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THE OPINIONS OF CHILDREN ABOUT VIRTUAL REALITY SOCIAL – EMOTIONAL LEARNING SKILLS PROGRAMME

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ABSTRACT

This case study aims to explore the Virtual Reality Social–Emotional Learning Skills Program that was developed for children (VRSELCHILD) and, to reveal how children experience, perceive, and react to the two main components of VRSELCHILD including the psychoeducation program and the software. The spread of virtual reality in recent years has accelerated the emergence of applications developed for children. For instance, a child with high social anxiety will be anxious as in real life when s/he is exposed to virtual reality scenarios to cope with the social situations they avoid. On the other hand, being aware of the unreal virtual environment enables the child to act more courageously and to reinforce the desired skills quite often. Therefore, the child is well prepared for the real world. VRSELCHILD which is designed to support children's SEL skills consists of two basic contents: "Psychoeducation Program" and "Software". Seven children (four female and three male), aged between nine and ten years, participated in this study. VRSELCHILD was also implemented individually with seven children for nine weeks. The researcher also conducted semi-structured individual interviews with children after the implementation. Observations of the counselor or researcher were recorded via a researcher's diary. The data obtained from the interviews and diaries were analyzed through descriptive analysis. The results showed that VRSELCHILD supports the development of children's social-emotional skills and children are more likely to enjoy learning the skills with this program. In conclusion, it has been observed that psychoeducation programs, software, counselor, gamification, and effect dimensions within the scope of VRSELCHILD have significant contributions to this development. The results of the study are discussed based on the effectiveness, benefits, and side effects aspects of VRSELCHILD. Recommendations are provided for further program developers including the researchers and the practitioners.

Keywords: Social-Emotional Learning, Virtual Reality, Psychoeducation Program, Virtual Reality Software, Children.

ÇOCUKLARIN SANAL GERÇEKLİK SOSYAL - DUYGUSAL ÖĞRENME BECERİLERİ PROGRAMINA İLİŞKİN GÖRÜŞLERİ

ÖZ

Bu araştırmanın amacı, çocuklar için geliştirilen Sanal Gerçeklik Sosyal-Duygusal Öğrenme Becerileri Programını (SGSDÖBP) tanıtmak ve çocukların psikoeğitim programı ve yazılım dahil olmak üzere SGSDÖBP'in iki ana bileşenini nasıl deneyimlediklerini, algıladıklarını ve tepki verdiklerini ortaya koymaktır. Son yıllarda sanal gerçekliğin yaygınlaşması, çocuklara yönelik geliştirilen uygulamaların ortaya çıkmasını hızlandırmıştır. Örneğin sosyal kaygısı yüksek bir çocuk, kaçındığı sosyal ortamlarla daha iyi başa çıkabilmek için sanal gerçeklik senaryolarına maruz kaldığında, gerçek hayatta olduğu gibi kaygılı olacaktır. Öte yandan sanal ortamın gerçek olmadığını bilmek, çocuğun daha cesur davranmasını ve desteklenen beceriyi istendiği kadar sık tekrar etmesini sağlar. Böylece çocuk gerçek yaşam deneyimine daha iyi hazırlanır. Çocukların SDÖ becerilerini desteklemek amacıyla tasarlanan SGSDÖBP; "Psikoeğitim Programı" ve "Yazılım" olmak üzere iki temel içerikten oluşmaktadır. Bu çalışmaya yaşları 9 ile 10 arasında değişen 7 çocuk (kız = 4, erkek = 3) katılmıştır. SGSDÖBP, dokuz hafta boyunca 7 çocukla bireysel olarak uygulanmıştır. Uygulama sonrasında araştırmacı çocuklarla yarı yapılandırılmış bireysel görüşmeler yapmıştır. Ayrıca programı yürüten psikolojik danışman/araştırmacının gözlemleri de araştırmacı günlüğü aracılığıyla kaydedilmiştir. Görüşmelerden ve günlüklerden elde edilen veriler betimsel analiz yoluyla analiz edilmiştir. Bulgular, SGSDÖBP'nin çocukların sosyal-duygusal becerilerinin gelişimini desteklediğini ve çocukların böyle bir programla becerileri öğrenmekten keyif aldıklarını göstermiştir. Bu gelişmede SGSDÖBP kapsamındaki psikoeğitim programının, yazılım, psikolojik danışman ve oyunlaştırma etki boyutlarının önemli katkılarının olduğu görülmüştür. Çalışmanın bulguları, SGSDÖBP'in etkililiği, yararları ve yan etkileri ile ilgili olarak tartışılmıştır. Son olarak, program geliştiriciler ile araştırmacılar ve uygulayıcılar için öneriler sunulmuştur.

Anahtar Sözcükler: Sosyal-Duygusal Öğrenme, Sanal Gerçeklik, Psikoeğitim Programı, Sanal Gerçeklik Yazılımı, Çocuklar.

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1. INTRODUCTION

The development of virtual reality (VR) technologies has increased and used in different fields such as medicine, architecture and entertainment. In addition, VR is used within the scope of therapeutic and preventive studies in the fields of mental health and spesifically for skills training. The use of VR in these areas is basically based on exposure therapy. The client faces the stimulus he/she avoided in a virtual environment. Thus, a person with a lack of social skills will be able to experience the situation of public speaking, which is worrying for him/her in VR. With VR, it is possible to create these environments in the room where psychoeducation is given. Thus, the counseling or therapy room can sometimes turn into a classroom, sometimes a gym, sometimes a crowded school corridor. In order for virtual reality exposure therapy (VRET) to be effective, it is important that the client feels as if he/she is actually in the created environment. The exposed environment needs to be able to create enough anxiety to reveal physiological symptoms, and it is similar to the real life environment (Üzümcü, Akın, Nergiz, İnözü, & Çelikcan: 2018).

In recent years, the widespread use of VR has accelerated the emergence of applications developed for children. Today, it is known that applications used on smart phones are preferred by children and the number of applications developed for children is increased. However, smartphone apps are two-dimensional, so the sense of presence in VR cannot be provided in these apps. The sense of presence is important in that it leaves an effect similar to the child's experience in real life. The main reason why VR is preferred in skills training is the sense of precence. For example, when a socially anxious child is exposed to virtual reality scenarios to better cope with the social environments that he/she avoids, he/she will be anxious as in real life with the effect of the sense of presence. On the other hand, knowing that the virtual environment is not real allows the child to act more brave and repeat the supported skill as often as desired. Thus, the child is better prepared for real life experience. The fact that the virtual environment offers a more exciting environment compared to two-dimensional applications and the feeling of being present makes virtual reality a preferred method for use with children in skill training.

