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Physical Education Online Class for Students with Hearing Impairment During Covid-19 Pandemic

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ABSTRACTS

Physical education learning for hearing impairment students has experienced obstacles and difficulties with the COVID-19 pandemic. This study aims to make physical education learning application products, and students can carry out movement tasks well and increase student motivation in carrying out physical education learning. The method used is quantitative, with a descriptive-analytical approach, sampling using accidental sampling with the number of samples taken as many as 11 respondents. The results of the implementation carried out for five meetings with 11 hearing impairment students in fifth grade Special Schools using quizzes on the application showed an increase in learning, and parents were helped during online learning by 82%, students' enthusiasm for learning increased by 73% and increased understanding of the material. Learning increased 82%. External factors that affect students in learning physical education, namely animation, and score acquisition, affect students' motivation to flock to find the best value. The results of active and healthy hearing impairment moving as learning media in Ordinary Elementary Schools can increase students' understanding of physical education learning materials.

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1. INTRODUCTION

The Covid-19 pandemic in early 2020 greatly affected all aspects of human life (Djalante *et al.,* 2020). The implementation of distance learning policies has severely impacted the education sector. The learning constraints experienced by students throughout Indonesia and even around the world show that distance learning provides new challenges in the world of education to adapt so that the learning process continues well. Students experience a decrease in learning motivation, and students experience a decrease in their work assignments due to the covid 19 pandemic. Moreover, students who experience hearing and communication barriers such as hearing impairment experience more severe obstacles than normal students in receiving information and distance learning instructions (Jauhari *et al.,* 2020). Distance learning carried out by fifth-graders of Hearing impairment students at Special Schools has obstacles and challenges that must be solved, especially in Physical Education, Sports and Health. The learning that is carried out is only giving assignments via WhatsApp media so that the movement tasks that students should carry out are not carried out. In line with the study that shows there are difficulties in online learning via WhatsApp for hearing-impaired students (Andriyani & Buliali, 2021). There are sign language videos and many examples of movement tasks that students must do.

Previous results showed that the intervention using video-based technology with guidance effectively improved the self-concept of hearing-impaired students in the academic field. Furthermore, using Android-based applications in language learning to correct sentences for hearing-impaired students shows significant results (Wirna *et al.,* 2018). Another study tackled educational video games to improve vocabulary in deaf and hard-of-hearing children. This educational game feature is complete learning so that students must be able to answer questions at each stage. The presence of healthy hearing impairment moves in accordance with the goals of the Global Sustainable Development Goals for quality education and equality for people with disabilities (Mirasandi *et al.,* 2019) as creative and innovative products. Based on this study results, it shows that android-based applications can overcome communication barriers for hearing impairment students continue to achieve their academic learning goals. However, there are no studies that try to overcome the barriers to learning Physical education for hearing impairment students. So, it is very important to immediately make physical education learning applications tailored to hearing impairment students' characteristics.

The purpose of this study is to create and provide an application for the hearing impairment that is active and healthy on the move that has promising commercial value. This product can generate benefits for schools with disabilities throughout Indonesia, and even in the future, it can be used in the world to become the only application for physical education learning. This is one of the strengths of the product that can be communicated to the public. The production process involves many parties, ranging from programmers and designers to a team of hearing-impaired people who are active and healthy moving, supervising lecturers, and others. The existence of an active, healthy hearing impairment application that moves provides learning changes in the digital era, which allows students to develop through technology. This certainly encourages the development of knowledge of the Indonesian nation. (i) no research discusses physical education learning applications (ii) Applications that are launched are generally only for speech development learning and exact subjects.

2. METHODS

We used a four-step method to approach. The stages of implementation carried out to solve the problem above are. First, Disability School Survey. The survey was conducted to find

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out the problems that occurred in the 5th-grade students of Special Schools. Second, Hold dialogue through (Focus Group Discussion.) FGDs were carried out by the activity implementation team with partners and related parties, including parents and teachers. FGD activities are to coordinate the implementation of activities, explore the potential for involvement of partners and other supporting parties to overcome existing problems, and evaluate each stage of implementing activities. Third, making application products for the hearing impairment, active, healthy, moving. In this process, as an activity that becomes the main factor in providing changes to partners, application creation involves other parties, including programmers who make mobile, healthy, active hearing impairment application products that the team has designed. Fourth, Providing socialization of innovative application products. In this process, it is an activity that provides functional applications to partner problems whether the problems that occur in partners are in accordance with the design displayed on the application, then provides directions for running applications for the hearing impairment, active, healthy, moving. Fifth, Testing of designed application products. In this test, students are given application materials for the hearing impairment, active, healthy, move to test the feasibility of the application for the hearing impairment, active, and healthy, in learning physical education.

Data collection techniques in this study to obtain data as expected, we use two data collection techniques which are questionnaires and interviews. The data obtained in questionnaires method and interview method on experts and media users used descriptive statistical analysis to process qualitative and quantitative data, on a Likert scale measurement formula using five scoring points for questionnaires method and three scoring points for interview method.

