The Role of Asynchronous in Improving Student Achievement

Grégory Baron [1], Courtois Lorenzo [2], Dubois Benoît [3]
[1] *University of Reunion Island, Guadeloupe*
[2] *The Hong Kong Polytechnic University, Hong Kong*
[3] *Atlantic Technological University, Ireland*

Corresponding Author: Grégory Baron,   E-mail; grégorybaron@gmail.com

The Covid-19 pandemic has had a huge impact on the world of education. The learning process is usually carried out face-to-face, but during the Covid-19 pandemic, schools were required to follow government policies regulated by the Ministry of Education and Culture. Where the learning process is carried out in asynchronous learning, so that a teacher is highly demanded to be able to use interesting learning media, create a creative and innovative learning atmosphere so that students can understand learning material easily. Asynchronous is a learning system that is carried out delayed or indirectly, so that the teacher can only provide knowledge not in educating the student's character. However, students can easily access learning materials anytime and anywhere. This research was conducted aiming to describe the role of asynchronous in improving student achievement. This research uses quantitative methods using survey models, google forms and in-depth interviews. The results of this study indicate that student achievement will increase if these students are able to make good use of the asynchronous system in the learning process. The limitation of this study is that researchers have difficulty knowing student learning progress by using an asynchronous system in improving student achievement. Therefore, it is hoped that future researchers will be more thorough in reviewing student achievement using an asynchronous system.

Keywords: *Achievements, Asynchronous and Roles*

INTRODUCTION

Education is a very important element in human life (Glikson et al., 2021; Zhao, Shang, et al., 2020; Zhou et al., 2020). Basically, Education is the process of conveying information and communication carried out by two or more people to achieve various changes, namely knowledge, insight, values, expertise and certain skills to an individual in developing his abilities so that he is able to overcome any problems that occur as a

result of the development science and technology that is growing rapidly, both inside and outside educational institutions that last all the time (Dwivedi et al., 2021; Liakos et al., 2018; C. J. Wang et al., 2020). The role of education for everyone is very important for educating and developing the potential that exists within him so that he can further develop according to the needs of an increasingly changing era (Bryois et al., 2020; Machida et al., 2021; Xie & Derakhshan, 2021).

The Japanese government has taken a policy with the aim of breaking the chain of transmission of the Covid-19 outbreak (Jiang et al., 2021)(Kaden, 2020; Totura & Bavari, 2019) . Among them is implementing a social distancing policy, in which all people carry out all activities in their homes, so that this policy has a very negative impact on all sectors of life, especially in the education sector (Khoirunurrofik et al., 2022; Murray et al., 2022; Purnama & Susanna, 2020). The implementation of the teaching and learning process must be carried out using a remote or online system (Davis et al., 2021; Szklarczyk et al., 2021; Zerbino et al., 2018). There are many obstacles that must be faced by parents by carrying out this online learning system, including many parents who do not understand learning material well, and parents do not have time to work because they have to accompany their children to study, so that work becomes less effective and reduces income. Meanwhile, during a pandemic it was very difficult to get a job that matched your abilities (Baticulon et al., 2021; Onan, 2021; Singal et al., 2021).

During the Covid-19 pandemic, teachers were required to make various changes in learning styles for students by providing good teaching, creating a conducive learning atmosphere, and using interesting learning media, as well as making it easier for students to understand the material being taught (Clooney et al., 2021; Coman et al., 2020; Zhao, Guo, et al., 2020). Using appropriate and interesting learning media can increase student concentration and the learning process is achieved properly as expected so that in the end student learning presentations experience an increase (Ai et al., 2020; Woo et al., 2018; Yoo et al., 2021). Changes in education in the world today will never be separated from the development of the industrial revolution in the world today, indirectly it has been able to change the economic and educational order in a country (Dwivedi et al., 2021; Kusiak, 2018; Mastos et al., 2020). As has happened in the era of revolution 4.0 is the speed of change that occurs in an organization and individual which has been caused by technological innovation to create and develop the potential of human resources through formal and non-formal education (Ejsmont et al., 2020; Wu et al., 2019; Xu et al., 2018).

Indirect learning has become a solution to various forms of problems related to potential interests and talents as well as student learning motivation (Iwaniec & Wang, 2022; Newman et al., 2018; Tasso et al., 2021). To be used as motivation for developing potential and increasing human resources by studying in the world of formal and non-formal education (Mathieu et al., 2021; Wishart et al., 2018; Yang et al., 2019). The obstacles that often occur in the world of non-formal education are that there is no time and place for learning to be carried out and for some students experience difficulties both in terms of quota and inadequate internet network (Elahi et al., 2020; Fu et al., 2022; Whittington et al., 2019). In fact, there are many problems, where students who initially

study quietly become disturbed, constrained by internet quota and low levels of economic income so that the atmosphere in the learning process is not conducive and effective (Hussain et al., 2020; Y. Li et al., 2019; Pfeiffer & Pfeil, 2018).

