

## **A Need Analysis of Blended Learning Model for Deaf Students in Higher Education**

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### **Abstract**

Student diversity is one of the demographic advantages of education. One type of diversity is the registration in higher education students with special needs. For this purpose, teachers as educators are expected to be able to provide all students with adaptive teaching. Although the number of students with special needs is still a minority, educators still need to provide full education for them. Appropriate teaching can be achieved with the use of information technology, in particular the Internet. The use of the Internet as a support for classroom activities can be realized in a blended learning model. However, for each model to be used, an analysis study needs to be performed in order to have optimum results. The purpose of this study is to recognize needs and to obtain information on a blended learning model for deaf students in higher education. Needs analysis is carried out by means of a survey approach using a questionnaire provided to deaf students. The data were analyzed descriptively. The results have shown that deaf students meet the criteria for the development of a mixed learning model. Based on the study, it was concluded that the blended learning model can be applied to deaf students.

**Keywords:** Blended Learning; ICT; Need Analysis; Deaf Students

### **INTRODUCTION**

Nowadays, there are many higher education institutions that recognize and promote education for children with special needs. The effect of this policy is that learning must be structured in such a way as to be able to accommodate the needs of both regular students and students with special needs who are enrolled at higher education institutions. Thus, children with special needs can continue to follow the learning experience to the maximum.

One student with special needs that is commonly registered in higher education is deaf students. Deaf is a state of hearing loss that results in a person not being able to perceive various stimuli, especially through his sense of hearing. Deaf are individuals who have a permanent and non-permanent hearing impairment (Dermawan, 2013). So, deaf are individuals who encounter barriers to the functioning of the senses in the sense of hearing. The shortage of deaf students has resulted in inadequate knowledge from the local community. In addition, Somantri concluded that a deaf child is a child who has a hearing disability or hearing loss due to impairment or non-functioning of any or more of the hearing aids in order to encounter difficulties in developing his language. He requires special guidance and education in order to achieve a worthy inner and outer life.

The problem of deaf students in learning that is affected is lost or reduced ability to hear, resulting in reduced reception of information sources through hearing. Overcoming the problem of the learning process in deaf children who have limitations in speaking and listening is to maximize visual abilities. Children with hearing impairment in accessing any events that occur around them are more dominant using visual aspects, for that in helping to improve their learning, the media used in their learning activities must involve more visual aspects compared to other aspects (Abdulrahman, 2012). Children with hearing impairment have problems in hearing that result in an ineffective process of delivering material (transfer

of knowledge). In response to this, the educator as the spearhead of learning is demanded to always provide learning that can meet the various characteristics of students in class.

One effort that can be done by educators in higher education to meet these demands is to integrate technology into the learning process while still paying attention to student characteristics. Technology-based learning becomes inevitable as the times' age. In the context of educators' lives, this means how educators become literate educators, namely how to find ways to teach students, by considering and trying to integrate 21st-century skills into the teaching-learning process that is right for students (Arrorio, 2017).

Based on the description above one form of technology-based learning innovation that can be applied to help deaf students in learning is the blended learning model. Blended learning as learning activities that combine online learning with face-to-face learning (Deechai, 2019; Svenningven, 2011; Zain & Jumaidi, 2018). Online learning is computer-aided learning through networks.

Blended learning is hybrid learning, which is mixing and learning arrangements that are varied to fit appropriately to meet the learning needs of students (Avinash, 2017; Husamah, 2015; Smaldino, 2012). Mixing the two models is indeed needed to achieve the learning objectives. Blended learning consists of several meanings, namely 1) integration of traditional learning with an online web-based approach; 2) a combination of media and equipment (eg textbooks) used in e-learning environments, and 3) a combination of a number of teaching and learning approaches regardless of the technology used (Hidayati, 2013). Cunningham explained that blended learning is a process of delivering learning in the form of a combination of face-to-face learning and online learning (Castle & McGuire, 2010; Rivera, 2017).

