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Integration of Digital Learning Technologies to Enhance Social Skills Development for Students with Cognitive Impairment

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ABSTRACT

Individuals with mental deficiency possess unique cognitive needs that mandate specialized pedagogic strategies. Special education tailors these strategies to enhance short-term perception and reinforce learning through repetition. Proper classification is fundamental for customizing educational methods and fostering development. Despite available screenings and customized curricula, a significant disparity remains; many intellectually incompetent individuals are unable to fully meet their sociocultural needs within society. Field studies and scholarly reviews affirm the insufficiency and uniformity of teaching resources in educational institutions for this demographic. Addressing this gap, the present study leverages a digital education platform tailored to the specific learning profiles of intellectually deficient individuals, aiming to enrich their social life skills at suitable developmental stages. The study encompasses a literature review, an analysis of global cognitive impairment classification, the impact of educational materials on durable learning, and the social competencies attained through existing educational frameworks. Among 42 students evaluated, progress ranged from a 2.7% to a 52.4% improvement in achievement-based assessments. This newly developed digital platform was piloted with an experimental group, and a bespoke analysis according to their learning needs was executed. A comparison of the data from this digital model against current materials revealed the potential for enhanced learning through digital intervention.

Objective

The principal research intent is to undertake a comprehensive scientific examination of the interactive digital platform, specifically developed to enrich social life skills among individuals under 18 years of age with mild and moderate intellectual disabilities, leveraging the current and evolving educational paradigms within the Turkish pedagogical landscape. This scholarly inquiry is predicated on the premise that intellectually deficient individuals categorized within these cognitive spectra possess an intrinsic capacity to benefit from tailored digital interventions. As such, the platform is incorporated with advanced adaptive technologies, underpinned by empirical cognitive and developmental psychology research, to customize learning experiences that align with the nuanced learning needs of this population segment. To ascertain the pedagogical soundness and sustainability of knowledge acquisition facilitated by the platform, a methodologically rigorous experimental study is to be conducted. This study will pit the digital platform's effectiveness in instilling durable social aptitudes against that fostered through traditional educational mechanisms. The experimental group, comprising individuals under the age of 18 with mild to moderate intellectual impairments, serves as the demographic nucleus for this investigation, reflecting the platform's specialized focus and intended impact. The platform's design philosophy embraces universal design learning principles and respects individual learning differences, translating to an easily navigable and linguistically versatile user interface. By prospectively analyzing the long-term retention of social skills and the ability of individuals to navigate societal contexts

independently, the study aims to validate the platform as a transformative educational tool, transcending geographical and linguistic barriers. The resulting digital educational model is anticipated to extend beyond the Turkish demographic, offering an infinitely adaptable and accessible resource for global application, potentially revolutionizing the educational landscape for intellectually deficient individuals.

Introduction

There are many individuals with mental incompetence around the world. Throughout human history, there have been differences between individuals with physical and mental incompetence and society in areas such as socialization and adaptation to the normal flow of life (Newell, 2023). It can be said that the "well-being level" of individuals who have not encountered mental, spiritual or physical disabilities throughout their lives is higher than those who have some disability or disabilities. The reason for this generalization is that individuals with mental, physical or spiritual disabilities face some situations that prevent them from living a healthy life (Şanlı, 2012).

There are many individuals in society with disabilities that arise from birth or later due to various accidents and diseases. Education of deficient individuals is very important within the scope of ensuring social justice and strengthening social participation as a basic element of the social state understanding. In this context, education, which is the fundamental right of every individual in society, is expected to be accessible to individuals with disabilities (Madinakhan et al., 2023). In many cases, the quality, applicability and comprehensiveness of the education that deficient individuals with special needs can access before, during and after education is important in terms of including deficient individuals in socialization and reintegrating them into society.

In this study, which includes a literature review, the definitions of disability, cognitive impairment and currently implemented educational programs for individuals with mental incompetence around the world are examined. The impact of the use of digital technologies in education on the education of individuals with intellectual deficiency is being investigated.

1. Concept of Disability

Disability is a definition used for a person or persons who experience serious vital health problems as a result of the decrease in the function of any tissue or organ, congenital or later, as a result of disease or accident, or the loss of this organ, or who experience some conditions that prevent them from performing normal physical functions (Kabasakal, 2007).

Different definitions of disability have been used throughout history. The common thought in generally used definitions is that deficient individuals need someone else to carry out their life activities (Yavuz, 2006).

In Turkey, the concept of deficient is used together with the concept of deficient in many official sources. Prime Ministry State Institute of Statistics controlled the research on deficient people in Turkey conducted by the Prime Ministry Administration for deficient People in 2002, deficient is defined under the title of deficient as follows:

Deficient: People who have lost their physical, mental, spiritual, emotional and social abilities to various degrees as a result of any congenital or acquired disease or accident, and who cannot fully or adequately adapt to the regular pace of life. (kutuphane.tuik.gov.tr/pdf/0014899.pdf., access date: 16.11.2016).

The concept of social disability is the situation in which individuals who experience the disadvantage of activity limits are ignored in social environments and organizations or are seen as little remarkable, and socially incompetent people are kept away from the necessary participation in continuing their social activities.

Data reflecting the number of deficient and mentally deficient people in the world do not reflect the real number of people (Ropers, 2008). Especially due to the social structure, people do not take their children to any tests in cases they see as academic failure. The biggest factor in the formation of this perception is the awareness of deficient individuals in society. Just as individuals who are excluded by society due to their different characteristics may not

always have a disability, individuals who are a part of the active social structure in society may also have some obstacles that are not noticed. The most basic way to close this awareness gap is to subject every student who starts school to certain tests. In this context, an individual with any disability can start the education s/he needs from the basics and make progress.

