondary school graduate	Construction Worker	Unemployed	4	4	Male	Physical D.
E14	35	Female	University graduate	Housewife	Unemployed	2	10	Girl	Mental D. Development R.
E15	38	Male	High school graduate	Phone repair-purchase-sale	Employed	2	9	Male	Autism Spectrum Disorder

Data Collection Tools

Questionnaire form and semi-structured interview form have been used as data collection tools in the study. Questions in the questionnaire form and interview form were developed in line with the information in the literature in order to analyze the views of parents who have children with special needs on the sex education of their children. The research data were collected with "Questionnaire for the Sex Education of Children with Special Needs", and "Semi-Structured Interview Questions" developed by the researcher.

As a result of the literature review conducted to obtain data for the study, a question pool was created for both the questionnaire and the semi-structured interview questions. Opinions of five experts were obtained for the forms. In line with the views of the experts, questions were arranged and included in the question form and three questions were removed from the questionnaire form. The 4th question in the Semi-Structured Interview Questions was rearranged. The questions created to be used in the research were given to five parents for pilot study, and it was observed that both the questionnaire and the interview questions are comprehensible and applicable.

The questionnaire consists of two parts. The first part includes questions regarding demographic characteristics (10 questions) and the second part includes questions regarding the sex education of children with special needs (five questions), 15 questions in total. Through questions about the demographic characteristics, data such as age, gender, and number of children were obtained. The other five questions are about the views of parents on whether sexual education is necessary, at what age sex education should be started, by whom should the sexual information be given first, and what topics should be included in sex education. The parents were asked to answer the questions by marking the options that apply.

Semi-structured interview questions are open-ended questions and consist of five questions in total. Face-to-face interviews were carried out with the parents by using the semi-structured interview questions. The questions are aimed at obtaining the views of parents on whether sexual education is necessary, who should give sexual information to the child, and the content of sex education. Each interview lasted approximately 30 minutes.

Ethics

Prior to the research, permission was obtained from the Ministry of Education and Culture of Northern Cyprus. Since the study was a master's thesis, ethical approval was obtained from the Graduate Education and Research Institute.

Validity and Reliability

Validity and reliability in mixed-method studies are tested separately for quantitative and qualitative parts. The data and findings obtained from the questionnaire constitute the quantitative part of the

study. The validity of a questionnaire indicates that the answers are suitable to the subject and question of the research, and the reliability indicates that similar results will be obtained when the questionnaire is used in another research in the same way. Questionnaire development should take place in four stages: defining the problem, developing the items, getting expert opinion, and pilot study. To develop a valid questionnaire, it is important to define the research problem well, to have clear objectives, and to have a qualified literature review beforehand. The researcher should write the items in line with the sub-goals (sub-problems) set out in the research. Then, expert opinion should be obtained regarding the content validity of the questionnaire. The pilot study will determine whether the questions are comprehensible for the sample group and whether answers are suitable to the subject and questions of the study. For reliability, it is recommended that the sample group is as large as possible (Büyüköztürk et al., 2020). In this study, while developing the questionnaire, all four stages have been carried out and a pilot study was conducted. All educational institutions that provide education to children with disabilities throughout the TRNC were reached, and questionnaires were sent to those who agreed to participate in the study. The forms were delivered to the parents (one form for each child) through the institutions. All parents who responded by filling out the forms were included in the study. In this context, it is thought that the best possible number has been reached considering the situation, the consent of the institutions, and the volunteered parents.

Qualitative research focuses on validity rather than reliability to determine whether the statements of the researcher and the participants are correct, reliable, and convincing. Reliability is mostly achieved by comparing the data encoding of different coders, and it is checked whether there is harmony between these codes (Creswell and Clark, 2012). The most commonly used method to increase credibility is to read the answers of the participants to them after writing them down and obtain their approval. In this study, participant approval was obtained for the answers they gave during face-to-face interviews, and the statements of the participants were directly included in the study. Coding was made independently by the researcher and the thesis advisor, and the findings were evaluated by being compared. The names of the parents were not used in the study, instead, they were given codes as E1, E2, E3… for ethical reasons. Maximum attention was paid to conducting interviews with parents in a comfortable environment. During the interview, parents' voices were recorded upon their consent. Recordings have been transcribed.

Analysis and Interpretation of Data

Descriptive statistics (frequency and percentage) and Chi-Square test were used in the analysis of quantitative data. The significance level was taken as 0.05 for the chi-square analysis. SPSS 26.0 was used for the analysis. Qualitative data were interpreted with descriptive analysis.

RESULTS

This section includes the findings of the research. Findings were analyzed in two parts as Quantitative Findings and Qualitative Findings.

Quantitative Findings

The quantitative findings of the research are given in tables.

Table 6. Distribution of answers regarding whether sex education is necessary

	Variable	Frequency (n)	Percentage (%)
Is Sex Education Necessary?	Yes	189	94.5
	No	11	5.5
	Total	200	100.0

When Table 6 is examined, it is seen that 94.5% of the parents answered "Yes" and 5.5% answered "No" to the question whether sex education is necessary. The cell value should not be less than five to perform the Chi-Square Test. Chi-square test was used to analyze whether the answers given to the question have a significant difference by the age and gender of the child. However, few participants answered "no" (5.5%) and therefore, the Chi-Square test could not be applied.

Table 7. Distribution of answers regarding the age to start sex education

	Variable	Frequency (n)	Percentage (%)
Age to Start Sex Education	I don't know.	25	12.5
	0-3 Years	17	8.5
	3-6 Years	63	31.5
	Primary School Years	69	34.5
	High School Years	21	10.5
	Adulthood	5	2.5
	Total	200	100.0

When Table 7 is examined regarding the answers for the age parents think sex education should be started, it is seen that 12.5% answered "I don't know", 8.15% answered "0-3 years", 31.5% answered "3-6 years", 34.5% answered "Primary School Years", 10.5% answered "High School Years", and 2.5% answered "Adulthood". The cell value should not be less than five to perform the Chi-Square Test. For this, it is recommended to combine cells or to make interpretations only in terms of frequency and percentage (Büyüköztürk et al.). The cells were combined, and the Chi-Square Test was carried out by combining the Adulthood and High School Years cells. Consequently, no significant relationship was found between the age to start sex education and the gender of the children in the Chi-square analysis ($\chi2 = 6.92$, p>.05) and between the answers regarding the age to start sex education and the ages of the children ($\chi2 = 11.02$, p>.05).

Table 8. Distribution of the answers regarding from whom children with special should needs get sexual information first

	Variable	Frequency (n)	Percentage (%)
From Whom Should Children with Special Needs Get Sexual Information First	Parents	143	71.5
	Medical Doctor	7	3.5
	Teacher	23	11.5
	Parents and Teacher	18	9.0
	Parents and Medical Doctor	7	3.5
	Parents, Medical Doctor and Teacher	2	1.0
	Total	200	100.00

When Table 8 is analyzed, it is seen that 71.5% of the parents gave the answer "Parents", 3.5% "Medical Doctor", 11.5% "Teacher", 9% "Parents and Teacher", 3.5% " Parents and Medical Doctor", and 1.0% " Parents Medical Doctor and Teacher" to the question regarding from whom children

should get sexual information first. Because the numbers in some cells are low, the chi-square test could not be performed, and the evaluation was made through general answers, regardless of gender and age factors.

Table 9. Distribution of answers regarding the topics to be included in children's sex education

	Variable	Frequency (n)	Percentage (%)
Topics to be Included in Children's Sex Education	Sexual Organs	4	2.0
	Contraception Methods	1	.5
	Psychological and Physiological Changes in Adolescence	7	3.5
	Sexual Abuse	9	4.5
	All	49	24.5
	Not sure	74	37.0
	Gent.M.P.Ch.Adol, and S. Abuse	27	13.5
	Gent.M.P.Ch.Adol, Soc.Str. and S. Abuse	9	4.5
	Gent M.P.Ch.Adol, and S. Abuse	20	10.0
	Total	200	100.0

When Table 9 is examined regarding the topics to be included in sex education, it is seen that 2.0% of the parents answered "Sexual Organs", 0.5% "Contraceptive Methods", 3.5% "Mental and Physiological Changes in Adolescence", 4.5% "Sexual Abuse", 24.5% "All", 37.0% "Not sure", 13.5% "Sexual Organs, Mental and Physiological Changes in Adolescence and Sexual Abuse", 4.5% "Sexual Organs, Mental and Physiological Changes in Adolescence, Social Structure, and Sexual Abuse", and 10.0% "Sexual Organs and Sexual Abuse". Since the numbers (n) in some cells were too low to make a significant evaluation by gender and age groups, the Chi-square test could not be performed, and the answers were evaluated through the general answers.

Qualitative Findings

For the qualitative part of the study, the answers of 15 parents for the interview questions were evaluated under three sub-headings through descriptive analysis.

Views on providing sex education

Parents were asked *"What do you think about providing "sex education" to children with special needs*?" While 13 parents answered this question positively, two parents answered negatively. Some of the positive views are as follows:

E4, mother of a 9-year-old girl diagnosed with Down Syndrome: "*It should be provided. They should know everything. They have the right to know everything. As much as they can learn. Because if they are not taught, they will not know what to do if they encounter people who do not have good intentions. After all, there is no guarantee that we will always be there*".

E8, father of a 12-year-old boy diagnosed with ASD: **"***I think it should be given. Because he must know his body. Like every individual, he will have certain needs. After all, this change is not up to us. This should be known, too"*.

E11, mother of a 2-year-old girl diagnosed with intellectual disability: "*It should be provided. It should be given even if she is disabled, after all, she will experience these things when she grows up.*

She is an individual, too. Normal children learn and know everything by themselves nowadays. If our children cannot learn, they will be inadequate. They should learn as much as they can".

As for the negative views, the parents expressed the following:

E1, mother of a 19-year-old male diagnosed with ASD: *"I don't want my child to know everything. I attended some seminars. I also talked to medical doctors. If the child does not learn, he will not have some behaviors either. My child cannot talk about these issues anyway. Children, especially special children, should not be taught everything. That's what I think.".*

E12, mother of a 4-year-old boy diagnosed with physical disability: *"I say no. Because such children have more important needs. He cannot understand these things. So there is no need".*

It was observed that most of the parents considered sex education necessary, and the answers did not differ by the child's gender, disability, or age.

Opinions on by whom sex education should be given

Parents were asked, *"What would you think about your child getting information about sexual matters from people other than his or her parents?".* While seven parents answered that children should receive this information primarily from parents, eight parents answered that they do not mind their child getting this information from people other than parents. Regarding that the information should be obtained from the parents first, the parents expressed the following views:

E5, mother of a seven-year-old girl diagnosed with developmental retardation: **"***I think that the sex education should be first received from parents. If we are insufficient, I think that it should be given by a doctor. As I don't trust teachers nowadays, I'm talking about male teachers, it is best that parents and doctors inform them".*

E9, father of a 7-year-old boy diagnosed with ASD*: "I think the education should come from parents at first. But I think teachers may have more information about these issues, as education is also provided at school. That's why I see no harm in sex education given by his teacher".*

E13, father of a 4-year-old boy diagnosed with physical disability: *"I think parents should tell their child. Other than that, nobody should tell. Because no one can be trusted nowadays. The one who teaches everything to the child is the family, so he should also learn these from the family".*

The parents expressed the following views regarding that they do not mind their child getting information from people other than parents:

E3, mother of a 10-year-old boy diagnosed with ASD: *"It may be teachers. Maybe a doctor. I mean, I don't know exactly. Since I am divorced from my husband, we cannot explain it to the child together. Besides, there will be situations where I will not be able to explain everything, in that case, the teacher or the doctor can tell him".*

E6, mother of a 10-year-old girl diagnosed with ASD: *"It would be nice if the teacher told her about it. If they will give the correct message, an older sister or brother can also tell her. However, peers may misrepresent it. It is okay for close relatives to answer if they know it correctly. It would bother me if an uninformed person answers the questions or explains".*

While some of the parents stated that sexual information should be primarily given by parents, other alternatives were teachers and doctors. In the responses given by the parents, there was no difference in the answers by gender, disability, or age.

Views on the content of sex education

Under this title, the following questions were asked to parents:

- *"How would you explain the gender difference issue to your child while conveying sex-related issues?"*
- *"What would you share with your child about physical changes?"*
- *"Is the sex education given to children with special needs the same as that given to normally developing children? If Yes, Why? If No, Why Not?*

For the answers given by the parents regarding how they would explain the gender difference, nine parents answered that they would not/do not know how to explain such a subject. Five parents replied that they would explain by giving examples, and one parent said they would seek support in this regard. Many of the parents answered that the children would learn as they grow up, that the children will understand in time or that they do not know how to explain. Some of the answers given in this context are as follows:

E5, mother of a 7-year-old girl diagnosed with developmental retardation: *"My child is only 7 years old and I haven't given her much information about the male organ. Because of her development. As she grows older, she will understand better. Maybe I can explain later. But right now, I don't want to think about it or explain it*".

E14, mother of a 10-year-old girl with a diagnosis of intellectual disability: *"I think there is no need to tell this much, it was not told to us after all. They notice it as they grow up. They can even make the distinction by looking at toys. Saying it is a boy or girl toy. But if I need to explain this situation, I would like to explain it with her teacher. After all, we have a lot of misinformation".*

E6, mother of a 10-year-old girl diagnosed with ASD: **"By using pictures. By explaining the** *differences between them, as I learned at school. We have also been taught. Pictures of men and women are put before them, and the differences between them are explained and discussed. That's how we were taught. We will teach our children as we were taught. Of course, I don't know how much of it she will understand".*

E3, mother of a 10-year-old boy diagnosed with ASD: "*I would try to get support from somewhere and explain. Because I do not know how to explain this subject. That's why I would consult a teacher or a medical doctor so as not to give false information".*

When the comments of the parents about what they shared with their children about their physical changes were examined, it was seen that five parents were not in favor of discussing this issue, and 10 parents commented that they shared/would share points that the child needs to know.

The responses of parents who stated that they are not in favor of sharing are as follows:

E1, mother of a 19-year-old male diagnosed with ASD: **"I wouldn't share. If necessary, I will direct** *him to the teacher and the doctor. I would consult a doctor first".*

E2, mother of a 6-year-old girl diagnosed with ASD: *"I wouldn't give any information. I would direct her to her teacher or her father".*

E8, father of a 12-year-old boy diagnosed with ASD: *"I would not share. If he asked, I would try to answer".*

The responses of the parents who commented that they shared/would share points that the child needs to know in an understandable way:

E4, mother of a 9-year-old girl diagnosed with Down Syndrome: *"I would start with waxing and explain how it should be done. I would show her how to do it by applying it to her the stuff I do on myself or I would be the example. Or I would tell her how women wear bras. Since she is a girl, I would show her what I do for myself. She will then see and learn the difference".*

E7, mother of an 8-year-old girl diagnosed with developmental delay: *"I would tell my child how to clean herself physically. There is no need to tell anything else".*

E10, father of a 6-year-old boy diagnosed with ASD*: "I would try to explain that his private areas will grow. I would try to explain that he should be careful when he masturbates because he may irritate or harm himself".*

E12, mother of a 4-year-old boy diagnosed with physical disability: *"I would tell him that his body would change slowly, especially in adolescence. He needs to know that. Of course, it would be even better if he asked. I think it is time to tell, but I would like to get support from someone who knows better".*

It was observed that five parents were not in favor of sharing on this issue due to not knowing what to tell and wishing to avoid giving misinformation. And 10 parents stated that they have shared/would share with the child in a way that they understand according to the content of questions about personal care, growth/change, or sexuality. It can be stated that there are no significant differences in the views of the parents by the gender, disability, or age of the child. However, it was observed that there are a lot of answers that indicate a lack of information.

As for the answers given by the parents regarding whether the sexual education given to the children with special needs and the sexual education given to the children with normal development are the same, 13 parents replied that it was not the same and two parents were not sure but think that these things are relatively the same. Some of the views expressed by parents are as follows:

Some of the views for 'it is not the same' are as follows:

E1, mother of a 19-year-old male diagnosed with ASD: *"It is not the same for sure. These children are developmentally different. My child has difficulty in understanding. Therefore, it will not be the same. He should not know everything, so the child should be taught in a basic way. However, normal kids know everything because of those phones in their hands".*

E4, mother of a 9-year-old girl diagnosed with Down Syndrome: "*It is not the same. Because of their development. Development is different in normal children. Our children learn everything later and harder".*

E8, father of a 12-year-old boy diagnosed with ASD*: "No, the two should be given a different type of education. Because their developmental situation is different. The same education cannot be given".*

E15, father of a 9-year-old boy diagnosed with ASD: *"Not the same for sure. After all, special children receive a different education. Their situation is different, so their education will be different as well".*

E12, mother of a four-year-old boy diagnosed with physical disability: *"They are the same. Of course, this varies from school to school. It may be different now that children with disabilities are also educated elsewhere. Frankly, I don't know exactly".*

The analysis of answers indicates that there are developmental differences observed in the views on sex education of children with special needs and that provided to those with normal development are not the same. There is no clear answer in the views of the parents indicating they are the same, although they are not sure. It can be stated that the views of the parents do not differ significantly by the age and gender of the child. However, it was observed that two parents who think that sex education could be the same, have children with physical disabilities.

DISCUSSION and CONCLUSION

In this section, the research findings are discussed under three sub-headings.

Views on the Necessity of Sex Education

In quantitative findings, it was found that 94.5% of the parents answered 'Yes' and 5.5% answered 'No' regarding whether sexual education is necessary. For qualitative findings, "What do you think about providing "sex education" to children with special needs?" question was asked. While 13 parents answered yes, two parents answered no. When both quantitative and qualitative data are evaluated, it can be stated that the majority of parents who have children with special needs think that sex education is necessary. The necessity and importance of sex education for individuals with special needs are frequently expressed by many researchers today. Paveola et al (2021) and Kır (2013) emphasize the necessity of sex education for children with special needs. Gürbüz (2018) states that both children and adolescents with special needs and their parents need education.

Lack of sex education can lead to sexual abuse in individuals with special needs. In the study conducted by Tepper (2001), it is stated that the sexual development periods of the individuals with special needs and the individuals with normal development are the same, but the ways of getting sex education are different. A normally developing individual shares the stages of sexual development with the family or the inner circle. This situation is different for individuals with special needs. Therefore, sex education should be provided to individuals with special needs in parallel with their developmental level, by using examples suitable for their special conditions and supporting them with visuals.

Views Regarding At What Age/By Whom Sex-Related Information Should Be Given

When quantitative findings are analyzed regarding the answers for the proper age to start sex education, it was found that 12.5% answered "I don't know", 8.15% "0-3 years", 31.5% "3-6 years", 34.5% "Primary School Years", 10.5% "High School Years", and 2.5% "Adulthood". In this context, it can be stated that 74.5% of the parents favor sex education in preschool or primary school, 12.5% think that it should be given in high school and after, and 12.5% did not express any opinion. It can be said that most of the parents find it appropriate to provide sex education in pre-school or primary school period.

Regarding by whom children with special needs should be given sex-related information, 71.5% of the parents answered 'Parents', 3.5% 'Doctor', 11.5% 'Teacher', 9.0% ' Parents and Teacher', 3.5% ' Parents and Doctor', 1.0% ' Parents, Doctor, and Teacher'. Based on this, it can be stated that 84% of the parents think that sex-related information should be given by parents.

Parents were asked "What would you think about your child getting information about sexual matters from people other than his or her parents?" and the following answers were received; seven parents stated that children should receive this information primarily from parents, eight parents answered that they do not mind their child getting this information from people other than parents. While some of the parents stated that sexual information should be obtained primarily from the parents, other alternatives are teachers and doctors. Regarding people that should provide sexual information, both quantitative and qualitative findings revealed that participant think that it should be parents first, then teachers and doctors.

The most appropriate form of sex education for individuals with special needs is that given at an early age, in a healthy family environment, and by parents who have received sex education. Later on, this education should be continued by experts in educational institutions. Based on the findings of his research, Börf (2017) states that parents are inadequate in the sex education of their children with special needs and have no knowledge of what, how, and when to teach. Eliküçük (2011) emphasizes the importance of educating parents about the sex education of children with special needs. In addition, Clatos & Asare (2016) emphasize the importance of parents providing education to their children and points out the importance of raising awareness of parents on this issue.