But in its implementation, the integration of technology in learning has not been developed based on the needs of students who have special needs such as deaf students. As in the Department of Special Education, Universitas Negeri Padang, which has students with special needs, the application of the blended learning model is more popular for normal students with online learning dominated by the delivery of material in the form of text-based content and assignments. Meanwhile, on the other hand, technological development is expected to reach wider students, both normal students, and students with special needs. This is in accordance with the principles of technology-based learning that can provide learning services for anyone, anywhere, and anytime (Sakti et al., 2020).

Teaching online on the blended learning model can optimize many visual learning resources such as video, animation, text, images, and film. The existence of computers can help visualize learning material for deaf students (Malastita & Sedyono, 2011; Marzal, 2014; Poejdiastuti, 2010). Through visualization, the material/content of teaching will be more easily understood so that it will increase the quantity of student learning outcomes. The blended learning model can also develop students' thinking abilities (Borglum, 2016; Wahyuni, 2019).

The development of ICT with all its advantages at this time is very possible to be used in learning in public education institutions which are attended by normal students or students with special needs. But before implementing a learning model, educators need to consider various factors. These factors include students, learning objectives, time, and available facilities and infrastructure.

In terms of students, we need to consider the program's target factors. Program targets in the use of learning models are students who will use and receive teaching information through the model (Izzati & Kuswanto, 2019; Meimulyani & Caryoto, 2013; Ni'matul Khoiroh, Munoto, 2017). Factors that must be met related to this aspect include the ability of students to learn to use the model and the ease of use of the learning model itself.

Based on the description, this research considers it necessary to conduct a preliminary study in the form of a need analysis to develop a blended learning model for deaf students in higher education.

## METHOD

In line with the objectives of this study, the survey approach was used to provide questionnaires to deaf students. The subjects of this research were four deaf students enrolled in the Department of Special Education, Universitas Negeri Padang. The focus of this research is the need for a blended learning model for deaf students. The questionnaire that was completed was then analyzed in a descriptive way. The study contains the sections of the questionnaire and concludes with the need for a blended learning model for deaf students. The questionnaire was first prepared on the basis of a literature review of the type of the questionnaire, the initial requirements and the need for a blended learning model for students. The questionnaire tool was built with an outline of the following sections (see table 1).

Table 1. Questionnaire Indicators

No	Aspect	Indicator
1	Introduction	Background The purpose of the questionnaire Questionnaire filling guidelines
2	General Information	Ability to use ICT devices Internet access capability Internet availability The ability to learn independently
3	Current Conditions	Learning needs Media, materials and learning methods
4	The learning model of blended learning	Forms of offline and online activities Online and offline learning media
5	Comments	Contains open-ended questions to explore information that is not yet contained in the questions in the questionnaire

## RESULT AND DISCUSSION

### Result

In this case study, respondents consisted of four deaf students who have a total hearing loss of three people (75%) and a moderate hearing loss of one person (25%). The ability to use ICT students in the category of quite capable (25%) capable (50%) and very capable (25%). The analysis results are shown in figure 1.

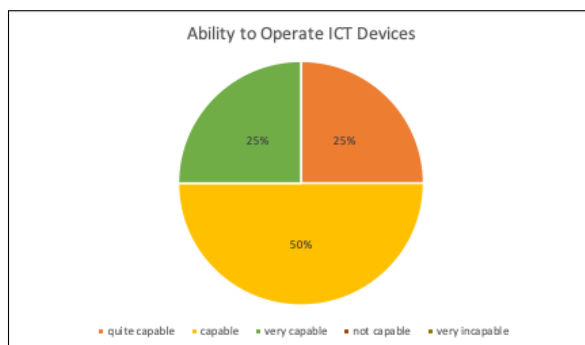


Figure 1. The Ability to Operate ICT Devices

The ability of internet access students are among the able category (100%). The average internet usage of respondents per day is 3-6 hours with usage time in the morning and afternoon. Respondents are also supported by the availability of internet connection at school or at home. The availability of internet connection will support the implementation of online learning as part of the blended learning model. Respondents also have the motivation and ability to learn independently. The results are as illustrated in Figure 2. The most widely accepted classroom learning is the method of teaching lectures and group discussions. With the method used today the level of understanding of the material conveyed by the instructor accommodate the learning needs of respondents below 75%. The results are as reflected in Figure 3.

