

## DIFFICULTY IN ONLINE LEARNING FOR PROSPECTIVE MATH TEACHERS

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### ABSTRACT

Pandemic has caused changes in learning in universities and has led to the emergence of student learning difficulties. The aim of the researcher is to find out the learning difficulties of students during the pandemic. This type of research is qualitative with a case study approach. The research subjects were 25 students. The data collection technique used a questionnaire with 20 statement items. Data analysis used descriptive qualitative analysis method flow model (flow model), namely data reduction, data presentation, and drawing conclusions. The results of the study showed that as many as 38.4% of prospective mathematics teacher students had difficulty learning mathematics in online learning. This means that as many as 61.6% of prospective mathematics teacher students who do not have difficulty learning mathematics.

**Keywords:** Difficulty learning; Prospective mathematics Teachers; Online learning

### 1. INTRODUCTION

In the early 2020, March to be exact, an unexpected circumstance hits the live of the people of Indonesia in the form of the 2019 Corona Virus Disease, commonly known as Covid-19. This phenomenon is still ongoing even now in 2021 and has affected many fields, from the health departments, economics and social life as well as in the field of educations. Indonesia was also forced to undergoes changes in their educational systems. (Herliandry, Nurhasanah, Suban, & Kuswanto, 2020).

The changes in the Indonesian educational systems during the Online learningpandemics refers to the Ministry of Education and Culture referrals No. 36962/MPK.A/HK/2020 regarding educational process during the Online learningpandemics with an alternative of learning from home, which allows the teachers and students to indirectly interact from afar (Hadiprasetyo, et. Al., 2020). This long-distance-learning methods was in line with the Ministry of Education and Culture directive No. 19, 2013, which is a learning process using the communicative media of an online-applications, come to be more widely known as online learning.

Online learning is a learning process utilizing the advancement of internet technology to create various learning interactions (Nabila and Sulistiyarningsih, 2020). Online learning usually exploits device or media such as mobile phone, laptop and computer to perform the learning process (Putria, Maula, and Uswatun, 2020). The applications that were used include ELearning Unimal, Telegram, Google Meet, Zoom or other agreeable media to connect the instructors and the students. The media used will be agreed between the instructors and the students based on which media is best used for the learning process.

Both students and instructors are required to be able to utilize online learning, which also includes learning mathematics. It is widely known that mathematics have abstract characteristics, which provides a challenge for prospective math teachers to comprehend the subject during the Online learningpandemic. This is due to some mathematics subjects requires direct visualization to fully comprehend it, and was unable to be fully conveyed through online learning. The changing educational systems due to the pandemics from direct interaction at the university to the online home learning brings up problems faced by prospective math teachers in comprehending mathematics subjects.

Difficulties in learning are problems faced by a person in an unsuitable learning environment – make students unable to concentrate, the instructors unable to effectively conveyed difficult materials (Fauziah, Sukarno and Sriyanto, 2021). Difficulties in learning emerges when the inability of the students in comprehending the problem-solving algorithm, concepts, and basic principles even when

they try to learn it. Furthermore, their inability in abstracting, generalizing, deductively thinking, and remembering the concepts or principles made them come to the conclusion that the subjects given was extremely hard (Waskitoningtyas, 2016). There are 2 factors that cause difficulties in learning, an internal factor and an external factor. The internal factor could be divided into 3 aspects which are students' interest and motivation in learning. External factors includes parental influence as well as the instructors teaching methods in teaching the students. (Lestari, Meter, and Negara, 2015).

Ever since the implementation of online learning, there are many issues that occurred in its applications. The experiments conducted by Purwanto, et. Al (2020) stated that one of the most obvious impacts is the difficulties in learning in the learning from home process. Students feels stressed during the learning process, feeling forced, and lack of facilities and infrastructure at home. Utami and Cahyono (2020) found some issues that occurred during online learning which includes low initiative from students to learn, students unable to adapt to the routines of online learning, students focused more in acquiring good grades rather than improving their comprehensions, many students complains and gave up in committing to the given task during the e-learning process.