Social Emotional Learning (SEL) as a contemporary skills training is frequently used in social and emotional skills training. SEL is the process of acquiring and effectively applying the knowledge, attitudes and skills necessary for children and also for adults to understand and manage emotions, set and reach goals, show empathy towards others, establish and maintain positive relationships (Collaborative for Academic, Social, and Emotional Learning [CASEL]: 2019). The SEL approach has been used in schools for more than 20 years. It is known that detailed, evidence-based SEL programs have effective results in teaching SEL skills. The SEL approach provides a detailed description of the skills that need to be supported. This detailed description of skills gives human computer interaction researchers clear information about which skills will be transferred to technology, in what order and for what purpose (Slovak, Gilad-Bachrach & Fritzpatrick: 2015). SEL training includes skill subgroups for coping with various social situations, such as self-management, social awareness, relationship skills, responsible decision making and self-awareness. In addition, SEL training has been used as a part of the treatment in the treatment of social anxiety. However, it can be challenging to keep track of whether the skills studied with SEL training are used in real life. In real life experiments, the child may encounter situations that he/she does not want, and this can negatively affect the child's motivation. For example, a child who is encouraged to raising his/her hand in the classroom and take a word, the child may start to stutter with excitement when he/she tries this, and he/she may be subject to teasing by his/her friends. Therefore, VRET appears to be a good alternative to make his/her first trials with the specialist in a more controlled and reliable environment.

VR based research with children is a newly developing field compared to studies with adults. However, efforts to start using virtual reality and augmented reality in education are rapidly

increasing. VR may cause children to enter the exciting and lively virtual environment and perceive the environment more "real" than adults. Sharar et al. (2007) found that children and adolescents between the ages of 6-18 experience higher levels of presence than adults. When the literature is reviewed, it is seen that VR studies are not conducted with children under the age of seven and the situation is due to the possibility of disrupting the child's perception of reality (Bailey & Bailenson: 2017). While working with children, use of computer-aided SEL education programs in social skills training is a newly developing field. Changes in this area are progressing rapidly. Thus, children who experience anxiety in social environments in the real world are expected to acquire social skills more easily in a more controlled environment (Baker: 2008). DeRosier, Crieg, and Sanchez (2012) stated that using technology in the development of social skills provides some advantages over traditional methods. Accordingly, teaching social skills via computer enables the application to be done in a shorter time. Data can be collected more quickly from a large group of students. Students are less likely to behave in an expected way due to the observer effect. The use of technology in skills training makes skill training more interesting for students. It allows the student to reinforce the behaviors learned by playing computer games not only at school but also at home. The fact that the applications developed allow for individual use ensures that the skill training is personal. Reinforcement of the skill acquired through homework is frequently used in behavioral and cognitive behavioral approaches. However, the follow-up of the homework given in parallel with the SEL trainings applied in the school environment and the involvement of families in this process can be time-consuming and challenging processes. Homework that requires the use of technology as an alternative to classical homework is more motivating for children. Homework given through technology can also enable families to observe the challenging social situations faced by the child and also see the child's reactions to these situations.

In this article, Training Programme on Social–Emotional Learning Skills using Virtual Reality for Children (VRSELCHILD) is introduced as the case. VRSELCHILD is a VR based skill training program involving 120 scenarios. VRSELCHILD consists of two contents: “Psychoeducation Program“ and “Software”. VRSELCHILD includes 40 skills based on CASEL's (2019) Social Emotional Learning (SEL) skills classification and 120 scenarios with different difficulty levels of skills. With VRSELCHILD, children encounter scenarios with different characters in different places in the school environment. In skills training, programs are mostly based on literature and expert opinion. It is known that the programs prepared for children are generally created by adults and children do not contribute to the creation of the content (Wigelsworth et al.: 2010). Considering the importance of the fact that, in VRSELCHILD the sample situations were collected from children, parents and teachers. Thus, it is aimed to deal with exemplary situations in a multi-faceted way by including the experiences of teachers, parents and children in the creation of the scenarios. However, VRSELCHILD is based on scripting the situations students encounter in the school environment, than experiencing these scenarios in a virtual environment during individual application with children. A total of 120 scenarios were prepared regarding the SEL skills. While creating the scenarios, scenarios were prepared based on not only expert opinion or literature, but also the experiences of children, families and teachers. Thus, it was aimed to develop an education program that is both culturally specific and not only based on expert opinion, but also involves viewpoing of children, families and educators. In addition, the homework version of the scenarios was prepared to reinforce the skills.

The article aims to introduce VRSELCHILD and to reveal how children experience and perceive the psychoeducation program and the software of VRSELCHILD. It is thought that children’s evaluations will contribute to revealing the perspective of children on the content of VRSELCHILD, the use of VR in skills training, the realism of virtual characters and virtual environment, the content of the psychoeducation program and technology-based behavior reinforcement homeworks.

2. METHODS

Research Method

This research has been conducted as holistic single case study. As the case, VRSELCHILD has two components: Psychoeducation program and software. It is aimed to reveal how children perceived and experienced these two components of VRSELCHILD and how children react to VRSELCHILD. For this purpose, researchers conducted semi-structured interviews with children after the implementation. VRSELCHILD was implemented individually with seven children during nine weeks. Observations of counselor/researcher were also recorded via a researcher diary.

Participants

This study recruited seven children (females = 4, males=3) aged between 9 and 10 years. The participants were selected to be similar in terms of age and grade level. Therefore, only students from fourth grade were included. Children with significant life changes that may influence their performance, such as loss of a loved one, relocation, divorce of parents, a newly started course and psychological support, were excluded from the study.

First, the selected school had to meet two criteria (socio-economic status of the school and physical conditions of the research room). The researchers conducted interviews with the heads of the schools that met the abovementioned criteria. After obtaining permission, potential participants from this school were selected according to the purposive sampling method. Fourth-grade students with low scores on the Scale of Perceived Social–Emotional Skills (SPSES; Baydan, 2010: 80-84) were selected, whereas classroom teachers and school counsellors of the selected children were interviewed. These meetings led to the selection of the final participants. Another round of interviews was conducted with the parents to obtain informed consent. The interviews enabled the study to confirm family support to the research and the participation and support of the class teachers.

Instruments

Semi-structured interview form: The purpose of these interviews is to get the opinions of the children about VRSELCHILD education and software. There are 18 questions in the draft form created. The final version of the form was prepared according to the feedback received from two academicians from counseling field and from four mental health experts working with children. In the pilot implementation, opinions were taken from two children regarding the interview questions. The main form consisted of 11 questions. The questions in the form inculded: What the child remembers, likes and dislikes about the study, what the child learned from the study, evaluation of the counselor, reality of scenario contents, the session flow, evaluation of the work done with VR in terms of virtual characters, virtual environment, sound and image quality, whether there were physiological symptoms that occur during VR implementation.