These obstacles can be overcome through the teaching and learning process using the asynchronous online learning method (Deeds et al., 2019; Ismailov & Ono, 2021). Asynchronous is learning indirectly or not at the same time (Daniel, 2020; Iglesias-Pradas et al., 2021; Pérez López et al., 2020). So that between teachers and students cannot interact properly when the learning process takes place. This causes the teacher to only be able to provide knowledge without educating the behavior and behavior of these students in a better direction (Cao et al., 2020; Lukacik et al., 2022; Nickbakhsh et al., 2019). Students can take different learning times from the teacher providing learning material (Z.-M. Li et al., 2021; Ren et al., 2021; Sitharthan et al., 2020). Asynchronous is offering opportunities so that individuals who experience intensity in education, business and family life can receive good education because of the flexibility of space and time and are able to provide opportunities for critical and independent thinking for students in learning at different speeds from one another (Biktasheva, 2020; Borders et al., 2019; Turnbull et al., 2021).

Asynchronous learning has many limitations, including the lack of interaction between teachers and students, both directly and indirectly, so that students experience boredom and loneliness, as well as problems in commitment to online classes (Asgari et al., 2021; Cicerone et al., 2019; Jaloudi, 2019). Problems that occur such as lack of classrooms, lack of interest and decreased motivation and no technical support for learning so that it allows the teaching and learning process to arise which is less effective and not conducive when learning takes place (Ren et al., 2021; Tao et al., 2019; Xia et al., 2021). With the development of technology that is used on an ongoing basis in a learning process indirectly, carried out out of sync with needs, decreased interest, and is not in accordance with the expectations of teachers and students resulting in decreased learning outcomes and difficulty in understanding the material for these students (Chakaya et al., 2021; on behalf of the COVID-19 Commission of Accademia Nazionale dei Lincei, Rome et al., 2021; the International Natural Product Sciences Taskforce et al., 2021).

The asynchronous online learning environment has given students the opportunity to study independently according to their speed, and repeat learning that is difficult to understand without being limited by time and space (Liu et al., 2021; Rebecq et al., 2021; Shi et al., 2020). Students can do learning in a variety of applications that are available, be it via WhatsApp, You Tube, Google Meet, Zoom and others that support the online learning process. (Imran et al., 2020; Overmyer et al., 2021; Radianti et al., 2020). Asynchronous is a challenge for students because it is only a set of strategies that have been designed properly and carefully so that in the use of applications in the learning process it is hoped that students will be able to maintain and use them according to their needs (Aoudia et al., 2018; Dai et al., 2021; Ratanjee-Vanmali et al., 2020).

So that it can be seen that students are involved in a learning environment like this as a facility and a self-paced system where a student must be self-disciplined to always keep himself active as interactive in tracking e-activities online learning there is no real-time communication between instructors educational institutions and students in asynchronous online learning in improving student achievement (Alsoufi et al., 2020; Mahmood, 2021; Mathieu et al., 2021). Relevant to these problems, several researchers have examined solutions to problems that occur in the world of education (Cabani et al., 2021; Derakhshan et al., 2021; Potra et al., 2021). One of them is the researcher Santriana (2021), who discusses the effect of asynchronous online learning on student learning outcomes in class X ecosystem material at SMA Muhammadiyah Makassar (Iglesias-Pradas et al., 2021; Klein et al., 2021; Lapitan et al., 2021). Researchers before this research have mentioned that asynchronous really helps students in increasing their activity and learning achievement (Baas et al., 2021; Cui et al., 2021; Ji et al., 2020). In this more relevant research it strongly supports the implementation of an asynchronous system when the teaching and learning process takes place (Ardakani et al., 2020; Shea et al., 2022).

This study aims to find out how the role of asynchronous in improving student achievement. By knowing the advantages and disadvantages of learning that is carried out asynchronously, so that through an asynchronous system the learning process will be created in an effective and conducive atmosphere. Students are able to understand the learning material well and not get bored when learning takes place. However, it should be equally known that no matter how sophisticated the system used in learning, of course, has its advantages and disadvantages. It depends on how to use it and the people who use it.

RESEARCH METHODOLOGY

This research was conducted in the context of collecting field data and information based on quantitative data research methods (Page et al., 2021; Son et al., 2020). Quantitative method is a research conducted using intensive survey and interview models (Z.-Y. Wang et al., 2021). The survey in this study was carried out on an online basis, because the current conditions are still post-covid-19. This research was conducted through intensive interviews using the Google form and chatting on WhatsApp with educators and students who carry out the teaching and learning process at the Dharmasraya State Madrasah Aliyah (Ki & Lee, 2021; Namoun & Alshanqiti, 2020; Trabelsi et al., 2021). The results of the analysis that has been carried out show the percentage of obstacles that occur when the asynchronous learning system is implemented in the online learning process. One of these obstacles is the internet network, quotas, motivation, decreased enthusiasm for learning, so that students feel bored and bored in the learning process. this online (Aljarah et al., 2018; Dong et al., 2019; Zhang et al., 2018) .

Most students underestimate asynchronous learning so they lack seriousness in the online learning process, resulting in these students not being able to understand and

master the learning material that has been given by the teacher (Riedel et al., 2022; Song et al., 2020). So that teachers become less effective in providing learning materials to their students, so teachers are required to present learning materials using online learning media that are more creative and innovative (Nagi Alsubari et al., 2022; Shields et al., 2021). With this asynchronous system, teachers are not overwhelmed in providing learning material to their students, besides that students can easily seek knowledge in it without having to spend a lot of time and effort because the material can be accessed easily wherever and whenever the material is needed. by the student (Genders & Razavi, 2018; He et al., 2021; Nakabi & Toivanen, 2021).

