Development of social innovation in digital-based services for children with special needs

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Article Info

ABSTRACT

Problems often experienced by parents and teachers in their efforts to handle children with special needs include limited supporting facilities, parenting and teaching skills that parents lack mastery, and limited time for assistance. Next, we need significant changes from all parties to develop innovation that focuses on children with special needs. In carrying out this effort, it is necessary to develop a new breakthrough that involves several parties in collaboration between parents, teachers, psychologists, health workers, physical therapists and so on, which is called social innovation. The development model used is the 4 D model from Thiagarajan, namely: definition stage, design stage, development stage, dissemination. By involving experts on children with special needs, policy makers, parents, teachers and academics. It is hoped that this research will have positive benefits for the development of scientists' knowledge about digital-based social innovation for services to children with special needs.

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Introduction

The number of children with special needs is like an iceberg phenomenon. There is no exact data regarding the actual number of children with special needs in Indonesia because many children with special needs do not end up attending formal and non-formal schools as recorded by the Ministry of Education and Culture. Children with special needs are often rejected from attending formal schools on the grounds of a lack of human resources and educational facilities. (Maisarah, et al, 2018). Apart from that, the general public considers the existence of children with special needs to be a nuisance, a disgrace to the family, a source of trouble, and even a curse for a sin which in the end further corners children with special needs from society, including from the world of formal education (Somantri, 2016). Children with special needs who attend

school, who are recorded climbing education in special schools reached 144,621 students in the 2020/2021 academic year. Of this number, 82,326 children with special needs are at primary school level. A total of 36,884 children with special needs are currently studying at junior high school and 25,411 children with special needs are currently studying at secondary school. (Databoks.katadata.co.id 2021).

Children with special needs are children who have different characteristics from children in general mentally, emotionally or physically. Children with special needs have differences in terms of; mental characteristics , sensory, physical and neuromascular abilities, social and emotional behavior, communication skills, or a mixture of two or more of the above than the average normal child (Ginting, 2020) ; Meanwhile, the types of children with special needs are regulated in National Education Ministerial Decree No. 70 of 2009, including those who are blind, deaf, speech impaired, mentally retarded, physically disabled, have learning difficulties, are slow learners, are autistic, have motor disorders, are victims of drug addiction, illegal drugs and addictive substances. others, have other disorders, and are disabled a.

There are many concerns experienced by parents, namely regarding a functional curriculum, the teacher's ability to provide differentiated instruction for regular students or students with special needs, as well as the direction and assistance provided by a team of professional experts (teachers, psychologists, doctors, etc.), as well as concerns if their children are protected from their classmates and become targets for expressing words that can reduce the self-confidence of children with special needs (Salend, 2011). Moreover, research shows that less than 25% of teachers have knowledge related to learning about inclusive classes with students with special needs so there is a promise to accommodate student success (Abbas & Naz, 2016).

Despite facing challenges, parents , teachers, society, and individuals who experience special needs themselves have high hopes for children with special needs to succeed and contribute to society (Wong, Meng, Kenneth Poon, Sarinajit, & Jia Ng, 2014). The role of parents , teachers and the community is very important in inclusive education, namely as defenders of children when discrimination occurs, and as providers of valuable information regarding children's conditions . These parties have a central role because they are the people who will help each other to provide assistance in recognizing , developing and embracing children in the process of growth and development both before entering and after entering school (Ferrel, 2012).

Therefore, all parties and levels of society should start considering a service effort to provide for the needs of children with special needs that involves many parties such as practitioners, practitioners for children with special needs, psychologists, doctors and health workers, policy makers and stakeholders. Next, we need significant changes from all parties to develop innovation that focuses on children with special needs. Innovation is seen as a key element in the creation of new creative solutions (Okpara & Halkias, 2011)

Innovation can occur because children with special needs feel dissatisfied with existing conditions and situations accompanied by the opportunity to improve the current situation . Innovation bridges the creation of changes or improvements to conditions to make them better . This innovation is directed at the problem of meeting the needs of children with special needs, the social welfare of children with special needs as well as issues of environmental protection and sustainable development. Moulaert, et al., (2013) . This innovation is inherent in the inclusion of the roles of various parties without fixed boundaries who have the same goal in solving social problems which is called social innovation (Murray et al., 2010). Dwanto et al, (2013) describe the process of creating social innovation by emphasizing the collaborative process both in planning and implementation.

Nowadays, significant and massive developments in science and technology influence various changes in areas of life, including social and cultural life. One of the influences of the development of science and technology is changes in social relations and social interactions (Bria et al., 2016) . In the Industrial Revolution 4.0, changes in the social structure of society also occurred, marked by the emergence of new society 5.0. The new society 5.0 relies on big data in social relations and social interactions between individuals so that collaboration between scientific disciplines becomes more urgent in people's lives. In social life, innovation is a situation that cannot be avoided because This innovation is needed to change the social science paradigm from text to context. Social innovation is also able to change the socio-economic life of society or become a problem solver in society. (Farransahat et al,. (2020) In other words, creating a real innovation in the field of community empowerment. With collaboration between social sciences and exact sciences, a service for children with special needs will be built whose main aim is to meet the appropriate

needs of children with special needs. with the Minister of National Education Regulation of 2009. The aim of this research is the development of digital-based social service innovations for children with special needs in the city of Medan.