Researcher diary: Researcher diaries are records that show the researcher's experiences, feelings and thoughts about the research (Yıldırım & Şimşek: 2005: 181). Researcher diary has been kept in order to ensure that the researcher's feelings and feelings towards the participants and the research process. The research diary included reflection of the researcher while meeting with children, informing families, meeting with teachers, weekly implementations, observations during implementation, and the termination phase.

Case: VRSELCHILD

The development of VR environments falls outside the expertise of mental health professionals. For this reason, VR software needed to be developed in cooperation with technology experts. In addition, a certain budget is required for the development of these programmes. While developing VRSELCHILD software, financial support was received from the Scientific and Technological Research Council of Turkey (TÜBİTAK). VRSELCHILD consists of two basic contents: "Psychoeducation Program" and "Software". The processes for creating these contents are summarized below.

Psychoeducation Programme

While developing the psychoeducation program, firstly list of skills were created and scenario scripts were written. Then, homework scripts were prepared and session structures were formed.

Skills

The needs of children aged 8-12 according to SEL skills and the situations they encounter in daily life were created with literature review, expert opinion and information obtained from children, parents and teachers. The skills studied within the scope of VRSELCHILD are grouped under five main headings. A total of 40 skills to be studied under these headings were determined and three scenarios at simple-medium-difficult levels were created for each skill. Table 1 shows the skill titles discussed within the scope of VRSELCHILD.

Table 1. Skills Studied with VRSELCHILD

Relationship Skills
1. Introducing himself 2. Starting and maintaning the conversation 3. To thank 4. To compliment 5. To help 6. Asking for help 7. To apologize
Working Cooperatively Skills
1. Taking responsibility 2. Undersitanding other people’s viewpoint 3. Accepting other people’s viewpoint 4. Rejecting other people’s viewpoint or request 5. Expressing thoughts 6. Warning a group member 7. Defending his rights
Emotional Skills
1. Labeling his feelings 2. Expressing his feelings 3. Empathy 4. Emotion regulation ▪ Anxiety regulation ▪ Sadness regulation ▪ Anger regulation

Dealing with Agressive Behavior and Stress Skills
1. Avoiding fighting 2. Protecting himself from agressive behavior 3. Coping with teasing 4. Coping with being left alone 5. Coping with a failed situation 6. Coping with pressure 7. Coping with accused situations 8. Asking for help to protect himself
Personal and Social Awareness Skills
1. Self knowledge and self esteem 2. Awareness of strength in self 3. Motivating himself 4. Respect for diversity 5. Respect for differences based on appearance

Scenarios

While creating the scenarios, besides the literature, case studies were collected from experts (teachers, counselors, psychologists, academicians) working with children aged 8-12, from parents and from children aged 8-12 years. Scenarios under five subheadings were prepared separately and case studies from 5-10 experts, from 20-30 children and from 5-10 families were taken in a written format at each stage. Thus, it is aimed that the case studies are based not only on the knowledge of the literature but also on real life experiences. In addition, before the scenarios were finalized, feedback was received from counsellors, psychologists and academicias. According to these feedbacks necessary changes were made and the scenarios were finalized. VRSELCHILD includes 40 skills based on CASEL's (2013: 42-44) Social Emotional Learning (SEL) skills classification and 120 scenarios with different difficulty level of each skill.

Homework

Using homework to reinforce the acquired skills is frequently used in behavioral approach (Hackney & Cormier: 2008). In VRSELCHILD, the computer game version of the VR scenarios was given as homework. In homework, instead of giving verbal answer, children choose the most appropriate answer from three options. According to given answers, children receive a written feedback. Accordingly, if the child scored low on the skill, he/she receives feedback on what to do to improve the skill. If the child scores at a avarage level, feedback is given to the child about what he/she is doing well and what he/she has to do to get better. If the child gets a high score, it is explained to the child what he/she has done well and the child is motivated to continue in a similar way.

Theoretical Background

Within the scope of the psychoeducation program, different theoretical approaches, including behavioral approach, cognitive approach, and relational-experiential approach, were taken as basis while teaching SEL skills.

Behavioral approach: VRSELCHILD, exposes children to some VR scenarios to develop the SEL skills and the verbal reaction of the child is recorded. The audio recording allows the child to evaluate his/her own reaction and to change/improve his/her verbal response by re-experiencing the same scenario. In cases where the participant could not find the right response, the steps of being a

model, enabling the child to imitate the model, and giving feedback on the child's performance were applied (Bandura: 1997; Hackney & Cormier: 2008). One of the techniques frequently used in the behavioral approach is to repeat the learned behavior with homework to reinforce it. The scenarios that children were exposed to with VR were given in the form of homework as computer games Thus, it is aimed to reinforce the skills they have learned by repeating them at home.

Cognitive approach: The child's thoughts about the skill were questioned. Information about the skill were given to children. Providing information enables the participants to mentally introduce the topic of the day, to have a grasp of the basic concepts about the skill to be discussed, and to recognize and correct any misinformation (Hackney & Cormier: 2008). In VRSELCHILD, scenarios start from simple and go to difficult with each skill. In this respect, VRSELCHILD has a structure that progresses by creating gradual tasks. By determining the problem that children want to solve, dysfunctional beliefs and alternative responses were evaluated (Beck, 2015: 34).

Relational-experiential approach: Based on the principles of relationship building in Roger's person-centered approach, the counsellor communicated equally with the children throughout the practice, by accepting the children unconditionally, giving importance to active listening and showing empathy (Seligman, 2006: 83). Some children between the ages of 8 and 12 have trouble expressing themselves with words. However, the pictures give clues in the symbolic expression of the inner world of the child, in understanding the way children think, in understanding their problems with other children and adults. Children's pictures are important in terms of reflecting the content of thinking style and thoughts of the child. Painting is an alternative ways of self-expression for children who cannot express themselves verbally (Yavuzer, 1992: 91-98). In addition to the VR implementation, painting was used as an experiential technique. Activities such as preparing your own poster, power circle (Thomas, 2018: 45), emotion drawings (Temiz, 2013: 23) were carried out according to the skills studied in VRSELCHILD.

Session Structure

Although the implementation varied each week in terms of content, a similar structure was followed in each session:

- Remembering the previous session and questioning how the skills learned were transferred to real life experiences,
- Explaining the new skill to be discussed in the session to the child, learning the experiences of the child regarding the skill and giving information to the child about the skill,
- Implementing virtual reality,
- Evaluating his/her performance with the child and giving feedback on performance,
- Encouraging the child to try again,
- Giving homework and evaluating the session.