In asynchronous learning there are challenges in its implementation as it is known that asynchronous is just a learning system and strategy that is used so that learning achieves the learning targets and goals. (Al-Maskari et al., 2022). Preferably in the online learning process, each school should combine synchronous and asynchronous systems so that learning can run effectively and maximally, so students don't feel bored in the learning process because students also feel monitored or cared for when at school, as well as when The student is in a family environment (Michelson et al., 2021; Sagi et al., 2018). Therefore, in this asynchronous learning process, parents play an important role in providing guidance, enthusiasm, motivation and educating their children's morals so that they are better in the future (Papapanou et al., 2022).

Sources of data that researchers have obtained from this study were obtained directly from educators and students, in which data were obtained through each questionnaire that had been distributed by researchers regarding the role of asynchronous in improving student learning achievement (Berjan et al., 2022). So that it can be seen how the role of asynchronous in the teaching and learning process goes well (El-Shitany et al., 2021). The use of an asynchronous learning system plays an important role in providing convenience and opportunities for students to always play an active and more productive role in using various forms of available learning media (Iglesias-Pradas et al., 2021). So that a teacher has an obligation to understand and study asynchronous in more depth before teaching it to his students so that these students can easily understand the learning system and learning media used during the learning process (Ye et al., 2022).
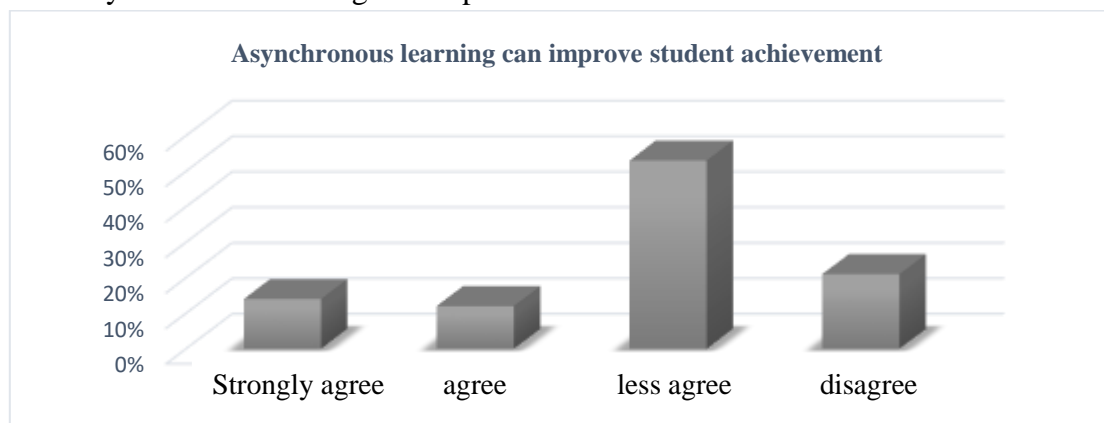
The questions that have been included in the questionnaire have been prepared according to the research problem of the asynchronous role in increasing student learning achievement (Engzell et al., 2021; Javaid & Khan, 2021). Furthermore, the data collected was analyzed using quantitative through the percentage of one by one question in the questionnaire that has been distributed (Barroso et al., 2021). Then the percentage is described with a combination of previous researchers using words that are already relevant so that the results of this study discuss the narratives and conclusions that have been made by previous researchers (Liu et al., 2021) . The percentages that have been analyzed are presented in the words of the researcher and some of the opinions of experts and previous researchers similar to this study (Klein et al., 2021). It is on the results of this study that the researcher's arguments are listed and narrated and then developed to

become a mediator of the conclusions from the research obtained previously by the researcher (Olver et al., 2020).
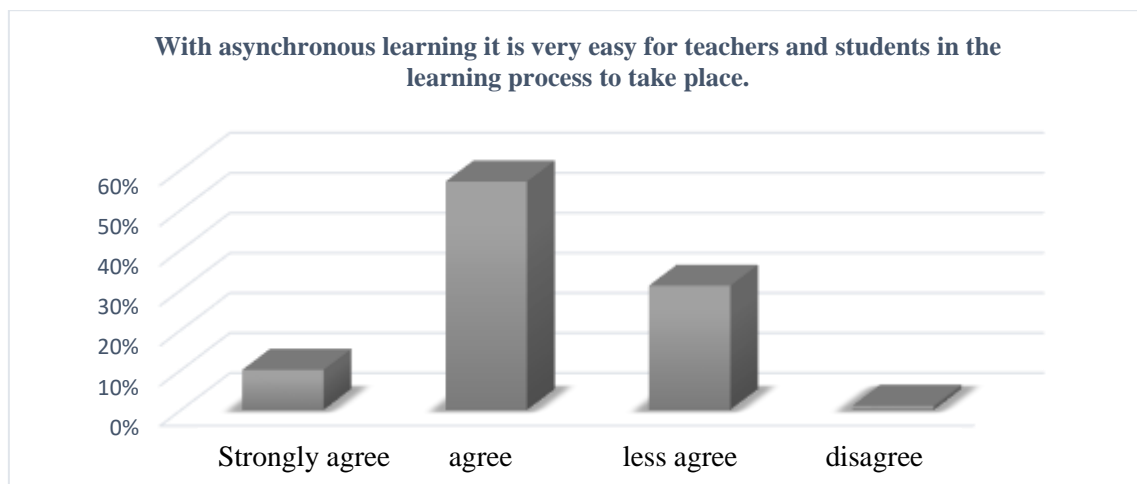
RESULT AND DISCUSSION