1.1. Concept of Mental Incompetence

The oldest known source mentioning mentally deficient or deficient individuals dates back to B.C. These are Egyptian Thebes inscriptions around 1500 BC. In these inscriptions, cognitive impairment is expressed as a mental disorder due to brain or head damage. During the Middle Ages, the perspective on mentally deficient individuals changed considerably. In addition to the decrease in killings, nursing homes have been opened. In addition, children with mental incompetence were sold into slavery. Individuals with intellectual disabilities are distinguished by conditions such as accidents and mutations that they acquire at birth, before birth, or throughout their lives. Cognitive impairment causes individuals to fail to adapt to social and academic life, and to fall behind and be inadequate from their peers and society. Cognitive impairment in educational terms; It is the inability to benefit from the educational programs and equipment designed for normal children due to the delay in mental development. Changes in the mental structure and function of individuals play a role in individualizing the education of children with mental incompetence. One of the most widely adopted definitions of cognitive impairment is the definition made by AAMR (American Association on Mental Retardation) in 1992. In the definition, intellectual disability is defined as follows, using the term mental retardation.

“Mental retardation indicates significant limitations in current functioning. This is a significant impairment in mental functioning, along with limitations in two or more of the adaptive domains (communication, self-care, home life, social skills, social usefulness, self-management, health and safety, functional academic skills, leisure and work). is the state of showing. Mental retardation occurs before the age of eighteen.” (AAMR:1992, 10 acts. Acar:2000,3-4).

2. Classification of Intellectual Disability

Cognitive impairment is divided into educationally teachable, trainable, severe and very severe cognitive impairment. Educational classification was developed through psychological diagnosis and classification. In this context; trainable, educable cognitive impairment corresponds to mild cognitive impairment, teachable cognitive impairment corresponds to moderate cognitive impairment, dependent cognitive impairment corresponds to severe cognitive impairment, and finally fully dependent cognitive impairment corresponds to very severe cognitive impairment classifications.

2.1. Educational Classification

2.1.1. Educable Children with mental incompetence

The development of educable mentally retarded children does not show significant changes compared to normal. However, they attract attention by falling behind their peers in academic studies during school years. Mentally deficient children in this category can continue their education with their friends with a little more interest than normal. In addition, the number of people diagnosed with educable mental incompetence before the age of 18 is quite low compared to other types of mental incompetence (Atak et al., 2023). Raising awareness to the society about the differences between academic failure and intellectual disability is very important in order for educable mentally deficient students to access appropriate support and education.

2.1.2. Children with Educable Intellectual Disabilities

Children with intellectual disabilities at this level can learn to perform self-care, but they need constant adult control. Depending on the level of mental learning disability, they may not be able to learn to read and write or perform mathematical operations. However, they can remember frequently seen objects, signs, symbols and numbers. Some of them can also learn simple reading, writing and four operations skills. These children can perform simple tasks and can find a partial job for themselves.

2.1.3. Children with Severe and Profound Mental Handicap

Severely and very severely mentally retarded children can be detected at birth or shortly after birth. They can learn some simple self-care skills, but they will need help throughout their lives (Atak et al., 2023). Children in this category need special education in order to adapt to society. Interested individuals may need training to provide their care. Special education programs and systems to be determined will often make the lives of children with severe and very severe mental incompetence easier. In most states, the financial situation of the family is important for children in this category to have access to appropriate education. In this context, it is important to produce and increase educational support programs that all children with severe and very severe mental incompetence can access.

3. Special Education and Education for Mentally deficient People in the World

The deficient Individuals Act, which came into force in the USA in 1975 and whose scope was expanded in 1990, required all individuals between the ages of 0-21 to be educated free of charge by the state, regardless of their disability. The U.S. Individuals with Disabilities Act has five key features:

- Appropriate educational services
- Objective educational evaluation
- Individualized education plan
- Least restrictive educational environment
- Supervising educational decisions and practices

Every mentally deficient individual between the ages of 3 and 21 can benefit from education services free of charge under all circumstances. Special education services also include physiotherapy, psychology and audiology sessions. In order to benefit from special education services, the individual must be diagnosed with a disability.

In the individualized education plan, a new program is organized and achievements are created for each student who receives special education, depending on their development every year. The family participates in education as much as the child, and a separate program can be given to the family.

The least restrictive educational program may vary depending on the child's level of intellectual disability. The ability for the child to come together with his peers for his social development is also included in this program. The extent to which learning outcomes are met is also checked.

Supervising Educational Decisions and Practices: What can be done to audit the decisions and practices regarding special education can be summarized in three items:

a. Families or educational institutions may request an investigation regarding diagnosis, evaluation or educational practices.
b. If families are not satisfied with the evaluation, they can request a new evaluation.
c. When a decision is made regarding the student's education, the family is informed about this decision and their approval is obtained.

Below, the characteristics of each phase of special education services are briefly described.

