Combination of Synchronous and Asynchronous Models in Online Learning

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Abstract: The implementation of an online learning system due to the Covid-19 pandemic had become a portrait of learning today and the future. Since March 2020 online learning implemented at IAIN Kediri demands the readiness of lecturers and students to adapt to learning. The researcher as one of the lecturers who was directly involved in online learning had implemented a combination of synchronous and asynchronous learning settings through several learning media. This article was a self-study with a qualitative approach to the researcher's experience in carrying out online learning for one semester. The main question of this research was how do lecturers optimize the student learning experience in online learning using a combination of synchronous and asynchronous models?. A preliminary survey of students at the beginning of the semester and a reflection at the end of the semester, researchers used as primary data sources to gain their insight into the online learning experience. Researchers found that this combination of synchronous and asynchronous models was proven to be more able to help students to be directly involved in learning activities and to feel a connection with their peers and lecturers. So that lecturers need to balance the flexibility provided by online space with the synchronous learning environment, according to the abilities and student needs, as well as providing meaningful and quality learning spaces to achieve planned learning objectives.

Keywords: online learning; synchronous; asynchronous

Introduction

Starting from the impact of Corona Virus Disease 2019 (Covid-19) which requires the application of distance learning at all levels of education from primary, secondary to tertiary education. As the policy of the Minister of Education and Culture through circular number 4 of 2020 concerning the implementation of education in the emergency period of the spread of Covid-19, the learning process is carried out from home through online learning which provides a meaningful learning experience, without being burdened with demands to complete

all curriculum achievements (Kemendikbud, 2020).

In the conditions of the Covid-19 pandemic, the curriculum is no longer the focus of education, because resilience is the key to supporting a coordinated, fast, successful and sustainable in the face of the Covid-19 pandemic or other emergencies in the future. All activities need to be awakened by implementing social distancing, physical distancing, working from home to school from home (Djalante et al., 2020).

In the scope of higher education, the Director-General of higher education also issued circular number 1 of 2020 concerning the prevention of the spread of Covid-19 which said that during the Covid-19 pandemic, every university needed to regulate work procedures and mechanisms for the learning, research, and community service process with an online system, remote office, and others, according to the conditions of each university. Furthermore, in preparation for the 2020/2021 academic year, a joint decree was issued with 4 Ministers, namely the Minister of Education and Culture, Minister of Religion, Minister of Health, and Minister of Home Affairs regarding guidelines for implementing learning during the Covid-19 pandemic that can be done through hybrid learning, online. and face-to-face with strict health protocols.

The director-general of higher education also explained that learning during this pandemic must meet several requirements ranging from preparation, implementation, and evaluating which are permitted by the local district/city government through the Covid-19 handling task force. The existence of the IAIN Kediri as one of the tertiary institutions in the city of Kediri has not yet obtained face-to-face learning or hybrid learning permits, so since March 2020 to date learning is still being carried out 100% online, as in the first circular letter of the Rector of IAIN Kediri Number 172/In.36/PP/09/03/2020 concerning efforts to prevent the spread of Covid-19 in IAIN Kediri.

IAIN Kediri periodically follows developments in the conditions and policies of the central and local governments in determining the implementation of academic activities and employee work systems. In connection with educational and teaching academic activities to date have been carried out online, concerning the Chancellor's Decree Number 368 of 2020 concerning guidelines for organizing online learning at IAIN Kediri during the Covid-19 pandemic.

Online learning during the Covid-19 pandemic in the IAIN Kediri environment was applied to all courses while still paying attention to the national higher education standards, utilizing communication technology media, and ensuring students obtain learning process services that meet graduate learning outcomes (LO) which have been set. To achieve this goal, the campus facilitates an online learning platform through the Learning Management System (LMS) and allows the use of other supporting platforms that are following the characteristics of course study materials.

Referring to the policies above, the researcher as one of the lecturers at IAIN Kediri must automatically adapt quickly to prepare online learning starting from planning, implementation to assessment. As a lecturer, apart from using the LMS from the campus, the researchers also decided to use synchronous and asynchronous combination models with various supporting platforms such as a blog, WhatsApp, google meet, zoom, youtube, and Instagram.

The decision to choose various learning platforms takes into account the characteristics of the course and the conditions of the students. At this stage, the researcher conducts a preliminary survey at the beginning of the lecture and asks questions such as, what media are used by

students? and what online learning models do students want? Then the researcher chose to design an online class for one semester with the synchronous and asynchronous combination model.