Views on the Content of Sexual Information

When quantitative findings are analyzed regarding the topics to be included in sex education, answers are as follows: 2.0% of the parents answered "Sexual Organs", 0.5% "Contraceptive Methods", 3.5% "Mental and Physiological Changes in Adolescence", 4.5% "Sexual Abuse", 24.5% "All", 37.0% "Not sure", 13.5% "Sexual Organs, Mental and Physiological Changes in Adolescence and Sexual Abuse", 4.5% "Sexual Organs, Mental and Physiological Changes in Adolescence, Social Structure and Sexual Abuse", and 10.0% "Sexual Organs and Sexual Abuse". It has been observed that the subjects of sexual organs, physical changes, and sexual abuse are among the most preferred topics.

When the answers given by the parents regarding how they would explain the gender difference were examined within the scope of qualitative findings, it was seen that nine parents gave answers that they did not tell/did not know how to tell such subject, four parents stated that they would tell it by giving examples, one parent would explain the subject in a limited way, and one parent stated that they would seek support on this issue. Many of the parents answered that the children would learn as they grow up, that the children will understand in time or that they do not know how to explain.

When the comments of the parents about what they shared with their children about their physical change were examined, it was seen that five parents were not in favor of sharing, and 10 parents commented that they shared/would share and points that the child needs to know and would share it in a way they would understand. It was observed that five parents were not in favor of sharing this issue due to not knowing what to tell and wishing to avoid giving misinformation. And 10 parents stated that they have shared/would share with the child in a way that they would understand according to the content of questions about personal care, growth/change, or sexuality.

As for the answers given by the parents regarding whether the sex education given to the children with special needs and the sexual education given to the children with normal development were the same, 13 parents responded that it is not the same and two parents were not sure but also stated that these things are relatively the same. The analysis of answers indicates that there are developmental differences observed in the views on sex education for children with special needs and that provided to those with normal development are not the same. It was observed the parents were uncertain regarding their statements including they were not sure about whether these two things were the same but also stated that these things were relatively the same. However, it was observed that the children of parents who think that sex education can be the same have physical disabilities. In other words, these children do not differ from their peers in terms of their cognitive abilities, they only have physical disabilities. This may be the reason that these parents answered the question in this way. In this context, it can be stated that most of the parents prefer the topics of sexual organs, physical changes, and sexual abuse within the scope of education to be given to children with special needs. Regarding whether the sexual education given to children with special needs will be the same as the children with typical development, it is observed that all parents except the parents who have children with physical disabilities thought that these things are not the same. It was also observed that some parents are hesitant about explaining certain subjects due to lack of information and have doubts about some subjects. This situation emphasizes the fact that parents also need to be educated about how sex education should be given.

In the study conducted by Çifçi-Tekinaslan and Eratay (2013), it was found that parents gave information to their children with mental disabilities on matters such as physical changes and bodily hygiene, while some parents did not provide any information. Er et al. emphasized (2016) the topics of the sexual abuse, body recognition, sexual satisfaction and differences in gender, in their study on determining the need for sex education for children and adolescents with mental disabilities. In addition, Yektaoğlu-Tomgüseha (2018) point out the importance of the sexual abuse topic in the education of these students. Ariadni, Prabandari, and Sumarni (2018) found that parents who have children with a disability have different perceptions from other parents on providing sex education, they think that it is important to start providing sex education at early an age to protect children from

sexual abuse, the necessity of practical information support when providing sex education, and they also think that role of the parents, especially of the mother, is very important in sex education. Evans et al. (2020) also found that parents think that sexual abuse and risks are important issues. Er, et al. (2016) stated that using material such as videos, models, and animation would also be helpful when teaching these students. Based on all these, topics that should be included in the sex education content of the individuals with special needs are information about physical changes, physical hygiene, introduction of sexual organs, and the ability of the individual to protect himself/herself against abuse and to know the people he/she can reach out to in any situation that he/she may encounter, explaining in a way that the child can understand, giving examples, modeling/showing on a model or using videos and images while teaching.

The overall analysis of parents' views indicates that the answers do not differ significantly by age and gender. In many studies conducted, it was found that parents of girls and boys with special needs in all age groups stated that sex education is necessary, expressed a lack of knowledge, some parents refrain from teaching, and some would try to explain by providing explanations in a way that their children could understand (Nadeem, Cheema & Zameer, 2021; Thin et al, 2021; Gürbüz, 2018; Börf, 2017; Gönlü, 2015; Eliküçük, 2011).

It is of great importance to raise awareness of the people around these children, about the sex education of children with special needs. Parents are the first to inform children. Apart from parents, teachers, doctors, nurses, psychologists, and other specialists are also in the child's social environment and are taking care of their educational needs. In this context, it can be said that awareness-raising activities for parents and occupational groups that have close relationships with special needs children are necessary.

At every stage of the education, people with knowledge should be involved in the education process of children with special needs and provide education according to the developmental needs of these children. The education should include topics such as sexual development, cleaning and hygiene, exploring the body, and should raise awareness about sexual abuse.

Families of individuals with special needs should be informed about sex education, and if necessary, they should be supported with educational programs and their awareness should be raised to support the sex education the child receives in the educational institution. It should be emphasized how important sex education is and that children with special needs should be informed about sexual issues, families should be informed about how they will go through a sexual process like normally developing children, how they will overcome this process in a positive way. The education of children should be supported, and parents should be informed about how misinformation can be avoided.

In addition to face-to-face education, digital education can be provided through digital media including internet, intranet, extranet, audiovisual tapes, satellite, TV, and CDs. Education through digital tools such as computer systems and mobile phones can improve learning.

Today, virtual meetings play an important role in individuals' education and consulting services. In this context, online sexual education support centers can be established to provide online services to parents and teachers in case of need for information and consultation. Through these centers, professionals who are experts in the field can contribute by providing services.

Various training programs or educational activities should be planned for other occupational groups that have close relationships with teachers and children with special needs. A curriculum can be established in cooperation with the Ministry of National Education and Ministry of Health for the training of these occupational groups. In this way, a planned training consisting of certain sessions can be carried out. It is considered that cooperation of various state institutions, non-governmental organizations, and educational institutions in such training will bring about more effective results.

Limitations and Further Research Areas for the Future

While evaluating this research, it should be noted that the findings of the research are limited to the participation of 200 parents in Northern Cyprus. Based on this study, larger sample groups can be studied. Studies to be conducted in different countries may result in different findings. In this context, studies in which comparisons will be made regarding the results obtained from different countries can be planned. The findings obtained from this study can be used to design a sexual education program.

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WRITING SCIENTIFIC PAPERS: EXPLORING THE DIFFICULTIES OF MADRASAH TEACHERS IN INDONESIA

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Abstract

Teachers as professionals play an essential role in the 21st Century in achieving the vision of national education. Teachers in the 21st Century must continue to improve their academic responsibilities, including writing scientific papers. However, the fact is that teacher activities are still focused on teaching and neglect scientific writing. Therefore, there must be an effort to explore their difficulties in writing. For this reason, this descriptive qualitative research aims to explore the difficulties of teachers in writing scientific papers identified through training activities. The research subjects were teachers of Madrasah Aliyah Negeri 2 Manggarai Ruteng, Indonesia (n=20). We followed a method of using a data collection process that includes document analysis, participatory observation, and focus group discussions. As a result of our research, we mapped the difficulties of teachers. Ongoing training, adding to the library collection, controlling and monitoring the implementation of Madrasah teacher working groups' activities, and mentoring experts need to be considered to support Madrasah teachers' professionalism. This finding has implications for applying a managerial reward and punishment pattern to increase teachers' motivation and interest in writing scientific papers.

Keywords: Professionalism, academic writing, professional 21st century teacher.

INTRODUCTION

Currently, students' academic tendencies show increased pressure, feelings of being overwhelmed, and stress levels (Bennett, 2018). Meanwhile, the quality of teaching and student performance is determined by the availability of professional teaching staff (Barry, Pendergast, & Main, 2020; Tahira & Haider, 2019); Suparman, Juandi, & Tamur, 2021; Tamur, Juandi, & Kusumah, 2020). In line with that, the quality of teacher learning must answer the demands of the 21st Century (Kim, Raza & Seidman, 2019; Juandi, Kusumah, Tamur, Perbowo, Siagian, Sulastri, & Negara, 2021; Yunita, Juandi, Tamur, Adem, & Pereira, 2020). The importance of professional development and 21st century teacher skills to support students' academic success and solve daily problems (Williams-Britton, 2021; Nurjanah, Latif, Yuliardi, & Tamur, 2020; Haviz, Maris, Adripen, Lufri, David, & Fudholi, 2020; Tamur & Juandi, 2020). Thus, the teaching profession must continue to be developed into a dignified profession and as the spearhead towards quality education.

As an effort to produce professional teachers, the Indonesian government has highlighted the importance of self-development of teachers through scientific publications (Regulation of the Minister

of State for Administrative Reform and Bureaucratic Reform of the Republic of Indonesia, 2009). Although this policy is considered very heavy for teachers, experts claim scientific writing is academic responsibility. For example, Lamanauskas (2019) mentions scientific writing as a responsible academic activity. This work will help researchers to improve individual performance.

Scientific writing is a work that contains and examines a particular problem by using scientific principles. Scientific work is designed to help professionals, including teachers, write about their work clearly and effectively (Alley, 2018; Blackwell & Martin, 2011; Thomas, 2021). Here it seems clear that scientific writing can help teachers express and communicate their ideas to other academic communities. This kind of atmosphere will develop teacher skills and support teaching abilities and communication patterns to students.

However, it cannot be denied that the productivity of scientific writing among teachers is very low. The Indonesian National Education Department's central bookkeeping agency noted that teachers who could write were no more than 1% (Nugroho, 2011). A similar condition was described by Kim et al. (2019) in other parts of the world on this issue. They highlighted the importance of an in-depth examination of teachers' difficulties with writing. Thus, in-depth research to examine the difficulties of teachers in writing is needed.

In the literature, Valdivia & Martínez (2018) have specifically examined the difficulties of teachers in writing. They identified the problems faced by teachers revolving around intertextuality and the creation of conclusions. In order to improve teachers' quality of writing, research is needed in training and coaching in writing scientific papers (Rosa & Mujiarto, 2020). This qualitative research aims to conduct research in training on scientific writing for teachers in Indonesia. This study contributes to the literature to complement the identification of previous teachers' difficulties and practical policies required.

METHOD

The qualitative method is applied in this research, in the form of an analysis of the reasons why teachers at Madrasah Aliyah Gugus Ruteng, Indonesia have difficulty writing scientific papers. Qualitative research is an iterative process in which a better understanding of the scientific community is achieved by making new significant differences that result from getting closer to the phenomenon being studied (Aspers & Corte, 2019; Smeyers, 2014). This researcher wants to explore the difficulties of the teachers at Madrasah Aliyah Negeri (MAN) 2 Manggarai Ruteng Indonesia and capture their hopes for consideration in the future.

The research method used in this research is the descriptive method which aims to describe the results of research by describing in detail, complete and in-depth the results of interviews, observations, document analysis and focus group discussions from informants, namely MAN 2 Manggarai Ruteng teachers who are certified educators (certification). This is done to obtain data that can be described in a manner to describe the factors causing the difficulties of the teachers.

Data obtained from in-depth interviews, document analysis, observations, and focus group discussions (FGD). Furthermore, data analysis was carried out by: (a) reducing data, (b) presenting data, (c) drawing conclusions and then verifying. Data validation was carried out by (a) expanding observations; (b) accuracy of observation; (c) triangulation; (d) the provision of colleagues, (e) adequacy of references; (f) negative case analysis; (g) check the list of members. We have implemented the triangulation method to generate valid data. First, we conducted a source translation by comparing the information obtained from different subjects. Second, we perform time triangulation, i.e. the data is obtained from repeated observations.

RESULTS

This research was conducted at MAN 2 Manggarai Ruteng Indonesia. This is because MAN 2 Manggarai Ruteng almost all teachers are certified educators, and these two Madrasahs have an "A" definition. In qualitative research, these peculiarities and uniqueness are the considerations for selecting the research location. The focus of this research is the teachers of MAN 2 Manggarai Ruteng who already have educator certificates. Teachers who already have an educator certificate can be declared as professional teachers.

Classification Based on Type of Difficulty

The analysis results resulted in two identified difficulties: difficulties that originate from the author (internal) and those caused from outside the author (external). In detail, the difficulties stemming from the author are described as follows:

Motivation

Most of the teachers in the research place that the researcher is doing now feel lazy to write because they do not know how to write scientific papers. What will be written in writing a scientific paper, how to put it in writing, such as the following informant's narrative:

"I am very lazy and I have no idea what to write. If I am obliged, I will write. Don't know Sir, there is no intention at this time" (Teacher Interview Results 1: 12 July 2020).

Time

The limited writing time is often the main obstacle in writing. It cannot be denied that writing is associated with ample time and a strong will. Every individual must own these two things, namely free time and will / self-motivation. How much free time is available, but if there is no will / self-motivation, of course, it will not result in written work, as the following informant explained,

"To write, I seem to be constrained by time, especially when I need more demands, I came home from school, and I was tired, and I still had to do my lesson plans, that time passed quickly. In the evening, I prepare the material for tomorrow so that the time to write is like there is no. Plus, the examples of limited journals that I have and in school reference books are also minimal" (Teacher Interview Results 1: 12 July 2020).

Writing Technique

Lack of ideas, knowledge, skills, and scientific writing techniques makes many teachers reluctant to start writing. Basically, the teachers at MAN 2 Ruteng are generally not used to writing, as explained by the following informants:

"My difficulty in writing is not clear. I don't understand what the CAR is like. In the workshop that I attended I did not understand less and only partially, only briefly and at school there was never an explanation, so the picture of writing CAR was what I was not clear about" (Teacher Interview Results 1& 2, 18 July 2020)

Field Data Collection

Based on research data, most of the teachers of MAN 2 Ruteng have just written scientific papers on the type of classroom action research. The difficulty many have experienced is data collection. The teachers are simultaneously teaching and researching, so a lot of data is missing. The following is the narrative of the Principal of the main Madrasah informant,

"My difficulty in writing, among others, is looking for data in the field. This is actually my own fault, and sometimes my absences are incomplete; my diary with students is also not thorough, I haven't been able to analyse (Deputy Principal of the main Madrasah, 19 July 2020).

Less Mastering Technology

In this era of advances in science and technology, it is very worrying if teachers do not have the desire to learn to operate computers. Based on the research results, there are still some teachers of MAN 2 Manggarai Ruteng who cannot operate computers as one of the reasons why teachers are reluctant to write as told by the following informants:

"I don't know a computer yet, sir, so I'm lazy to start writing, constrained due to lack of IT" (Teacher Interview Results 2, 19 July 2020)

Furthermore, difficulties originating from outside the teachers are reported in detail as follows:

Availability of Reference

Availability of references is one of the factors highlighted by many informants. This includes supporting books, text books and other reference books. The following is the narrative of informant A.

"Regarding the preparation of writing, I have prepared books that I can use as references by borrowing from friends. In the MAN 2 library there are only a few books that can be used to support written works. Here only books for children, including text books, so if you want to write CAR you have to look here and there" (Teacher Interview Results 1, 20 July 2020).

Internet network has not been optimal.

From the research results, the researcher during the research obtained data that the internet network was indeed not in stable condition. Sometimes the day is there, and sometimes it's gone, likewise, at night. Furthermore, the results of the interview researchers obtained data that the internet network was not yet optimal. As the informant said, the following is a snippet:

"If I have been lazy to write all this time because I have books, journals are not in the traffic, the internet network is also not smooth, so I am lazy" (Teacher Interview Results 1, 22 July 2020).

Limited Role of Madrasah Teacher Working Groups

Activities programmed by the Madrasah Teacher Working Group (TWG Mad) Deliberation are limited to matters relating to syllabus creation, lesson plans, exam questions, assessments, and new things such as the 2013 curriculum. The problem of writing as a sustainable competency development has only been discussed at the TWG Mad meeting. Until the time the researchers got this information, it was true that TWG Mad activities rarely discussed issues related to writing scientific papers. The following is the narrative of the chairman of TWG Mad:

"So far, the discussion about scientific writing at the TWG Mad meeting is very lacking, because it takes a lot of time and my friends have not had any input to discuss matters related to writing scientific papers. But if there is information on the workshop results, we will inform you, such as the current 2013 curriculum, which is often discussed at the TWG Mad meeting" (Teacher Interview Results 3 & 4. 22 July 2020).

Lack of socialization from institutions

Socialization of activities is something that can clarify the teacher's lack of understanding in carrying out tasks. The confusion of teachers in writing is also caused by the lack of schools sending teachers to attend training on scientific writing techniques. This is obtained from the following narrative of teacher S:

"At school, there was never any socialization on how to write CAR according to what the assessment team wanted. Lack of training for teachers so that the understanding of writing CAR is uniform and in accordance with what the assessors want" (Teacher Interview Results.S, 23 July 2020).

Based on the research results described above, a graphical mapping of teacher difficulties can be made. Figure 1 presents a chart of the mapping of madrasah teachers in MAN 2 Ruteng, Indonesia.
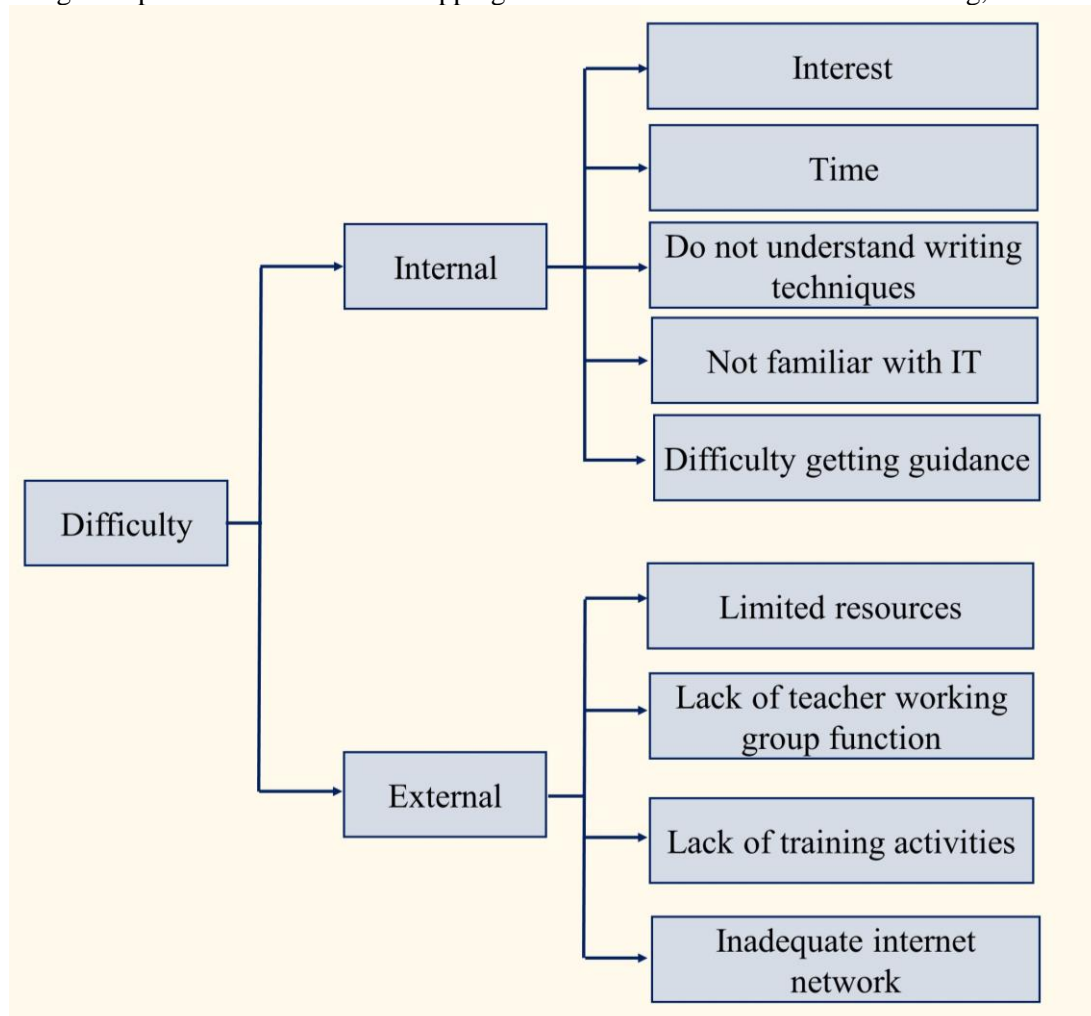
Figure 1. Grouping difficulties for Madrasah teachers

Classification Based on Age

In terms of age, this study shows that the difficulties of teachers in writing scientific can be described as follows: (1) lack of motivation. Teachers aged 39-47 years said that they were lazy to write because they were busy at home. Meanwhile, teachers aged 51-58 years explained that the lack of interest in writing scientific papers was influenced by feelings and thoughts and a lack of interest in reading, (2) difficulties in operating computers. Teachers aged 51-58 from the results of in-depth interviews showed that they experienced many difficulties compared to teachers aged 39-47 years. (3) Difficulties in the procedure for writing scientific papers, especially CAR. Teachers aged 51-58 proved to have more difficulties than teachers aged 39-47 years. Not accustomed to writing is the cause of ignorance of the procedures for writing scientific papers.