Stage 1: The classroom or branch teacher can individualize the student's education program by informally evaluating a student who s/he thinks cannot fully benefit from the education s/he receives. In these studies, the teacher consults with the special education coordinator, and the coordinator can keep records of these students.
Stage 2: The special education coordinator is primarily responsible for the student with special needs. The Special Education Coordinator works with the teacher to make informal evaluations and prepare an individualized education plan.
Stage 3: The special education coordinator conducts an informal evaluation and prepares an individualized education plan by consulting with experts outside the school and receiving some support services from them. Support service personnel, for example, audiologists or speech-language pathologists, are provided by local education authorities or private organisations.
Stage 4: The student with special needs is sent to the local education administration with a request for formal evaluation. Here, the services previously provided to the student by his teacher and special education coordinator are reviewed and it is decided whether formal evaluation is needed. If necessary, a formal evaluation is carried out by a multidisciplinary team. As a result of this evaluation, the educational environment in which the student will continue his education is decided. This environment can be a regular classroom or a special education class or school.
Stage 5: The local education authority decides whether the child needs to be officially characterized as having special needs. Formal diagnosis may be necessary to provide some special education services. In this system, it is estimated that the problems of a significant proportion of students will be resolved in the first three stages, so that stages 4 and 5 will be required for only about 2% of all children. Therefore, it is suggested that the majority of students with special needs can be educated in normal education environments without being described as having special needs (Rothman, 1997.,)

The applicability of the mentioned system is not possible in many countries due to population and other sociological reasons. For this reason, it is valuable to create educational programs that can be used and accessible by all students identified with intellectual disabilities.

3.1. Materials and Methods Used in Special Education and Mentally deficient Education in the World

It is vital that children with mental developmental delay begin their education as early as possible in order to ensure that they reach the level of implementation of all social life requirements. Considering that many people spend the first years of their lives mostly in the home environment, the learning of children with developmental delays appears as a result of the instructive experiences offered to them by their families.

Another social group that should be considered at this stage is individuals who may or may not be diagnosed with intellectual disability, but who have a common mental developmental delay and who do not have a family. The fact that they have not previously been diagnosed with any mental development deficiency does not mean that these individuals do not have difficulties in social life.

According to current statistics, the number of individuals with mental incompetence who are taken to tests and scans by their families is higher than the number of individuals with mental incompetence who do not have families and are raised in various institutions. In this context, ensuring that individuals in the society who are mentally deficient due to the absence of their family for various reasons are recognized in the world as mentally deficient by the institutions or people in which they were raised, will only be possible if every child experiences the necessary and distinctive tests and screenings. In addition to the fact that the diagnoses are not accurate and definitive, the common problem is that the education received by individuals who are identified as mentally deficient through the awareness of their families in private educational institutions is not provided in accordance with the educational needs of the individuals. In the classification of individuals with intellectual disabilities, it is mentioned that students with severe

and very severe mental incompetence are easier to diagnose due to their condition, but the difficulties that arise due to the behaviors and symptoms they show in providing education. The education that educable and teachable mentally deficient students, who are aimed to take part in social life as individuals, receive in special educational institutions and the student-specific individualization of this education is a process that is being implemented in the world.

The fact that the materials used in education, which are defined specifically for students with mental incompetence, are inadequate and do not fully meet the educational needs of students with mental incompetence, creates the goal of creating alternative education models and methods in Turkey and all over the world. In addition, mistakes made during the use of programs such as "Small Steps Early Education Program for Children with Developmental incompetence" used in some private education centers in the past and today, and the deficiencies observed in the results obtained and social life skills due to the different levels of students with mental incompetence as a result of the application of these programs.

It creates systems that are useful for students with mental incompetence and do not address all mentally deficient classes on a single platform, making it difficult to implement systems that are intended to be individualized. According to the data obtained during the literature and fieldwork, the content of the educational materials currently used consists of presentations prepared using the most used presentation creation programs in Turkey and around the world and consisting of a few pictures and written texts. Transition animations included in the same presentation creation application are preferred in these presentations to eliminate rapid loss of concentration and short-term perception problems, which are common findings of most students with intellectual disabilities. However, this method creates a system that causes almost 90%-95% of mentally deficient students to disappear during education. If it is determined that mentally deficient students are educable and teachable as a result of their correct classification, the literacy knowledge of these students should be evaluated. In this context, it should be taken into consideration that only a minority of mentally deficient students have reading and writing skills, and new methods should be developed to ensure the education and training needs and rights of mentally deficient students who are illiterate. It is clear that the applied systems are insufficient and far from providing accurate education. It is vital to provide new methods to students with mental incompetence, with the support of relevant institutions and authorities, in order to ensure the right of individuals with special needs to be in social life in a safe and healthy way in the future.

4. Learning Difficulties Seen in the Majority of Educable and Teachable Mentally deficient Students

The basis of the learning difficulties observed in different categories of mentally deficient students through educational and psychological diagnoses is short-term perception. In terms of psychological diagnosis, individuals with mild and moderate mental handicaps, who can be trained and taught, often forget the information conveyed quickly and within a short period of time. In this context, the method of transferring the information and repeating this information is important to ensure the permanence of learning. It is an important step to ensure that individuals with educable mental incompetence, especially those with educable mental incompetence, who struggle to cope with lack of self-confidence throughout most of their lives, remain focused with motivating methods.

Through this study, it is aimed to support the education that is intended to be given to students with mental incompetence in accordance with their sensitivities and needs, with educational programs that are suitable for the age we live in and are also suitable for individual use and without the need for anyone else. The main goal of this study, which was prepared by taking into account the fact that misdiagnosis has occurred, is to improve the social life skills of individuals diagnosed with intellectual disabilities, to integrate the education content seen in normal education systems into the lives of children under the age of 18 who are diagnosed with mental incompetence, autism or disabilities and are given by external factors. The aim is to contribute to the social and daily life of the child with special needs.

