

The model of pre-university training for people with disabilities in the system of inclusive higher education

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Abstract

The purpose of this research is to obtain the opinions of teachers on the universal design in the creation of a pre-university education model for the disabled in an inclusive higher education system. The research was designed in accordance with the qualitative research method. The study group of the research consists of 25 teachers who teach in various schools in Almaty, Kazakhstan. Research data were collected through a semi-structured interview form created by the researchers. As a result, it has been revealed that the majority of teachers find the educational opportunities of the disabled in the inclusive education model partially sufficient. The majority of the teachers stated that they found the educational opportunities of the disabled in the inclusive education model insufficient in the universal design dimension. Teachers suggest improving the educational opportunities of the disabled in the inclusive education model in the dimension of universal design; information presentation alternatives are in the direction of providing options in education, interactive learning and eliminating limitations. In line with the results obtained from the research, it is recommended to prepare inclusive education professional development programmes for teachers based on the universal design in education, and to organise curricula in order to increase the quality of education in the inclusive education universal design model of the disabled.

Keywords: Inclusive education, universal design, students with disabilities, teacher opinions;

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1. Introduction

According to the inclusive education approach, which stems from the belief that education is a fundamental human right and provides important support for a more just society, all students, regardless of their individual characteristics or difficulties, have the right to receive education. Inclusive education, which was perceived as the education of students with various disabilities together with students who do not have any disability in the past, today means focusing on all groups that have problems in getting equal and qualified education (Materechera, 2020).

1.1. Theoretical and conceptual framework

Disabled individuals face physical obstacles from the moment they leave their basic living spaces. These barriers restrict disabled people's access to urban spaces and services, and their active participation in social and economic life (Metin & Senol, 2017). In addition to the physical barriers that can be solved relatively easily in the built environment, the society's perspective on the disabled person is also a major sociological obstacle for disabled people. Inclusive education produces new solutions for individuals who cannot benefit from education services like other services due to all physical and social disabilities (Yurttabir, 2019). Inclusive education means that all children, regardless of their individual or environmental characteristics, receive education in the same environment as part of the common education programme, and that an optimal environment is provided where all children can develop their belongingness and friendship skills, regardless of their needs (Allen & Cowdery, 2014).

The aim of inclusive education is to meet the different learning needs of all students (Sakiz, 2016). Inclusive education should include practices that will respond to the cultures of students and the policies of the education system, should include all disadvantaged students in the learning process (e.g., including not only students with disabilities but also students with a trauma history in the classroom), education of all students is a human right. It should place their awareness within the education model and see inclusive education as part of an inclusive society (Peters, 2007).

The universal design approach in inclusive education tries to eliminate the difficulties experienced by offering a wide variety of learning methods and environments to all developmentally different children (Odom & Wolery, 2003). Functionality in design has gained a new dimension in today's requirements; Instead of 'a functional design for the average user', 'a design that can equally meet the needs of a wide variety of user groups' is needed. This broad perspective approach, which includes the organisation of products, services and environments, is called universal design (Burgstahler, 2007). The Evrensen design ensures that everyone can benefit from all possibilities, without ignoring the elderly, pregnant, sick, individuals with special needs, no special needs or who have different characteristics (Brand & Dalton, 2012).

According to the universal design approach in education, students have the responsibility to actively consider their own interests and needs for knowledge and skills. With the universal design model in inclusive education, it is extremely important to determine the learning preferences of the students and adapt their learning to reflect this preference. In this way, it will be possible to reveal individual differences among students. The concept of universal design in education allows children with special needs to learn with a sense of socialisation and a sense of membership in academic culture, instead of coping with their limitations (Antoniuk, 2019).