Classification Based on Gender

Based on gender, MAN 2 Manggarai Ruteng teachers' difficulties in writing, female teachers and male teachers are not so different. Both female and male teachers experience various difficulties. Teacher Efforts of MAN 2 Manggarai Ruteng to Develop Teacher Professionalism through Writing Scientific Papers. The results of this study indicate that the efforts that the teacher has made include:

Workshop / Training

Most of the teachers of MAN 2 Manggarai Ruteng attend training/workshops waiting for activities held by the madrasah. There has been no own initiative with independent costs. Figure 2 shows the involvement of teachers in scientific writing training.

Figure 2. Scientific writing training for madrasah teachers

Learn on my own

Another effort that has been made by MAN 2 Manggarai Ruteng teachers to develop teachers' ability to write scientific is to look for examples of CARs. Examples of existing CARs are then used as a reference for teachers to teach and write. This process involves motivation and guidance from school principals and researchers. Figure 3 presents the focus group discussion (FGD) process.

Figure 3. Focus group discussion (FGD) process

DISCUSSION and CONCLUSION

Difficulties of MAN 2 Manggarai Ruteng Teachers in Writing Scientific Papers

As mandated in (Law on Teachers and Lecturers, 2005), teachers are professional workers. The study results based on document analysis showed that all informants in this study had an educator and teaching certificate according to their qualifications. Thus, the teachers at the research location can be said to be professional teachers in accordance with the mandate of Law Number 14 of 2005 concerning Teachers and Lecturers.

A professional teacher is required with a number of minimum requirements, including: having adequate professional education qualifications, having scientific competence in accordance with his / her field, has the ability to communicate well with his students, has a creative and productive spirit, has a work ethic and high commitment towards the profession, and always carry out continuous self-development (continuous improvement) through professional organizations, the internet, books, seminars, workshops and the like.

The results showed that the informants at the research location were weak in writing. Consequently, in order to fulfil the demands of the profession, they resorted to unscientific methods. This is based on several subjects who claim to have used writing services. This is triggered by low motivation and interest in writing. The results showed that the teacher's age influenced the motivation in writing. More than 51 years of age, informants do not have the enthusiasm to write due to decreased memory and vision.

Another internal problem is the limited ideas, skills, and understanding of teachers in writing scientific papers. Some teachers admit that they do not understand the procedures or procedures for writing CAR, especially teachers who are over 51. years because they never got the knowledge of writing CAR. In the literature, it has been described that the difficulties of teachers in writing, for example, are related to writing anxiety and a lack of ideas (Fareed & Bilal, 2016). On the other hand, there is a demand that professional teachers must continue to learn to develop self-competence by learning through other media such as the internet, books, and scientific forums. Most of the teachers cited the lack of free time in writing because they were burdened with teaching and learning administration work.

From the triangulation of sources that the researchers conducted for teachers who served as deputy head of madrasahs, it was stated that time is not a reason for someone not to do writing activities because many people are busy fact, productive in producing written work. The problem only lies in the willingness and habit of writing. Someone who is used to writing will be very burdened if it is not put into writing so that no matter how busy the person is, he is still able to produce a written work. This study's results are not in line with the description in the literature that professional teachers must have a creative and productive spirit. Teachers must always carry out self-development continuously through professional organizations, the internet, books, seminars and the like (Daryanto, 2013) .

The discrepancy between the results and the theory may be because the informants have not carried out sustainable self-development. This research also reveals that the teachers' intention to write is still very low because they are disturbed by family matters, are not interested in writing, and do not have enough free time. Teachers in research locations will be moved to write if there is assistance from the madrasah's service or budget funds.

Based on the research data analysis, if it is related to the theory put forward by Nugroho (2011) about the type of writing teacher, the teacher in the research location belongs to the second type, namely the teacher writing due to compulsion. Teachers with this type want to write only if they have to. The compulsion arises because of a stimulus as a condition for proposing promotion/class or assignments from superiors. The type of teacher who writes because of compulsion has the following characteristics: (a) writing for some reason; (b) write when you have a desire or have free time; (c)

reading is not done every day; (d) sometimes want to learn to improve the quality of writing; (e) willing to accept input from others.

Apart from the low writing interest, there are also some teachers who are unable to operate computers. This makes it more difficult for teachers to write scientific papers. There are still teachers who cannot operate computers, as told by the following teacher:

 "I can't work on a computer, so writing is constrained by IT incompetence" (Teacher Interview Results 2 & S). Professional teachers are able to carry out the responsibilities of students, society, nation, and country. The teacher's responsibility and independence, namely being able to understand himself, organize himself, control himself and respect and develop himself. Social responsibility is expressed through participation in the social environment, and actively helping others. Intellectual responsibility is expressed by skillfully using knowledge to support tasks. Spiritual and moral responsibility is manifested through the appearance of teachers as religious beings whose behavior does not always deviate from religious and moral norms, as well as the theory put forward by Daryanto that professional teachers must always carry out self-development continuously through various media such as the internet, books, attending seminars, training or training, and the like.

If viewed from Law Number 20 of 2003 concerning the National Education System, educators are tasked with planning and implementing the learning process, assessing learning outcomes, conducting mentoring and training, and conducting research and community service. This study's results are not in accordance with the mandate of Law Number 20 of 2003 because most of the teachers of MAN 2 Manggarai Ruteng can be said to have not implemented the mandate of Law Number 20 of 2003 as a whole. This is because many teachers are just carrying out their duties and obligations as teachers or teachers and have not all carried out research activities as a form of continuous professional development. External problems that affect the difficulties of teachers in research locations in writing scientific papers, especially CAR, as a form of sustainable professional development include:

Availability of Reference Books

Reference books are one of the causes of the difficulty of teachers in the research location in writing scientific papers, especially CAR. Most of the teachers in the research locations did not have books related to writing scientific papers. Most of the teachers in the research location owned books that were still in the form of textbooks only. The certification money that teachers should receive is to support the development of teacher competence. One form of teacher competency development activities through self-development by continuous learning through books. So, it is unfortunate if the teacher is professional and has received certification but still complains about not having books as a reference for writing, as explained by the informant of teacher Y, "There is a lot of need so there is no budget to buy books."

Lack of Functional Madrasah Teacher Working Groups

Lack of function of the Teacher Working Group (TWG) forum in socializing the procedures for writing scientific papers. Ideally, teacher professional development requires policy, moral, infrastructure, and financial support that can lead teachers to become professionals (Tanang & Abu, 2014). However, the work orientation of TWG Madrasahs as a forum for professional development teachers still revolves around syllabus, lesson plans, teaching materials, and assessment. In practice, they only carry out the essence of teaching. Meanwhile, those related to sustainable professional development received less attention, both from the management and from among members. Lack of Socialization from Institutions / Schools. Schools have not provided specific time to provide socialization for teachers about understanding and knowledge related to procedures and techniques. Writing scientific papers as a form of teacher professional development.

The Efforts of MAN 2 Manggarai Ruteng Teachers in Writing Scientific Papers

Teachers' efforts to develop sustainable professionalism through scientific writing are by attending workshops/training in writing scientific papers. Workshop/training is an activity that many MAN 2 Manggarai Ruteng teachers participate in as an effort to minimize the difficulty of writing CAR among MAN teachers as one of the sustainable professional development. The training that the teachers of MAN 2 Manggarai attended could be in the form of an independent initiative or because it was sent from an institution/school. The teachers were very enthusiastic about asking for assistance for the government's research activities, who was present at the opening ceremony of the training. They also highlighted the importance of ongoing training of teachers. Independent personal responsibility that can understand themselves, manage themselves, control themselves and appreciate and develop themselves is a characteristic that they have a willingness to learn after being given training.

The teachers' next effort in the research location was by learning by themselves by reading books and looking for examples on the internet or by fostering self-motivation. Besides that, they are also not ashamed to ask other people who know more about CAR writing. In this way, the teachers have a little description of CAR writing, which can be used as sustainable professional development. These findings suggest an important role for Madras heads. As explained by (Demir, Bağlama, & Yikmiş, 2020; Tahira & Haider, 2020) the principal in the overall school development plan plays an important role because all school development activities revolve around the role of the school principal.

The results of this study indicate that most of the teachers in the research location have made efforts to carry out professional development in accordance with the mandate of the Regulation of the Minister of State for Administrative Reform and Bureaucratic Reform Number 6 of 2009 concerning Teacher Functional Positions and Credit Score that the competencies that teachers must possess to develop professionalism through reflective action consisting of six indicators, namely: (1) reflecting on one's own performance continuously; (2) make use of the results of reflection in order to improve professionalism; (3) conduct classroom action research to improve professionalism; (4) following the progress of the times by learning from various sources; (5) utilize information and communication technology in communicating; (6) utilize communication and information technology to develop themselves.

Conclusion

Based on the discussion and analysis of the results of research on the development of teacher professionalism through writing scientific papers for professional teachers at MAN 2 Manggarai Ruteng, it can be concluded based on indicators of difficulties experienced by teachers when writing the following:

1. There are still many MAN 2 Manggarai Ruteng teachers in writing scientific papers as an effort to develop the teaching profession, experiencing various difficulties. The results of the focus group discussion obtained data that various problems faced by teachers caused the lack of motivation / interest in writing, including: (a) teacher motivation in writing is still low, (b) do not have enough free time, (c) lack of understanding about writing techniques, (d) difficulties in data collection, (e) lack of mastery of technology, (f) lack of reference books, (g) lack of functioning Madrasah TWG activities in disseminating written writing.

2. The classification of the difficulties of MAN 2 Manggarai Ruteng teachers in writing scientific papers as an effort to develop the teaching profession is classified into 3 types, namely: (a) Most of the teachers of MAN 2 Manggarai Ruteng have difficulty writing scientific papers due to internal and external factors. , (b) based on age, MAN 2 Manggarai Ruteng teachers who are 51-58 years old have more difficulty writing compared to teachers aged 39-47 years, (c) gender, the difficulty of teachers in writing scientific papers is not a significant difference between male teachers and female teachers. Both have almost the same difficulties, (d) Most of MAN 2 Manggarai Ruteng teachers have tried to

develop teacher professionalism through writing scientific papers by (a) participating in workshops both independently and from institutions, (b) self-learning via the internet, and (c) a small number of MAN 2 Manggarai Ruteng teachers who strive to develop teacher professionalism by participating in scientific writing training.

To encourage MAN 2 Manggarai Ruteng to become a creative teacher in writing, efforts from various parties are needed to foster self-motivation. First, the madrasah management institution periodically organizes training for those related to knowledge, understanding and practice of writing scientific papers. Training is carried out by bringing in competent resource persons in their fields so that they can provide clear knowledge and understanding of scientific writing. Second, the need to control and monitor the implementation of the Madrasah teacher working group meetings. Third, the need to add books and journals in the library to support learning and research activities. The fourth is the importance of providing training to teachers who have not mastered computers so that they want to learn to use computers for self-development purposes.

Although data collection involved in-depth interviews to ensure the credibility of the data, this study was conducted on subjects who were nearing retirement age. As a result, the results obtained cannot be generalized to all teachers. Therefore a similar study needs to be carried out in selected subjects taking into account their age.

Acknowledgments

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SELF-REGULATION BEHAVIOURS OF A GIFTED STUDENT IN MATHEMATICAL ABSTRACTION PROCESS

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Abstract

The purpose of this study is to investigate a mathematically gifted student's self-regulation behaviours while constructing and consolidating mathematical knowledge. However, the objective is to determine which self-regulation strategies influence this student's mathematical abstraction process. The case study method was used in the research. As part of the case study, interviews with a mathematically gifted student were conducted. During the interviews, the students' mathematical knowledge construction and consolidation processes were investigated through the mathematical problem-solving tasks. The coding strategy was used to ascertain the students' strategies for self-regulation while constructing and consolidating structure. On the basis of the collected data, conclusions were drawn regarding the interaction of cognitive and metacognitive components that are managed via self-regulation strategies and epistemic actions involved in the construction and consolidation of mathematical structure. It was discovered that the student was proficient at recognizing and applying prior mathematical structure through the use of cognitive strategies. The student's task-related objectives, as well as their metacognitive monitoring of the process through review of the mathematical strategies he employed to accomplish these objectives, were found to contribute to the construction and consolidation of the correct mathematical structures. The data collected revealed that the gifted student's cognitive and metacognitive self-regulation strategies are critical for the realization of the mathematical abstraction process.

Keywords: Mathematical giftedness, mathematical abstraction, self-regulation strategies.

INTRODUCTION

In mathematics, there is no universally accepted definition of giftedness. One reason for this situation is a lack of appropriate focused mathematical resources necessary for identifying students who are mathematically gifted, as well as the community's heterogeneity (Pitta-Pantazi, Christou, Kontoyianni & Kattou, 2011). While this is true, it is assumed that the characteristics incorporated into general models and classifications and believed to be associated with giftedness have an effect on their likelihood of being gifted in mathematics. This is not to say, however, that components of general giftedness adequately address mathematical giftedness (Singer, Sheffield, Freiman & Brandl 2016). As a result, the mathematics-specific components necessary for an individual to be classified can be defined as gifted in mathematics.

According to studies examining the characteristics of gifted students in mathematics engaged in mathematical activities, these individuals excel in terms of learning speed, observation and reasoning abilities (Grenees, 1981), ability to acquire mathematical knowledge, ability to process and remember this information (Krutetskii, 1976). From the perspective of mathematical problem solving, it is seen that the effectiveness, flexibility, creativity, commitment (Leikin, Koichu, Berman, 2009) and looking backstage, planning, being aware of all steps of the solution (Öztelli Ünal, 2019, Koç Koca & Gürbüz,

2021) exhibited by these students in problem solving are emphasized. Additionally, it is evident that these students' mathematical abstraction abilities are one of their highlighted characteristics. According to Greenes (1981), gifted students have strong abstraction skills, are able to make intuitive leaps, and are willing to take chances in the pursuit of new ideas. Rosenbloom (1960) states that the capacity for mathematical abstraction and generalization is one of the characteristics that differentiate students with mathematical ability from other students. However, it can be seen that gifted students' abstraction abilities in mathematics are generally considered in terms of generalization skills (Krutetskii 1976; Sriraman, 2003). Although the ability to abstract is one of the most emphasized characteristics of gifted students in mathematics, there are few studies that examine the process from a theoretical perspective. Students' and teaching methods are overlooked in gifted mathematics research studies, as was discussed by Leikin (2011), according to which teaching methods do not modern theories in mathematics education are applied. From a theoretical perspective, examining the process by which gifted students' construction and abstraction of mathematical structure can help reveal the characteristics that contribute to their effectiveness.

Abstraction in Context (AiC) is a theoretical framework for investigating students' mathematical structure construction processes (Hershkowitz, Schwarz & Dreyfus 2001). Mathematical abstraction, according to this theory, is the process of constructing a novel structure by vertically reorganizing previously constructed mathematical structures. The theory, which is based on sociocultural and epistemological principles, investigates the process of mathematical abstraction in the context of observable epistemic actions and how these actions are nested. (Hershkowitz et al., 2001). According to the theory, which proposes a methodological model (RBC + C model) for analyzing students' processes of constructing and abstracting mathematical structure, the processes of emergence and consolidation of structures are viewed as central components of abstraction. The process for constructing a new structure is defined and analyzed in terms of the epistemic actions of recognizing, building-with, and constructing. Recognizing is a term that refers to a student's awareness of a prior knowledge structure related to the current situation. The Building-with action is explained by combining and utilizing recognized structures to accomplish specified goals (Dreyfus, Hershkowitz & Schwarz, 2015). "The processes of reorganizing and restructuring what is recognized and known in order to create new meanings" are referred to as constructing (Bikner-Ahsbahs, 2004 p.120). Consolidation refers to the process by which a student becomes aware of a new structure and its application becomes direct and distinct. The consolidation process is observed by examining some of the students' cognitive and psychological characteristics. Dreyfus and Tsamir (2004) discovered that the consolidation of abstraction involves five cognitive and psychological characteristics. These are immediacy, self-evidence, confidence, flexibility and awareness. The term "immediacy" refers to both the availability of constructed structures and their direct access. Self-evidence is a term that refers to a student's acceptance of a structure without further explanation or proof. Confidence expresses belief in the student's response. Flexibility is defined as a feature of the student's mind that is based on a network of meaningful connections and manifested in the ease with which this network changes. Finally, awareness refers to the state of mind and goal-directedness of the student during mathematical activity.

The use of examples by students in formulating their thoughts and developing their mathematical language should be included in the combination when evaluating the validity of their consolidation process. Monaghan and Ozmantar (2006) assert that students require concrete examples to organize their thoughts prior to consolidation but use examples to substantiate their claims following consolidation. Additionally, additional research is necessary to fine-tune the theory's consolidation principle and its capacity for determining whether knowledge can be considered as consolidated (Tsamir & Dreyfus, 2005).

The AiC theory emphasizes the knowledge-based aspects of the individual's formation of an abstract mathematical structure, but also considers the context in which the individual exists and can influence the process (Hershkowitz et al., 2001). According to this theory, abstraction is often motivated by a

need. Self-regulation, emotional gestures, and self-monitoring activities are seen as tools to be considered among the markers relevant to these needs, which are the foundation of mathematical understanding (Dreyfus & Tsamir, 2004). As a result, one could argue that the AiC theory's emphasis on these sources indicates the self-regulating nature of the construction and abstraction processes.

Panadero (2017) defines self-regulation as an umbrella term that encompasses cognitive, metacognitive, and motivational aspects of learning and takes a holistic approach to the variables affecting learning. A theoretical approach known as self-regulated learning treats the learning cycle as well as well as the various components of the cycle and looks at it from various perspectives (Azevedo, Guthrie & Seibert, 2004; Panadero, 2017). While there are a variety of models derived from a variety of theoretical perspectives, the majority of models suggest that students' use of various cognitive and metacognitive strategies to control and regulate their own learning is a critical aspect of self-regulated learning (Pintrich, 1999). Various research has validated this viewpoint, demonstrating the importance of self-regulation strategies in students' learning processes and academic performance (Pintrich & De Groot, 1990; Zimmerman, 1990). However, it is clear from the majority of these studies that self-regulation is examined as a fixed characteristic of the individual, and thus discussed in terms of aptitude. However, it has been discovered in recent years that self-regulation can be quantified in terms of events, which are defined as the examination of a moving activity by ceasing it (Winne & Perry, 2000; Boekaerts & Corno, 2005, Veenman, 2011). Due to the scarcity of studies examining self-regulation specifically, as well as studies combining new and established measurement methods, it is asserted that students will improve their perspective on evaluating the use of self-regulation strategies (Roth, Ogrin & Schmitz, 2016; Panadero, Klug & Järvelä, 2016).

According to Pintrich (1999), there are three general strategies for self-regulated learning. These are cognitive learning strategies, self-regulatory strategies to control cognition, and resource management strategies. Cognitive learning strategies such as rehearsal, elaboration, and organization can be applied to both simple recognition memory and more complex tasks requiring information comparison (Pintirch & De Groot, 1990; Pintrich, 1999). Metacognitive control and regulation strategies are self-regulation strategies for the cognitive system. These strategies include establishing a student's study objectives, developing cognitive strategies, activating prior knowledge, monitoring one's own process, and organizing one's study behaviour (Pintrich, 1999). Finally, resource management strategies refer to a student's time and research environment management (Pintrich, Smith, Garcia, & Mckeachie, 1993).

In studies of self-regulation strategies in mathematics education, problem solving plays a significant role. It is stressed that students' use of self-regulation strategies improves problem-solving performance. Schoenfeld (2007) emphasizes that what makes a student good at problem solving is not just his or her expertise, but also the strategies and self-regulation, tracking, and control elements that the student employs to apply that knowledge. One of the points emphasized during the problem-solving process is the importance of metacognitive actions as a component of self-regulated learning. Garofalo and Lester (1985) assert that focusing exclusively on cognitive analysis is insufficient to improve students' mathematical performance and that metacognitive decisions play a critical role in influencing cognitive actions.