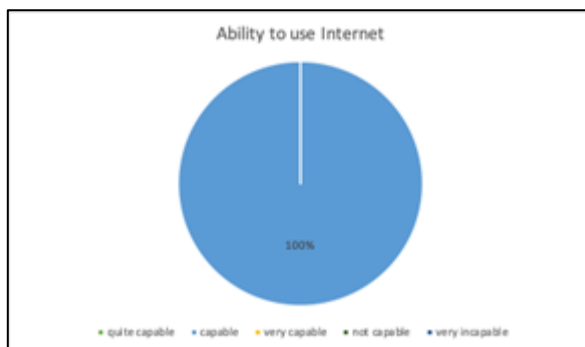


Figure 2. The Ability to Use Internet

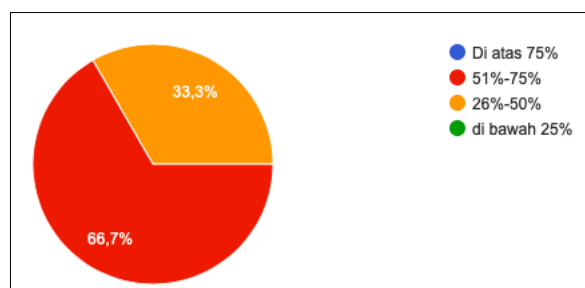


Figure 3. Level of Understanding of the Material

And the learning model that is being used is in the quite accommodating category for the majority of deaf students, as shown in Figure 4. In line with the previous presentation, respondents really want learning material in classrooms accompanied by visual media. Some media that are suitable for the respondents' needs in-class teaching and online learning are PowerPoint media that are equipped with pictures and illustrations, media accompanied by

sign language, concrete media, video media equipped with subtitles and sign language. Figure 5 reflected the types of material needed by deaf students.