1.2. Related research

Inclusive education is a subject that has been studied by many researchers with different dimensions for many years (Cross, Salazar, Dopson-Campuzano, & Batchelder, 2009; Gregor & Campbell, 2001; Griful-Freixenet, Struyven, & Vantieghem, 2021; Kocaturk, 2018; Odom, Horner, Snell, & Blacher 2007; Ross-Hill, 2009; Takala & Aunio, 2005; Victoria & Maria, 2020). In some of the studies on inclusive education in the field, the difficulties experienced in the inclusive education process were mentioned and it was emphasised that the problems related to these difficulties still continue today

(Abdrasheva, Nurzhanov, Ishanov, Rymhanova, & Zhumataeva, 2016; Moberg, Muta, Korenaga, Kuorelahti, & Savolainen, 2020; Mondal, 2021).

There are studies in the field that deal with the universal design aspect of inclusive education. Harahap, Santosa, Wahjudi, and Martokusumo (2019) investigated whether there are universal design arrangements in the classroom to reduce hearing impairment, strengthen visual communication barriers and assistive technology. As a result of the study, it was determined that the learning environments were not suitable for universal design. Many similar studies show that educational environments do not comply with universal design principles and that regulations are needed (Basham, Blackorby, & Marino, 2020). In their research, Shaw and Van Leuven (2019) investigated the perspectives of university students and lecturers towards universal design. Students studying at the Faculty of Communication Studies participated in the research. As a result, it was determined that the statements of the instructors and students about the importance of universal design were similar. However, it was observed that the answers of the students regarding the implementation of the universal design principles/strategies by the lecturers in the classroom had lower scores in all sub-dimensions.

Cash (2019) examined the attitudes and actions of instructors conducting online education at a university towards inclusive education practices based on universal design principles in education. As a result, chi-square test was carried out to determine whether the variables of gender, age and type of school they work in affect the education methods they prefer in inclusive education practices, and no significant difference was found.

Universal design emphasises that environmental conditions and educational environments meet the needs of all individuals. Universal design in education is an early education organisation structure in which all children are equal and valued members of the programme, can benefit from and take care of all learning opportunities, learn the co-educational programme according to their individual abilities and strengths, and demonstrate their learning in many ways (Conn-Powers, Cross, Traub, & Hutter-Pishgahi, 2006).

Kolimbetova (2019) investigated how teachers use teaching strategies and technologies compatible with universal design in education. Eight primary school teachers working in Kazakhstan participated in the study. Data were obtained through semi-structured interviews. As a result of the study, it was revealed that teachers do not have universal design knowledge in education, but they actively use teaching strategies compatible with the universal design perspective in education. Teachers use various media and visual materials, especially when presenting new information. As a result, it was determined that teachers frequently use technologies such as video, presentation and smartboard. In addition to the technological basis, self-determination is one of the points that universal design emphasises in education.

Rakhimbekova (2019) investigated teachers' perceptions of universal design and its basic principles in education; how they use the variety of presentation, expression and participation; and the difficulties they encounter when working with children with different needs. Six teachers working in Kazakhstan participated in the study. Data were obtained through semi-structured interviews. As a result of the study, it was determined that the teachers were not aware of the universal design and basic principles in education, but they used these principles in their applications even if they were not aware of it. In addition, it has been determined that the difficulties faced by the teachers while working with children with different needs are related to the different knowledge levels of the teachers.

Daglioglu, Turupcu Dogan, & Basit (2017), in their study 'What Do Teachers Do to Identify and Develop Children's Individual Talents in Inclusive Preschool Education Environments?', determined that preschool teachers carry out studies to determine individual abilities, interests and skills by observing, monitoring and evaluating children's development.

1.3. Purpose of the research

The purpose of this research is to obtain the opinions of teachers on universal design in the creation of a pre-university education model for the disabled in an inclusive higher education system. In this direction, the following sub-objectives have been established:

1. Do the teachers find the educational opportunities of the disabled in the inclusive education model sufficient?
2. Do the teachers find the educational opportunities of the disabled in the inclusive education model sufficient in the dimension of universal design?
3. What are the teachers' suggestions for improving the educational opportunities of the disabled in the inclusive education model in the dimension of universal design?