Role of Counselor

The counselor, is also the researcher of this study. After graduating from Ege University, Department of Psychology, the researcher completed the Intercultural Education Master's Program at the Faculty of Psychology at the Free University of Berlin, and then the Guidance and Psychological Counseling Master's Program at Ege University Social Sciences Institute. Afterwards, she started the Ege University Institute of Social Sciences Guidance and Psychological Counseling Doctorate Program. The researcher worked as a school psychologist in various private schools for six years. The researcher established VR ÇOCUK Information Technologies and Consulting Limited Company in 2018 with the support of TÜBİTAK 1512, and the VRSELCHILD software created within the scope of the research was developed with the financial support of the company from TÜBİTAK. In line

with these professional experiences, the researcher carried out the steps of development, implementation and effectiveness study of VRSELCHILD within the scope of this study.

The supportive and egalitarian attitude of the counselor is important in order to establish cooperation with the child, especially when it is taken into account that children are generally directed to counseling with the guidance of adults against their will. Thus, even if counselor does not welcome the child's ideas, they should be understood and tolerated (Stallard, 2002: 30-32). For this purpose, the counselor has taken care to be in an accepting, reflective and supportive role. Especially in the first sessions of the implementation, by making frequent summaries and asking "Did I understand correctly?", it has been emphasized to provide opportunities for the child to correct possible misunderstandings with the child's consent. In addition, throughout the process, emphasis was placed on helping and giving positive feedback to the child in order to emphasize to his/her potential abilities and successes rather than failures.

Software

School was chosen as the virtual environment because it is a familiar and stressful social environment for children. The virtual environment is designed in different environments of the school, such as classroom and school garden with different characters such as teacher, assistant principal and students.

Virtual Environment

Considering the socioeconomic level of the school (middle socioeconomic level) and the age group of the participants (8-12 years), possible visuals were searched on the internet, and the samples of the images were presented to two counselors, two psychologists and three academicias from counseling field. The final version of the visuals was determined according to the feedback received from the experts and the multimedia principles stated by Mayer (2001). Appropriate models of school spaces have been prepared. Models obtained in "FBX" format

Virtual Characters

Classroom teacher, school principal, sports teacher, counselor and five male, five female students have been created to play on scenarios. Due to budget constraints, available templates on the internet were used. The characters were covered with a skeletal system containing a total of 63 bones. 53 of these bones are in the "Standard Game Engine Skeleton", ten of them are in the facial region of human models in order to make facial expressions. Speech and facial expression animations of virtual characters have been prepared. The human models in the scenes are divided into two as low polygon for extras and high polygon for speech purposes. A high-polygon student model was designed, optimized and imported into the software for speaking purposes. Accordingly, the models can show the facial expressions of laughing, upset, shyness, getting angry, looking cool.

The pilot application made after the software came out and the expert opinions regarding the characters have been criticized as they did not look childish, they were tall, their body structures were more like the adult body than the 8-12 age group, the emotions of gestures and facial expressions are not realistic, their body movements are repetitive and do not seem realistic, that they cannot blink their eyes, that the teachers are short compared to the children. Feedback was given to the software company on this issue and an improvement request was made regarding the characters. However, the mentioned changes could not be made due to the lack of sufficient funds for the budget demanded by the software company for improvement.

Vocalization

In the vocal dimension of the virtual reality software, it was decided to use real human voices in order to increase the sense of presence, as stated in Mayer's Multimedia Principles (Mayer: 2009). For this purpose, the voices of professional voice actors for adult voices and the voices of children between the ages of 8-12 were used. Due to the limited research budget, different sounds could not be used for each teacher and each student. Same adult male voice for sports teacher and school counselor; the same adult female voice was used for the school principal and the classroom teacher, the same female voice was used for all female students, and the same male voice was used for all male students. In addition, a different female voice than the female teacher's voice was used for the audio instruction that gave information to the child about the scenario.

General features of the software

Each of the virtual characters in the scenario can communicate with the child and speaks according to predetermined texts. For example, a bully student will want to copy the child's homework or make fun of the child's hair, in this case, the child will be expected to stop the bully and say no to the bully. The counselor can expose children to the scenario he/she deems necessary, with the control panel that allows the counselor to present the desired scenario to the child at a level of difficulty he/she prefers. The software includes 20 different high-quality models, including five high-quality male and five female students, school counselor, sports teacher, classroom teacher, and school principal. In addition, it includes six different virtual environments: school garden, gym, classroom, corridor, assistant principal room and counseling and guidance room.

Figure 1. Screencapture of Virtual Characters and Virtual Environments

The software starts with the user page on which the participant's name is written. After login, the page with the scenarios for the selected skill opens. First, the easy scenario opens. After the user answers the scenario, the medium difficulty scenario and finally the difficult scenario are opened. During VR implementation, the verbal response of the child to the scenario is recorded. This verbal response can be listened again so that the child can evaluate the effectiveness of his/her own response. In homework, three options appear on the screen after the scenario is over. After the child makes a choice among these options, the more difficult scenario is automatically passed. After implementing the simple-medium-difficult scenarios of the selected skill, the system automatically calculates the

child's score and gives a feedback according to the child's score range. Below you can find feedback about introducing him/herself skill:

0-10 Points: You can give a little more information about yourself while introducing yourself. Try to talk more about what you like, what kind of person you are and be brave!
10-20 Points: Try talking a little more about yourself when meeting someone. You are doing well.
20-30 Points: Congratulations! You express yourself well whilemeeting people.

There is also an option to save the screenshot on the feedback page. In this way, the child can save his/her answers. VR and computer game versions of the software have been converted into program files for installation and reproduction. Then, evaluation studies were carried out on the program in order to debug and fix the problems.

Procedures

All research procedures were conducted in the selected school. Implementation has been carried out in school library with children. This was a silent place, including computers and studying areas. Each 40-minute session have been done once a week, individually. Each session allowed for six to nine scenarios, each scenario lasting about three min. Before the VRSELCHILD commenced, each participant was trained how to navigate in the VR environment. No participant exhibited any difficulty navigating in the VR. After 9 sessions of VRSELCHILD, individual semi structured interviews were done in school library.

Analysis

The data obtained from the interviews was analyzed through descriptive analysis. The data were organized according to the themes revealed by the research questions and the themes determined previously in this direction. Opinion was taken from an expert in the field of counseling who has knowledge and experience in qualitative analysis. At the end of this process, the themes and codes were rearranged and took their final form. The qualitative data set was read once again and the frequency of the codes was determined. In the last stage, themes and codes were interpreted by relating them to each other.

Peer debriefing with experts and colleagues was taken while creating the interview forms. Peer debriefing was also conducted for the codes and themes determined as a result of the qualitative data analysis. During the interviews, the same questions were asked to each participant with a similar attitude. All of the interviews were conducted in the library of the school where the application was made in order to reduce the effect of the environment. All data collection tools, written transcripts and files used in the coding processes were recorded within the scope of the research. In addition, the data obtained from the researcher's diary were also used in qualitative data analysis.