The survey was carried out by researchers through the distribution of questionnaires from the Google form which had been filled in by as many as 50 people, taken from several educators, students and students. On average, many of these percentages disagree with learning that is carried out through an asynchronous system and the challenges and obstacles that will occur, thus making the atmosphere less effective and productive. Where some students are constrained by the network in certain areas and quotas for those who have minimal economic income during the learning process. However, in addition to these negative impacts, a few positive impacts emerged, namely making it easier for students to access learning material and repeat delivery of material until they could understand it properly. The use of an asynchronous system in the learning process has advantages and disadvantages, it is better if learning is carried out by alternating between Synchronous and Asynchronous systems. Below is a table that explains the results of interviews via Google form that researchers have conducted with educators and students at the Dharmasraya State Madrasah Aliyah.

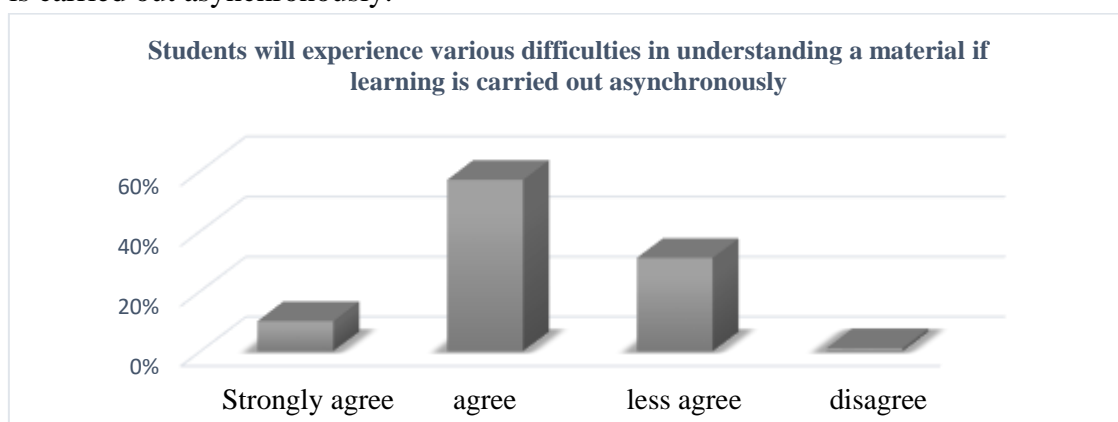Asynchronous learning can improve student achievement

Based on the diagram above regarding the role of asynchronous in improving student achievement. Judging from the student respondents, 14% chose to strongly agree, for statements that agreed around 12%, 53% disagreed, which was the highest reference for student opinions regarding the role of asynchronous learning implemented by schools in improving learning achievement. students because asynchronous learning causes many difficulties for both teachers and students. These obstacles can come from students' internal and external elements so that if students are not clever in using the system it will result in a decrease in student achievement and as many as 22% of statements that do not agree regarding this asynchronous system can increase student achievement.

With asynchronous learning it is very easy for teachers and students in the learning process to take place.

<figure>

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Bar chart showing: Strongly agree ≈ 12%, agree ≈ 57%, less agree ≈ 31%, disagree ≈ 0%

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In this discussion, asynchronous learning makes it very easy for teachers and students in online learning. There were as many as 57% of students who agreed with this because by carrying out asynchronous learning the material that had been sent by the teacher could be easily accessed by these students whenever and wherever they were. Besides that, it can also make efficient use of time in learning and students will be more active besides learning in the classroom. As many as 10% of students agreed with the existence of this system and around 31% of students felt they did not agree because in the process of accessing material students experienced difficulties related to internet network problems for those who lived in rural and remote areas and as many as 0% of students disagreed with this. By implementing this asynchronous learning system it will greatly facilitate teachers who will carry out an activity outside of school so that they continue to fulfill their responsibilities towards students, even though learning is not carried out in the classroom at least the learning material has been provided by the teacher long before the teaching and learning process begins.
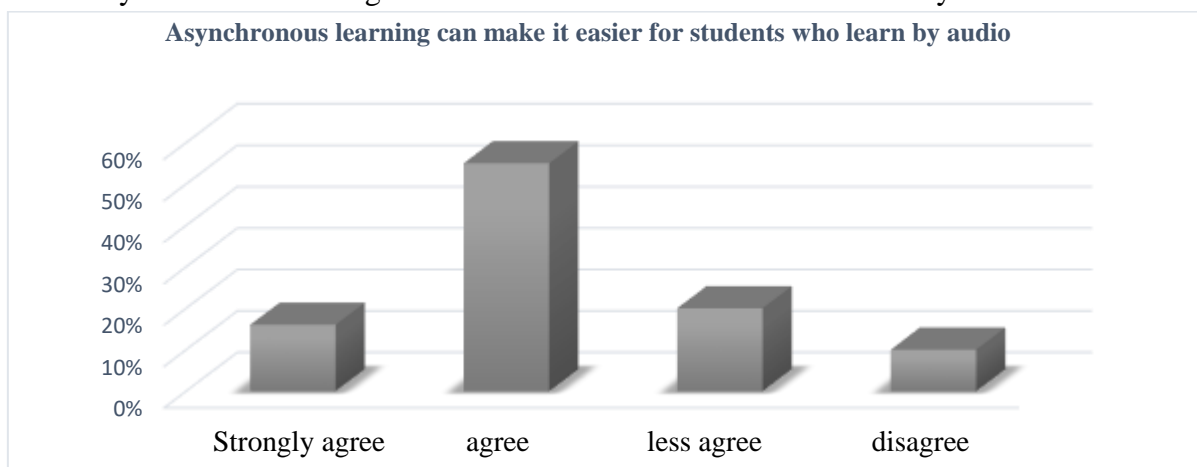
Students will experience various difficulties in understanding a material if learning is carried out asynchronously.