Difficulties in online learning is also apparent in the research done by Wardani, Anita and Ayriza (2020), which stated that the issue is also apparent on the parents of the students. Most parents is not knowledgeable with the subjects and therefore find it hard to inspire and motivates their children to learn, difficulties in managing time between work and accompanying their children, parents difficulties in operating the media, limited internet connection and parents' impatience in accompanying their children in during the learning causes difficulties in learning for the child at home,

The solution to improve and maintain the quality of online learning is by evaluation, studying and examining the difficulties that prospective math teachers face during a period of online learning. Further research is needed to obtain more information on the difficulties in learning faced by prospective math teacher during the nline learning to find the best solution against those difficulties, which is the main aim of this research. This research also aim to hopefully minimalize the difficulties faced by students during online learning and finding the solutions for those difficulties as well as improving the quality of online learning for future uses.

## **2. METHODS AND MATERIALS**

This research applied a qualitative research methods by describe the data through percentage level imaging of the students questionnaire answers analytically based on the real situation on a population. Every prospective math teacher at the mathematics department of Malikussaleh University was the population of this research. The samples of this research were 25 prospective match teachers. The data for this research was collected using difficulties in learning mathematics online questionnaire.

The questionnaire consists of 20 question with 4 grading range of Very Suitable (VS), Suitable (S), Not Suitable (NS), and Very Not Suitable (VNS). The test was first prepared, constructed and validated in an instrumental trial.

The questionnaires were distributed to the students via Google Form, a very useful and helpful application to quickly and widely distribute questionnaire by sharing the web-link of the questionnaire to the research subjects. The questionnaires were answered by choosing the options provided by Google Form. The data were than analyzed using the descriptive qualitative analysis flow model, consisting of three steps of data reduction, data presentation and conclusion.

## **3. RESULT**

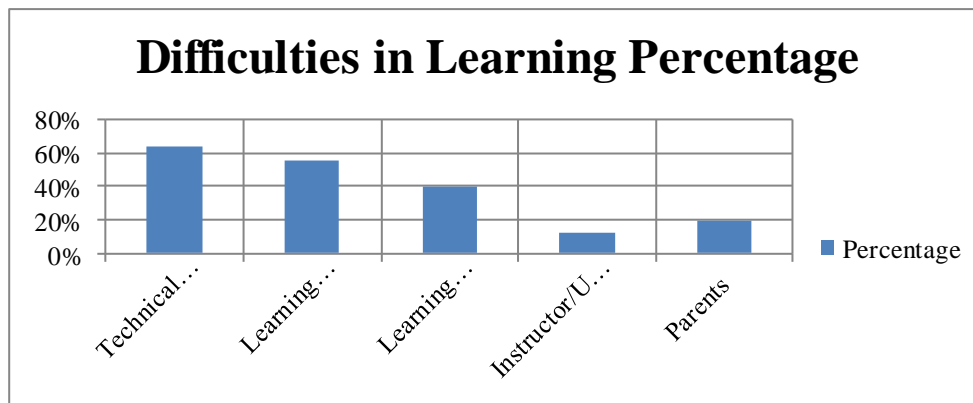
### **Findings**

As previously stated, to find and understand the difficulties faced by prospective math teacher face during the online learning process. By distributing questionnaire through Google Form of 20 set questions based on the indicators of difficulties in learning. Shown in Table 1 is the result of the questionnaire from the qualified respondent of 25 students.