3. RESULTS

The opinions and experiences of the children regarding the VRSELCHILD were gathered in four categories: "Social Emotional Learning Skills Training", "Virtual Reality Software", "Counselor", and "Gamification Effect". The number of children mentioned about the themes and codes obtained, the frequency of mentioning the theme codes, and the obtained category, theme and code relationship are given in Table 2.

Table 2. Category, Theme, and Code Relationship of Children's Experiences and Opinions on VRSELCHILD

Categories, themes and codes	N	F
1. PSYCHOEDUCATION PROGRAMME		
1.1. Session structure		
1.1.1. Clarity	6	6
1.1.2. Sequence	6	8
1.2. Scenarios	7	8
1.3. Technique		
1.3.1. Virtual reailty implementation		
1.3.1.1. Sense of presence	3	4
1.3.1.2. Instructions	4	4
1.3.1.3. Sound recordings	4	8
1.3.2. Painting	4	8
1.3.3. Homework	6	7
2. SOFTWARE		
2.1. Virtual characters	7	25
2.2. Virtual environment	7	14
2.3. Vocalization	7	8
2.4. Physiological Symptoms	7	21
3. COUNSELOR		
3.1. Helping and supportive	7	13
3.2. Sincere and comforting	5	8
3.3. Instructive	4	8
4. GAMIFICATION EFFECT	5	17

Category 1: Psychoeducation Programme

SEL skills training includes the evaluation of each session in the practice with children, the evaluation of the content of the psychoeducation programme, the evaluation of the scenarios used in virtual reality and the evaluation of the techniques used such as giving information, painting, and modeling. This category consists of three themes: *session structure*, *scenarios* and *techniques.*

Session structure

SEL training programmes generally include structured activities (Webster-Stattaron & Reid: 2004; Greenberg: 2010). Usually the activities are skill-focused and based on trying out the new skill. Complex skills being divided into small pieces and progressing from simple to difficult (Jones and Bouffard). In the weekly routine created for VRSELCHILD, each week the conversation started by talking about how the skill worked in the previous week was transferred to daily life. Then, the counselor gave information about the new skill to be studied and the child's current experience with this skill was learned. In the VR implementation part, the child was exposed to scenarios ranging from simple to difficult, and the child's verbal response was recorded. After the verbal response was recorded, it was evaluated by the child according to how effective the reaction was, and the counselor gave child a feedback about his/her response. Then, it was discussed how the child could use the skill in daily life and the session was ended by giving homework. This routine was repeated in the same way for each session. Accordingly, while evaluating the program, the children emphasized the sequentiality of the education (progress in the same routine) and its clarity.

Clarity is related to the intelligibility of the information and instructions given to the children about the skill discussed that week. The children stated that the learned skills and what they should

do were understandable. The children mentioned that they found it good to have a certain sequence of activities.

Scenarios

While evaluating the scenarios used in the psychoeducation program, the children who participated in the VRSELCHILD reported that the scenarios were similar to the real situations at school. Children stated that the scenarios reflected the things that could happen in reality. In the researcher's diary, notes were taken that the children gave reactions such as "such a thing had happened to me" during the scenario implementations.

> It's like situations that actually happen at school. For example, my friends make fun of me like in the game. (C5)

> It is similar to the problems experienced at school, but no one asks for money by extortion... (C4)

Technique

Virtual reality implementation, giving information, modeling, experiential techniques and homework were used in SEL skill training. Regarding the techniques used, the children talked about the sub-themes of virtual reality implementation (n=7), painting (n=4) and homework (n=6).

Virtual Reality Implementation

VR implementation has three sub-themes: sense of presence, instructions and sound recordings. The sense of presence is related to how realistic the virtual environment is perceived. The sense of presence is related to the emotional believability of the created environment and is not just about virtual reality. For example, a person experiences the feeling of being present while reading a novel (Bailey & Bailenson: 2017). C2, C6, and C7 stated that they really felt like they were at school when they wore glasses.

Before starting the scenario, verbal information is given explaining what the scenario is about and what the child is expected to do in the virtual reality environment. Children's views on this information are discussed in the sub-theme of the instructions. C3, C4, C5 and C7 stated that verbal information is informative in terms of understanding what to do. While C3 expressed that she wished to have such a voice in real life, so that she could know how to behave more easily, C1 stated that this voice only tells something and that it would be more useful if it proceeded like a question and answer.

> In the game, the inner voice always told me what to do. I always knew what to do in the game. I wish there was an inner voice in real life and it would tell me what to do... (C3)

> It was good that the voice explained all the details. I understood what to do. (C4)

In VR implementation, the part in which the child's verbal responses are recorded and played back to the child is covered under the sub-theme of sound recordings. C7 and C1 stated that they were sometimes excited when the sound recordings were taken, while C5 and C4 stated that they enjoyed listening to their voices. In research diary, the researcher stated that the children were excited and surprised, especially in the session where they tried VR for the first time. In addition, the researcher

noted that especially three children were excited while responding, asked whether their voices were recorded or not, and they were not willing to listen their voices when they could not respond well.

Painting

Children were asked to paint for some purposes. In order to realize their strengths, they were asked to draw a circle of power and write their strengths, and to draw emotional expressions to increase awareness about emotions. In the individual interviews the children stated that they enjoyed expressing themselves with pictures and painting. The researcher stated in her diary that she observed that illustrated exercises were beneficial for C2 and C7, who had difficulty in expressing themself verbally, and that it was also beneficial for C2, who especially enjoyed drawing cartoons, in terms of revealing a strong side of expressing himself with pictures.

Homework

After the implementation, the computer game of the skill studied with VR was given to the children as homework. Instead of giving verbal answers to the scenario in their homework, children choose the most appropriate answer from the options and receive feedback according to their answers. Children stated that homework was easy, they did homework easily and it was fun.

> Homework was it was easy and fun. (C6)

> I was able to do them all in order. As I did in homework, I started to help my friends. I showed my mother what I did right. (C3)

However, some children had difficulty in running homework on the computer, and some children could not complete their homework because they did not have a computer at home. One child stated that he was bored because there was a lot of talking while doing his homework, and another child stated that she was always given homework and she did not like it. The researcher noted about the technical problems. Due to the technical problems while loading the homework on computers, the researcher gave information to the families. The researcher offered to a child who could not do her homework because she did not have a computer at home, to do her homework at the school where the practice was held during the break hours. However, after three weeks, she stopped doing her homework because she didn't want to come during break time.