<figure>

Students will experience various difficulties in understanding a material if learning is carried out asynchronously

Bar chart showing: Strongly agree ≈ 12%, agree ≈ 60%, less agree ≈ 32%, disagree ≈ 5%

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From the results of the above analysis, on average, all students experience many difficulties, especially in understanding the material presented by the teacher. As many
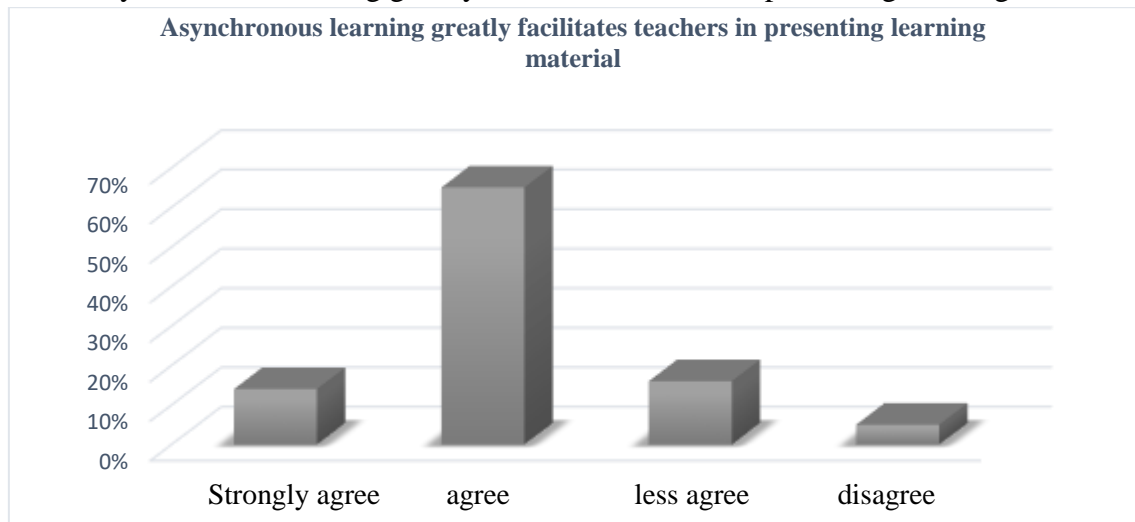
as 50 people who have filled out the questionnaire, as many as 26% of students strongly agree because not all students are able to understand the material with asynchronous learning, around 57% agree that the asynchronous learning process takes place making it difficult for students to understand learning material and the lack of absorption of these students because teachers use learning methods that are still conventional or traditional, lack of innovation and teacher creativity in creating interesting learning models and media and being able to make students more focused on learning so that they are able to absorb the material presented by the teacher properly. Then as many as 14% of students disagree and 0% disagree with this.

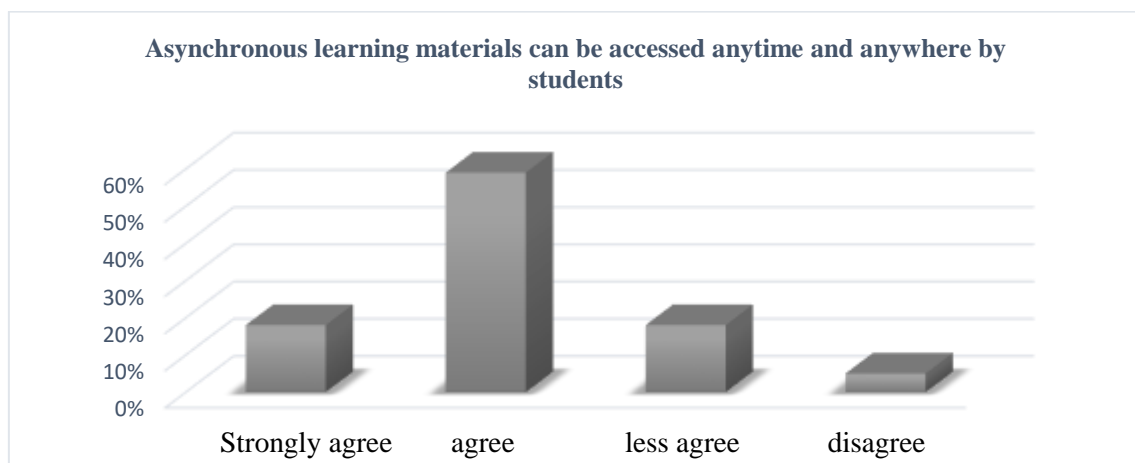Asynchronous learning can make it easier for students who learn by audio