3. RESULTS AND DISCUSSION

3.1. Analysis Process TISERA Apps

The analysis process is carried out when first designing the TISERA application design to get a design according to user expectations. The analysis process carried out on the UI/UX design of the TISERA application is as follows:

(i) Analysis of the TISERA application login method: This process is carried out to obtain information about the process of running applications for the deaf, active, healthy, moving, viewing learning videos and animations operated by students (Gulo *et al.*, 2021).
(ii) Application design analysis: This process is carried out to achieve student interest in operating the application so that students do not get bored in learning through the TISERA application.
(iii) Analysis of application trials: This process is carried out to see how the applications that have been made work, in adjusting the design and running of the application, starting from class selection, material testing, filling out quizzes, and educational games.
(iv) Stakeholder Interviews: Stakeholder interviews were conducted with parties directly related to the TISERA application.

The results of simple analysis and interviews show that the TISERA application is very helpful in learning movement activities for students with hearing impairment. Unfortunately, the teacher cannot provide additional material because the application is based offline. However, stakeholders welcomed when the team explained the application to be made and suggested that the TISERA application be developed to interact directly with the application.

3.2. Development of TISERA Apps

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The purpose of making the design is to create a prototype of the TISERA application, which will be shown to partners to attract partners' interest in using the application. The application prototype process aims to get information and responses from users on the system through user interaction with the developed prototype, the reason being that the prototype is sufficient to describe the initial version of the real system. The prototype can be applied to the development of small and large systems with the hope that the development process can run well, be organized, and can be completed on time. The design process is made as good as possible based on the analysis that has been done previously, including the most important is suggestions from stakeholders. The resulting design is not only a graphic design. It is also an interactive design so that potential users can easily use it for the evaluation process. TISERA application feature design can be seen in **Figure 1.**

Figure 1. Design TISERA Apps.

3.3. Evaluation

After completing the prototype, the next step is the evaluation. The evaluation is done repeatedly to find out the feedback from the designs that have been made previously. The TISERA team carries out the evaluation process to see improvements in user convenience to the TISERA application. Then experimented on special school students to see the weakness in the TISERA application design. There are several stages carried out during the evaluation as follows:

(i) Field study: is an evaluation process where the team goes directly to the field to see an overview of the operation of the application and its difficulties (Lo et *al.,* 2019).

(ii) Usability testing: users can run the application using a prototype without explaining the general steps for operating the TISERA application (Karuovic *et al.,* 2011). The illustration of one of the various features of TISERA Apps can be seen in **Figure 2.**

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Figure 2. TISERA Apps with Video Instruction.

Questionnaire: the user is given a survey to fill out a questionnaire regarding the application of the hearing impairment, active, healthy, moving, whether the application is running well or there are still shortcomings. The questionnaire was given through a google form.

3.4. Implementation TISERA Apps

Assistance Implementation of the application to students as many as eleven respondents ran for five times. On five different days, namely the trial phase, mentoring phase, implementation phase one, implementation phase two, and implementation phase three. The trial phase is carried out by adhering to strict Health protocols. Then the mentoring activity contains an explanation of the application description and how to download which is carried out online using the WhatsApp Group media, by providing post-test and pre-test surveys to determine the effect of motivation on students with the presence of an active and healthy hearing impairment mobile application by giving google from to students (Prasandy *et al.,* 2020). From the survey conducted through google form using a scale of 1 = low, 2 = sufficient, 3 = high, the results of the survey that has been carried out at the data collection stage on the questionnaire can be seen in **Table 1.**

Table 1. Student interest in learning physical education on the application.

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No.	Respondent	Before using the app	After using the app	Category
1.	A	2	3	Increase
2.	B	2	3	Increase
3.	C	1	2	Increase
4.	D	2	3	Increase
5.	E	2	2	Just normal
6.	F	2	3	Increase
7.	G	1	2	Increase
8.	H	2	3	Increase
9.	I	2	2	Just normal
10.	J	2	2	Just normal
11.	K	2	3	Increase

3.5. Analysis of the Urgency Mobile Application in Physical Education Online Learning for Students with Hearing Impairment

Distance learning in the fifth-grade hearing impairment students at the Special School has difficulties that must be solved, especially in the subjects of Physical Education, Sports and Health. The learning that is carried out is only giving assignments through WhatsApp media, the movement tasks that students should carry out are not carried out, parents who help students in the learning process have difficulties when helping students, especially in terms of movement, the lack of learning videos and the quotas obtained make learning difficult effective. The COVID-19 pandemic has had an impact on the implementation of adaptive physical education in Special Schools (Jauhari *et al.,* 2020). Physical education is very important for students to maintain physical fitness so that they always stay active during the pandemic (Anggara, 2021). Hearing barriers possessed by hearing-impaired students add to students' difficulty in receiving learning instruction information, especially in distance learning (Hudzaifah *et al.,* 2021). The limited learning media for hearing impairment students makes students' motivation to decrease in physical education learning due to the lack of movement examples provided by the teacher (Afudaniati *et al.,* 2021). The physical education learning process will be better if it is supported by technology that is adapted to the needs of hearing impairment students, especially in the delivery of information on movement tasks that must be carried out by hearing impairment students (Fernández-Batanero *et al.,* 2019).