Category 2: Software

Experiences and opinions of the children under this category are gathered under four themes: *virtual characters, virtual environment, vocalization* and *physiological symptoms.* When the children were asked to rate the work done with computers between 1-10 according to the level of finding them good and sufficient, two children gave 10 points, one child gave 9.5 points, two children gave 8 points and two children gave 7 points.

Virtual characters

The movements of the virtual student and teachers were not found realistic by the children. The body movements of the characters were evaluated as incompatible with speech and as repetitive. In addition, the fact that the virtual teachers are the same height as the virtual students, the virtual teachers are very muscular, and their faces do not resemble real human faces are among the features that the children counted when they stated that the characters were unrealistic.

Children have repetitive hand movements; they are constantly doing the same hand movement. I think it is inconsistent with their speech. Also, male teachers are very muscular, just like in a computer game... (C4)

They don't look like real people. The movement of the hands and arms is not real; they are always doing the same thing. The faces are not realistic, their eyes don't move at all. (C5)

I think it's strange that some teachers are short and seem to be the same height as the child. His mouth didn't move when a character was talking, it seemed strange to me. (C2)

Virtual Environment

In the software, six different virtual environments were used: school garden, classroom, corridor, gym, principal's room and counselor's room. The children stated that they found the virtual environment realistic in general. Only one student stated that the boards in the corridor are more suitable for younger ages.

Classroom, gym and garden are realistic. I wish our school were like this... (C3)

The boards in the corridor are arranged according to younger age, when you move into the desk in the classroom, it is as if you are entering the desk. I think that's weird. The greenwoods, the school views, the principal's office, everything in the gym are beautiful. (C4)

Vocalization

While developing the application, it was decided to use real human voices in order to increase the sense of presence. For this purpose, professional vocalization service was taken. The children stated that they found the voices of the characters realistic and that they could hear the voices comfortably during the implementation. Only one student stated that he did not like voice acting and had trouble hearing.

It was nice to have the same characters always with the same voice. For example, when I watch some cartoons, the voice of the same character changes after a while. This is not nice; it feels weird. But here the voices of the same characters were always the same, I think it was nice. (C7)

The voiceover sounded real. I liked the speech of teachers and children. (C4)

I couldn't hear some sounds clearly. The speech of some was annoying, it could have been better. (C3)

Physiological Symptoms

OculusRift headset was used during VR implementation. OculusRift is not a product suitable for use by children. However, since the headgear is adjustable, the glasses for each child are adjusted to be placed on the child's head before the implementation. However, some children had to hold the headset from the bottom during the application, otherwise the image would shift. In parallel, in the interviews after the application, five children stated that they had to hold the glasses because the glasses were too big for their heads, and that the glasses were tight when a child was wearing them. In addition, a child wearing glasses wore virtual reality glasses over her own glasses because the number of glasses was high, and stated that this situation was difficult.

Glasses are comfortable but sometimes tight. But I was able to move freely. (C7)

I have my glasses; sometimes I had a hard time putting them on. But even without glasses, the image was blurry. That's why I put it on. When I did not hold the glasses from the bottom, the glasses were falling down. Then the image becomes blurry. But when you hold it from the bottom, the image is clear. (C3)

My nose hurt when I couldn't hold the glasses from the bottom, so I always hold the glasses. The image also shifts when you don't hold it. (C5)

It is known that the use of virtual headset may cause side effects such as dizziness and nausea (Chang & Kim: 2020). In order to prevent possible side effects, the children were not exposed to virtual reality for more than 15 minutes. While the VR software was being developed, considering the possibility that the difference between the speed of the reflection of the image on the glasses simultaneously with the movement and the real movement speed may cause these symptoms (Bayraktar & Kaleli: 2017). For this reason, it was decided that the child would be exposed to the situation directly, and that he would be able to see the environment with only head movements instead of walking in the game and walking around the place In the interviews after the implementation, two children stated that their eyes burned after VR, and one child stated that his head ached. Other children stated that they did not experience any physiological discomfort.

Sometimes my eyes burned when I took off the glasses but it went away right away. (C7)

Once I got a headache after putting on the glasses. But it only happened once, not other times. (C3)

Sometimes there were eye burns, it passes quickly… (C5)

Category 3: Counselor

Children who participated in the VRSELCHILD evaluated the role and characteristics of the counselor in the process. The sub-themes were being helping and supportive (n=7), sincere and comforting (n=5) and didactic (n=4). When the children were asked to evaluate the counselor with a score between 1-10 in terms of running the program, six children gave 10 points and one child gave 9 points.

Helping and supportive

The children stated that the counselor helped them in finding alternative answers, evaluating their answers, in matters they did not understand, supporting them when they were embarrassed, and was patient.

I get angry very quickly sometimes. You have helped me to overcome anger control. When you asked about the feelings I knew, I couldn't find them, we wrote the feelings together, we found a lot of feelings, you helped a lot. (C3)

You are giving tactics with perseverance in places I can't find... (Ç5)

You helped me with things that I didn't understand. When I didn't understand what happened, you explained it again, so it helped. When you did that, I understood... (C2)

You helped me when I stuttered and was embarrassed, you supported me. We did some of them again where I got stuck. (C1)

Sincere and comforting

Another feature that children mention when evaluating the counselor is that the counselor is sincere and comforting. Children expressed comfort with words such as “feeling good next to you”, “feeling comfortable”, “coming willingly”, “feeling happy with you”.

You are a sweet person, it makes me feel good talking to you. I'm not afraid of you, I'm comfortable with you... (C3)

I have never felt alienated, I felt comfortable with you. (C5)

You taught good things, I felt comfortable with you. You don't get angry like other teachers... (C6)

The counselor stated in her diary that she refrained from commenting on situations such as fighting with their friends, taking revenge, blaming their friends for all the problems they had in their friendship relations that the children told in the first interviews. Thus, the counselor who tries to stay in the position of a listener trying to understand the children, has started to give feedback about such behaviors of the children as the trust relationship develops over time. This approach is thought to be beneficial for the child, thus they felt understood and they started to communicate more clearly about their anxiety and worries over time.

Instructive

Before moving on to a new skill during the implementation process, the counselor gave short, concise, understandable information about the skill to the children. Also, she became a model for children who had difficulty in giving the right response during VR implementation. The counselor gave suggestions to the children, such as speaking loudly and decisively, and expressing their anger expressions more appropriately, in case the response was not appropriate. In addition, at the end of the session, the child was asked when he could use the skill studied that day in daily life. The children stated that the counselor gave information in detail and gave them information by explaining with examples where they did not understand.