From the standpoint of self-regulated learning, studies examining the self-regulation strategies of gifted students in mathematics draw attention to the fact that it is dealt with in the field of problem solving and that gifted students are mostly compared to other students. According to Zimmerman and Martinez-Pons (1990), gifted students demonstrate significantly greater verbal efficiency, mathematical efficiency, and strategy use than average students. Swanson (1992) discovered that talented students solve problems with fewer moves and have a higher level of metacognitive knowledge than other students. Montague and Applegate (1993) discovered that gifted students verbalized more than students with average performance and learning disabilities in problem solving processes by contrasting cognitive and metacognitive verbalizations. These studies undoubtedly

contribute to our understanding of the characteristics that distinguish gifted students from others. On the other hand, studies examining gifted students' self-regulation within the context of their unique giftedness and self-regulation dynamics are necessary (Pintrich, 1999; Efklides, 2019).

The aim of this research is to investigate the constructing and consolidating processes of a mathematically gifted student. The epistemic actions of the student in case of problem solving were examined through the RBC+C model. Additionally, it is intended to ascertain the self-regulation strategies that influence this student's abstraction processes. The effect of the student's strategic behaviors in problem solving on the emergence of epistemic actions is discussed. It may be beneficial to consider the interaction between knowledge-based actions and the use of self-regulation strategies when observing the epistemic actions presented by the RBC + C model and detailing the contextual structures that may affect abstraction. Examining gifted students' mathematical construction and consolidation processes within the context of self-regulated learning and AiC theories may also contribute to the field of gifted students in mathematics by elucidating the characteristics that enable these students to succeed in these processes.

METHOD

This research is a portion of a qualitative study conducted with gifted mathematics students. The purpose of this study is to investigate the processes by which students construct and consolidate mathematical structure, as well as the self-regulation strategies that students employ during these processes. According to Yin (2003), the case study is used to investigate a phenomenon in real-world settings with a variety of data sources. As a result, the case study method was chosen for the study.

Typically, data for a case study are gathered through observation and interviews (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel, 2009). In this context, interviews with the research participant were conducted. In the interviews, open-ended mathematical problems were used to collect data. Additionally, during the problem-solving sessions, the student's structure constructing-consolidation processes and self-regulation strategies were observed.

Participant

The researcher, Nil (pseudonym), continues to a Science and Art Center in Turkey, where gifted students receive education outside of school. The study's "Criteria Scale for Determining Potential Giftedness in Mathematics" (CSPGM) was administered to forty eighth-grade students at Science and Art Center. On this scale, Nil performed admirably. Nil's selection as a participant was also influenced by her ability to speak and her willingness to volunteer for the study. As a result, the participant was identified using a purposive sampling strategy.

Data Collection Instruments and Procedures

To select participant for the study, a criterion scale (CSPGM) was developed to assess potential mathematical giftedness. The scale is comprised of twelve open-ended mathematics problems. The criteria set out in Krutetskii (1976) and Niederer, Irwin, Irwin and Reilly (2003) studies, which will allow to classify gifted students in mathematics in problem solving situations, were taken into consideration in the creation of the problems. As a result, students must:

1. Recognize the patterns and rules that will lead to a solution.

2. Understanding and reversing processes and procedures.
3. Converting the problem's situation to mathematical representations.
4. On the basis of the information provided
   a) Spatial reasoning,
   b) Probabilistic reasoning,
   c) Logical reasoning and
   d) Demonstrate permutational reasoning

Problems have been created in order to determine their properties. The problems' validity and reliability were established through expert consultation and a pilot study.

A scoring key was developed for each question based on the review of the students' answers to the problems. As a result, the accuracy value assigned to each question ranges between 0 and 4. The scale yields a score between 0 and 48. Students with scores of 0-15 were classified as low-performing, 16-31 as medium-performing, and 32-48 as high-performing, based on their responses to the scale's problems. The responses of the students were analyzed by the study's first author and a mathematics instructor. Inter-rater agreement was found to be 0.92.

The research's case participant is Nil, who earned 44 points in CSPGM. The case study used open-ended problems to observe students' structure constructing - consolidation styles and self-regulation strategies during these processes. Expert opinion and a pilot study were used to ensure the case studies' validity and reliability. The first author applied the case study problems in two separate sessions and recorded Nil's problem-solving processes. The RBC + C model was used to analyze the processes of construction and consolidation.

The aim of the first session's problems was to observe Nil's processes of recognizing, building with and constructing. Nil completed two problem-solving tasks during the first session. (See Figures 1 and 2) Here are the Task A and Task B problems.

A1. Find the smallest positive integers that do not completely divide the following numbers.
　　　　i) 10　　　　　ii) 36　　　　　iii) 120　　　　iv) 210

A2. Which of the following numbers is the smallest that does not divide a positive integer exactly? Explain.
　　　　i) 6　　　　　ii) 7　　　　　iii) 9　　　　　iv) 10

A3. Assume that the "smallest non-divisor" of a number is the smallest positive integer that does not divide an integer exactly. What properties does a number need to have in order to be the "smallest non-divisor"?

Figure 1. Problems used in Task A

B1. Which natural number between 1 and 30 can be the "smallest non-divisor" of any integer?

B2. Determine the numbers that, even if they are not prime numbers, can be the "smallest non-divisor" of a number between the natural numbers 1 and 100.)

B3. Find the two smallest natural numbers whose "smallest non-divisor" is 5?

B4. How many natural numbers have two digits and the smallest non-divisor is four?

Figure 2. Problems used in Task B

According to Dreyfus et al. (2015), consolidation is concerned with examining student actions following the emergence of a construct, and in order to investigate consolidation, the analysis typically proceeds forward from the end of the constructing action. As a result, Nil was assigned the following Task C during the second problem-solving session held one week after the first session in order to observe the processes of consolidating the structures she constructed during the previous session (See Figure 3).

The teacher has some pens. He intends to distribute these pens evenly and completely among his students.

The teacher performs sequential and independent calculations to determine which shares will be successful and which will be unsuccessful among the various numbers of students in the allocation plan he designed.

For instance, if the teacher has 24 pens, he or she can share them equally with two students, three students, or four students without having a pen left over; however, if the teacher wishes to share with five students, he or she cannot share in equal numbers.

C1. If the teacher has at least how many pens, for the first time, the allocation plan fails to distribute them evenly among seven students? Give an explanation for your answer.

C2. Is it possible that the Teacher's plan will fail to share between 6 students for the first time for any item and number of students? Give an explanation for your answer.

C3. Assume the number of items is unknown and there are fewer than 50 students. Determine the possible number of students who will fail to adhere to the teacher's plan. Give an explanation for your answer.

Figure 3. Problems used in Task C.

The self-regulation strategies used by Nil during the construction and consolidation processes were determined during the problem-solving sessions. The strategies were determined using Marcou's (2007) coding scheme. Self-regulation strategies incorporated into the coding scheme; It is classified as cognitive, metacognitive, and resource management. The rehearsal, elaboration, and organizational strategies are all types of cognitive learning strategies. Metacognitive strategies include self-monitoring and self-regulation. Since this study involved individual interviews with students, resource management strategies were not coded. The coding scheme was piloted using case study problems. The scheme was used to code and analyze the student's discourse while construction and consolidation processes. To ensure the analysis's consistency, student discourses were coded twice, at distinct times. Incompatible coding is omitted from the analysis.

RESULTS

The following are excerpts from Nil's interview response to Task A's first question (A1).

(**R:** Researcher, **N:** Nil)

4N: *Hmm (considers)... I need to find out how many divisors these numbers have... wait a minute, I don't need it. It states that the smallest integer that does not divide exactly (Circles the word "smallest") ... Then three (for ten) ... 2 for 15 I set it aside for a moment... 2, 3... (trying out different numbers) 5 (for 36) ... 120 for... 1,2,3,4,5,6 (trying the numbers) 7 is ok...*

5R: *I suppose you try for any possible number.*

6N: *Yes, for 210, 1, 2, 3... (quickly trying the numbers) 4, well.*

Nil obtained the correct answers to the first question (A1) through testing. He stated in subsequent sections of the interview that he conducted these experiments in accordance with divisibility rules. Consider the section where it tests that the smallest positive integers that do not divide a positive integer are or are not 6 and 7 (Problem A2).

15N: *All right... (reads aloud the problem A2) ... Hmm... As in the preceding question?*

16R: *Is the same question being asked?*

17N: *Hmm... that means it will be divided by all of 1,2,3,4,5 (thinks for 6)*

18R: *So, what are you going to do about it?*

19N: *... must test each one individually. Alternatively, in accordance with the divisibility rules... (contemplating). Could it be sixty? (She inquires) 60 is divided into six, though that is not the case... It would not be 40 or something like that; there is 80 but it is not divided into three equal parts; 90?... However, when divided by two and three, isn't it divided into six? (Inquires of herself) ... how is it going to be? If that is not the case, then 6 could not be possible (Confident)... However, I believe that 7 could be the case. Because, as we are aware, there is no such rule in this, as for 6. I don't have a specific number in mind at the moment, but I believe it might be (7). (taking notes aside).*

20R: *What if we wanted to locate a particular number?*

21N: *... For instance, 60 is divided by 2, 3, 4, 5, and 6. As a result, it becomes 60.*

Nil believes that in order to determine whether the number 6 is the "smallest non-divisor," she should conduct tests using the divisibility rules for the numbers she has determined, expressing the preliminary information that the numbers that can be divided by 2 and 3 will also be divided by 6 (19N), which she recognized. Additionally, Nil predicted the number 7 based on the knowledge structure she possessed. When he was asked for a sample to support this prediction, he provided a valid response by making a selection to be divided by positive integers prior to 7 (21N). This situation may indicate that Nil is developing an opinion about finding the smallest non-divisor for a desired number (for example, the smallest non-divisor is 7 for 60). This section of the problem will discuss how the knowledge she possesses will manifest itself in the ongoing process.

It is clear that Nil did not conduct tests as she did in previous chapters, but instead provided an answer in her own words based on the divisibility rules to the question of whether the number 9 can be the smallest non-divisor of any number. This means that Nil began to devise a strategy based on the structure she had. Although he appears to be certain of his answer, he attempted to find a number whose smallest non-divisor could be 9 in order to support it. While building with, the student can verify the accuracy of an idea or hypothesis proposed for resolving the problem. As a consequence, the current state of affairs means that Nil is currently building with it. Let's take a look at the relevant part of the interview.

22R: *Could it possibly be 9 (the smallest non-divisor of any number)?*

23N: *(quickly responds) Now, anything divided by nine must be divided by three, but there is no rule that every division by three must also be divided by nine, so it could be nine (Confident). Shall I consider numbers?*

24R: *Do as you please. If you wish to contribute...*

25N: *So, for instance, there is 420 from 60 times 7, or 30 times 7 because 30 cannot be divided by 7. Then it's 210, but the seven is (multiple), so... 210 cannot be divided by eight. We have already stated that the range is from 4 to 210. Then, no... If I consider 420... That number would be 9 420. That is because 420... 2,3,4,5,6,7... but not by eight. Then... (Contemplating)... As if I need to try something else... Hmm... Let me think of a hundred... It is not divided into eight sections. If I say 1000, it is divided into eight pieces, but not by seven... When I say 7000, it is not divided into three numbers. It will not be divided into 7 if I say 3000. Let's say I say 21000. It is also divided by 2,3,4,5. There are two and three separated by six, divided by seven, and divided by eight. Don't be separated by 9 if anything happens. Is it split? The sum of their numbers is not split. Really, it's 21000. Oh, that's great. I've discovered it.*

When the section in which Nil justifies her answer that 9 may be the smallest non-divisor of any number is examined(25N), it becomes clear that she attempts to form a number by experimenting with all positive numbers preceding 9 as factors. Considering that Nil recognized her knowledge of divisors of a number and which she used this knowledge by testing, both epistemic actions (recognizing and building-with) occur concurrently. This situation demonstrates the nonlinear and

nested nature of epistemic actions. Nil is in the process of building-with it in the section where 10 states that it cannot be the smallest non-divisor of a number.

26R: *So, do you believe it could be 10 (the smallest non-divisor)?*

27N: *21000 multiplied by 9 but divided by ten.... (Contemplating)*

28R: *What are your thoughts?*

29N: *... Now, if the end is 0, it will also be divided by 5.... If not, then in this case, 10 cannot be the smallest non-divisor (confident).*

30R: *Do you believe the ones with the smallest non-divisions share any characteristics?*

31N: *Hmmm... I'll say it now... It cannot be 6, as it is dependent on 2 and 3. I believe it should not be contingent upon another number. For instance, 7 is either directly divisible by itself or not. Not at all like 6. For instance, not ten, because any number divided by ten is divisible by five. However, 9 appears to refute this. Because every number divisible by three is divisible by nine... (considers) No, quite the contrary. If it is divisible by three, it becomes nine. Then, indeed. Correct. As I previously stated... precisely. Then I'll be able to say...*

Another point that stands out in this section of the interview is Nil's consideration of the common characteristics of numbers with and without the smallest non divisors (31N). This circumstance may indicate that it has begun the process of construction concurrently with recognition and built with. Nil's assertion that 6 and 10 cannot be the smallest non-divisors because they are the product of two prime numbers is a critical component of the new structure she will construct.

The following section of the problem (Task B) required Nil to determine which numbers between 1 and 30 can be the smallest non-divisor. Using the common feature (31N) mentioned in the previous section of the interview, Nil correctly classified the numbers by attempting all of them. Rather than determining random numbers in her tests, she advances by attempting to construct numbers that include all the numbers preceding the number she is investigating as a factor, regardless of whether the smallest non divisor exists or not. She continued her operations while doing so by writing new multipliers based on the number she investigated. Nil has performed the following operations at this point (See Figure 4).
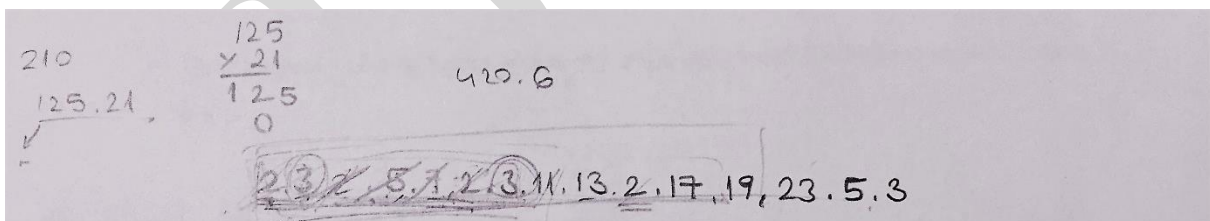
Figure 4. Nil's operations.

After some time, Nil began concentrating on the common characteristics of these numbers when classifying them with and without the smallest non-divisor. In this case, it is possible that Nil will need to construct a new structure. Consider the dialogue in the pertinent section.

39N: *Not 24. True, this will not be the <u>first non-divisor</u>. Indeed, these appear to be prime numbers, but there are eight and nine. Did I write it incorrectly? (Taking a look at the numbers)*

40R: *Do you believe it was incorrect?*

41N: *Indeed, they are right. Could there be numbers that are both squares (a perfect square refers to natural numbers) and primes? (She inquires) ... I believe I will continue until thirty... (She is resuming her trials) ... Let us repeat this procedure for 27. (She investigates the*

multipliers depicted in Figure 4) Again, there are three; we require three more. Then it could be 27. Then it's not just square numbers...

42R: *Has your theory been refuted in this instance?*

43N: *Correct... because there are others besides the square.*

44R: *Are you going to continue?*

45N: *I believe I'll finish by 30. I'll check later. There are four and seven for 28, so it cannot be twenty-eight. It changes to 29. As I previously stated, there are prime. It seems as if my theory is corrupt, but here (showing the smallest non-divisors) there is no prime, let's see... it will be 29. It's not 30 for 30, it's already 2, 3 and 5, so it's not 30.*

46R: *Well, will you look at their common features again?*

47N: *Yeah, let me take a look at it now.*

48R: *Okay.*

49N: *For instance, there are: two to the power of one... two to the power of two , two to the power of three, two to the power of four. two to the power of five, 32 is not included on this list, but it most likely would be. And... three to the power of one, three to the power of two, three to the power of three. For 4... four to the power of one, four to the power of two. five to the power of one, five to the power of two... The squared and cube of 7, 8 and 9 will not be in this range (1 and 30 range). So, how about we put it this way? Are they prime numbers and any number's squares and cubes?*

50R: *Have you checked it against your numbers?*

51N: *Exactly; I believe squares and cubes of prime numbers, but there is 16... or 27...*

52R: *What are your thoughts?*

53N: *A prime number or a prime number's powers, such as 2,3,4,5. Or, to put it another way, it must be a prime or a power of a prime. There must be only one prime number; otherwise, the smallest non-divisible number, as in 6, cannot exist.*

54R: *Do you believe it fits everyone?*

55N: *Yes, (Confident).*

Another point that stands out in this section of the interview is Nil's work on developing a language he refers to as "the first non-divisor." After establishing the cases in which a number cannot be the least divisor in the preceding chapters, the following sections will discuss the language's use in the ongoing process. As demonstrated above, it has resulted in the construction of new structure regarding the properties required to be the smallest non-divisor. As a result, the Nil's structures can be expressed as follows in this section.

- If a positive integer can be written as the positive powers of any prime number, it can be the smallest non-divisor.

- If a positive integer can be written as the product of the positive powers of two or more prime numbers, it cannot be the smallest non-divisor.

In the second problem of Task B, Nil was asked to decide the numbers between 1 and 100 that can be the smallest non-divisor of any integer, even though they are not prime numbers. One could argue that Nil makes effective use of the information she generated in the first chapter. Consider the pertinent section of the interview.

56R: *Okay, then, how about we move on to the next question?*

57N: *Let us proceed... (continuing reading question B2). Now... Uh... well, here are the prime number powers... For instance, 16 is not a prime number, but a power of two. I do not begin with the number one because it is not a prime number. The other powers of two (apart from 1) are 4,8,16, 32,64. For the powers of three, it would be 9, 27, and 27 multiplied by three equals 81.81. The ones following 81 do not. I can't think of four, that is not prime. If we consider 5, it will not be until after 25. If I consider 7, would be 49. Even if I say 11, it will pass. That is all.. (checking). That is correct (confident).*

As can be seen from her solution, (57N) Nil clearly employs the structure that a prime number or a positive power of a prime number is the smallest non-divisor in order for a number to be the smallest non-divisor, which is one of the newly constructed structure.

Nil was asked to find the two smallest positive numbers with 5 as the smallest non-divisor and all-natural numbers with two digits with 4 as the smallest non-divisor in problems B3 and B4. Despite the fact that Nil has created the structure that will allow her to answer these questions, she chose to arrive at the desired numbers by conducting tests in the beginning. This section's conversation dialogues are listed below.