5. Methodology

In this study, which aims to improve the social life skills of mentally deficient individuals with a digital application, two data collection tools were used: The first of these is a survey, which is a screening method. In the screening study, the interests, skills, abilities, attitudes and opinions of the people participating in the research are collected based on a large sample. (Metin, 2014) This survey was used in two separate stages: pre-test and post-test. Detailed information about pre-test and post-test applications and the acquisition comprehension application applied between these two survey methods is explained gradually under the subheadings of the "method" heading. While the survey method tests the knowledge that students already have with the existing system, the digital education platform created with the second scan measures the students' perception and permanent knowledge of the achievements regarding social life skills. In the study conducted in this context, unlike the practice, the surveys were administered with a supervisor. The supervisor did not have any authority over the student's opinion and response, but it was deemed necessary to increase the understanding of measuring the student's knowledge and also to facilitate the application of the survey by mentally deficient students who do not have the ability to read and write. The use of the new digital platform was individualized in the entire experimental group and was implemented with correct perception selectivity in a reliable environment through surveys. Digital platform and the survey is prepared according to the experimental demographics' background. Therefore, all the data given was originally designed in Turkish. The digital platform and the survey can be translated to any language easily, since both of them are designed for intellectually deficient individuals.

5.1. Experimental Demographics

This study, which aims to integrate mentally deficient individuals into the society by improving the social life skills of teachable and educable mentally deficient individuals diagnosed with mental handicap, was implemented by 42 people at a special education and rehabilitation center in Ankara. Pre-test and post-test data collection tools were applied by supervisors in the institution, and the digital platform created in the period between the two surveys was used with the guidance of mentally deficient students. The Information Consent Form was shared with students under the age of 18 before the study (Appendix 1) and the study was started after the necessary permission process was completed. Since mentally deficient students are under the age of 18, parental approval was obtained. All details about the research were conveyed to the institution where the experimental group was located and it was clearly stated that they could leave the study at any stage. It was obtained that the participants participated in the study voluntarily while obtaining the parental approval document of all students and the permission document obtained from the institution where the experimental group was located. In both data collection tools used during the research, the confidentiality of the students in the experimental group was respected and the information obtained from the surveys was used with their permission.

5.2. Data Collection

In this study, the survey method was used as a screening method to collect data measuring the skills and attitudes of mentally deficient individuals. A survey is a data collection tool conducted in the form of a series of detailed and comprehensive questions, inquiries and investigations designed to determine the situation and attitude on any subject. (TDK, 2022) Surveys are a systematic data collection tool because they are prepared and applied within the framework of certain rules. The target audience to whom we will conduct the survey must be selected in accordance with our research purpose. Likewise, the questions we will include in the survey must be prepared by taking into account many variables such as their scope, way of expression, understandability, way of answering, order and number. In this study, where a two-sided evaluation was achieved with pre-test and post-test stages, the survey method was preferred and the surveys were applied to students with mental incompetence under the supervision of a supervisor.

The information obtained by the student from the created digital platform, the effect of the information on long-term perception and the information gained from existing education systems. It aims to make accurate and reliable comparisons. The application was carried out once by the students and was completed by 42 mentally deficient students in the same institution within 8 days.

5.3. Application

This study, which aims to improve the social life skills of mentally deficient students until they become integrated into society and active in social life by reinforcing the social life skills of students with intellectual disabilities, has taken into consideration that existing education methods do not match the learning needs of mentally deficient individuals at many points. Thus, an alternative, wide applicability scale, free, practical and designed to suit specific learning needs, a digital education application has been developed. The new digital platform created; It covers the requirements of changing the method of use of social life and subjects related to social life in the currently used education curriculum, gaining a place in the digital world, and including the special learning needs of students.

It is important to create a new digital platform aimed at social life skills, adhering to the target audience and applicability methods, in order to facilitate the transfer of social values to mentally deficient students. In this context, the digital platform developed in a website form to ensure its use by all educable and teachable mentally deficient students increases the level of accessibility. The created digital platform is located at https://www.sosyalyasam.org under the title of Social Life. During the establishment of this digital platform, the learning difficulties common to mentally deficient students were taken into consideration, and the website where the digital platform is located was supported with various activities and applications in order to provide the easiest, fastest and lasting learning for mentally deficient individuals.

Designed for the use of mentally deficient students, the digital platform has a voice narration feature, taking into account the possibility that the majority of trainable and teachable mentally deficient students do not have reading and writing skills. On the website created for the new digital platform, each written sentence and word group is voiced, and the voice-over is played when the red triangles are pressed, with the aim of improving the student's basic motor skills and strengthening his perception ability.

In the website content, which was edited with the aim of completing all stages of the experimental group completely, it was stated that the website was only suitable for computer use and that vocalizations would be made when the red triangles were touched digitally. While the authority to use the digital education platform belongs entirely to the mentally deficient student, supervisors' support was requested when technical problems occurred within the scope of the application.

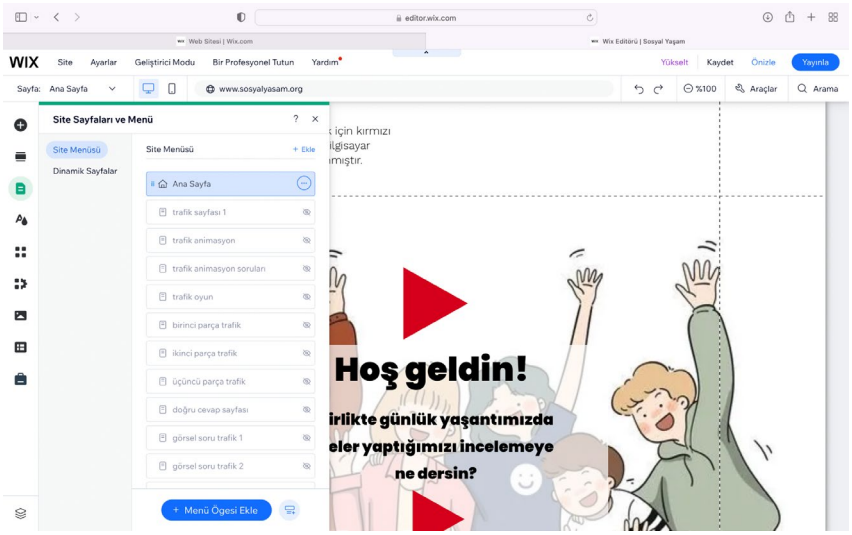


Figure 1. Screen of Editor

The website, created as a digital education platform, is only open to the user's homepage view. Under normal circumstances, the aim is to provide free passage for users between the home page and all other activity pages on the website, but since the created application was subjected to the use of the experimental group, access permission was given only to the home page view in order to ensure that all stages were completed. In its current state and during the application of the experimental group, the order and implementation of transitions to other pages on the website were ensured by following the other intermediate pages through buttons after the home page view. In this context, as seen in Figure 1, the editor's method of transitioning between pages during website installation is planned to allow access only to the home page view. The homepage image in Figure 2 represents the start and end page of the website from the user's perspective.