Asynchronous also has positive and negative impacts when used, especially for students whose learning style is auditory, that is, prioritizing the sense of hearing in understanding and absorbing material or knowledge. Learning through sounds, whether it's sound explanations from the teacher or animations from media that support learning. The results of this survey show that many agree that asynchronous learning makes it easier for students to learn with audio learning styles. 16% strongly agree with this statement because students with an audio learning style can repeat themselves in understanding the material and concentrate more during learning. As many as 55% of students agree with the presentation of material using media in the form of videos with different features and animations. 20% disagree with this statement and 9% disagree with this option because not all audio students are able to understand the material presented by the teacher in various forms of features, if there is no repetition or review of the material from the teacher so therefore the teacher is very required to be more productive in using existing learning media.

Asynchronous learning greatly facilitates teachers in presenting learning material

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When asynchronous learning has a very positive impact on a teacher in presenting learning material so that the material can be accessed by students in a timely manner. So from the results of this survey there were 14% strongly agree, 65% agree, 16% disagree and 10% disagree with the above statement. This asynchronous method can make it easier for educators to deliver material, so educators can prepare material before the learning time begins. However, it is not only convenience that educators also have difficulties with applying this method, thus sacrificing a lot of time to prepare the material in question for students to understand. With the implementation of this strategy, it is easier for students to understand the intent of the material from educators, because students can see and understand the material before learning begins so that a conducive class is realized.
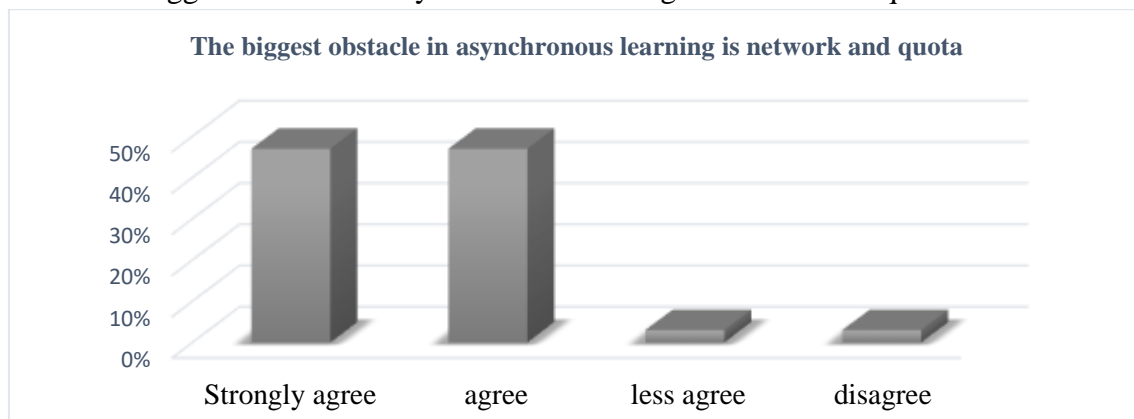
Asynchronous learning materials can be accessed anytime and anywhere by students

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The results of this study can be concluded by researchers that this asynchronous learning material can be accessed anytime and anywhere by students with this option
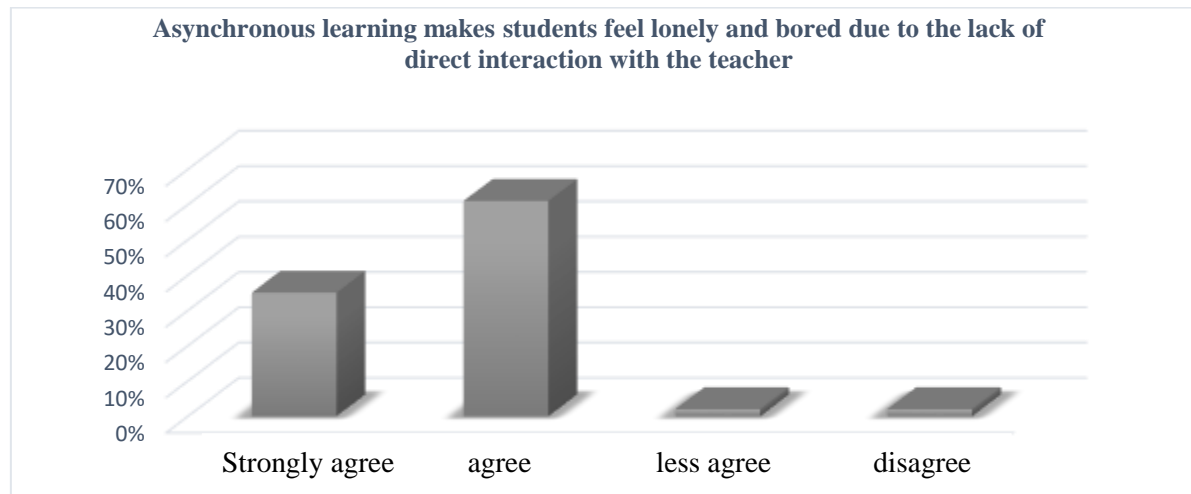
there are many opinions issued by educators and students there are around 18% who strongly agree with this statement, as many as 59% of students agree with using an asynchronous system in learning so that it can be accessed wherever they are so that students will not experience difficulties in using this asynchronous system. In addition, with asynchronous learning students can easily understand learning before the teacher explains the material in class. As many as 16% of students feel that they do not agree with the system and about 7% of students do not agree at all with this because these students most likely have difficulty accessing the material properly.