It was nice that we wrote the feelings together. I had never thought of any emotion, but when I wrote it, I saw that I knew a lot of emotions. (C2)

You explained the places I did not understand, the skills I did not know. I did not know how to defend myself, it was good to explain with examples. I started trying them with my friens. (C5)

Category 4: Gamification effect

Children mentioned often "Learning with Fun", "Being like a game", "Being fun" has led to the creation of the category of gamification effect. When the children were asked what they liked about VRSELCHILD, they often said that they were not bored and that they learned as if they were playing a game.

The more I played, the more I wanted to do good. I was not bored because it was a game. Also, homework was like a game. (C1)

I helped friends both in game and in real life. What I did in the game I then did in reality. It was nice to learn via games, I was never bored. (C2)

It was both a game and a lesson. You both have fun and learn. (C7)

I knew what to do in the game, there are always explanations in the game. It was easy and I had fun while working. (C3)

It was very nice to learn good things with computer. Technology was used with education. I wish all lessons were like this, it's like a game, because it's fun. I think it is a very good thing that children can learn something with computers. You can solve their problems with technology. I liked it, it was both fun and learning. (C6)

4. DISCUSSION

In this study, it is aimed to reveal children's perspectives through the programme, the use of VR in skill training, and technology-based homework. It is important to reveal users' experiences and perceptions of this VR based programme. Especially considering that virtual reality applications with children are less than studies with adults, this need comes to the fore even more.

In the psychoeducation programme, it was revealed how the children evaluated the content of the program regarding session structure, scenarios and techniques. It is thought that each element contributes to the effectiveness of VRSELCHILD. It is believed that the structure of the session being systematic, repetitive and understandable, as well as the fact that the scenarios used are related to the experiences at school, in other words, being realistic are effective. In the researcher's diary, it was noted that each session in the same order made it easier for the children to get used to the process. One of the highlights of VRSELCHILD is the collection of case studies from children, families and teachers while creating scenarios. When we look at how the children evaluate the scenarios, it is seen that the scenarios are considered realistic. In this case, it is thought that collecting real-life experiences while creating scenarios is effective. It is seen that the audio instructions given to prepare the children for the scenario they will be exposed to in advance, to explain the purpose of the scenario and to guide children on how to behave, have a facilitating function for the children in the implementation of VR scenarios in a way that will serve its purpose. It is thought that the realistic perception of the environment presented by the VR environment by the children, increased the sense of presence. VR environment allowed children to practice and retry different skills.

On the other hand, it was seen that the audio recordings containing the verbal responses recorded and played back during the implementation to provide feedback to the children about their performance were functional and entertaining for some children, but were anxiety producing for some children. Accordingly, it is thought that it is facilitating for the practitioner to relieve anxious children in the use of sound recordings, to have the child rehearse the sound recording first when he/she deems it necessary, and to record the recording after the child is ready.

It is seen that the computer based homework given to the children to reinforce their skills after the application achieves its purpose by enabling the children to perceive the homework as a game and to enjoy doing it. However, some children had difficulties in installing the program used for homework on their computers, and the absence of a computer in the home of one of the children participating in the study caused this child to be unable to do her homework at home. Finally, it was

observed that children liked the painting activity, which was used in some skills during the application, except for one child, and they enjoyed expressing themselves with pictures and painting. Accordingly, it can be said that it would be beneficial to use experiential creative techniques, such as drawing, that allow different ways of expressing children's interests, in SEL skill trainings to be conducted with children.

The software dimension of the VRSELCHILD attracted the attention of children, they enjoyed learning through games, and they do not have difficulty interacting with virtual characters after getting used to virtual reality. In this respect, it is noteworthy that the findings are similar to other studies in the literature that aim to teach children social skills through virtual reality (Parrish, Oxhandler, Duron, Swank & Bordnick, 2016; Sarver, Beidel, & Spitalnick: 2014). Children provided important insights into different aspects of the software including virtual characters, virtual environment, vocalization and physiological symptoms.

While creating virtual characters, existing character models were used instead of preparing new models due to budget constraints. Feedback was given to the software company that existing child models did not look childlike, they were tall, their body structures were more like adult bodies than children's bodies, gestures and facial expressions did not adequately reflect emotions, and body movements were repetitive. However, the desired changes could not be made due to the lack of budget. Studies conducted on the realism of virtual characters reveal that the fact that virtual characters have realistic facial expressions and body language increases social presence (Blaslovitch et al: 2002). In the interviews made with the children after the implementation, the children stated that they did not find the movements of the virtual characters realistic and that their body movements were repeated incompatible with speech. It is seen that the necessary changes before starting the programme and the feedback of the children about the virtual characters are consistent. It was noted in the researcher's diary that the children in the first two-three weeks found the VR implementation different and surprising, that they carefully examined the virtual environment and virtual characters, and frequently mentioned the details they liked or disliked. As time passed, children got familiar to VR, virtual environment and virtual characters became more interested in content than details. From this point of view, it is thought that the unrealistic characters affect the quality of the software, but it does not make a serious difference when evaluated in terms of its effect on the programme.

When the software was evaluated in terms of virtual environment, the children stated that they found the developed virtual environments realistic. Only one child stated that the boards in the hallway are more suitable for younger children. While planning the vocalization, it was decided to use real human voices in order to increase the sense of presence. In the interviews after the programme, the children stated that they found the voices of the characters realistic.

Oculus Rift VR headsetwas used during the programme. Oculus Rift is not a product suitable for children's use. However, since the headgear is adjustable, the glasses for each child are adjusted to fit the child's head before the implementation. In parallel, in the interviews after the programme, five children stated that they had to hold the glasses from the bottom because the headset were too big for their heads, and one child stated that the headset tightened while wearing them. It is known that the use of virtual reality glasses can cause side effects such as dizziness and nausea (Chang & Kim: 2020). In order to prevent possible side effects in the implementation, the children were not exposed to VR for more than 15 minutes and the implementation was carried out each time while the child was sitting. In the interviews after the programme, two children stated that their eyes burned after implementation, and one child stated that his head ached. Other children stated that they did not experience any physiological discomfort.

When the software is evaluated in general, it is seen that the virtual environment is realistic and the children's feedback is in this direction. In addition, the fact that real human voices were used

in the vocalization made the children find it realistic. However, the children did not find the virtual characters realistic. This situation caused the children to criticize the characters in terms of the above-mentioned details in the first weeks of the practice, and after a certain period of time, the children got used to the characters. As a result, it can be said that the virtual environment and vocalization elements of the virtual reality software are effective, but the problems and deficiencies related to the virtual characters and virtual reality headset are the elements that need to be developed in the implementation of the program.