58R: *Well, if you're confident in your response, let's move on to the next question.*

59N: *All right... (aloud reading of question B3) Hmm... not 6. It cannot be subdivided into four parts. When I say 8, it is not divided into three parts. Now, just a moment... I said six, or if I multiply it by four, it equals twenty-four. However, let us see if there is a smaller one... Consider the number twelve. Let us investigate (checking). Yes, that would be twelve. Let us investigate whether there is a smaller one. 11 is not possible., but also not 10. Therefore, let us investigate. So the ones following the smallest 12. So let`s look numbers after 12. It's already from 12 to 24; otherwise, it'll be 24. Not thirteen, not fourteen, not fifteen... But what if I don't try each one one at a time for a second? But let's check. It will be 24, so let's give it a shot. Not 16, 17, 18, or 19 in any case, nor 20, 21, 22, or 23. Yes, there are 24 of them. As a result, 12 and 24. Actually, I shouldn't do that because if she says 50, it would be difficult to try each one individually. That is how I believe it can be achieved (she means doing it by adding a multiplier).*

60R: *For instance, I believe there is a situation like this in the next issue.*

61N: *(Reading Exercise B4) ... Yes... (laughs)... Then we can employ that strategy. Let's find out and extend the first one. It is 6, if we consider the first one. Since it says two digits, I'll calculate it right now. We don't get 12 when we add 2 (multiplier). Since it's divided by four, but times three equals 18. In this case, I discovered the smallest, which was 18. It's lovely. We can't tell 4 times... because it's split by 4. It would if I say it five times. It just so happens to be 30... Yeah, yes, If I say 6, I don't get another two. Let's see, if I say 7, 42. I'm afraid I won't be able to tell 8. If I say 9, it will be 54, and I will be able to write 54. I wouldn't put it at ten. It will be 66 if I say 11. I'm afraid I won't be able to tell 12. If I say 13, what is 13 times 6 (calculated) 78? That's perfect. Is it split into four parts? It is indivisible. 14 is no. The number two appears... I mean, I will do it for odd multiples. I believe it would be 90 if I said 15, yes, When I say 17, I've already gone over two digits. That's what there is to it.*

62R: *Do you think it's possible that it's the number you skipped in between?*

63N: *I think it's fine because I used the same method in the previous question. It can't possibly be missing, in my opinion. (Self-assured.)*

Nil chose to reach the numbers by trial when attempting to find the smallest two natural numbers with the smallest non-divisor of 5, despite the fact that the solution can be found by writing the factors preceding 5. (59N). She is aware, however, that the method he employs will make the solution more difficult in larger numbers. The fact that Nil chose not to use the structure she constructed and instead

pursued a "multiple" path to a solution, as she refers to herself, may indicate that the newly constructed structure is fragile. However, she recognized that testing would make the solution more difficult in the following question and chose to use the newly constructed structure to write the necessary factors to obtain the desired numbers (61N). Nil stated that she was certain of her answer (63 N).

What has been shared thus far demonstrates that Nil generates mathematically correct knowledge. Now, let us take a look at how Nil has demonstrated her self-regulation strategies throughout the interview.

When testing the problem-solving process in general, it becomes clear that Nil is cognizant of each step she takes to arrive at a solution, beginning with the first question. As soon as she began solving the problem (4N), Nil circled the keywords and separated the relevant and irrelevant methods from the strategies she considered to arrive at a solution (4N), She took notes as necessary (4N, 19N, 25N), demonstrating that she uses cognitive rehearsal strategy. She demonstrated that she used the cognitive elaboration strategy by expressing the problems in her own words (4N, 57N) and developing some plans and verbally expressing them (4N, 19N, 25N, 45N) during the problem-solving process's initial stage. As illustrated in Figure 1, to express his thoughts in her tests, she created a representation of the numbers that included all the numbers preceding the multiplier, regardless of whether it was the smallest non-divisor or not, and reached the conclusion by constantly adding multipliers to this representation, demonstrating a cognitive organisational strategy. It's worth noting that Nil checked her solutions throughout the problem-solving process and validated them through review. (25N, 39N, 43N, 49N, 51N, 53N,59N, 61N). This provides critical evidence that Nil employs a metacognitive regulation strategy. Similarly, she frequently cast doubt on her conclusions (19N, 57N, 59N), sought out novel solutions to bolster her case (41N, 59N,61N) as a result, she metacognitively followed her own solution process.

One week after the initial interview, the details of which were shared previously, another session was held. The purpose of this session was to ascertain how Nil used the structure she has already gathered. Nil's solution to the problems (Task C) provides insight into whether the information about the smallest non-divisor is consolidated by various scenarios involving the distribution of items in a teacher's hand among her students.

She quickly recognized the knowledge she had constructed in the previous interview after reading the Nil problem (C1).

> **67N:** *(reading problem) ... Okay, fine. So, as we previously stated, the first divisor of this number will be 7. (he notes under the problem)*

> **68R:** *Is that a question about that subject?*

> **69N:** *(rereading the question) ... True (Confident)*

> **70R:** *How are you going to find it?*

> **71N:** *We are asked to find the smallest number whose first non-divisor is 7. Allow me to repeat the procedure I used previously. (She means calculating the result by multiplying it by a factor.) Let me do it this way: 2 times 3 times 2, here I need to add 5 'to divide by 5, so 60 (multiplies).*

> **72R:** *Isn't it possible to have fewer pens?*

> **73N:** *No way, (Confident). There should be at least 60 pens available.*

Nil has made it clear after reading the question that she should use the structure she previously constructed to find a solution (67N). While doing so, it is worth noting that he employs a concept he refers to as "first non-divisor." Along with acquiring the necessary structure for resolving the problem, Nil had begun developing this problem-related language during the previous session. The fact that she

immediately recognizes and expresses her prior structure after reading the problem demonstrates the immediacy of the act of consolidation. Additionally, Nil responded to the researcher's question about whether fewer pens could be included (73N) and did not feel the need to check her response, despite the fact that she could. This situation demonstrates that Nil possesses another characteristic of the consolidation action: self-evidence.

Now consider Nil's solution to the C2 problem.

75N: *(reading the problem C2) ... independent of the previous question, I suppose?*

76R: *Correct.*

77N: *All right... (re-read the problem) ... Acceptable. Allow me to repeat the procedure (which entails writing the multiplier as in the previous question) ... However... Thus, the question is, "Can 12 be the first non-divisor?" ... Now... What did we just say? (Inquires of himself). It must be a prime number or one of its powers. 12 is not a prime number, nor is the power of prime numbers. As a result, it cannot be. When we write the factors, we see that when 3 and 4 are present, 12 is required. As a result, it cannot be 12.*

After reading the problem, Nil restates it in her own words. Then he expressed the structure that he had previously formed in a clear and explicit manner (77N). In the light of her response to this structure, it's significant that she illustrates her ideas with an example. Before consolidating, student require concrete examples to formulate their thoughts; however, they use examples to illustrate their assertions following consolidation (Monaghan & Ozmantar, 2006). This perspective reveals an important clue that Nil consolidates the structure she has created.

Finally, let us look at Nil's C3 solution. As she did in the others, Nil re-expressed the problem's statements in her developed language and made explicit use of the structure she had constructed.

81N: *(reading aloud the problem C3) ... This does appear to be a bit of a challenge... As stated here, it must be the first non-divisor. This is referred to as "plan failure"... Now that we don't know how many pens there are and the number of students is less than 50 (he is rereading the question), it considers the numbers less than 50 for the number of students and wants us to find the ones that do not divide first... Ha The question actually asks us to find the numbers which can be the first non-divisor that is less than 50. I am not required to attempt each one individually.*

82R: *How will you then find it?*

83N: *There is no need to test of prime numbers and powers. It's a pleasant experience (Laughs). Let me begin by writing the prime numbers from 1 to 50... 2,3,5,7,11,13,17,19,23,29,31,37,41,43 and 47. Then, let me consider their powers. All powers up to 50 are now multiplied by 2, 4,8,16,32... 9 and 27, 81 passes. We can substitute 25 for 5, then add 49 to complete the equation.*

84R: *Are you certain about the numbers?*

85N: *I'm certain they are.*

While Nil claims that this is a strategy of testing in order to solve the problem, it appears as though she prefers to use the structure she has generated (81N). Her frequent reference to the structure she has created when utilizing her knowledge can be interpreted as an indicator of "flexibility." Furthermore, her conclusion, which uses this structure smoothly and effortlessly, can be viewed as an important sign of "awareness."

Let's return to the self-regulation strategies demonstrated by Nil in the context of the consolidation process. Nil made a direct reference to the structure she constructed after reading the problems, noting that "the first divisor will be 7" under the query (67N), demonstrating the strategy of cognitive

rehearsal. She did, however, redefine the problem in her own language by coining the term first non-divisor (67N, 71N). Additionally, given that she explained her plan by stating that she should approach the question similarly to how she did in previous activities (71N, 77N), it is possible to conclude that Nil employs a cognitive elaboration strategy. Another remarkable aspect of Nil's performance in this session was her repeated reading of the problems (69N, 77N, 81N). Given that Nil, who is certain she has gathered all necessary information for solving the problem, attempts to recall her previous solutions (77N, 83N), it can be concluded that she organized herself metacognitively. Consequently, while Nil is confident in her solutions, she checked her answer use other mathematical strategies she had previously use to justify her answer (77N) and metacognitively monitored the solution process. When the process is viewed holistically, the question arises as to whether there will be an interaction between Nil's self-regulation strategies and the consolidation action's characteristics. This question will be revisited in the research's discussion section.

DISCUSSION and CONCLUSION

Nil's construction and consolidation processes were observed in this study while she was engaged in problem solving activities. Additionally, her strategic behaviours are discussed in terms of self-regulation during these processes. This situation enabled the investigation of multiple factors affecting the realization of mathematical abstractions concurrently. This section emphasizes, first and foremost, the emergence of Nil's epistemic actions and strategic behaviours during the abstraction process.

In Nil's construction and consolidation processes, cognitive learning strategies are one of the strategies that investigate self-regulation behaviours. These are strategies that entail taking into account critical information about the task at hand, disclosing ideas, and establishing a connection to existing knowledge (Pintirch & De Groot, 1990; Pintrich, 1999). According to Winne and Perry (2000), this strategy is primarily based on representations from previous tasks and information from long-term memory.

Nil, who makes extensive use of cognitive strategies, has made connections with existing knowledge structures while solving problems and has progressed by making plans to built-with this relationship to solve the problem. Considering the RBC + C model's behaviours that students present in their recognizing and building-with actions, the presence of cognitive learning strategies becomes apparent. Indeed, the research findings corroborate this assertion. Nil, for example, used a cognitive rehearsal strategy to consider her prior structure of divisibility rules and associated it with the problem situation. As a result, the use of cognitive strategy aided Nil's recognition of the previous knowledge structure. Nil shared her ideas and plans for determining whether the given numbers could be the smallest non-divisor using both a cognitive elaboration strategy and the mathematical strategies she devised. This demonstrates the critical role of cognitive strategy-related behaviours in recognizing and building-with actions.

Not only at the start of the problem-solving process were cognitive rehearsal and elaboration strategies observed. Nil appears to use these strategies in her problem-solving process with each new structure she recognizes. From this perspective, it has been concluded that Nil's cognitive strategies are heavily utilized during recognizing and building-with actions. This result does not imply that Nil did not engage in behaviour consistent with the use of cognitive strategies during the constructing. However, one could argue that behaviours associated with metacognitive strategies evolved concurrently with observations of behaviours indicative of the construction of the new structures.

Theoretical studies on self-regulated learning and research on mathematical problem-solving both emphasize the importance of cognitive regulation strategies. These strategies, referred to as metacognitive regulation and metacognitive monitoring, are viewed as the gateway to self-regulation in the learning process (Winne & Perry, 2000). These strategies make a brief reference to the student's behaviour and comprehension in the learning environment, allowing him or her to make adjustments based on a review of their own goals and criteria. Nil frequently employs these strategies in the

process of construction, as has been observed. Nil's mathematical strategies were deduced, and it was discovered that she was in complete control of each step she took, examined the consistency of the solutions they discovered with previous answers, and devised and applied alternative methods for verifying these solutions. Consider the episode where the Nil determines the numbers (between 1 to 30) that are and are not "smallest non-divisor". Nil conducted experiments by reminding herself of the paths she took in previous chapters, evaluating the reasonableness of her conclusions, and attempting to generalize her findings for each issue she worked on. From this vantage point, the traces of Nil developing her new mathematical knowledge were observed in conjunction with indications of metacognitive regulation and monitoring strategies. Using Nil's solution processes as an example, it is clear that metacognitive regulation and monitoring strategies contribute significantly to the construction processes. Of course, it cannot be claimed that only the existence of these strategies is effective in constructing mathematical knowledge. Within the confines of this research, the abstraction process of a gifted student is discussed in a cognitive and metacognitive perspective. It should be noted that self-regulation addresses more than pure (meta)cognitive strategy, and that motivational and affective components of the student can influence the process (Efklides, 2019). However, when Nil's behaviours are examined, it is thought that the effect of employing these strategies cannot be ignored.

Another area where clues about Nil's use of self-regulation strategies were discovered was the process of consolidation. When investigating Nil's coded discourses, cognitive strategies provide more specific clues than metacognitive strategies. For instance, after reading the problem presented in the second session, he referred to his prior structure, interpreted the problem in her own words (first non-divisor), expressed her solution plan, and took notes, using the statement "... as we did previously, that is, the first non-divisor of this number will be 7..." These intimations suggest that Nil makes use of cognitive rehearsal and elaboration strategies. In light of the characteristics of the consolidation action identified by Dreyfus et al. (2015), it is believed that Nil's emergent behaviours as a result of constructing cognitive strategies contribute to the formation of immediacy in terms of direct access to the structures she constructs, as well as flexibility in her references to the structures she constructs in the process. Nil attempted to validate each step she took toward a solution during the first session, throughout which she constructed a new structure. She was not required to verify the information structure she confidently and smoothly used in the second session, but she was able to use alternative methods when justification was requested. The scenario outlined here is consistent with previous research on the consolidation process. Thus, Monaghan and Ozmantar (2006) emphasized that while students required concrete examples to formulate their thoughts prior to consolidation, they used examples to demonstrate claims following consolidation. Nil's monitoring behaviours during the second session, during the consolidation process, can be interpreted as her utilizing metacognitive strategies to check the consistency of her solutions, but also to justify her claims.

The cognitive and metacognitive components of self-regulation strategies, as well as the epistemic actions involved in constructing and consolidating the knowledge structure, are thought to interact. This interaction can be summarized as follows in light of the findings from the problem-solving sessions with Nil.

Cognitive self-regulation strategies require consideration of existing information about the task being studied (cognitive rehearsal), the production of answers by establishing ideas and plans for the solution (cognitive elaboration) and the combining of task-related information (cognitive organization). Therefore, the use of these strategies affects the whole process, but especially accompanies the realization of recognizing and building-with actions. On the other hand, metacognitive self-regulation strategies require a review of the acquired structure about the task in relation to the objectives (metacognitive regulation), as well as calibration of the obtained results or the entire process (metacognitive monitoring). While metacognitive strategies are visible throughout the process, their presence becomes apparent when mathematical strategies related to the solution are implemented. Indeed, Marcou (2007) observed a cyclical aspect of self-regulation, stating that as the

stages of self-reflection from intuition progressed, the number of metacognitive strategies increased while the number of cognitive strategies decreased. The findings of the study corroborate this assertion.

Within the limitations of the study reported in this article, it has been determined that strategic behaviours are critical in the constructing and consolidation of the mathematical structures. This finding is consistent with previous research (Garofalo & Lester, 1985; Schoenfeld, 2007), which asserts that not only cognitive competencies are effective in mathematics performance, but also strategic behaviours and metacognitive decisions. However, Nil's findings regarding the abstraction process, which constructs an ideal profile of her strategic behaviour and mathematical ability, are strikingly similar to those of studies on gifted in mathematics from a self-regulation perspective. Nil's performance was not compared to that of another student during the problem-solving process. On the other hand, his performance in this process is consistent with the characteristics highlighted in studies comparing gifted students to other students (Zimmerman & Martinez-Pons, 1990; Montague & Applegate, 1993).

When Nil's abstraction process is investigated in the perspective of strategic behaviour, it is noted that self-regulation and problem-solving strategies interact. Indeed, her awareness of the steps she has taken for the solutions, planning and looking backstage offer important clues as to her use of problem-solving strategies. This finding is consistent with the findings of studies that deal with the problem-solving process of mathematically gifted students in the context of problem-solving strategies (Öztelli Ünal, 2019, Koç Koca & Gürbüz, 2021).

Several recommendations can be made in light of the research findings. It is believed that structuring mathematical problems and tasks for gifted students in such a way that they can perform mathematical abstraction will aid in revealing the students' inherent talents. Additionally, self-regulation education for students can aid in their mathematics course success.

Individual interviews were conducted to ascertain the process by which structure is constructed and consolidated within the scope of the current study. Studies that observe gifted students in the classroom have the potential to shed light on the social dimension that contributes to the abstraction context. However, classroom studies may provide an opportunity to identify resource management strategies that are not covered in the current research. This circumstance is significant because it enables the definition of another variable that can affect the abstraction process. Additionally, in future studies, problem-solving sessions with a larger sample size can be used to compare students' abstraction processes.

Acknowledgements

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OPINIONS OF SCHOOL ADMINISTRATORS AND TEACHERS ON INTERCULTURAL EDUCATION

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Abstract

With its causes and consequences, migration is one of the important problem areas with its social, economic, political, and educational dimensions. The phenomenon of immigration in today's world and the social integration and adaptation of 3.5 million refugees in Turkey puts a great responsibility on education and educational organizations. It is necessary to determine the reflections of the immigration phenomenon in the field of education and management and to suggest solutions and practices. In this direction, the main purpose of the study is to reveal and discuss the current situation based on the opinions of teachers and administrators on intercultural education. This descriptive research has been designed with descriptive research model within the framework of the qualitative research approach. The participants of the study are administrators and teachers who worked in different branches in Çanakkale in the 2019-2020 academic year and have refugee students in their school. A semi-structured interview form was used as data collection tool. Descriptive analysis technique was used in the analysis of the obtained data. According to the findings of the research, it is observed that school administrators and teachers define intercultural education competence as having cultural knowledge, respect for differences, universality, education planning, competency, and social adaptation. School administrators and teachers think that the classroom teachers of refugee students should have the qualities of recognizing cultures, respecting universal values, caring about human rights, empathy and communicating; It is determined that they used the concepts of communication and social adaptation in their professional experiences.

Keywords: Intercultural education, multiculturalism, intercultural education competence.

INTRODUCTION

It is observed that culture has been defined many times and dozens of different concepts are used in these definitions. Religion, language, ethnicity, gender, sexual orientation, age, knowledge, belief, morality, art, norms, laws, customs, habits, eating habits, dressing, thinking, aesthetics are the concepts which appear in these definitions and make human beings human. Social change and dynamism which are being experienced today draw attention to culture and interculturalism. Wars, economic difficulties and climate change lie at the root of social change and mobility. In this case, it is the source of inter-country migration.

Today, supranational political and economic organizations, international intense immigration, the accumulation of different languages, religions and ethnic groups in cities as a consequence of the dissolution of the rural economy have made multiculturalism inevitable which implies the populations

of countries include different cultural affiliations (Ergil, Akıncı, Yılmaz, Yalçın, & İnal, 2005, p. 74). According to the United Nations Migration Report of 2017, 258 million international migrants live in other countries than their own. This number increased from 173 million to 220 million between 2000 and 2010 (Uzunboylu & Altay, 2021).

According to Güvenç (1994), although different definitions of culture have been made, the best one is the following definition which was made by Tylor in 1871: Culture or civilization is a complex whole which includes knowledge, art, tradition, customs and similar abilities, skills and habits learnt by human-being as a member of a society. Multiculturalism is used both as a descriptive and a normative expression according to Heywood (2011, p. 77). In this sense, the concept of multiculturalism, when considered as a descriptive term, is the diversity formed by at least two groups with different beliefs and practices. As a normative term, it implies that beliefs, values and lifestyles are important on the basis of the rights of cultures to be recognized and respected.

The governance of cultural diversity is the subject of considerable controversy in public policy circles and academic research. The need for this debate stems mainly from the fact that good governance leads to harmonious and safe societies. Many countries in the world, especially settler countries such as Australia, New Zealand, USA and Canada, experience increasing ethnic, religious, linguistic and cultural diversity (Salahshour, 2020).

Before considering the cultural diversity approach in educational contexts, it is necessary to clarify such concepts as "multiculturalism", "interculturalism", and "intercultural education". Multiculturalism is a phenomenon, an observable reality which educators deal with in their daily professional life and question themselves about the related best course of action. The term "intercultural" refers to a line of action which privileges interaction during cultural encounters for the emergence of learning processes to create opportunities for mutual (re) cognition and enhance co-existence without denying conflict. Intercultural education is a theoretical concept and a practice which aim to create the necessary conditions for achieving the mentioned goals. It tries to make all citizens participate and advocates that diversity is an asset, not a problem. In this context, intercultural education is meaningful in every educational context because everyone is different and differs within themselves (Caetano, Freire, & Machado, 2020).

As in all areas of life, cultural and social change is one of the important social factors in revealing new ideas and thoughts in the field of education. Intercultural education, as a result of these changes, has been one of the prominent subjects in the field of education. In addition to historical and political issues, migration in different regions of the world is among the main factors which highlights intercultural education (Aslantaş, 2019). Within the historical development of multiculturalism, the need for multicultural education has emerged following the freedom and equality movements in social life (Uzunboylu & Altay, 2021).