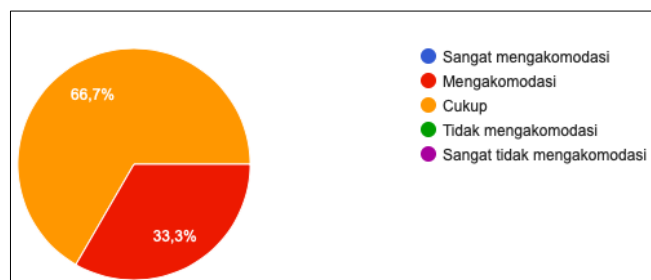


Figure 4. Sufficient Level of Learning Needs

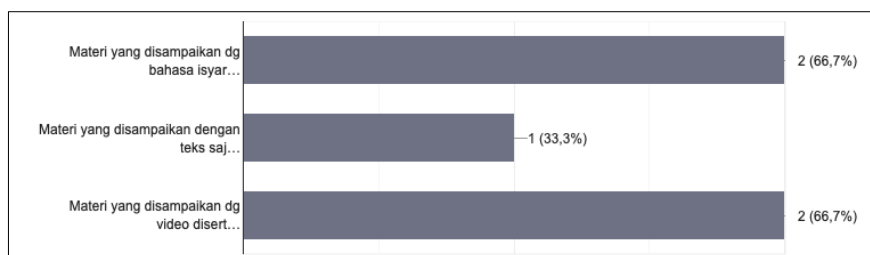


Figure 5. The Form of Material Expected by the Respondents

## Discussion

Based on the results of the needs analysis carried out on deaf students, all students have the ability to operate ICT devices such as smartphones, laptops or PCs. This is because all the students already have the device, and they're used to it. In terms of accessing the Internet, all students said they had the ability to use the Internet properly. Since they have become used to using the Internet, such as communicating or searching for college assignments. As far as the degree of comprehension of the content is concerned, the learning model that they normally get is just about 75%. This can happen since their learning needs have not been addressed as much as possible. And this number may, of course, be increased. Overall, the learning paradigm is for them only in a very welcoming category. Students hope that they will be given the material they can understand, including sign language material or video material accompanied by Indonesian text.

The application of learning models in teaching and learning activities needs to consider various factors. One important factor that must be considered is the condition of students who will be the object of learning itself. From the aspect of students, there are at least three things that are considered by educators before applying a learning model, i.e. student demographics, access, and differences in how students learn. Increasing student diversity is a challenge for all educators in higher education. As explained (Bates, 2019) one of the fundamental changes from higher education is that university and college teachers must now teach an increasingly diverse range of students.

More specifically in the blended learning model, there will be a combination of face to face and online learning. Of course, to learn with this online learning students must have a basic set of ICT literacy skills. Therefore, it is important for educators to know the basic abilities possessed by students whether they have been met or not. (Jones & Shao, 2011) say that it is dangerous to assume that all students are highly 'digital literate' and students vary widely in their use in digital and knowledge media. This also relates to the ease of use of the model to be applied. Because in essence, the main purpose of learning is the achievement of learning outcomes. If the media or learning model is not user friendly with students as the program target, learning certainly will not take place effectively. (Bates, 2019)states that the

aim of the study is not to learn how to use a particular piece of educational technology, but the study of the subject.

The problem faced by deaf students enrolled in higher education is the teaching method that is dominated by lectures and group discussions. (Atmajaya, 2018) revealed that children with hearing impairment have limitations in speaking and also hearing so that learning media suitable for children with hearing impairment are visual media. The number of deaf students in the classroom may be only a minority, but as educators, we can provide maximum service to them by varying the teaching methods. For example, lecture teaching methods can be added with the help of projected visual media, video media that are accompanied by subtitles. The variety of methods and media in teaching will not only affect students with special needs but will also help other students who have a visual learning style. as found by Mahardika (2020) that students with special needs such as deaf people can better participate in learning through the blended learning model because they can re-access lecture materials in the online learning system.

Deaf students who are in college are aged 16 years and over. At this age, the concept of language in deaf children has developed rapidly (Atmajaya, 2018). Especially if they actively socialize with other people who do not have hearing impairments. Based on the results of the preliminary study analysis, deaf students are able to learn using the blended learning model. Students have fulfilled the need to learn using the blended learning model. This is because ICT devices and the internet have become part of everyday life. A variety of studies have found that the mixed learning model leads to improving learning outcomes. Just a few addressed the use of this model for deaf students. However, the use of this model will allow lecturers to provide learning that meets the needs of deaf students. It's just that the blended learning model for deaf students is more emphasized on the use of more visual media. The existence of online learning in the blended learning model is very helpful for this realization. Online learning can be designed to provide a variety of content such as video learning that is accompanied by text, video-equipped with sign language, and other visual media. To meet these demands teachers can collaborate with other parties. Because in essence, the blended learning is also teamwork, which consists of content developers, media developers and IT developers (Arnida, 2020).

## CONCLUSION

Based on the findings of the study, it was found that deaf students had the ability to learn using a blended learning model. Some of the factors discussed in this study are student characteristics and the necessary context examination, consisting of the ability to use ICT devices, the ability to use the Internet, and learning needs. Expectations expressed by deaf students for blended learning models are classroom teaching using visual media and more varied online teaching such as videos with subtitles and videos with sign language. To realize this, it can be done by utilizing technology and collaboration of various parties such as content developers, IT developers and media developers.

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