2. Method and materials

In this section, there is detailed information about the method used in the research, the participant group of the research, data collection tools and data analysis.

2.1. Research method

This research, in which teachers' opinions were taken, was designed in a qualitative research design. It is a method that is questioning, interpreting and trying to understand the form of the problem in its natural environment. Qualitative research refers to a subjective-interpretive process of perceiving previously known or unrecognised problems and realistically handling the natural phenomena related to the problem (Klenke, 2016). For this reason, in this research, teachers' views on universal design in the creation of a pre-university education model for the disabled in an inclusive higher education system were evaluated in accordance with the structure of the qualitative research.

2.2. Participants

The study group of the research consists of 25 teachers who teach in various schools in Almaty, Kazakhstan. The participation of the teachers who constituted the study group in the research was provided voluntarily. In Table 1, the demographic characteristics of the teachers participating in the research are given.

Table 1. Demographic characteristics of the teachers

	F	%
Teachers' gender		
Female	14	56
Male	11	44
Sum	25	100
Teachers' experience		
1–4 years	2	8
5–9 years	9	36
10–14 years	10	40
15 years and over	4	16
Sum	25	100
Type of disability of students taught by teachers		
Blind	7	28

Deaf	6	24
Orthopaedically Disabled	12	48
Sum	25	100

In Table 1, the demographic information of the teachers regarding gender, experience and the types of disabilities of the students they train is given. 56% of the teachers participating in the research are female and 44% are male. 8% of the teachers have 1–4 years, 36% have 5–9 years, 10% have 10–14 years and 16% have 15 years or more experience. 28% of the teachers teach visually impaired, 24% teach hearing impaired and 48% teach orthopaedically handicapped students.

2.3. Data collection tools

A semi-structured interview form was developed by the researchers in order to get the opinions of the teachers participating in the research on the universal design in the creation of the pre-university education model for the disabled in the inclusive higher education system. During the development of the semi-structured interview form, the opinions of two field experts were taken. The prepared form was applied to two special education teachers and the clarity of the questions in the form was tested. In this direction, the changes made in the semi-structured interview form were made ready for application as a result. Table 2 shows the semi-structured interview form prepared for the research.

Table 2. Semi-structured interview form

Demographic characteristics of teachers				
Gender:	Kadin: ()		Erkek: ()	
Experience:	1–4 years ()	5–9 years ()	10–14 years ()	15 years and over ()
Students' disability type:				
Questions about inclusive education				
1. Do you find the educational opportunities of the disabled in the inclusive education model sufficient?				
Very Enough ()	Enough ()	Partly enough ()	Not enough ()	Very insufficient ()
2. Do you find the educational opportunities of the disabled in the inclusive education model sufficient in the dimension of universal design?				
Very Enough ()	Enough ()	Partly enough ()	Not enough ()	Very insufficient ()
3. What are your suggestions for improving the educational opportunities of the disabled in the scope of universal design in the inclusive education model?				

In Table 2, the semi-structured interview form developed to collect the data of the research is presented. In the interview form, there are three questions about the demographic characteristics of the teachers. In the form, there are a total of three questions regarding glider education, two of which are closed-ended and one of which is open-ended.

2.4. Data collection process

At the stage of collecting the research data, the teachers were reached and the purpose of the research was explained. Preliminary interviews were conducted with 25 teachers who agreed to participate in the research and the information about the content of the research and the purposes of using the data to be collected were detailed. Then, one-on-one interviews were held with the teachers. Permission of the teachers was obtained for audio recording during the interviews. The questions in the semi-structured interview form were asked to the teachers by giving preliminary information about the inclusive education and universal design model for the disabled. The interviews lasted approximately 30–35 minutes. It took approximately 4 weeks to complete the interviews with all teachers and collect all the data.