It can be claimed that multicultural education has an important role in the coexistence of cultures. According to Parekh (2002, 289), a qualified education encourages students to notice different cultures and see their world, and tries to make the same students view themselves and their own culture through the eyes of other cultures through empathy. Multicultural education is based on the fact that all students have equal opportunities at school, regardless of their language, religion, race, gender, social status and thnic or cultural characteristics (Banks, 2014). Intercultural education, according to Nohl (2009, p. 45), means regarding the cultures of minorities and immigrants as different, completely different, but in principle equally valuable, rather than assuming them inferior.

Teachers and administrators have a great responsibility to ensure students to have a multicultural perspective both at school and in social life. In this context, Villegas and Lucas (2002) have listed the characteristics which teachers should exhibit if they are sensitive to culture (Cited in Başbay & Bektaş, 2009). These are expressed as:

✓ To be conscious of socio-cultural aspects, being aware of the fact that social environments affect the facts and act with this awareness,

✓ To be able to see the learning resources in all students, to understand that differences are important in educational environments and that they are not a problem,

✓ To accept that it is his/her own duty to provide diversity and enrichment in school environment for students,

✓ To know and support how knowledge is structured by students in the learning-teaching process,

✓ To be aware of the environment in which students live and the lifestyle they have in the family,

✓ To rearrange the learning-teaching environment in line with the information he/she acquires about their environment and families.

In Turkey, hosting many differences thanks to its location, it has been observed that the number of children at the school age of the communities which have emigrated from many different countries, especially Syria, in recent years, is too high to ignore. It is of great importance to solve the integration problem of so many different cultures with intercultural education arrangements which should enable different cultures to live together and in harmony.

The perspectives and competencies of teachers and administrators, which are among the basic elements of education, are determinant. It is very important that they are knowledgeable about intercultural education and know how to keep the cultural richness alive in school and classroom environment. In this sense, it is important for teachers to teach, knowing that students may have different background in terms of religion, language, race, gender, geographic region, experience, sexual orientation, expectation, and political views (Çoban, Karaman, & Doğan, 2010).

The main purpose of the study is to reveal and discuss the current situation based on the opinions of administrators and teachers on intercultural education. For this purpose, the themes of intercultural education competence, teacher qualifications, educational competence experiences, classroom practices and personal competence areas have been determined. In line with this purpose and the determined themes, answers to the following questions are sought:

1. What are the opinions of school administrators and teachers about intercultural education competence?
2. Based on the opinions of school administrators and teachers, what qualifications should the classroom teachers who teach refugee students have in terms of intercultural education?
3. What are the experiences of school administrators and teachers on intercultural education competency areas?
4. What are the opinions of school administrators and teachers about how the practices of teaching, behavior management and social interaction in the classroom should be included in the intercultural education process?
5. What are the opinions of school administrators and teachers regarding in which field they consider themselves competent in the education process of refugee students?

METHOD

Model of the Research

Descriptive qualitative research approach is used in this study, which is conducted to determine the opinions of school administrators and teachers on intercultural education. Qualitative research is defined as a research in which qualitative data collection techniques such as observation, interview and document analysis are used, and a qualitative process is followed to reveal perceptions and events in a realistic and holistic manner in the natural environment (Yıldırım & Şimşek, 2005). The data of this study have been collected using the semi-structured interview technique and analyzed by the

Turkish International Journal of Special Education and Guidance & Counseling   2021, volume 10, issue 2

descriptive analysis technique. More than one reason underlies the use of the qualitative descriptive research approach in the study. They include:

1. To examine opinions of school administrators and teachers on intercultural education in detail and holistically.

2. To analyze the interview questions on the basis of research data.

3. To reveal the similarities and differences among the explanations of the teachers regarding each interview question.

Participants have been determined through criterion sampling, one of the purposeful sampling methods included in the qualitative research approach (Yıldırım & Şimşek, 2005). For this purpose, three basic criteria were taken into account in determining the participants: voluntary participation in the study, working in different branches, and the presence of refugee students at the schools of administrators and in the classes of teachers. Research participants are 4 school administrators and 10 teachers working at different schools in Çanakkale in the 2019-2020 academic year. The personal characteristics of the participants are given in Table 1.

Table.1 Personal characteristics of the participants

Participant	Gender	Branch	Professional Seniority
T1	Male	Primary School Teacher	16 years
T2	Male	Mathematics Teacher	21 years
T3	Male	Turkish Teacher	15 years
T4	Female	Construction Teacher	10 years
T5	Male	Electric-Electronic Teacher	10 years
T6	Male	Visual Art Teacher	18 years
T7	Female	Music Teacher	18 years
T8	Male	Administrator	22 years
T9	Female	Administrator	30 years
T10	Male	English Teacher	11 years
A1	Female	Primary School Teacher	10 years
A2	Male	Administrator	24 years
A3	Male	Administrator	15 years
A4	Male	Administrator	22 years

Based on Table 1, Considering the branches of teachers, it is observed that there are 3 classes, 1 mathematics, 1 Turkish, 1 construction, 1 electrical-electronics, 1 visual arts, 1 music, 1 English teacher and 4 school administrators. 10 of the participants are men and 4 of them are women. The professional seniority of teachers ranges from 10 to 30 years.

The semi-structured interview form which was prepared to collect data has been applied to school administrators and teachers who work in Çanakkale and have refugee students at their schools. During the data collection process, 10 teachers and 4 administrators who wanted to participate in the study voluntarily were interviewed.

The data were analyzed based on the predetermined themes. In the final phase, the data were prepared to be presented. The findings of the study were supported by the opinions of the teachers and administrators, and the opinions of the teachers were shared as (T1, T2… ..T10), and the opinions of the administrators with the code names (Y1… .Y4).

RESULTS

In order to determine the views of school administrators and teachers on intercultural education, the themes of intercultural education competence, teacher qualifications, educational competence

experiences, classroom practices and personal competence areas have been determined and interview questions have been created accordingly.

Theme 1. Intercultural Education Competence

The question regarding the theme of "Intercultural Education Competence" is "What are the opinions of school administrators and teachers about intercultural education competence". The related data which have been obtained are presented in Table 2.

Table 2. Opinions on intercultural education competence

Code	Participants
Cultural knowledge	T4 T8 A3 A4
Respect for differences	T5 T10 A1 A2
Universality	T2 T3 T5
Education planning	T6 T7 T8
Competence	T3 T9
Social adaptation	T1 A4

It is observed that the participants mostly define intercultural education competence within the framework of respect for cultural knowledge and differences, and they prefer the concepts of universal values, education planning, competence and social cohesion respectively.

For the definition of intercultural education competence:

T4 states that "*In environments with different cultures, the more people know about those cultures, the faster they adapt to that particular environment and this provides a more harmonious working environment.*"

While **T8** argues that "*Intercultural pedagogical competence is defined as being aware of the differences of individuals from different cultures and cultural and traditional infrastructure of the teacher or educational institutions.*"

It is observed that administrators perceive intercultural education competence as cultural knowledge and cultural recognition considering that **A3** suggests that *'People come across and meet with different cultures for various reasons. Competence is to know and respect these cultures."* and

A4 maintains that *"having knowledge about different cultures and to ensure harmony.*"

It is understood from the responses of the participants that one of the most discussed concepts in the theme is respect for differences. For example;

T10 asserts that "*It is the pedagogical competence to respect individuals from many different cultures such as language, religion and traditions and try to understand them and to give them the opportunity to be themselves in their environment.*"

T5 expresses that "*Teacher should be able to respect differences and use this as a basis for activities in education."*

It can be suggested that participants perceive intercultural education competence within the framework of respect for differences considering that **A1** states "*It is to be able to say that our differences are our wealth and to create wealth together on the basis of equality and to establish life together. In my opinion, without thinking only about people, we need to respect the common culture, life, and living space of human, nature and all living things; it means not exploiting, plundering or ignoring people and nature on behalf of their own class, group, nationality and tribe.*", and

A2 suggests that *"In my opinion, respecting a different culture and trying to understand it without falling into the arrogant and humiliating trap of the concept of tolerance should be the basic approach of intercultural pedagogy".*

It can be claimed that they emphasize the universality of education and explain the competence of intercultural education with the concept of universality considering **T2** stating "*I can define it as having the necessary knowledge and skills for education to be given to individuals in different cultures who have to live together in line with common values and universal principles.*", and

T5 saying "*First of all, one should have the expected competencies in sensory, mental and social education of a child*".

Another concept used by the participants while defining this competence is the education planning. For example;

T6 asserts that "*We can summarize the approaches of educational science as adaptation to structures that are made up of different cultures and education planning taking into account the language and sociological structure of that culture. Especially in countries receiving immigration, such educational planning and educational competence are absolutely needed.*"

T7 states that "*It is the ability of an educator to adapt educational sciences to different cultures. It is the effective use of pedagogy science.*"

T8 suggests that "*Intercultural pedagogical competence is the state of being aware of the differences of individuals from different cultures and cultural and traditional infrastructure of the teacher or educational institutions and being able to create and act appropriate programs for this situation.*"

It can be stated that the two teachers who have participated in the study define this main theme as the social emotional and academic proficiency and competence which teachers should have.

T3 says "*It is the capability of applying the pedagogical education that teachers receive not only for the students in their own country and in the culture they belong to; but for all children in the world.*"

T9 asserts that "*Intercultural pedagogical competence is the social, emotional and academic competence that professional groups who are in contact with children with different cultural values who should continue their lives and education in different countries due to various reasons.*"

It is seen that a teacher and an administrator among the participants define this theme as social adaptation.

T1 points out "*to be able to interact in harmony with people belonging to different cultures and to interact and share something.*"

A4 states "*To have information about different cultures and to ensure harmony.*"

Theme 2. Teacher Qualifications

The question regarding the theme of "teacher qualifications" is "what qualifications primary school teachers who educate refugee students should have in terms of intercultural education according to the opinions of school administrators and teachers". The data which have been obtained accordingly are presented in Table 3.

Table 3. Opinions on teacher qualifications in intercultural education

Code	Participants
Recognition and Respect for Culture	T4 T10 A1 A2 A3 A4
Universal Values and Human Rights	T6 T7 T8
Empathy	T1 T3 T5
Communication	T2 T9

It is observed that the participants use the concepts of recognition and respect for culture, universal values and human rights, empathy and communication as qualities which primary school teachers should have.

It can be said that most of the participants have perceptions in the sense that primary school teachers try to recognize different cultures and acquire knowledge and respect these cultural differences. For example;

T10 says that "it is *a requirement of intercultural pedagogy to be open to different cultures, to know how to respect and teach this to other students, to value individuals with their culture and ensure equality of opportunity in the classroom.*"

A1 states that "*It is important for every educator to get to know different cultures and to establish intercultural relations in a healthy way due to the differences within societies and different cultural situations."*

A2 suggests that "*Teacher should understand, respect and value differences. He/she should learn about the culture in which the refugee student grew up. He/she should be able to connect emotionally with her/him.* "

Teachers mention the need for a teacher to have the quality of recognizing different cultures and respecting them considering that A3 proposes *' Our classroom teachers should know about the culture of the students (refugee students) present in their class, if they do not know, they should research a little bit and have knowledge ...* " and

A4 states "*Teachers should do research to have the knowledge of the cultures of these students*."

It is understood that the teacher quality addressing the ability to ensure respect of students for each other is highlighted considering **T4** suggests that '*It is difficult for primary school students to notice cultural differences and to establish relationships with their friends accordingly. If the classroom teacher has this pedagogy, she/he can ensure that the children respect each other's differences and create environments where they can meet on a common ground when necessary.*"

It can be claimed that the participants believe classroom teachers should internalize universal principles and respect human rights considering **T6** stating "*First of all, it is necessary to believe in pedagogy science and to apply its rules under all conditions. Because no matter what culture it appeals to, its norms are the same.*" and **T7** suggesting *"He/she must adopt universal values and human rights. Unscientific approaches will marginalize refugee students and the targeted goal will not be achieved. "* and **T8** expressing *"Refugee students may expect their teachers to think that they do not have a problem in the classroom in the first place. In accordance with the universal ethical rules, laws and conscientious dimension, they should have the same rights, interest and compassion as other children.*

Stating that the most important quality which classroom teachers should have is empathy, the participants express themselves as follows:

T1 *"First of all, he/she should have a high sense of empathy and be able to anticipate the difficulties caused by the language problem."*

T3 *'First of all, without prejudice, we should focus on the fact that the person before us is a" child "rather than "a member of a particular nation". Trying to understand the experiences and feelings of those children by approaching with empathy will change our perspective. "*

The two participants, who think that the biggest problem of refugee students is that they speak a different language, state that the teachers should communicate them sufficiently with the following sentences:

T2 '*I think the biggest problem in the education of refugee students or students from different cultures is the language problem. These students should receive an educational process in which they learn the language of the culture they live in as well as keeping his mother tongue alive. Having a teacher who speaks his own language will be a great advantage for refugee children.* "

T1 *"First of all, he/she should have a high sense of empathy and be able to anticipate the difficulties caused by the language problem."*

T9 *'Language competence, cultural competence, knowledge of different cultures, being knowledgeable about different education systems, sensitivity to cultural values, communication skills, having no stereotypes on mind, social-justice skills'*

Theme 3. Educational Competence Experiences

The question regarding the theme of "Educational Competence Experiences" is "how are the experiences of school administrators and teachers about intercultural educational competency areas". The data which have been obtained are presented in Table 4.

Table 4. Opinions on educational competence experience

Code	Participants
Communication	T2 T3 T4 A1 A2 A3 A4
Social Adaptation	T1 T5 T7 T8 T9 T10

The examples given by the participants are that students with different languages generally have difficulty expressing themselves in Turkish, as well as being excluded and marginalized due to their differences.

Most of the participants have given examples of refugee students having difficulties due to speaking a different mother tongue and inability to express themselves. They expressed their competence areas within the framework of the concepts of communication and social adaptation. For example;

T2 says that "*I asked my refugee student named MEYSA to teach me to say good morning in her mother tongue. I remember that when I said good morning in her native language, she always laughed when she saw me during breaks.*"

T3 reports that "*My 7th grade female student is more diligent than many students in her class. Although her native language is not Turkish, she can grasp the grammar rules very easily. She succeeds by listening and studying well. However, because the culture she grew up in and mother tongue she acquired are different, she has trouble in understanding and interpreting idioms and proverbs.* "

T4 mentions that "*There are students from different parts of the country in the school where I work. These students usually communicate with children from their own culture. Instead of intercultural communication, I observe that everyone continues to experience their own culture.* "

A1 states that "*The student who comes to the classroom and sits in front of us as our student does not speak the language, cannot even tell you about his / her basic needs; In reverse, teacher cannot communicate with the student, and cannot even say how are you. They are the individuals who are strangers to each other in everything. Understanding each other, learning our differences, internalizing it is a process that will take some time, months even years. In addition, the time we can devote to each other in this process is very limited in the classroom environment. Nevertheless, being in the classroom with students from different social background, with different nationalities, beliefs and thoughts, showing that we accept them with their differences, making them feel this acceptance makes me incredibly happy as an educator. A family of Iraqi citizens applied to our school and asked us to enroll their students. They kept repeating the very limited number of words they had learned to express themselves. It made the parents and students incredibly comfortable to meet an administrator who spoke their mother tongue and knew them allowing them to express themselves. In terms of our profession, it is probably the greatest happiness for us that students find us at every opportunity throughout their education life, to tell you about their pain, joy, wishes, and to see their eyes shining and their sincere smile.* "

A2 explains that "*I only had a refugee student in a two-month period. It could be observed that he was feeling lonely. Having difficulty speaking Turkish further strengthened this feeling. I would often try to communicate with him in class and make him feel that he was not alone. I would try to speak Afghan with him using the phone apps. I often tried to chat with him outside of class. It was nice to see him feel comfortable with me.* "

In the examples given by other participants, the situations in which refugee students were excluded, marginalized and felt lonely due to such reasons as speaking a different language, having a different religion, and ethnic origin are presented. Participants trying to achieve social adaptation give the following examples:

T9 reports that "*I had a student of Iranian origin in my class. One of my other students told his classmates, "Let's not play with him, let's not get close to him, he is Iranian" referring to my Iranian student. "By analyzing the reasons of behavior based on behavioral psychology training for student behavior, I noticed peer bullying and utilized peer mediation to solve the problem.",* and

T10 says that **"***I have a student named "Halit" from Syria. He was a quiet and diffident student early in the first grade. I understood that a friend and family who were in the same class had a marginalizing attitude against him because they were Syrian. They did not want their child to match or speak with the Syrian child in games. I became a role model for his friends by including Halit in all the activities in the classroom, reinforcing the areas he was successful in, letting him tell about his own culture, and stating that I liked it or wondered very much. As I showed a respectfull attitude, all my other students who followed me started to adopt the same approach to Halit. I coupled Halit in the same group with my student who said he didn't want to talk. I gave tasks to work together in games and projects and reinforced them by emphasizing the importance of solidarity when they succeed. At parent meetings, I talked about universal morality, sharing, being respectful, and being far from prejudices. Now, my two students are continuing education in my class as two very good friends.* **"**

It can be said that the students are marginalized and made to feel lonely by other students considering these two examples.

Theme 4. Classroom Practices

The question regarding the theme of "Classroom practices" is "what are opinions of school administrators and teachers on how the classroom teaching, behavior management and social interaction practices should be in the intercultural education process". The data which have been obtained are presented in Table 5.

Tablo 5. Opinions on classroom practices

Code	Participants
Understanding the Culture	T3 T6 A1 A2 A4
Cooperative Learning	T1 T2 T4 T5
Individualized Teaching	T8 T9 A3
Democratic Classroom Environment	T10 T7

Considering the practices of the participants in their classrooms in terms of teaching, behavior management and social interaction; it is observed that they use methods and techniques of trying to understand different cultures and making students feel valuable, benefiting from the interaction of collaborative learning, developing a democratic classroom environment and individualizing teaching. For example:

A1 says **"***I try to remind my students that different culture, language and values are natural and encourage them to help their immigrant friends and to accept them as they are.***"**

A2 notes that **"***In the philosophy lesson I taught, I would try to get his opinions especially on philosophical concepts. I could see the positive reflections of our approval and our exchange of ideas.*

*This helped him feel more confident and have sense of belonging in his behaviors. Also, he liked me to share with him what I knew about where he came from. Asking him non-judgmental questions that just tried to understand reinforced this feeling.***"**

A4 suggests that **"***Our culture should be introduced to these students and the existence of other cultures should be expressed. We should involve these students in the process, integrate them with Turkish students, form a group and promise their wellbeing. "*

T3 states that *"First of all, we need to make the student feel that they are "valuable", that they are no different from others, and that they are all the same in our eyes. The teacher's approach directly affects the feeling of the class. By the same token, possible peer bullying against other students can be prevented by encouraging students to show empathy."*

It is seen that the participants perform classroom practices in order to familiarize the students' culture. It can be claimed that teachers try to close the emotional gap which refugee students feel and try to help them gain a sense of belonging through the mentioned practices.

It is observed that one of the classroom practices is the collaborative learning technique. Examples of these practices are as follows:

T4 states that *"I often get students to do group work activities in the classroom. While forming the groups, I am attentive to bring together children from different cultures as much as possible."*

T5 says that *"I focused on activities that were carried out together, sometimes I showed an egalitarian and sometimes positive discrimination approach. I gave him opportunities to express himself."*

T1 mentions that *"In some cases, to guide them in words and sentences that they do not understand - they have difficulty in expressing, and to ensure that they are among the groups of friends in the classroom."*

T2 suggests that *"As far as I know the students in the classroom, I divide them into groups according to their learning capacities in my mind. And I try not to load children beyond their capacity. I try to explain to the student with a high capacity that there is no limit in knowledge and that he should try to internalize the knowledge."*

It can be asserted that teachers aim to increase interaction among students, provide peer education, and facilitate adaptation through this technique.

It is observed that individualized education, plain expression and concretization are among the practices which are preferred by teachers. It can be claimed that teachers try to increase the academic level of weak students for various reasons with different methods and techniques by focusing on the problems.

T9 states that "*During the teaching phase, I examine the education system in the country where my student comes from, and the social and academic aspects of the system. I individualize the teaching by identifying the current situation of the student. I use teaching methods and techniques according to the social, cultural and academic background of my student. By making use of collaborative learning, I enable the student to socialize at the same time. I benefit from the behavioral psychology training that I received for behavior management. I use communication methods in terms of social interaction.*

T8 expresses that "*While teaching in the classroom to make the subject concrete, I try to give examples from the cultures of both my refugee students and my local students to ensure them to understand each other and fraternize with each other.*

A3 suggests that **"***This should be in the form of good communication, simpler expression, one-to-one work, and participation in class activities for students with cultural differences.*

It can also be claimed that the two teachers who emphasize the democratic class actually try to be role models by providing a classroom environment in which all children feel that they have equal rights.