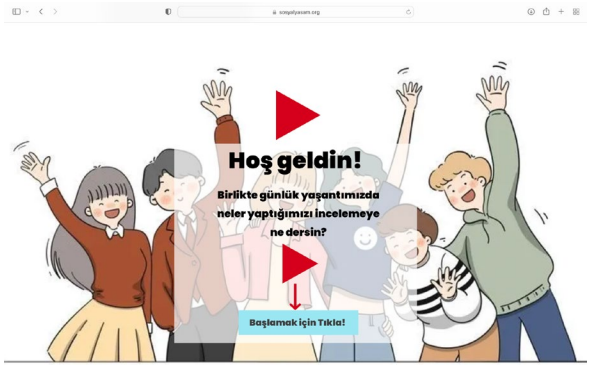


Figure 2. Homepage Screen

In the new digital system created, 3 achievements related to social life skills were selected from the subjects of the curriculum currently used in the education of mentally deficient students prepared for the use of the experimental group. The acquisition modules in Figure 3 were taken from a curriculum system belonging to the state structure, which is implemented by many institutions and organizations providing cognitive impairment education in Turkey. In this context, three different social life achievements currently available on the digital platform were made available to the experimental group. These three different social life achievements cover traffic, security and self-care issues in social life, respectively. Activities on related topics within the scope of the achievements in the module specified in Picture 3 are available on the website.

Figure 3. Social Life Modules Available on the Website

Animations related to all three subjects have been prepared through the Powtoon application on the new digital platform, which conveys the achievements of social life skills to educable and teachable mentally deficient students. The animated videos prepared are designed in an animated manner in accordance with the perception level

of mentally deficient students. Animation videos were included in the prepared digital platform and were dubbed in harmony with the audio recordings on the website. Likewise, the images of the texts spoken in the animation videos are reflected. In order to prevent students from being distracted during the interactive animation experience and to increase focus on the animated video watched, each animation was presented by animated characters who introduced themselves aloud at the beginning of the video. In this context, during the field study, it was observed that mentally deficient individuals gave positive feedback to the animated characters while experiencing the animation videos. The website and animation videos voiced by human voice are designed to help mentally deficient students learn social life skills by improving their sense of belonging towards the application.

After each animation video was watched, the mentally deficient student was directed to a page with 3 questions about the relevant animation via the digital platform. The 3 questions following each animation belong entirely to the animation video watched. There are 3 animation videos related to 3 achievements in total on the digital platform, and there are 9 questions in total, 3 questions for each animation. It is not possible for the mentally deficient student using the application to move on to the animation video and activities related to the next social life outcome without completing all the activities related to an outcome. The use of this arrangement is intended to enable users to focus on each acquisition separately and ensure permanent learning. An animation video is first watched for any of the achievements related to traffic rules, safety and self-care. Afterwards, the student is asked 3 questions related to the animation video watched. These questions are created by dividing the watched animation video into 3 parts and using the information contained in each video part. In this context, each video segment is linked to one of 3 questions related to the animation video. For example, the animation video regarding the acquisition of traffic rules is initially watched by the user as a single piece. Afterwards, the student is asked 3 questions related to animation. Video fragment 1, which is one of the animation video fragments that the user cannot initially observe, depends on question 1 answered by the student.

The reason for establishing this connection is to ensure that if the correct answer is not marked in questions with 3 multiple choice options, the student can watch the video clip containing the correct information about the question he/she got wrong without answering the next questions and refresh the information the student has forgotten in a short time. This system, which was prepared in accordance with the short-term perception findings of students with intellectual disabilities, was applied to each social life skill acquisition on the digital platform. If the user selects the only correct option among the 3-option questions, s/he will be directed to the correct answer page and will encounter motivating expressions. The user who observes the correct answer page returns to the question page by clicking on the voice-over button on the same page. When the user answers all three questions regarding the achievements the student applied respectively, the student clicks on the button at the bottom of the question page, which is directed to the next page, which is voiced like all other written content, and is transferred to the voiced game prepared through the Scratch application associated with the achievement. In addition to animations and questions for each acquisition content on the digital platform, a prototype game was created via the Scratch application. All of these games were voiced to facilitate the use of the student. In the game created for traffic learning outcomes, only the space bar must be pressed. At the beginning of the game, the rules of the game and which button to play are explained to the user in voice and text. In the games prepared for self-care and security achievements, some areas indicated on the screen verbally and visually must be touched with the computer. Likewise, in games created for all achievements, all rules are necessarily conveyed to the user before the game.

After the game for the outcome is implemented, the student is transferred to the activities of the next outcome via the buttons on the website. After viewing the homepage, the student watches the animation video about traffic rules on the page to which the student is transferred. This animation video contains information about traffic signs and symbols, what to do and what not to do in traffic, and how to act as a pedestrian in traffic. The user who watches the entire animation video about traffic answers 3 questions prepared to test the information in the animation video. The digital platform created; It aims to ensure that all information regarding these 3 questions is completely learned by showing the relevant video segment to the user every time a mistake is made. If all the questions are answered, the

game page related to the next activity, traffic, is located in a link to the Scratch platform where the game is created and voiced, as seen in Picture 4.