2.5. Data collection analysis

The answers given by the teachers participating in the research to the questions in the semi-structured interview form were converted into findings using the content analysis method. Content analysis requires a more detailed examination of the collected data, reaching the concepts, categories and themes that explain this data. Content analysis focuses on collected data; codes are extracted from the events and facts that are frequently repeated in the data set or that the participant emphasises heavily on. One can go to categories from codes and to themes from categories. In short, data (codes) that are found to be similar and related to each other are interpreted by bringing them together within the framework of certain concepts (categories) and themes. In content analysis, the content of participants' views is systematically separated (Bengtsson, 2016). By following these steps, teachers' opinions were categorised and are given in the findings section of the research.

3. Results

In this section, teachers' views on universal design in the creation of a pre-university education model for the disabled in an inclusive higher education system are given by creating percentage and frequency tables.

In Table 3, the opinions of the teachers participating in the research regarding the situation of finding the educational opportunities of the disabled people sufficient in the inclusive education model are evaluated.

Table 3. Opinions of the teachers on the situation of finding the educational opportunities of the disabled people sufficient in the inclusive education model

Category	F	%
Very enough	2	8
Enough	3	12
Partly enough	15	60
Not enough	4	16
Very insufficient	1	4
Sum	25	100

In Table 3, the situation of the teachers participating in the research finding the educational opportunities of the disabled people sufficient in the inclusive education model is categorised. 8% of the teachers stated that they found the educational opportunities of the disabled in the inclusive education model very sufficient, 12% sufficient, 60% partially sufficient, 16% insufficient and 4% very insufficient.

In Table 4, the opinions of the teachers participating in the research regarding the situation of finding the educational opportunities of the disabled people sufficient in the dimension of universal design in the inclusive education model are evaluated.

Table 4. Opinions of the teachers on the situation of finding the educational opportunities of the disabled in the inclusive education model sufficient in the dimension of universal design

Category	F	%
Very enough	-	-
Enough	2	8
Partly enough	6	24
Not enough	14	56
Very insufficient	3	12
Sum	25	100

In Table 4, the opinions of the teachers participating in the research regarding the situation of finding the educational opportunities of the disabled people sufficient in the dimension of universal design in the inclusive education model are categorised. While none of the teachers participating in the research found the educational opportunities of the disabled in the inclusive education model to be very sufficient in the dimension of universal design, 8% of the teachers stated that they found it sufficient. While 24% of the teachers found the educational opportunities of the disabled in the inclusive education model partially sufficient in the dimension of universal design, 56% found it insufficient and 12% found it very insufficient.

In Table 5, the suggestions of the teachers participating in the research to improve the educational opportunities of the disabled in the scope of universal design in the inclusive education model were evaluated.

Table 5. Teachers' suggestions for improving the educational opportunities of the disabled in the inclusive education model in the dimension of universal design

Category	Theme	F	%
Information alternatives	Flexibility in the presentation of information	21	84
	Easy access to information		
	Multi-programme education		
	Material variety		
Presenting education options in	Offer activity options	13	52
	Offering learning environment options		
	Presenting options in the training programme		
Interactive learning	Senior student–teacher interaction	8	32
	High-level peer interaction		
Eliminating limitations	Eliminating differences	3	12
	Socialisation and peer equality		

In Table 5, the suggestions of the teachers participating in the research to improve the educational opportunities of the disabled in the scope of universal design in the inclusive education model are gathered in four categories. They are information presentation alternatives, offering options in education, interactive learning and eliminating limitations. 84% of the teachers answered flexibility in the presentation of information, easy access to information, multi-programme education and material diversity, and these answers were evaluated in the category of information presentation alternatives. 52% of the teachers presented the themes of providing activity options, providing learning environment options, offering options in the education programme and the category of offering options in education as suggestions for improving the educational opportunities of the disabled in the universal design dimension in the inclusive education model. 32% of the teachers considered high-level student and teacher interaction and high-level peer interaction in the interactive learning category. In addition, 12% of the teachers put forward the category of eliminating the limitations, which they thematised as eliminating differences and providing socialisation and peer equality, as suggestions for improving the educational opportunities of the disabled in the universal design dimension in the inclusive education model.