**Table 1. Difficulties in Learning Questionnaire Summary Result**

| No.           | Factors          | Difficulties in Learning Indicator | Items | Students | Percentage |
|---------------|------------------|------------------------------------|-------|----------|------------|
| 1.            | Internal Factors | Technical Difficulties             | 3     | 16       | 64%        |
|               |                  | Learning Habits                    | 5     | 14       | 56%        |
|               |                  | Learning Motivation                | 5     | 10       | 40%        |
| 2.            | External Factors | Instructor/University              | 4     | 3        | 12%        |
|               |                  | Parents                            | 3     | 5        | 20%        |
| Average Score |                  |                                    |       |          | 38,4%      |

The table 1 above shows that the internal factors of difficulties in learning on a technical level is 64%, on the students learning habits is 56%, and 40% is unmotivated in undergoing the learning process of online learning. On the external factors, 12% of the students did not received support from their instructors or university, and 20% did not received support from their parents. Indicating that 38.4% of prospective math teachers at the Malikussaleh University face difficulties in learning online during the Online learningpandemic. This is also indicates that 61.6% of prospective math teachers did not face difficulties in learning online during the Online learningpandemics. The percentage of the difficulties in learning online can also be seen in the following graph.



**Fig 1. Questionnaire Result Percentage of Students Difficulties in Learning**

The graph above shows that the percentage of difficulties in learning. The highest percentage of difficulties is the indicator for technical difficulties regarding the execution of online learning like connection and signal issues during class. Most students of Malikussaleh University comes from a variety of places, which causes difficulties for the students in attending and presenting at class due to connectivity issues. Lateness is also an issue for the students in joining a class through Zoom or Google Meet, students also suffers from connectivity issues and blackout which hinders the learning process of the class. A different kind of technical difficulties is the issues with mobile data that both students and instructors face. Applications like Google Meet, Google Classroom, Zoom or WhatsApp requires having a substantial mobile data and therefore requires an extra cost for the students and instructors to conduct the learning process. Despite the existence of mobile data allowance, students did not only use mobile data during class. Social media and online game in their free time would also uses up their mobile data allowance. To be able to attend class, students were forced to find places with a stable Wi-Fi connection such as the university environment.

#### 4. DISCUSSIONS

This difficulty is in line with the result of Isnaini (2020) research that stated that students face technical difficulties regarding connectivity and lack of mobile data, some students was also uneducated in utilizing the internet, some don't even have their own mobile phone, all of this causes the learning process to be not maximized. During the learning process, students faces problems like not understanding the instructor, not following the flow of the process, unmotivated and bored students and the difficulty of adapting online, the task given online were also considered to be too difficult for the students.

The second highest percentage of difficulties in learning in this research is the indicator of learning habit. This indicates that most students face difficulties relating to their learning habits. Most prospective math teacher have not feel comfortable when undergoing online learning and the transition of learning environment burdens the students making them unable to learn favorably. Until now, students still have difficulties in receiving and absorbing the subjects from the instructors online. The research done by Dewi (2020) also supports this finding, stating that long distance learning method causes the students to require time to adapt to the new changes that would also affects their comprehensive level on the subject.

The next indicator of difficulties in learning is the learning motivation. The prospective math teach of Malikussaleh University have begun to bore themselves during the one-year period that they have utilizes online learning. Online learning limits the chance for students to directly ask question and discussed the subjects with the instructors as well as not having colleagues that can help motivate themselves and inspires them in this pandemics. This reality is in line with the condition of online learning on the research of Cahyani, Listiana and Larasati (2020) that concluded that high-school student felt less motivated to learn when undergoing online learning because of the limitation of a virtual space making it hard for students to interacts with teachers and other students, limiting students chances to ask questions and to absorbs the knowledge. This phenomenon causes students motivation to lower and could affects the students grades.

External factor of difficulties in learning, such as instructor and parents, was quiet low. This means that many students still receives supports and motivations from their instructors and parents to undergoes the online learning during the Online learningpandemics. Most instructors was also quiet adept in using technology, internet and social media as their facilities in teaching, keeping quality of the learning process during the pandemic. Most students could already be categorized as an adult and most have already been used to live independently, most students did not think that guidance from their parents as nothing that was too important.