In the interviews, children mentioned that they found the counselor *helpful*, *supportive*, *sincere*, *comforting*, and instructive. During the programme, some children had moments when they had difficulties in finding a case study related to the skill or in finding the appropriate verbal response to the scenario. In such cases, the counselor discussed with the children what responses could be appropriate and gave examples. In the interviews made after the programme, the children stated that the counselor helped them when they could not find the answer, and supported them when they were embarrassed. Children emphasized the helping and supportive feature of the counselor. Another feature that children expressed is that the counselor is sincere and comforting. It is thought that personality traits such as the counselor's communication with children with an egalitarian approach and being friendly are effective in the emergence of this feature of the counselor as a sub-theme. During the programme, the counselor gave information to the children about the skill. Children stated that the counselor gave them detailed information and explained with examples where they did not understand. In other words, children found the counselor very instructive and like this. It can be said that the characteristics of the counselor who runs the program also contribute to the development and effectiveness of VRSELCHILD for children.

Gamification is an approach that solves real-life problems by using game design techniques to create behavioral changes in participants. In gamification, it is essential for the participant to feel like they are playing a game and to participate more willingly in the process (Yılmaz, 2017:18-21). While designing VRSELCHILD, the focus was on the use of VR in skill training, and learning through game was not one of the main goals. It is thought that the software used in VRSELCHILD creates a sense of achievement in children as they make different scenarios, the child moves to the next scenario when his performance is sufficient, and the fact that children receive positive written feedback as they give the correct answer in homework positively affects the motivation of children. In addition, it is thought that the fact that the virtual environment and virtual characters are in the form of animation and that VR is a new technology, excites children, causes children to frequently talk about and focus on their experiences and feelings regarding the sub-theme we call the gamification effect. The children stated that they learned by having fun, that it was like a game, it was fun, and they enjoyed learning new things using technology. In the researcher's diary, it was noted that the children were very excited and enthusiastic about VR especially in the first sessions, and they excitedly told their families and friends at school what they were doing using virtual reality. During and after the programme, the children who often mentioned that they wished to learn everything in this way, since working is like a game. As can be seen, the gamification effect stands out as an element that attracts the attention of children, increasing their motivation to learn and their willingness to participate.

5. CONCLUSION

The opinions and experiences of the children regarding VRSELCHILD were gathered in four categories: "Social Emotional Learning Skills Training", "Virtual Reality Software", "Psychological Counselor/Researcher", and "Gamification Effect". In line with the opinions of the children, it is stated that VRSELCHILD contributes to the development of children's SEL skills. It has been seen that different dimensions and elements of the psychoeducation program and virtual reality software

within the scope of VRSELCHILD, and the professional and personal characteristics of the psychological counselor who runs the program, have made significant contributions to this development. While designing VRSELCHILD, it was focused on the use of virtual reality in skill training. Providing learning through gamification was not one of the main objectives. However, the children stated that they had fun learning about the program and that they enjoyed learning new things using technology. Accordingly, it is thought that the gamification effect of the program is an important element that increases children's learning motivation. In line with the findings obtained from the research and the opinions of the children, some suggestions were presented regarding the studies to be carried out for research and practice.

The progression of each session in the psychoeducation program in a similar order contributed to making VRSELCHILD more understandable by children. In addition, it is thought that collecting case studies from children, families and teachers while preparing the programme is effective in realistic evaluation of the scenarios by the children. Using case studies in future studies will be beneficial in terms of revealing children's perspectives. Before the scenario starts in the program, the audio instruction informs the child about the scenario. The children stated that they found this instruction is useful, and a similar approach can be followed in future studies.

The verbal responses of the children to the scenarios were recorded and played back to the children. Some children liked to evaluate their own reactions, but some children were excited at this stage especially when they were not able to respond appropriately. During such situations, the counselor calmed and motivated the children. The children felt relieved when they saw that they could respond adequately after enough practice. This method is thought to be beneficial in terms of raising awareness of children's performance. However, the facilitating role and supportive attitude of the counselor is important when working with anxious children.

Some children had technical problems to upload the computer-based homework. In future applications, in order to solve this problem, it may be beneficial to confirm in advance whether the children participating in the study have access to the computer, and to create a form explaining the installation steps in order to facilitate the installation of the game on the computer. Some experiential techniques used during VRSELCHILD. It has been observed that children enjoy practicing experiential techniques such as painting. Similar techniques can be used in future studies. In addition, the children liked that the pictures made in the last session were returned to the children as a file.

When we look at the market data of virtual reality in the world, it is seen that the annual increase in value is doubled every year, and the researches and developed applications regarding its use in education and health are increasing day by day. There are certain costs such as the creation of the software, the hardware costs, the maintenance costs of the software and hardware. Various financial support resources can be used in the production of software.

While developing software for the use of VR in the field of mental health and education, it is necessary to cooperate with experts from the field of mental health and the technology. In these collaborations, it is thought to be beneficial to communicate frequently with software developers on issues such as creating images, determining the features of the virtual environment and characters. For example, sample school images were found while creating the virtual environment for VRSELCHILD and the most appropriate school images were shared with the software company in line with the feedback received from the experts. It is thought that the sharing of visual samples with the software company and the knowledge and experience of the software company in creating a virtual environment are effective in the realistic perception of the virtual environment created in VRSELCHILD by children. Similarly, sample sound recordings were taken for the vocalization used in the software, and the most appropriate sounds were decided in line with the feedback received from the experts. It is thought that the use of real sounds in vocalization and the use of real 8-12 year old children's voices ensure that the sounds used in the VRSELCHILD are found realistic by the children.

However, due to budget constraints, details deemed appropriate by the experts could not be added while creating virtual characters. Similar problems can be avoided in future researches by determining the arrangements included in the budget in the service procurement contracts to be made with the software company in more detail.

In research conducted using technology, unforeseen disruptions may occur due to hardware or software. Due to the fact that the hardware did not work as expected in the research carried out, the implementation was started one month later than planned. Some students had difficulty in running the homework on computer. While planning the research process, it should be taken into account that there may be technical malfunctions like this, if possible, the controls regarding whether the software and hardware work smoothly should be tested before starting to implement. Additionally, it should be determined from whom and how to get technical support in case of possible problems. The extent to which the technical specifications of the hardware serve the purpose of the implementation is also a factor to be considered. In 2019, when the implementation was carried out, there were no VR glasses developed for children yet. In practice, this situation caused some children to constantly need to hold the glasses from the bottom while using them. For this reason, while evaluating the VR software in terms of ease of use, the children mentioned that the headgear is constantly slipping and that they need to support the headgear with their hands. It is thought that the use of equipment developed for children will prevent similar problems in future research.

In recent years, the development of virtual reality software that can be used with smart phones can contribute both in terms of low hardware cost and making the developed software accessible to more people. Considering the increasing use of technology in education and the increasing interest of the new generation in gamification, digital media and social networks producing materials that can be shared with children and young people by gamification method can be seen as an alternative method for gaining SEL skills.

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