3.6. Analysis of the Students Motivation Affected by TISERA Apps

According to the theory of planned behavior, two factors influence motivation, including internal factors and external factors, in physical education learning during the covid 19 pandemic, the influence given by parents to provide direction on physical education learning to use active hearing impairment applications Healthy moving has a positive impact, parents expressed this opinion. When interviewed, parents were greatly helped by the application of the hearing impairment to be active and healthy to move (MacFarlane and Woolfson, 2013). On the other hand, student learning motivation has decreased rapidly, especially in physical education subjects (Alqraini & Alasim., 2021). Self-determination theory explains the influence of motivation in doing exercise due to obstacles in doing it (Ryan and Deci, 2020). User interface and user experience are needed to give a good impression to potential users and be able to compete with other competitors, so applications for hearing impairment people who are active and healthy need a good design (Karuovic *et al*., 2021). User Interface (UI) is when the system and users can interact through commands such as using content and entering data (Antle & Wise, 2013). While User Experience (UX) is mentioned as an experience related to users' reactions, perceptions, behaviors, emotions, and thoughts when using the

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system. The approach that we take to design applications for the hearing impairment is active and healthy, namely User-Centered Design (UCD), which focuses on specific prospective uses, UCD has the characteristics of a design and evaluation process starting from the initial step until implementation is carried out continuously (Salvo, 2001). The learning videos that have been made have been adapted to the needs of partners by giving signal videos in the learning videos so students can understand the material being explained (Lucas, 2009).

Distance learning conducted by the fifth-grade hearing impairment students at the Special School has difficulties that must be solved, especially in Physical Education, Sports and Health. The learning that is carried out is only giving assignments through WhatsApp media, the movement tasks that students should carry out are not carried out, parents who help students in the learning process have difficulties when helping students, especially in terms of movement, the lack of learning videos and the quotas obtained make learning difficult. The COVID-19 pandemic has impacted the implementation of adaptive physical education in Special Schools (Jauhari *et al.,* 2020). Physical education is essential for students to maintain physical fitness to always stay active during the pandemic (Anggara, 2021). Hearing barriers possessed by hearing-impaired students add to students' difficulty in receiving learning instruction information, especially in distance learning (Hudzaifah *et al.,* 2021). The limited learning media for hearing impairment students makes students' motivation to decrease in physical education learning due to the lack of movement examples provided by the teacher (Afudaniati *et al.,* 2021). The physical education learning process will be hearing-impaired, supported by technology adapted to the needs of hearing-impaired students, especially in the delivery of information on movement tasks that hearing-impaired students must receive (Fernández-Batanero *et al.,* 2019).

According to the theory of planned behavior, two factors influence motivation, including (i) internal factors (ii) external factors, in physical education learning during the covid 19 pandemic, the influence given by parents to provide direction on physical education learning to use active hearing impairment applications Healthy moving has a positive impact, parents expressed this opinion. When interviewed, parents were greatly helped by the application of the hearing impairment to be active and healthy to move (MacFarlane and Woolfson, 2013). Student learning motivation has decreased rapidly, especially in physical education subjects (Alqraini & Alasim., 2021). Self-determination theory explains the influence of motivation in exercising due to obstacles in doing it (Ryan & Deci, 2020). User interface and user experience are needed to give a good impression to potential users and compete with other competitors, so applications for hearing-impaired people who are active and healthy need a good design (Karuovic *et al.,* 2021). User Interface (UI) is when the system and users can interact through commands such as using content and entering data (Antle & Wise, 2013). While User Experience (UX) is mentioned as an experience related to users' reactions, perceptions, behaviors, emotions, and thoughts when using the system. The approach that we take to design applications for hearing impairment is active and healthy, namely, UCD, which focuses on specific prospective uses, UCD has the characteristics of a design and evaluation process starting from the initial step until implementation is carried out continuously (Salvo, 2001). The learning videos that have been made have been adapted to the needs of partners by giving signal videos in the learning videos so students can understand the material being explained (Lucas, 2009). The mobile and healthy active hearing impairment application will be developed with additional features that will be created, starting from student and teacher accounts to facilitate login access in the application then an absence is created automatically when learning takes place, as well as filling in quizzes with a direct value that can be seen by the teacher so that the teacher can see the progress of student learning, and also sensors that

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will be created in the application to see student movement assignments so that students are seen working or not movement task. A quiz application in the active and healthy moving hearing impairment application increases students' intrinsic motivation because the value award that students will obtain makes students enthusiastic in carrying out learning in the active, healthy moving hearing impairment application. Students can receive value from applying the active and healthy hearing impairment to develop student motivation in carrying out physical education learning.

4. CONCLUSION

The conclusions from the implementation of the study on the active and healthy hearing impairment mobile application as a digital-physical learning area for hearing impairment students were: the existence of an active and healthy hearing impairment mobile application makes it easier for teachers, students, and parents to carry out teaching and learning activities, the increase in student interest in learning increases to 82% and understanding of the material received by students increases to 82%, and student motivation increases to 73%. So, it can be concluded that using learning video features, role models, and examples of exercises on video media, learning motion tasks, and physical activities can run well.

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6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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