The difficulties of learning faces by primary school students on research done by Utomo, et. Al (2021) stated that the students of SDN Sidoharjo 01 suffers from the decrease of the students' interest in learning, the students were also confused as to how to find information by themselves on difficult subjects online. The students also felt great degree of stress during online classes because of the decreasing opportunity to be guided thoroughly by their teacher. Parental guidance is also lacking due to most parents lacking the ability to guide their children using the online learning system and leaving their child to learn by themselves.

The negative view of online mathematics learning is also shared with Fauzy and Nurfauziah (2021) who stated that online learning came about abruptly due to the Online learningpandemic, causing a non-optimal learning environment with little to no preparation. Furthermore, students were unable to adapt to the sudden changes and felt unprepared when experiencing online learning on the subject of mathematics. This negative view on online learning indicates that there are many difficulties that students face when learning mathematics by online.

There are few solutions of these difficulties such as anticipating signal difficulties by finding location with high signal and makes full use of the government mobile data allowance, focusing it only for learning purposes. Students can also held discussion with their colleagues and instructors through personal WhatsApp applications if they felt that the discussion during class was lacking. Instructors should also provide an interesting presentation to lift up the spirit of the students despite learning online.

Utari, Wardana and Damayani (2019) stated that the solution of difficulties of learning online is by providing an interesting learning medium, furthermore by increasing the amount of practice

question to make the students learn and understand more about the subject of math. The last solution is by building teamwork with the students' parents, because they have a great role in motivating the students. Students that received warm behavior and good attention at home would be more motivated to learn. Therefore, it is important for parents to always give attention to the development of the students learning of mathematics by accompanying them when they are learning at home, if they were ever to find some difficulties the parents can help them to overcome those difficulties. A different alternative is by giving the child a private tutor.

The situation of study-at-home students is one of many efforts in to entice students independent learning, because the atmosphere of online learning could motivate students to learn and made them learn independently, learn more effectively, and made students not fall behind the advancement of knowledge and technology (Yulia and Putra, 2020). Other than strategy to make a successful online learning environment, Lewis (2015) optioned that knowledge about students learning habits and their ability in deciphering the correct formula in an online environment is also important. As with normal, face-to-face, teaching, an understanding of teaching methods is necessary to accommodate the students' learning habits. A successful online learning connects the teaching methods to the learning habits using facility of media and available online sources.

Other than the importance of instructor understanding the learning habit of their students, the capability of the instructor regarding technologies is also needed for the online learning to work well. That is why a proper training is necessary, be it a seminar or a workshop regarding the innovation of online learning using technology. One of those technology is LMS (Learning management system), an interactive online learning system that is reliable and user-friendly that could hopefully help students understands mathematical subjects independently. This is supported by Hidayat, H., Hartono, H., and Sukiman, S. (2017) who stated that the development of LMS could made independent online learning for student easier without the need to rely on the instructor, with LMS serving as the media for students to embarks on self-learning.

Research done by Amaruddin, Atmaja and Kahfid (2020) also describes that the even without the pandemic, family have the responsibility to teach, impart knowledge, and to evaluate every progress of a child learning process and their behavior. Even students that have passed *baligh* still needs the guidance of parents. The responsibility of the parents is to guide the aspects of knowledge on a child at home, as well as guiding their behavior, values, and attitude towards the operation of social media / using gadgets. Therefore, parents must watch and evaluate their child at home, so that the online learning could be maximized as hoped. Other than the advantages and disadvantages of online learning, this researcher also elaborates regarding the solution to the problem of difficulties in online learning.

## 5. CONCLUSIONS

The analysis of prospective math teachers' of Malikussaleh University difficulties in learning during the Online learning pandemic era aims for the instructors to understand the difficulties that the students face in their experience of online learning during this time of Covid-19. Based on this research it could be summarized that as much as 38.4% of prospective math teachers suffers from difficulties in learning the subject of mathematics, which also mean as much as 61.6% did not face these difficulties. These result could be used as reference for instructors as an intensive guide as well as a new innovation to better a learning process whether the it's the approach, the media, the instruments or others factors that could support the online learning process, especially on the subject of mathematics to better the future.

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