By clicking on the Scratch link, the user who plays the game is transferred to the digital education platform, which is not closed and is set to remain in the same page layout, after the completion of the game. Upon completion of the game, the user who is directed to the activity and game related to the next achievement has to watch the animated video prepared to improve self-care skills. The user, who initially obtains information about improving self-care skills, maintaining personal hygiene, and what can be done in the name of cleanliness in society, from the animation video, answers questions about self-care prepared in the same style and methods within the system implemented with traffic rules acquisition. The user, who answers all the questions and has the opportunity to learn the information about the question he made wrong or forgot each time, plays the game related to self-care as stated in the traffic rules game in the next stage. The user performs security-related activities and games, which is the last acquisition subject to the use of the experimental group on the next created digital platform, as specified in the teaching system of other achievements. What is intended to be conveyed to mentally deficient individuals in security-related activities: It covers attitudes and attitudes towards foreigners, personal security, and protection of personal data. If the activities and functions related to all achievements are used by a mentally deficient student, the student is transferred to the start page.

Within the scope of the information provided about the new digital platform, in the process of developing the educational approach for students with mental incompetence, overcoming the learning difficulties experienced by educable and teachable mentally deficient individuals was seen as the most basic requirement. The created digital platform does not allow access to transition between achievements in order to be suitable for the use of the experimental group and to ensure that all activities are completed completely. However, as seen in Picture 1, ensuring that pages other than the home page are visible to the user is a part of the website creation system, and transitions between the desired achievements can be achieved provided that the digital platform becomes an educational tool. The acquisition of 3 different social life skills selected on the digital platform made the use of the experimental group convenient and the accuracy of the data obtained reliable.

After completing the application, the user performs the post-test prepared to compare with the pre-test. The questions and the video have been prepared completely according to the perception ability of mentally deficient students. The contribution of the website, which was created using animation videos, educational questions, video pieces and games, to mentally deficient students is measured by looking at the knowledge level and correct answer rate of the mentally deficient student between the pre-test and post-test.

5.4. Data Analysis

In this study, the evaluation of the data obtained from the surveys was taken from Google Forms' own system. The results of the activities applied in the surveys were discussed comparatively in the pre-test and post-test and were evaluated with numerical data before and after the application. The results of this evaluation are shown in Table 1. The use of the created digital platform belongs entirely to mentally deficient students, and supervisors supported mentally deficient individuals who did not have the ability to read and write during the surveys. Based on the data and observation obtained as a result of the field study, the fact that there was no guidance during the surveys and that support was received from the supervisors in the institution where the experimental group was located only for technical problems and voice-over purposes ensured that the data analysis was accurate and reliable.

6. Results

The results are as follows in Table 1.

Table 1. Pre-test and Post-test Results on Social Life Skills

Pre-Test Questions	Number of Correct Answers	Number of Wrong Answers	Post-Test Questions	Number of Correct Answers	Number of Wrong Answers	Percentage Improvement in Questions Related to the Same Achievement
1-What should non-driving people do when the light turns red for pedestrians?	35	7	1-Which of the following is not among the colors that give information about traffic rules?	42	0	%16,7
2-Which way should we use when crossing the street?	32	10	2-Which ones are not appropriate to have in traffic?	41	0	%23,8
3-Which option includes the correct controls for safe driving in traffic?	29	13	3-Which of the following is among the dangerous actions to be performed in traffic?	40	1	%28,6
4-Where should we wait for the traffic lights to turn on?	31	11	4-What should we pay attention to when crossing the pedestrian crossing?	39	3	%19,1
5-What should we do when we hear the doorbell ring while sitting alone at home?	20	22	5-What should we do when there is someone (stranger) trying to enter the house?	38	4	%42,9

6-What should we do if someone wants to touch our body and we feel uncomfortable?	20	22	6-How should we react to people who want to touch our body even though we do not give permission?	39	2	%47,5
7-What should we do when strangers want to talk to us?	35	6	7-What should we do when someone we don't know wants to give us things like candy, chocolate or toys?	37	5	%2,7
8-Who are the people we should inform when strangers disturb us?	34	8	8-What is the right thing to do when a stranger says (s)he will take us to our family?	38	3	%11,7
9-What can we do to improve our self-care skills?	32	10	9-Which one is not good for our personal hygiene?	38	3	%16,5
10-Which of the following does not cause sneezing or coughing in our daily lives?	19	23	10-Which of the following should we not do during and after sneezing or coughing?	38	4	%45,3
11-Which of the following options is an effective self-care practice to strengthen both physical and mental health?	20	22	11-Where should we go to wash our hands and face after waking up in the morning?	42	0	%52,4
12-In which environments are there more bacteria and microbes?	37	4	12-Which of the following methods can help us protect ourselves from bacteria and germs?	41	1	%7,4

A total of 42 students under the age of 18, classified as mentally retarded, teachable, moderately and trainable, and mildly mentally retarded, applied the 12-question first-test and 12-question post-test surveys prepared via Google Form. The effect of the digital platform (https://www.sosyalyasam.org) introduced between the two surveys on the students' existing knowledge was measured. Every content on the digital platform was voiced for mentally deficient students who were illiterate, and the surveys were administered to mentally deficient individuals under the supervision of a supervisor. Studies on the accuracy and reliability of the survey were conducted during the field research by

observing that supervisors supported the use of the survey only in cases of technical problems and lack of literacy skills.