Methods

This type of research is development research, that is, research used to produce certain products and test the effectiveness of these products (Sugiyono, 2012: 407). The development model used in this research is the 4D model which is a modification of the 4D model from Thiagarajan (1974: 5), namely: definition stage, design stage, development stage, dissemination stage

This research was carried out starting with the collection of initial data related to the problems of mentoring, nurturing, education, guidance and training for children with special needs. The research subjects were 5 experts, 10 parents who have children with special needs, 5 teachers at inclusive schools, 5 special school teachers, 2 policy makers, and 3 entrepreneurs. There is also product validation by two public service design experts, two IT experts, two material experts. Apart from that, field trials were carried out To see the effectiveness of developing digital-based social innovation for services for children with special needs for 15 people from various professions.

Results and Discussion

In carrying out development, the first step is to carry out the initial Analysis Definition Stage. At this stage, facts and alternative solutions emerge, making it easier to determine the initial steps in developing applications that are suitable for development. The results obtained are: The implementation of services for children with special needs in the community is not good and tends to be ignored, what is done in the implementation of services for children with special needs in the community is only a formality at certain events, the community is not yet aware of the importance of being involved in training efforts for children with special needs, people parents still find it difficult to get complete information about children with special needs, the obstacles to implementing services for children with special needs tend to be exclusive so that the funds required are quite large, there is no evaluation of organizational services, there is no technology application that is used specifically for the problems of children with special needs, Service providers for children with special needs include parents, special support teachers, psychologists, therapists, doctors, school counselors and social services.

Community Analysis

Community analysis is very important to carry out at the beginning of planning. Community analysis was carried out by observing the characteristics of the community in Medan City . This analysis was carried out by considering the use of smart cellular and internet network availability as a group and individually. At this stage the results found in fields are: 1) All levels of society use smart cellular; 2) All parents who have children with special needs can and are able to operate a cellphone; 3) The location is very supportive of reaching the internet, this is due to the network availability from the provider .

Task Analysis

Task analysis aims to identify the main tasks that will be carried out by the community, especially those who really need information or services for children with special needs. Task analysis is an analysis of people's expectations regarding applications that will be developed through applications

Concept Analysis

Concept analysis aims to determine the content of the application being developed. Concept analysis is an important step to fulfill the principles of building concepts for application features and menus that are used as a means of achieving community expectations .

Goal Analysis

The purpose of the analysis is to determine indicators for achieving social innovation based on analysis needs. By writing down the objectives of social innovation , researchers can find out what studies will be displayed in the application application , and determine how much service objectives are achieved.

Design Stage . The aim of this stage is to prepare a prototype for developing digital-based social innovation for services for children with special needs. Existing and previously developed device formats. After getting the problem from the definition stage, the planning stage is then carried out. This planning stage aims to design application media that can be used as a form of social innovation for services to children with special needs. This planning stage includes:

Test Preparation

Preparation of test instruments based on the preparation of application objectives which are a benchmark for social innovation for services for children with special needs . In this study, a material expert questionnaire, a media expert questionnaire, and a participant questionnaire were trained to test whether the application was good or not.

Election Media

Media selection is carried out to identify technology-based applications that are relevant to community characteristics and in accordance with the service needs of children with special needs in the field. The media used at this stage are: laptop, XAMPP, Coreldraws, WordPress, Google Forms, Filezila , Google Chrome.

Election Format

The selection format is carried out in the first step. The choice of format is carried out so that the format chosen is in accordance with social norms oriented towards services for children with special needs . The choice of presentation form is adjusted to the application used. The choice of format in development is intended to design the content of service materials for children with special needs , selecting the applications used. create application designs, which include layout designs, images and writing. The results at this stage are: 1) Profile of children with special needs which contains: types of children with special needs , history of services for children with special needs, diagnosis and identification of children with special needs, vision and mission, organizational structure, parties involved , facilities and facilitie; 2) About Application; 3) Helper Profile: Includes name, expertise, contact number, occupation, office/practice address, consultation fees; 4) Diagnosis and identification of children with special needs: Autism, ADHD, Learning Difficulties, Mentally Impaired, Down Syndrome, Speech Delay; 5) Parties Involved: Doctors, Psychologists, Therapists, School Counselors, Special Accompanying Teachers, Inclusive Education Academics, Parents; 6) Consultation Services; 7) Therapy Services; 8) Education Services; 9) Psychological Testing Services; 10) Sharing is caring; 11) Rehabilitation location; 12) Location of inclusive schools and special schools; 13) Developer Contact.

Development Stage. The development stage is the stage for producing a development product which is carried out through two steps, namely: (1) expert assessment followed by revision, (2) development trials. Disemination Stage _ is the stage of website -based media publication . Publication is done by registering the website on a popular search engine. The way to register is by registering the website media server on the Google search engine via the search engine Webmaster , then entering registration verification on the website email account .

Conclusion

Based on the results of the research and development that has been carried out, the following conclusions can be obtained: The media website has been successfully developed. The website consists of a home page, material containing various features. In this research and development, an assessment of the feasibility of website- based media was also carried out by material experts, media experts and the public as website users. Aspects assessed include aspects of service material design, language, software engineering and visual communication. The results of the media suitability assessment by material experts, media experts and

students obtained an overall average of 3.69 which is in the very good category. So that website media is suitable for use.

To improve and develop research results, there are several suggestions that can be made as follows: For the government to provide facilities and infrastructure that can support information technology (IT). It is hoped that the public can understand the contents of the website so that they can master the material for children with special needs so that they can help the training process for children with special needs so that success can be achieved. For parents who are expected to be able to use website media in implementing training for children with special needs, it is hoped that it can also improve services for training children with special needs at school. It is hoped that further research can develop material with broader and better material. For further research, it is hoped that we can develop website- based media in which there is online scheduling for the implementation of consultation services.

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