The biggest obstacle in asynchronous learning is network and quota

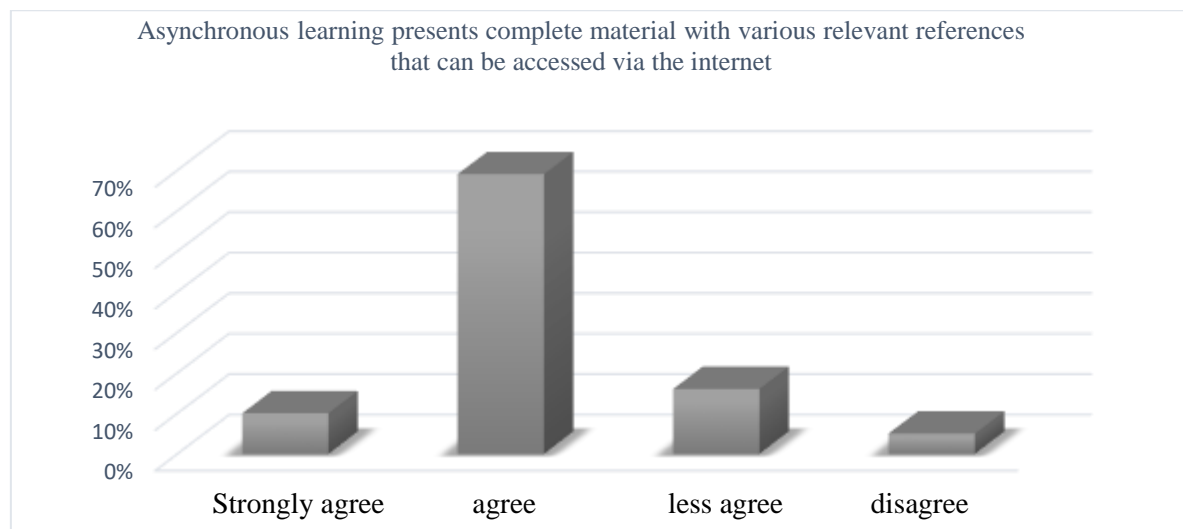**The biggest obstacle in asynchronous learning is network and quota**

Based on the data from the diagram above, it can be seen that most students are constrained by networks and quotas during the learning process. As many as 47% of students strongly agree and agree about this because when learning takes place, a good network is needed and the location of settlements is not strategic, they cannot reach the network properly, so they have to explore hills and plateaus and go to other areas first. will definitely make students overwhelmed and difficult so that students become less enthusiastic and feel sincere in themselves. in order to be able to access material as well as in using a learning media in the form of an online application. So that the use of a good network will facilitate the atmosphere and conditions of the teaching and learning process. About 3% disagreed and disagreed with these obstacles because some students who are in urban areas will easily connect to a good network making it easier to access material and can focus more on learning without thinking about network problems and more flexibility in repeating material in the form of videos or other animations.

Asynchronous learning makes students feel lonely and bored due to the lack of direct interaction with the teacher

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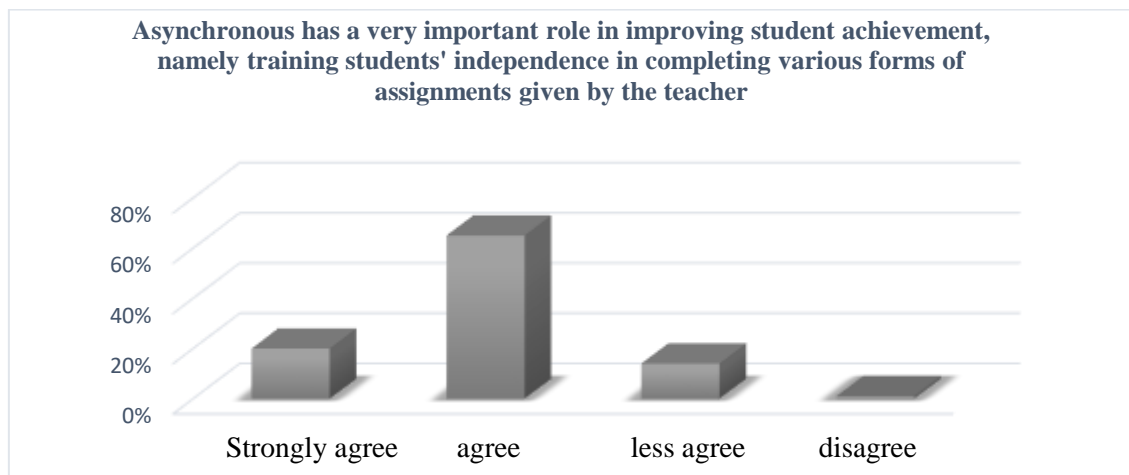
When asynchronous learning is carried out, it can have many negative impacts compared to the positive impacts. As it is known that asynchronous learning does not support smooth and fast communication because there is no specific schedule for implementing learning, feeling lonely and unable to study together, and lack of direct interaction between teachers and students. In addition, it has been evaluated that the long duration of the learning videos is very boring for some students, so these students are not focused and sleepy during learning. The results of the survey stated that 35% strongly agreed, 61% agreed, 2% disagreed and 2% did not agree with this. It has been revealed that asynchronous learning can be prepared with high quality and interactive, so as to facilitate students from various different skills and backgrounds in constructing sentences syntactically and semantically.