The use of the digital platform, which aims to improve the social life skills of students with intellectual disabilities, is between two surveys and has been evaluated. Only the questions in the surveys are aimed at measuring the knowledge of mentally deficient students. Answers given to educational questions prepared on the created digital platform, that is, on the website, will not be included in the analysis. The reason for this is that the answers given on the website are included in the learning phase. The main goal with the questions on the website is for the student to see the mistakes of the user and learn the truth by neutralizing factors such as short-term perception, rapid forgetting, and distraction. The answers given by students with intellectual disabilities to the same level and related questions before and after using the new digital education platform were compared, and the effect of the website on the active learning of the users was investigated.

When the first-test and post-test results were compared, it was observed that the digital education platform created in general had a positive effect on the students' answers and that they achieved learning outcomes that they did not know before, thanks to the website. In addition, it was understood that the existing knowledge of the students came to the fore in a few questions of the first test. Unlike the digital platform, which was implemented with the active participation of 42 students and experienced by providing separate computer support for each mentally deficient student, it was noted in the survey results that some students did not answer some questions in both tests. Although the lowest answer among all questions was 41, it is not known why students with mental incompetence left the questions in the surveys blank. According to the high participation rate and the feedback received from mentally deficient students and the table data obtained through Google Forms, an average of 210-250 seconds were spent on each question. In general terms, the application time of all first-test, digital platform and post-test applications by users varies between approximately 120-150 minutes.

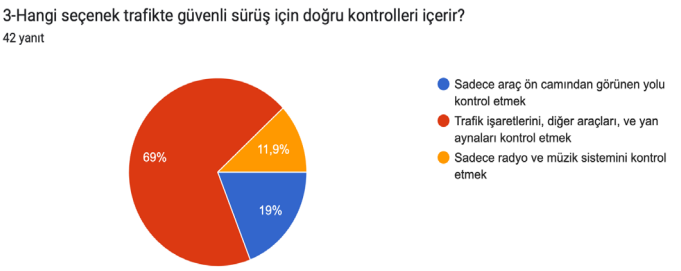
It has been observed that long-term focus is a very challenging process for educable and teachable mentally deficient students within the framework of educational and psychological definitions, however, the high focus and perception level performance of the students in the experimental group continued throughout the application. All of the questions in the surveys and on the website are designed for the same learning outcome, but are different from each other in terms of the way they are asked. In this context, this education method, which takes into account the learning difficulties of mentally deficient students, can be confirmed with the data obtained and compared with the educational methods used in the education of mentally deficient individuals in the past years and today.

During the comparison of the first-test and post-test questions, the answers given by 42 mentally deficient students to the questions are analyzed.

Graph 1. What should non-driving people do when the light turns red for pedestrians? (Pre-Test)

Graph 2. Which of the following is not among the colors that give information about traffic rules? (Post-Test)

Graph 1. It represents one of the questions answered during the first test, while the mentally deficient student had not yet applied the digital platform. According to the information contained in the traffic rules activities, which are associated with this question and are the first social life acquisition on the digital platform, the question asked to the students in Graph 2 measures the knowledge that the students acquired about the symbols, shapes and signs found in traffic after the application. While 35 out of 42 students answered correctly to the question in the first-test survey and shown in Graph 1, 7 students chose one of the two wrong options and answered the question incorrectly. Mentally deficient students answered the post-test question indicated in Graph 2., which was created with the same outcome, after experiencing the digital education platform, and 42 out of 42 students answered correctly, keeping the percentage improvement after the application stabilized at 16.7%.



Graph 3. Which option includes the correct controls for safe driving in traffic? (Pre-Test)

Graph 4. Which of the following is among the dangerous actions to be performed in traffic? (Post-Test)

The question related to Graph 3 in the first test is the 2nd of the 4 questions asked about traffic learning outcome. The connection between Graph 4 and Graph 3 emerges thanks to the issue of traffic safety. The closeness between the

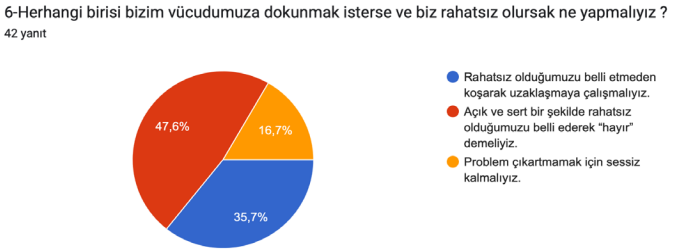
numerical values in the comparison of Graph 1 and Graph 2 suggests that mentally deficient students have prior knowledge of Graph 1 and Graph 2, but with the use of the application, they have the opportunity to reinforce their knowledge and even make it permanent. In this context, the correlation between Graph 3 and Graph 4 indicates that students' prior knowledge is not sufficient to answer the question in the first test. The developmental percentage difference between the first-test and the post-test is 28.6%, which is the largest gap between the first-test and post-test question comparisons on the traffic topic. As shown in Graph 3, 69% of 42 students, 29 of them, answered the question in the first test correctly, while 13 of them answered incorrectly. In Graph 4, after the use of the digital education platform, the students answered the relevant question correctly at a rate of 97.6%, showing that 40 of the 41 students who answered the question achieved the targeted learning outcomes thanks to the application.

The data for a total of 4 questions, two questions in each traffic-related survey, are given in Table 1. The first-test and post-test comparison is similar to the numerical values of Graph 1 and Graph 2.