T7 states that *"First, I try to find out which cultural or socioeconomically differences students come from, and I use pedagogical methods to create a democratic classroom environment."*

T10 explains that *'First of all, I make the student feel that I respect her/him. I respect her/his opinions. I try to help her/him find and solve her/his difficulties. I create an interactive, democratic and solidarity environment in the classroom. "*

Theme 5. Individual Competency Areas

The question regarding the theme of "individual competency areas" is "what are the opinions of school administrators and teachers regarding the fields they consider themselves competent in the education process of refugee students". The data which have been obtained are presented in Table 6.

Table 6. Opinions on individual competency areas

Code	Participants
Branch	T3 T6 T7 T8
Pedagogy	T1 T2 T9 T10
Incompetent	T5 A1 A2

Participants have stated that they find themselves competent in different areas of refugee students' education; some in their own academic field, and others in the social-emotional dimension in the pedagogical field. Some participants, on the other hand, suggest that they do not consider themselves competent as it requires expertise.

It can be claimed that it is thanks to both the education they received at the university and their experience in their fields that the majority of the participants states that they are competent in their branches.

T3 *"I feel competent in Turkish because it is my branch."*

T6 *"Art, because I graduated from art education department of education faculty."*

T8 *"I feel competent in foreign language education. Because it is easier compared to other teaching areas for all students to combine on the foreign culture that is to be taught.",* **T7** *"art education."*

Some of the teachers have also stated that they are pedagogically competent.

T1 believes that *I make an effort for them to adapt to the class and not to be excluded. This is because they're kids too.*

T9 explains that *"I feel competent academically, socially and culturally. I can support my student academically thanks to the comprehensive education I have received. In comparative education system education, I had the opportunity to examine the education systems of many different countries and compare them with the Turkish education system. As an individual who is socially sensitive to cultural values, I can manage differences by using communication methods. Using my emotional behavioral psychology education, I observe how the student's emotions are reflected in their behavior and approach them accordingly."*

T10 states that **"***I feel competent to ensure them to be able to trust themselves both academically and socially, to realize their potential and to be in solidarity in the classroom environment."*

Teachers who think that an additional carrier education is necessary to be competent have stated that they do not find themselves competent at this point.

T5 believes that *"In intercultural pedagogy, the situation of refugee students should be considered separately. This is because the education and qualifications of an individual who has a family order and can meet their basic needs, and the individual who is in the same environment as a refugee differ*

greatly. The conditions of the students who have immigrated as refugees are more severe, so it requires special expertise in the competencies that should be possessed by the individual who teaches her/him. Therefore, I do not see myself competent in this area."

A1 maintains that *"We have not received any training or education on this subject. No educator is knowledgeable of different cultures, intercultural communication, multilingualism etc. in our education faculties. On the contrary, one language, one culture, one education paradigm is indoctrinated to teacher candidates in education faculties. Therefore, scientifically and pedagogically, I am not in a position to say that I am competent, experienced and expert in this field."*

A2 expresses that *"I think this is a discipline in itself. Therefore, it is difficult to say that I feel competent professionally because I have not received any training or education in this direction. While communicating with my refugee student, the feeling of doing something wrong always makes me nervous. In my opinion, teachers in Turkey should receive very serious training on this subject."*

DISCUSSION and CONCLUSION

Many studies have been conducted with students, teacher candidates, teachers, and lecturers in the field of intercultural education, which has increased in importance with recent migrations (Başbay & Bektaş, 2009; Polat & Kılıç, 2013; Demirsoy, 2013; Bulut & Başbay, 2014; Açan, 2016; Aslan & Kozikoğlu (2017); Mazı (2018); and Ateş (2018). In this study, it is aimed to present the current situation in a realistic way by determining the participants among the teachers and administrators who have currently refugee students in their classes.

In line with the purpose of the study, it is aimed to determine the opinions of administrators and teachers on intercultural education competence, in the first theme. It is observed that the participants mostly associate the competence of intercultural education with the concepts of cultural knowledge, respect for differences, universality, education planning, competence and social adaptation. It is also seen that the concepts used by the participants in defining intercultural education competence are related to the definitions in the literature. For example; Villegas and Lucas (2002) define being competent in intercultural pedagogy as being socio-culturally conscious, not considering differences as problems to be overcome, being aware of the responsibility of schools to provide educational richness and diversity to all students, understanding how students construct knowledge, and support learners in structuring knowledge, being aware of the lives of the students, redesigning the teaching with the knowledge gained about the lives of the students (cited in Başbay & Bektaş, 2009). In the study which was conducted by Canosa, Jiménez, Romero, and Berlanga (2020), it is stated that teachers should be encouraged to think individually and as a group on the reality of multicultural school. It can be asserted that this determination supports the necessity and importance of the research.

It is observed that the participants have mentioned the concepts of recognition and respect for culture, universal values and human rights, empathy and communication in the second theme in which opinions of the classroom teachers of refugee students on the qualifications to have in terms of intercultural education are determined. Studies in the literature show that teachers must have intercultural education competencies in order to achieve the purpose of education in the multicultural education system. According to Spiecker and Steutel (2001), teachers of the 21st century have such competencies as having democratic attitudes, perception of multiculturalism, tolerance to different lifestyles, respect for the rights of other citizens, a strong stance against discrimination, etc. It is of great importance for teachers to teach, knowing that students may have different religion, language, race, gender, geographical region, experience, sexual orientation, expectations, and political views (Çoban, Karaman, & Doğan, 2010). Cırık (2008) states that it is important to belong to a certain social environment and to communicate with other people for high-level cognitive functions.

It is observed that the teachers whose practices we have investigated in terms of teaching, behavior management and social interaction in the classroom give answers including the concepts of

understanding the students' culture, cooperative learning, individualized teaching and democratic classroom environment.

In the last theme, teachers have been asked about the areas which they are competent in the education of refugee students, and it is observed that they interpret their fields of competence as branch, pedagogy and inadequate. Examining the general competencies of the teaching profession, it is stated that teachers should be respectful to individual and cultural differences as well as national and moral values and open to universal values; sensitive to the protection of the natural environment and historical heritage and they should pay regard to children's and human rights; contribute to the education of students; show empathy in human relations (Ministry of National Education, 2017).

As a result of the study, it can be suggested that school administrators and teachers attach importance to multiculturalism and intercultural education and make definitions similar to teacher competencies in the literature. Similarly, Polat (2012), in his study investigating the attitudes of school principals towards multiculturalism, has concluded that school principals have positive attitudes towards multiculturalism. Additionally, Kaya (2013), in his study called "Investigation of Teachers' Opinions on Multiculturalism and Multicultural Education", reveals that participant teachers in Diyarbakır have positive perceptions of multiculturalism.

A study by Agostinetto and Buga (2020) has shown that a gap exists between what teachers tend to say and what they actually do in multicultural education. For example, teachers' conceptualizations of culture tend to be static. References to clothing or kitchen dishes are typical (stereo) and simple. In other cases, teachers tend to trivialize or simply ignore diversity altogether.

School administrators play an important role in organizing educational environments, making multiculturalism a school culture and setting an example for other partners of education. As a result of the study, although it is stated that administrators are aware of multiculturalism and give importance to intercultural education, it is observed that they respond as teachers rather than administrators in terms of practice and experience.

In the arrangement of educational environments, making multiculturalism school culture and the desired goal of multicultural education can be achieved only if teachers have intercultural education competence. Teherefore, it is very important to provide teachers and teacher candidates with the competencies required for the planning and practices of education for students with cultural differences (Ayaz, 2016).

Suggestions

In line with the results obtained from the study, the following suggestions have been made for future researches.

- In-service trainings should be organized in order to develop the competency areas of teachers and school administrators regarding intercultural education.
- It can be suggested that including courses on intercultural education in higher education institutions contribute to the teachers' competency in this area and increase awareness.
- Concepts such as intercultural respect, empathy and universal values, which are included in the education of values from the very beginning of the education process can increase the awareness of individuals on this issue. Including these subjects in the courses given to teacher candidates in higher education may contribute to the candidates to be more competent when they become teachers.
- Establishing activities for students to better know and respect each other's cultures, both in the preparation of the curriculum and in the planning of the lesson by teachers, may help to reduce the problems experienced.
- In higher education institutions, it may be another suggestion for teacher candidates to be given lectures on cultural differences and intercultural competence, as well as the current

participation of teachers in in-service seminars in the fields of teaching, behavior management and social interaction.

- It is recommended to conduct an in-depth qualitative study to determine the needs and objectives in order to provide suggestions for the training programs which can be organized to develop intercultural education.
- Meta synthesis and meta-analysis studies can be performed on intercultural education researches. Thus, findings, results, comments and suggestions regarding more collective, wider and different dimensions can be evaluated.

Limitations of the study

This study has some limitations. First, the sample size could be high to ensure data saturation. In addition, there are students with different refugee backgrounds (e.g., Syrians, Afghans) in the participating administrators' schools and teachers' classrooms. Therefore, the sample of administrators and teachers is not homogeneous.

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AN EXAMINATION OF IRRATIONAL RELATIONSHIP BELIEFS AND PERFECTIONISM AS THE PREDICTORS OF COPING WITH ROMANTIC JEALOUSY

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Abstract

This study aims to examine whether constructive and destructive coping as styles of coping with romantic jealousy are significantly predicted by irrational relationship beliefs, perfectionism toward self and partner as dimensions of perfectionism in romantic relationships, and gender. The study sample consists of 286 university students. The study data were obtained by using the "Irrational Beliefs Scale", "Romantic Relationship Perfectionism Scale" (RRPS), and "Jealousy Coping Ways", which is a subscale of the "Romantic Jealousy Questionnaire (RJQ)". Multiple Linear Regression Analysis was used for data analysis. As a result of the study, it was found that perfectionism towards oneself significantly predicted constructive and destructive coping styles with jealousy. Irrational beliefs and gender were found to significantly predict destructive coping with jealousy. It was found that perfectionism towards other (partner)-oriented did not significantly predict constructive and destructive coping style with jealousy. In addition, it was found that irrational beliefs and gender did not significantly predict constructive coping with jealousy.

Keywords: Romantic relationship, jealousy, irrational beliefs, perfectionism, coping.

INTRODUCTION

People have two basic kinds of emotional needs. The first one is to love and to be loved, and the second one is to be valued by oneself and others. Particularly during the university period when individuals progress from puberty to adulthood, they have a need for developing intimacy, loving others, and being loved in return, which is also substantiated in the literature (Burger, 2016). Erikson (1986; cited in Boeree, 2006; Schultz & Schultz, 2017) argues that during this period, individuals seek to develop a certain degree of intimacy rather than being alone and therefore, young women and men start looking for a special relationship, through which they can build intimacy and become mature emotionally. Like Erikson, Sullivan stated that building deep and meaningful relationships was one of the important developmental tasks during this period. Sullivan stated that the relationships established during this period are very important for establishing satisfactory relationships in adulthood (Burger, 2016). However, in such relationships, not everything always progresses smoothly, and partners are likely to experience problems, one of which is jealousy between partners.

Romantic jealousy is defined as a complex emotion which is at play in intimate relations and is also indispensable to social order (Clanton, 1996). White (1981) defined romantic jealousy as a complex of feelings, thoughts, and actions that follow a threat to self-esteem in the relationship and/or a threat

to the quality of the relationship. A review of the literature shows that most definitions of jealousy commonly refer to the fact that it is more of an emotional response to the real or imaginary threat of losing something of personal value in a romantic relationship (Salovey & Rodin, 1985; White & Mullen, 1989). A great deal of the approaches to jealousy often highlight its negative aspects. Buunk and Bringle (1987) argue that jealousy is a potentially destructive emotion in intimate relationships. White and Mullen (1989) maintain that jealousy more often has to do with uncertainty about the partner's love and an obsessive relationship pattern. Despite the marked emphasis on the negative aspects of jealousy in the literature, certain researchers argue that romantic jealousy may have a positive function for maintaining a relationship (Attridge, 2013; Salovey & Rodin, 1985). Harris and Darby (2010) hold that despite its destructive dimension, jealousy may warn an individual against potential threats to the relationship, thereby motivating behaviors that may serve to protect the relationship.

Jealousy as a behavior is not only analyzed in its positive and negative aspects, but also as being normal and pathological with regard to the intensity of the response and coping styles (Guerrero, 1998). Pathological jealousy has been defined as an overwhelming struggle of individuals regarding their partner's infidelity without any valid evidence or factual basis (Kingham & Gordon, 2004). In pathological jealousy, people have unrealistic beliefs about the infidelity of their partners, and these beliefs are persistent even if there is evidence to the contrary (Easton & Shackelford, 2009).

Researchers note that a certain degree of jealousy is normal and common for a romantic relationship (Batinic, Duisin, & Barisic, 2013; Buunk & Dijkstra, 2006). Yet, as jealousy becomes more intense and people try to cope with such destructive emotions, the "normal" feeling of jealousy changes into an "athological jealousy" one. In the light of the current literature, what matters is how partners cope with jealousy, rather than whether jealousy exists. The destructive nature of jealousy has recently sparked new research on how to cope with jealousy (Bevan, 2006; Demirtaş, 2004; Demirtaş & Dönmez, 2006; Dodge, 1991; Hoşoğlu & Sevim, 2019). Lazarus (2006) notes that the preferred coping style is indicative of whether jealousy will have a positive or negative impact on a relationship. When partners choose to cope with jealousy in a constructive manner, stability of the relationship is maintained, strengthening the bond between the partners (Demirtaş, 2011). Bryson (1991) remarks that individuals who tend to protect their relationships and themselves when coping with jealousy display a positive style of coping with jealousy. Such tendencies involve behaviors intended toward discussion, communication and improving a relationship. On the other hand, when partners display destructive behaviors toward coping with jealousy such as emotional withdrawal, verbal or physical aggression, self-incrimination, and self-defense, they might end up harming or even ending their relationships (Demirtaş, 2011). The feeling of guilt, destructive behaviors aiming to protect oneself rather than the relationship; projection, denial and excessive control are particularly observed in individuals who display pathological jealousy (Adams, 2012). In the literature, the existence of irrational beliefs in pathological jealousy has been emphasized by researchers. (Easton & Shackelford, 2009; Ellis, 1972; cited in Adams, 2012).

Beliefs in romantic relationships involve beliefs on how the partners and the relationship itself should be (Guerrero, 1994). Kalkan and Yalçın (2012) defined healthy and functional romantic relationships with characteristics such as "love, attachment, emotional support, and belonging". In romantic relationships, irrational beliefs are an individual's exaggerated, rigid, irrational, and resistant beliefs about the nature of the romantic relationship, himself/herself, and his/her partner. The cognitive behaviorist approach holds that individual emotional disorders do not simply stem from experiences, but the meanings and personal interpretations they attribute to those experiences also determine their emotional and behavioral reactions (Bernard, 1995). The Rational Emotional Behaviorist Approach, on the other hand, suggests that individuals with an unhealthy degree of romantic jealousy transform their affectional needs from their partners into absolutist musts. According to Lazarus, a person who holds the irrational belief that they absolutely must have their partner's love would tend to be overly sensitive and experience a greater degree of romantic jealousy in their relationships (Deutsch, 2006).

Buunk (1997) defines anxious jealousy as a person's feeling of doubt and insecurity due to irrational thoughts about his/her partner, while possessive or preventative jealousy is defined as one's negative attitudes aiming to prevent partner contact with others outside the romantic relationship due to the person's certain obsessive thoughts and beliefs. What anxious and possessive jealousy have in common is that they both involve certain irrational beliefs.

Beck, Emery and Greenberg (1985) report that jealousy develops as a result of hyperawareness of threat. Jealous individuals with irrational beliefs are likely to perceive any event as a threat to their relationship. Mind-reading as a dimension of irrational beliefs might be personalized into fortune-telling or overgeneralizing. For instance, one might develop prejudices or misinterpretations about their partner who is reading a newspaper such as "She is interested in him", "She no longer finds me attractive" and "She is going to leave me" (Leahy & Tirch, 2008). People with such irrational beliefs may begin to experience jealousy, actually a natural feeling, at pathological levels. For it is reported in the literature that jealousy may be taken to pathological heights once people lose control and are overwhelmed by irrational or obsessive thoughts about their partners (Costa, Sophia, Sanches, Tavares, & Zilberman, 2015). These individuals often cope with their feelings of jealousy in a destructive and unhealthy manner (Fischer & Manstead, 2008).

Perfectionism in romantic relationships has been explained in the literature in the context of perfectionism towards one self and towards other (partner)-oriented. Perfectionism in romantic relationships was defined by Matte and Lafontaine (2012) in terms of both the expectations of the person from himself and his partner. Perfectionism towards oneself is the behavioral patterns that an individual determines about himself in his romantic relationship. Perfectionism towards other (partner)-oriented refers to the exaggerated expectations and high standards of the individual in their romantic relationship (Matte & Lafontaine, 2012). Larson (1992) has identified the perfect partner, the perfect self, and the perfect relationship beliefs as common irrational beliefs among young adults. Researchers report that relational conflicts and anger may arise when individuals' high standards for their partners are not fulfilled (Lopez, Fons-Scheyd, Morua, & Chaliman, 2006). People with high perfectionism in romantic relationships usually believe that building intimacy requires being perfect. Yet, when such expectations are not met by their partners, they lose their love and trust for them (Mackinnon, Sherry, Antony, Stewart, Sherry, & Hartling, 2012). Loss of love and trust between partners is likely to result in conflicts and jealousy in relationships.

In the literature, irrational beliefs are defined as unrealistic, unreasonable and illogical beliefs that have a destructive impact on relationships and often involve high expectations and perfectionist behaviors (Cam, Seydooğulları, & Artar, 2014; Çivitçi, 2009; Schulman, 1999). Beck (1993) analyzes irrational beliefs under certain categories including the "all-or-nothing" approach, overgeneralizing and statements involving "must". Of all such attitudes, the "all-or-nothing" idea is based on perfectionism (Antony & Swinson, 2000). As a result, it is thought that perfectionism in romantic relationships is also affected by the irrational beliefs of individuals.

When studies on coping with jealousy are examined, findings on the relationship with gender are encountered. Most of the research results show that women have a more constructive coping style than men (Carson & Cupach 2000; Demirtaş & Dönmez, 2006; Rusbult, 1987). When the literature is examined, Bryson (1991) and Rusbult (1987) show that women are more relationship oriented and they aim to protect their relationships; they explained that men are success oriented and they resort to destructive style in order to protect their self-esteem.

Jealousy is a universal feeling that is present in almost all relationships. Therefore, everyone copes with jealousy differently. What matters is that one should not turn this feeling into a pathology. It is important to examine romantic jealousy, coping styles and related variables in romantic relationships established in this period, which corresponds to "isolation against intimacy" as one of Erikson's developmental stages.

Destructive coping with jealousy arguably damages both individuals and the relationships they attempt to build. It is important to conduct research on the subject by considering the variables that influence jealousy coping styles, so that individuals can recognize this feeling and establish healthy relationships to avoid potential flirting violence. In Turkey there is limited research on jealousy coping styles in romantic relationships. The present study examines whether irrational beliefs and levels of perfectionism among university students are predicted by the ways they cope with jealousy in their romantic relationships.

In this context, answers to the following research questions were sought;

1. Do irrational relationship beliefs, perfectionism levels and gender significantly predict constructive coping with jealousy in the romantic relationships of university students?
2. Do irrational relationship beliefs, perfectionism levels and gender significantly predict destructive coping with jealousy in the romantic relationships of university students?

METHOD

Research Model

This is a study based on the relational screening model, which examines whether constructive and destructive coping styles of university students with jealousy in their romantic relationships are predicted by their irrational beliefs, self- and partner-oriented perfectionism levels, and gender.

Participants

The study group consists of 286 university students attending a public university, who were selected using the random sampling method and volunteered to participate in the research. 51.7% (n=148) of the study group consists of females, and 48.3% (n=138) consist of males. The participants are university students between the age range of 18-23 (M = 19.83, SD = .93).