Asynchronous learning presents complete material with various relevant references that can be accessed via the internet

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Based on the diagram from the statement above, it has been obtained that there are as many as 10% of students strongly agree, 69% agree, 16% disagree and as much as 5% disagree with the statement. Learning that is carried out asynchronously greatly facilitates teachers and students in finding references and learning resources that are relevant and can be accounted for as sources of the material via the internet. So that with this it is possible for students to broaden and deepen and broaden their horizons of knowledge by utilizing all forms of learning media that are available on the internet. The use of the internet must be wise and knowledgeable about technology because there are many things that are not good on the internet, it depends on using it properly and wisely so that supervision from parents or teachers is needed in the learning process.

Asynchronous has a very important role in improving student achievement, namely training students' independence in completing various forms of assignments given by the teacher.

The statement above has explained that there are 20% of students strongly agree, 69% agree, 16% disagree and 0% disagree with this option. The use of asynchronous, of course, has advantages and disadvantages, both in terms of the environment, the economy and the student's personality because some students who have not been properly tested for independence will experience difficulties in the learning process taking place. These students still depend on other people and are under the supervision of parents and teachers because they are not used to and are not able to undergo asynchronous learning. With learning that is carried out asynchronously, it is very possible for students to understand and explore knowledge independently because whatever is needed is available on the internet, so they must be good at sorting and choosing which is good for themselves.

So that it can be obtained from the 10 survey options in the form of a google form that the researcher has analyzed, it can be concluded that asynchronous plays an important role both for the teacher himself and for the student. Asynchronous is learning that is carried out indirectly with material provided by the teacher so that students can easily access and study the material before learning is carried out. Thus students have learned independently about the material concerned with their learning, so that when in class

students only ask things that are difficult for them to understand well when studying at home. The role of the teacher is no less important in asynchronous learning, because a teacher is required to be able to present creative and conducive learning media in an educational institution.

The results of research using the quantitative method have become a source of inspiration for teachers because with the emergence of this research teachers can know well about the opinions of students in using the asynchronous-based learning media. In fact, with a variety of answers given by as many as 50 people who have been surveyed, both teachers, students and students who have taken the time and put forward their arguments regarding the use of online and asynchronous learning media. So that with the option of this statement many students who respond either strongly agree, agree, disagree and disagree and after being presented it becomes a balance between the pros and cons in the problems experienced when asynchronous learning is carried out in the form of increasing student achievement and enthusiasm .

The role of asynchronous learning is inseparable from its advantages and disadvantages in using it when the teaching and learning process is carried out so that it makes it easier for any activities that cannot be reached at close range to be overcome by using the asynchronous learning system. With the existence of an asynchronous learning system, it can make it easier for a teacher to transfer knowledge well and conducively through learning media that is used to support the student learning process so that the asynchronous role is well achieved in improving student achievement in which in the learning process the class atmosphere becomes more active and efficient so that learning objectives are achieved properly.

CONCLUSION

The role of asynchronous is very important not only needed by every educational institution but also for all people in the world who really need it, with the existence of an asynchronous system it is able to increase interaction between teacher students in the learning process takes place. So that with this the teacher can reach and control his students in a wide range, build harmonious relationships and good communication, with that it is very possible for a sense of comfort, security and attention to be obtained by students from the teacher so that educational goals are achieved smoothly and increase achievement learn the student. Thus a change in behavior and mental development of students is achieved so that it can become a guide in implementing the teaching and learning process. Therefore, the teaching and learning process will run systematically and well-directed so that it can achieve the learning objectives according to the targets desired by the teacher and students.

Thus the research used by researchers is to use a quantitative method, namely a survey model by distributing a questionnaire which is then filled in by pre-podcasts by students who have a direct influence during the Covid-19 pandemic. The asynchronous role in learning is the only way for the teaching and learning process to be carried out properly, thus it does not rule out the possibility for students to develop their talents and

interests in learning so that the pandemic does not become a barrier to the learning process, even a student will be able to easy to develop knowledge and expand their knowledge by using learning media that are available on an online basis. Broadly speaking, all learning media developed by the teacher in a teaching and learning process can provide assistance in explaining and facilitating the teacher in presenting the material properly.

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