Graph 5. What should we do when we hear the doorbell ring while sitting alone at home? (Pre-Test)

Graph 6. What should we do when someone tries to enter the house? (Post-Test)

Graph 5 and Graph 6 are the data representation of the survey questions prepared regarding the security issue. Before the digital platform created in Graph 5, only 20 of the 42 students answered the question correctly. Consisting of a basic level of explanation, at the same time, any awareness regarding the initial question of security has not been developed in students through the existing education systems before using the application. In this context, as can be seen in Graph 6, 90.5% of 42 students and exactly 38 students answered the question related to the same outcome correctly, thanks to the use of the digital platform. The basic skills of protecting the living space and ourselves regarding security are transferred to mentally deficient students through the digital platform.



Graph 7. What should we do if someone wants to touch our body and we feel uncomfortable? (Pre-Test)

Graph 8. How should we react to people who want to contact us even though we do not give permission? (Post-Test)

Graph 7. and Graph 8. It is related to the themes of privacy and protecting our body and ourselves, which are under the issue of security in social life. As can be observed in the percentage values in Graph 7, only 20 people out of 42 answered the question correctly. It was revealed that the remaining 22 people did not know how to react if someone wanted to touch their body before using the digital platform. Thanks to the digital education platform developed to prevent such situations, mentally deficient students will fully understand dangerous situations and react accordingly until they become active in social life. The reason for this conclusion is that, as seen in Graph 8, 39 out of 41 answers given by the users after the application of the digital education platform answered the question related to the same acquisition correctly. Another numerical data indicates that 95.1% of them have made a security-related achievement applicable in their lives.

Graph 9. Which of the following does not cause sneezing and coughing in our daily lives? (Pre-Test)

Graph 10. Which of the following should we not do during and after sneezing or coughing? (Post-Test)

Graph 9 and Graph 10 consist of survey questions under the heading of self-care. In this context, in Graph 9, which shows one of the lowest pre-test results, 19 students out of 42 answered the question correctly. Graph 10 represents the question regarding the same outcome in the post-test. The percentage of improvement observed from Graph 9 to Graph 10 is 45.3%. In the new digital platform, there are informational activities and games related to the information asked in both graphics.

Graph 11. What can we do to improve our self-care skills? (Pre-Test)

Graph 12. Which is not good for our personal hygiene? (Post-Test)

In Graph 11 and Graph 12, there is no big difference between the first-test and the post-test. However, in Graph 11, 32 students out of 42 gave the correct answer and managed to use their past experiences. In Graph 12, in another question related to the same outcome, the number of correct answers increased to 38 out of 41 students. Even Graph 11 and Graph 12 are sufficient to observe the positive impact of the created digital platform on students.
Data regarding the graphics of 24 questions out of twelve questions each within the scope of the first-test and post-test are given in Table 1.

All of the findings and data obtained during the field study support that the new digital platform created is for the benefit of the education of mentally deficient students and the society in general. It is also very important for the personal lives of individuals that the moral and social values of mentally deficient individuals develop and contribute to the social structure. For this reason, it will be in the interest of humanity to widen the applicability of the created website.

6.1. Discussion of Results

In this study, a module was developed to help individuals with mental incompetence under the age of 18 perceive the situations they encounter in social life. When the results of the two surveys are compared within the scope of the study, when the correct-incorrect answer analyzes are examined, it is seen that an effective result was obtained on all students. In the pre-test survey conducted before the use of the website and answered by 42 students, 7 students answered the first question incorrectly, while all of them answered correctly in the post-test. Considering the 6th question, which is one of the questions with the lowest completion rate according to pre-test data, a success rate of 47.5 was reached according to the post-test. We see the most effective result in the 11th question, which also has the lowest response rate. In this question, to which 22 of the users answered incorrectly, the increase rate after the application was observed to be 52.4. When the pre-test and post-test results are examined in detail in the findings section, it is seen that the users visibly answered correctly to questions posed in a similar manner and most of the same type after using the website. Today, the fact that the number of educational programs and course contents developed for mentally deficient students in the world and in Turkey is very low does not contribute to the change or reduction of the problems experienced by students with mental incompetence. The fact that the module we have created has the capacity to be developed is also effective in the step of mentally deficient individuals adapting to social life and in this sense, internalizing the social life learning outcomes of mentally deficient individuals during the special education curriculum. In the study, it was observed that the achievements and learning methods given by schools to mentally deficient students in the normal education module did not match the students' perception and the achievements were forgotten. The tendency to forget the events and situations they experience, although they are frequently encountered in daily life, shows that a certain method in the form of education or repetition of learning outcomes is not suitable for every student with intellectual disabilities. For this reason, there was a need to create a module that would facilitate the student's adaptation to social life and at the same time provide a better understanding of the achievements given during the education process. The website created in this context can be applied by every student, whether mentally retarded, in the educable mentally retarded classification, and with or without reading ability.

The study was implemented by 42 students in a rehabilitation center in Ankara, Turkey; and progress was observed with pre-test and post-test. It was observed that the tested achievement-oriented website grasped the necessary learning outcomes of all students through pre-test and post-test comparison, and that the students internalized the information presented to them with the module through their answers to the questions.

6.2. Suggestions

Accurately and reliably diagnosing mentally deficient individuals in educational and psychological terms directly affects individuals' access to correct and appropriate education. In this context, future studies can be carried out to ensure that the classification of mentally deficient individuals is within clearer limits. While the prepared digital platform is just a system that is subject to the use of the experimental group, it will be possible to contribute to the education of mentally deficient individuals in many different areas by developing this system. In the future, the digital platform will take on a more interactive structure and live guidance of mentally deficient individuals in simple problems and conflicts in daily life can be provided with artificial intelligence and similar technologies. During the development of these technologies, the psychosocial situation of mentally deficient individuals should be taken into consideration, and it is necessary to support individuals with special needs, remembering that it is more beneficial for each individual to gain his/her own place in society within the limits of personal development.

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