4. Discussion

The majority of teachers participating in the research stated that they found the educational opportunities of the disabled in the inclusive education model partially sufficient. The majority of the teachers stated that they found the educational opportunities of the disabled in the inclusive education model insufficient in the universal design dimension. Teachers' suggestions for improving the educational opportunities of the disabled in the inclusive education model in the dimension of universal design included information presentation alternatives in the direction of providing options in education, interactive learning and eliminating limitations. Bernacchio and Mullen (2007) evaluated the concept of universal design in their study. In the research, it was stated that the adoption of the universal design approach in the field of education emerged with the effort to provide flexibility, better access to knowledge and learning. In the research, it was emphasised that flexibility requires diversity in the methods of presenting knowledge. McDonnell and Brown (2010) discussed the universal design approach in education in their study. In the research, it was stated that the education programmes organised in accordance with the universal design approach in education should provide equal education opportunities to all children with various needs and abilities. Watson and McCathren (2009) evaluated the reflections of universal design on education in their research. As a result, it was emphasised that universal design supports the ability of all children to interact with materials, activities, teachers and peers at the highest possible level, with equal frequency and entertainment.

Lindsay (2003) emphasised the importance of creating a learning culture in inclusive education. In addition, the research emphasised the guiding feature of the universal design in education for children to learn knowledge in various ways and to show what they learned in different ways. Rakhimbekova (2019) also evaluated teachers' universal design perceptions in her research. As a result, it was determined that the teachers were not aware of the universal design and basic principles in education, but they used these principles in their applications even if they were not aware of it. Mogharreban and Bruns (2009) evaluated the universal design model of inclusive education in their research. In their research, they stated that the universal design approach in education has four components: curriculum, materials, method and environment. In the research, it was stated that the developmental needs of children are met in an optimal way by considering these components while planning the education programme. Pisha and Coyne (2001) also emphasised the importance of diversity in curriculum, materials, methods and environments in universal design in inclusive education. As a result, it was stated that through the presentation of material diversity, each child will have a flexible opportunity to access a material of their own ability and interest.

5. Conclusion

Especially in recent years, inclusive education has become widespread in our country as well as all over the world. The universal design model, which is included in the understanding of inclusive education, is a new understanding created to improve the educational opportunities for students with disabilities. Therefore, in this research, it is aimed to obtain the opinions of teachers about universal design in the creation of a pre-university education model for the disabled in an inclusive higher education system. As a result, it has been revealed that the majority of teachers found the educational opportunities of the disabled in the inclusive education model partially sufficient. The majority of the teachers stated that they found the educational opportunities of the disabled in the inclusive education model insufficient in the universal design dimension. Teachers suggest improving the educational opportunities of the disabled in the inclusive education model in the dimension of universal design; information presentation alternatives are in the direction of providing options in education, interactive learning and eliminating limitations.

6. Recommendations

In line with the results obtained from the research, the following suggestions have been developed so that teachers can effectively apply the universal design model in inclusive education to improve the educational opportunities of students with disabilities:

1. Inclusive education professional development programmes based on universal design in education should be prepared for teachers. The effectiveness of the programme should be evaluated by applying it.
2. An inclusive education professional development programme based on universal design should be established in education for different branch teachers working at different education levels.
3. A professional development programme based on universal design in education should be established for school administrators at all levels, who are important stakeholders of inclusive education.
4. Environmental regulations reflecting universal design principles should be made for students with disabilities in and around schools.
5. In order to increase the quality of education in the inclusive education universal design model of the disabled, the content of the curriculum should be reorganised.

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