Measures

Irrational Romantic Relationship Beliefs Inventory

Irrational Beliefs in Romantic Relationships Scale was developed by Sarı and Korkut (2015) to determine the irrational beliefs of university students about romantic relationships. The scale consists of 30 items and 6 factors. It is a Likert type scale scored between 1 (totally disagree) and 5 (totally agree). Items 1 and 22 are inversely rated. The factors of the scale included over expectations, use of social time, mind reading, different thinking, physical intimacy, and gender differences. The Cronbach's Alpha is .85 for the entire scale, and the coefficients computed for the subscales range between .53 and .81. Two similar scales were used to compute the scale's validity and it was found that the correlation with the Irrational Beliefs Scale (AOİÖ) developed by Türküm (2003) is .34; and the correlation with the Interpersonal Cognitive Distortions Scale (İBÇÖ) developed by Hamamcı and Büyüköztürk (2003) is .45.

The Cronbach's Alpha coefficient computed for the present study is .82. First-Order Single-Factor Confirmatory Factor Analysis (CFA) was used to assess the scale's construct validity. The results of the analysis revealed X^2/sd=1.57; CFI=.90; GFI=.88; RMSEA=.04. The values obtained for the scale are within the range of acceptable values, which attest to the validity of the variable under study.

The Romantic Relationship Perfectionism Scale

Romantic Relationship Perfectionism Scale developed by Matte and Lafontaine (2012) was adapted into Turkish by Akın, Erguvan, Akça, Göymen and Akdeniz (2013) in order to measure the perfectionism levels of individuals. The 14-item and 7-point Likert-type scale consists of 2 factors, which are self-oriented perfectionism and others-oriented perfectionism. Items 5, 8, 11 and 13 are inversely rated and the scale score is calculated based on the sub-factor scores. Internal consistency and corrected item-total correlations were examined to assess the validity of the scale. The analyses

were carried out using LISREL 8.54 and SPSS 13.0. Confirmatory factor analysis was performed for construct validity and the results showed that the two-factor (self-oriented and others-oriented perfectionism) and 14-item model in the original version of the scale yields good fit to the data (x^2=159.75, sd=68, RMSEA=.077, AGFI=.86, GFI=.91, SRMR=.089). Internal consistency reliability coefficients for the scale were computed as .52 and .59. Corrected item-total correlations range between .28 and .48.

Cronbach's Alpha coefficients computed for the scale as part of the present study are .57 for self-oriented perfectionism and .55 for others-oriented perfectionism. The scale's construct validity was tested using Confirmatory Factor Analysis (CFA). The results revealed the following values: X^2/sd=2.52; CFI=.81; GFI=.93; RMSEA=.07. The values obtained for the scale are within the acceptable range, which attests to the validity of the variable under study.

Romantic Jealousy Questionnaire (RJQ)

The Romantic Jealousy Questionnaire (RJQ) was developed by Pines and Aronson (1983) and adapted to Turkish by Demirtaş (2004). It was developed to assess different aspects of jealousy and is a comprehensive scale consisting of a total of 5 subscales (129 items), which are "Level of Jealousy (22 items)", "Reactions to Jealousy (59 items)", "Jealousy Coping Ways (17 items)", "Effects of Jealousy (15 items)", and "Causes of Jealousy (16 items)". It is a 7-item Likert-type scale. The "Jealousy Coping Ways" subfactor was used for this study. The Jealousy Coping Ways subscale has a four-factor construct. The first factor accounts for 17.90%, the second one for 11.65%, the third one for 10.26%, and the fourth one for 9.57% of the variance. These four factors together account for 49.40% of total variance. Following Rusbult's (1987) approach, the factors can be renamed as exit, loyalty, neglect, and voice, respectively, based on the items they contain. They can also be categorized under constructive coping styles (voice and loyalty) and destructive coping styles (exit and neglect). The internal consistency coefficient and split-half reliability coefficients were calculated to assess the reliability level of the scale. The internal consistency coefficient (Cronbach's Alpha) is .92 and split-half reliability is .72.

The Cronbach's Alpha coefficients calculated for the scale as part of the present study are .42 for constructive coping style and .65 for destructive coping style. The scale's construct validity was assessed through Confirmatory Factor Analysis (CFA) for the. The analysis results revealed the following values: X^2/sd=3.12; CFI=.77; GFI=.89; RMSEA=.09.

Data Analysis

SPSS 25 Software Pack was used for data analysis. Multiple Linear Regression Analysis was performed to determine the extent to which the independent variables in the study predict the university students' ways of coping with jealousy in their romantic relationships. The dependent variables of the study are "constructive coping" and "destructive coping", which are the sub-dimensions of romantic jealousy coping styles, while "irrational beliefs in romantic relationships" and the subfactors of perfectionism level ("self-oriented perfectionism" and "others-oriented perfectionism" and gender were studied as the independent variables. The significance level for the study is .05.

Before adding the gender variable found in the personal information form into the regression analysis, it was recoded as the dummy variable. The dummy codings made for the categorical variable in the study were 1 for female student and 0 for male student.

Prior to conducting the analyses, the data set was examined to ascertain whether it satisfies the assumptions required for multiple linear regression analysis. The fundamental assumptions in regression analysis are normal distribution and no interaction between the independent variables (Kalaycı, 2010; Tabachnick & Fidell, 2015). Thus, kurtosis and skewness coefficients were analyzed to see whether the scores obtained from the scales have a normal distribution. Further, Durbin-Watson

Test was also performed to check for autocorrelation which causes systematic errors. Also, Pearson's Moment-Product Correlation Coefficients, Tolerance Values, and Variance Inflation Factor Values (VIF) were examined to check for multicollinearity between the independent variables. The significance level for the study is .05.

RESULTS

To solve the problem, the kurtosis and skewness coefficients were first examined to see whether the scores obtained on the Romantic Jealousy Questionnaire (RJQ) have a normal distribution. For the subscale of "constructive coping" with romantic jealousy, the skewness coefficient is .27 and the kurtosis coefficient is .23. For the subscale of "destructive coping" with romantic jealousy, the skewness coefficient is .71 and the kurtosis coefficient is .29. In any dataset, a value range between +1.5 and -1.5 is acceptable for skewness and kurtosis values (Tabachnick & Fidell, 2015). Therefore, the skewness and kurtosis values obtained for the Romantic Jealousy Questionnaire were found to be within the acceptable value range. Also, it was found that DW= 1.73 for the subscale of "destructive coping" with romantic jealousy and DW= 1.89 for the subscale of "constructive coping" with romantic jealousy. The Durbin-Watson Test confirmed the lack of autocorrelation. A Durbin-Watson Test value within the range of 1.5 – 2.5 shows that there is no autocorrelation (Kalaycı, 2010). As a result of the analysis performed to determine whether there is multicollinearity between the independent variables, we checked the Tolerance Values and VIF-Variance Inflation Values. It is statistically significant to have tolerance values greater than .10 and VIF- Variance Inflation Values that are smaller than 10 (Çokluk, Şekercioğlu, & Büyüköztürk, 2016). This latter value should be 5 for some researchers (Craney & Surles, 2002) and 2.5 for others (Allison, 1999). Table 1 shows the VIF and tolerance values for the study variables.

Table 1. The results on multicollinearity between the independent variables

	Tolerance	VIF
Irrational Beliefs	.75	1.32
Self-Oriented Perfectionism	.93	1.08
Others-Oriented Perfectionism	.73	1.29
Gender	.99	1.01

VIF and tolerance values show that there is no multicollinearity between the independent variables. Further, Pearson's Moment-Product Correlation Coefficients were computed to determine whether there is multicollinearity between the independent variables. The mean correlation and standard deviation values for the study variables are shown in Table 2.

Table 2. Pearson's moment-product correlation coefficients, mean and standard deviation values for the variables

Variables	1	2	3	4	5	6
Irrational Beliefs	1					
Self-Oriented Perfectionism	.18**	1				
Others-Oriented Perfectionism	.43**	-.11	1			
Constructive Coping with Jealousy	.05	.17**	-.06	1		
Destructive Coping with Jealousy	.21**	-.17**	.21**	.12*	1	
Gender Female (Dummy-1)	.06	-.02	-.03	.01	-.10	1
Mean	100.34	33.66	25.65	17.20	28.90	
Standard Deviation	14.10	6.21	6.35	4.96	10.10	

*p<.05, **p<.001

As seen in Table 2, the Pearson's Moment-Product Correlation Coefficient for the variables ranges between .01 and .43. An intervariable correlation of .90 and above indicates multicollinearity (Tabachnick & Fidell, 2015). No intervariable multicollinearity was found in this study.

Multiple linear regression analysis was performed to identify the study variables that predict the method for constructive coping with romantic jealousy. The results of this analysis are shown in Table 3.

Table 3. The results of the multiple regression analysis to predict the method of constructive coping with jealousy

Predictor Variable	B	Standard Error B	β	T	P	Double r	Partial r
Constant	12.54	2.51		5.00	00		
Irrational Beliefs	.02	.02	.04	.67	.51	.05	.04
Self-Oriented Perfectionism	.13	.05	.16	2.62	.01	.17	.15
Others-Oriented Perfectionism	-.05	.05	-.06	-.94	.35	-.06	-.06
Gender Female (Dummy-1)	.06	.58	.01	.10	.92	.01	.01
R=0.18; R^2=0.03; F=2.45; p= .04*							

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

Table 3 shows that the multiple regression model for the prediction of constructive jealousy coping by irrational beliefs, self- and others-oriented perfectionism, and gender is significant (F=2.45; p<.05).

Constructive jealousy coping is positively and significantly predicted by self-oriented perfectionism (t=2.62; p<.05). This variable accounts for about 3% of total variance (R=.18; R^2=.03; p<.05). Table 3 shows that irrational beliefs (t=.67; p>.05), others-oriented perfectionism (t=-.94; p>.05), and gender (t=.10; p>.05) do not significantly predict constructive coping with jealousy.

For the study, a multiple linear regression analysis was also performed to identify the variables that predict the method of destructive coping with romantic jealousy. The analysis results are given in Table 4.

Table 4. The results of the multiple regression analysis to predict the method of destructive coping with jealousy

Predictor Variable	B	Standard Error B	β	T	P	Double r	Partial r
Constant	22.34	4.90		4.56	00		
Irrational Beliefs	.15	.05	.21	3.20	.00	.21	.19
Self-Oriented Perfectionism	-.33	.09	-.20	-3.45	.00	-.17	-.20
Others-Oriented Perfectionism	.15	.10	.09	1.48	.14	.21	.09
Gender Female (Dummy-1)	-2.62	1.14	-.11	-1.98	.04	-.10	-.12
R=.33; R^2=.10; F=8.56; p= .00**							

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

Table 4 demonstrates the significance of the multiple regression model on the prediction of destructive coping with jealousy by irrational beliefs, self- and others-oriented perfectionism, and gender (F=8.56; p<.01).

As seen in Table 4, irrational beliefs (t=3.20; p<.01) positively and significantly predicts destructive coping with jealousy. On the other hand, self-oriented perfectionism (t=-3.45; p<.01) was found to predict destructive coping with jealousy negatively and significantly. Moreover, gender (t=-1.89; p<.05) is a significant predictor of destructive coping with jealousy. Men were found to use such destructive jealousy coping styles at a significantly higher level than women. These variables account for about 10% of total variance (R=.33; R^2=.10; F=8.56; p<.01).

As shown in Table 4, others-oriented perfectionism (t=1.48; p>.05) does not significantly predict destructive coping with jealousy.

DISCUSSION and CONCLUSION

This study aims to determine whether constructive and destructive coping styles of university students with jealousy in romantic relationships are predicted by their irrational beliefs in their romantic relationships, perfectionism levels, and gender.

The study results revealed that self-oriented perfectionism of university students in their romantic relationships positively and significantly predicts constructive coping with jealousy. On the other hand, it was seen that, other (partner) oriented perfectionism of university students in their romantic relationships negatively and significantly predicts destructive coping with jealousy. Self-oriented perfectionism in romantic relationships is the high expectations and standards individuals set for themselves in their romantic relationships (Matte & Lafontaine, 2012). Individuals with a high level of self-oriented perfectionism are usually afraid to make mistakes and to lose their existing relationships (Dunkley, Berg, & Zuroff, 2012). Therefore, they are expected to be highly motivated toward saving their relationships. Burns (1980) suggested that many perfectionists are afraid of being lonely and set high standards for themselves in their interpersonal relationships to avoid any relationship breakdown. Guerro and Afifi (1998) stated that individuals who experience jealousy in their romantic relationships tend to use constructive coping methods in order to protect their relationship and / or self-esteem. Rusbult (1987) identified "voice" and "loyalty" as the constructive ways of coping in which the individual has esteem for herself/himself and/or his/her relationship. Individuals who prefer to voice their feelings have high esteem both for themselves and their relationship and this is a coping style in which they choose to speak openly to save the relationship. "Loyalty", on the other hand, is defined as waiting for improvement in the conditions with the hope of protecting the relationship. Given the fact that individuals with high self-oriented perfectionism are afraid of making mistakes and thus have higher motivation to protect the relationship, they are expected to cope with jealousy in a constructive manner to avoid losing their relationship and self-esteem. On the other hand, individuals who prefer using the destructive style of coping with jealousy often do not display such behaviors to save the relationship. On the contrary, they try to end or ignore the relationship. Research has shown that self-oriented perfectionism positively influences relationship satisfaction (Petersen, 2017; Şensoy, Asıcı, & İkiz, 2019). Constructive communication styles and problem-solving skills are expected between partners in order to achieve high satisfaction in a relationship. In this case, it is thought that individuals with high levels of perfectionism towards themselves will exhibit constructive behaviors with the motivation to be perfect and maintain their relationship, and avoid destructive behaviors aimed at ending the relationship.

Our review of the literature produced no research on the correlation between jealousy coping and perfectionism. The available research on jealousy coping associate it with the conditions that trigger jealousy (Buunk, 1987); relationship satisfaction (Bryson, 1992); the type of relationship (Guerrero, Eloy, Jorgensen and Andersen, 1993); individual, relational, and situational variables (Demirtaş, 2004; Demirtaş & Dönmez, 2006); relational satisfaction (Warber, 2007); gender, being cheated on, the number and duration of relationships (Hoşoğlu & Sevim, 2019); psychopathological symptoms (Arslan, 2015), and emotional intelligence (Akdur & Arslan, 2017). However, there are studies that report a correlation between self-oriented perfectionism and positive and adaptive coping styles (Dunkley & Blankstein, 2000; Flett, Russo, & Hewitt, 1994).

Another result of the present study is that irrational beliefs in romantic relationships positively and significantly predict the destructive coping style with jealousy. Ellis argues that individuals who display unhealthy jealousy behaviors harbor irrational beliefs (Adams, 2012). Irrational beliefs in a romantic relationship refer to an individual's irrational beliefs about the nature of the romantic relationship, his/her partner, or himself/herself which are resistant to change and involve over expectation, mind-reading, and generalizing (Ellis, 1986). Irrational jealousy behavior stems from unrealistic and illogical thoughts. Also, in irrational jealousy, there is no real threat for the person to feel jealous. It is a person's own beliefs that lead to the feeling of jealousy. These beliefs also

adversely affect individuals' coping mechanisms, causing them to develop negative perceptions about problem solving (Bilge & Arslan, 2001). To cope with jealousy in a constructive and effective manner, individuals need to become aware whether their irrational expectations and projections underlie their jealousy (Hoşoğlu, 2017). Otherwise, the jealousy experienced may transform from a normal feeling into a pathological jealousy. Available research reports that individuals with irrational beliefs have weak communication skills and tend to deny their jealousy toward their partners (Deutsch, 2006; Green, Campell, & Davis, 2007; Metis & Cupach, 1990). It is believed that displaying weak communication skills toward the partners in their relationships may prevent individuals from coping with their problems in an effective manner. As Rusbult (1987) suggests, such people are likely to use destructive ways of coping with jealousy, which include ending the relationship, threatening, or letting the relationship turn sour by neglecting the problems. The relevant literature also presents results that are compatible with the results of the present study (Hoşoğlu, 2017; Stackert & Bursik, 2003).

The research in the literature suggests that irrational beliefs do not significantly predict constructive coping with jealousy. Larson (1992) cited "try harder", "love is enough,", and "opposites complement" as examples to the most common unrealistic beliefs. People who hold such beliefs also believe that only one person can save the relationship that it is enough to commit to and fall in love with a person is enough for a relationship, and that there may be differences but there is no need to try to change oneself, respectively. Then, to cope with jealousy, such people may be expected to either wait for the conditions to improve (loyalty) or try to solve the problems to single-handedly save the relationship (voice). The results on the correlation between these two variables vary in the literature. Utkan (2016) found that the use of constructive jealousy coping styles increases among university students as their irrational relationship beliefs increase. In their study, Metis and Cupach (1990) found a negative correlation between romantic relationship beliefs and "voice" as a constructive jealousy coping style but no correlation with "loyalty", which is another constructive style of coping with jealousy. Consequently, the authors believe that there is a need for further research to study the correlation between these two variables using different sample groups and variables.

Another result of this study is that gender significantly predicts destructive coping ways with jealousy. Men were found to use such destructive jealousy coping styles at a higher level than women. This study result is compatible with the literature (Bryson, 1991; Guerrero, Spitzberg, & Yoshimura, 2004; Demirtaş, 2004; Demirtaş & Dönmez, 2006; Dodge, 1991; Warber, 2007; Sagarin, Martin, Courtinho, Edlund, Patel, Skowronski, & Zengel, 2012). On the other hand, there are study findings that women adopt more destructive jealousy coping styles when compared to men (Hoşoğlu, 2017; Hoşoğlu & Sevim, 2019) and that women tend to use more negative and passive ways of coping than men when relationship problems arise (DeWeerth & Kalma, 1993; Paul, Foss, & Galloway, 1993).

Bryson (1991) argues that women are assigned a social role that requires them to protect and save the relationship. And by following the requirements of this role, women are believed to use constructive jealousy coping ways when they feel jealous with the hope of saving their relationship. Such constructive jealousy coping style preferred by women usually aims at protecting the relationship, rather than their self-esteem. Men, on the contrary, tend to adopt the destructive jealousy coping style and are more prone to ending or ignoring the relationship in the hope of maintaining their social standing and self-esteem. On jealousy coping model, Rusbult (1987) notes that women prefer loyalty and voice (constructive coping) to protect the relationship, while men opt for destructive coping styles (exit and neglect) to protect their self-esteem. The author attributes this finding to the fact that women are more relationship-oriented and men are more achievement-oriented.

In this study, we also found that gender is not a significant predictor of constructive coping with jealousy. This is an unexpected result given the other study result that gender significantly predicts destructive coping with jealousy. There are discordant study results in the literature on the relationship between gender and jealousy coping styles. We believe that this can be due to the influence of

different variables such as the marital status of the subjects, their ages, the nature of their relationships, and the cultural characteristics of their environment.

In the study, we also found that others- or partner-oriented perfectionism does not significantly predict constructive and destructive ways of coping with jealousy and that irrational beliefs and gender do not significantly predict constructive jealousy coping style. Our review of literature revealed no research on the relationship between coping with romantic jealousy and partner-oriented perfectionism. Others-oriented perfectionism refers to high expectations about the partner's behaviors. Such individuals with a high level of others-oriented perfectionism are characterized as authoritarian and dominant in interpersonal relationships (Hewitt & Flett, 1991). When their high expectations are not met by their partners, such people are likely to show accusation, control, and dominant behaviors, as well as relationship problems as a result. In this regard, it might seem natural for them to cope with jealousy in a destructive manner. Yet, given the fact that jealousy coping ways are also influenced by different variables such as the type and duration of the relationship and self-esteem, the need for more research on the correlation between these two variables is obvious.

Based on these study results and the fact that destructive styles of jealousy coping in a romantic relationship or marriage may lead to harm the relationship or marriage, we believe that it will be useful to develop relationship or pre-marital intervention programs for practitioners. In the pre-marital period when close relationships are built, young people can gain awareness and insight about their romantic jealousy and learn how to cope with this feeling in a constructive manner, which may help them establish more healthy relationships and marriages in the future. In addition, cognitive restructuring techniques can be used on clients to prevent their unrealistic relationship beliefs from developing into pathological jealousy.

Limitations

This study has certain limitations. First, we did not separately study the participants who are currently in a relationship and those who are not. Secondly, since the participants consist of university students, we did not analyze whether coping with romantic jealousy differs with the type of relationship and the investments in the relationship. Married individuals invest more in their relationships both tangibly and emotionally, which may be the reason why they usually opt for constructive ways of coping with jealousy. Finally, this study did not analyze whether the feeling of jealousy is normal or has a pathological aspect. We believe it will be useful for further research to separately study the individuals who experience pathological levels of jealousy.

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