Various research studies in the field of education said the asynchronous model is a means to instil active student participation more flexibly, while the synchronous model is more often introduced as an optional means to engage students in discussions that are rapid exchanges (Yamagata-Lynch, 2014).

Through this self-study research, researchers frame reporting based on evidence from teaching experiences and student survey results during online lectures. This study also answers how lecturers (researchers) attempt to optimize the student learning experience in online lectures using this synchronous and asynchronous combination model.

Therefore, the findings of this type of research produce moderate generalizations that are moderate in scope and open to change but can be tested for confirmation or refutation in the future when new evidence is found (Payne & Williams, 2005).

Literature Review

This study is closely related to the concept of online learning, which is an evolution of distance learning as part of a distance education model. Distance learning is not a new educational model, historically starting with written courses, which evolved into formal higher education in the form of an Open University. The University of Wisconsin America is one of the universities that pioneered the concept of distance learning since 1891. The background of this distance learning is for busy workers, who live far from educational institutions, making it difficult to follow regular or face-to-face learning (Munir, 2009).

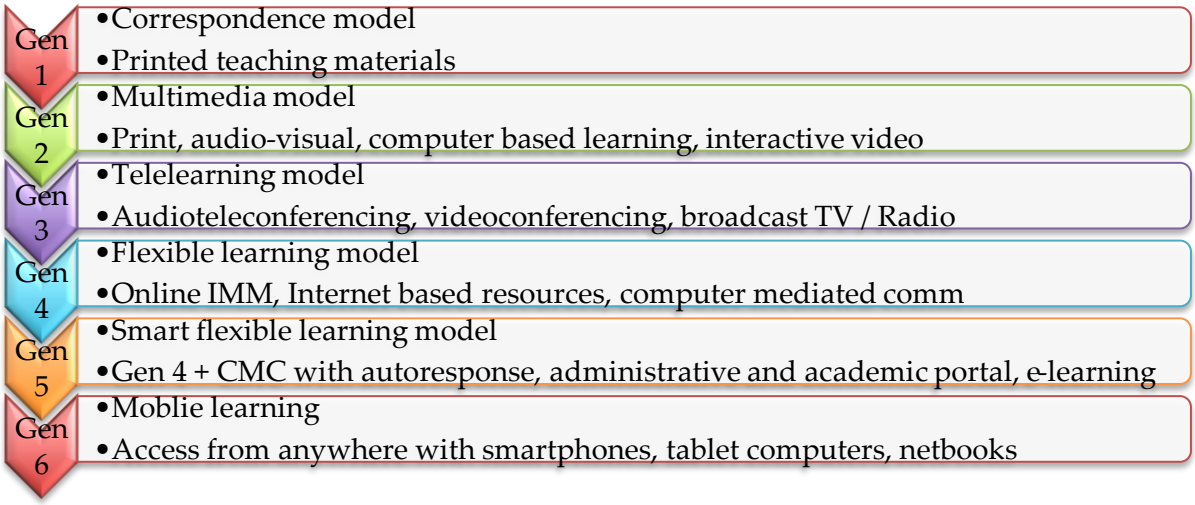
In Indonesia, distance learning has also been regulated in the National Education System Law Number 20 of 2003, which states that distance learning functions as an effort to provide educational services to community groups who cannot attend face-to-face education. This distance learning can be held in various forms, which still have to be supported by learning facilities and services as well as an assessment system that can guarantee the quality of graduates following national education standards.

Distance learning in the scope of higher education is also regulated by the Minister of Research, Technology and Higher Education Regulation Number 51 of 2018 article 1 paragraph 9, that distance learning is a teaching and learning process carried out remotely through the use of communication media. Distance learning is designed to facilitate learning services that are constrained by limitations on distance, place, and time to carry out the learning process. Therefore, distance learning has the characteristics of being open, independent learning, learning anywhere, anytime, and based on information and communication technology (ICT). Meanwhile, according to Keegan (1980) the characteristics that distinguish distance learning from regular learning are distance learning which includes; 1) separation between teachers and learners, 2) the influence of educational institutions/organizations, 3) the use of media that connects teachers and learners, 4) two-way communication takes place, 5) pays attention to learners as individuals who are learning, and 6) education as an industry (Munir, 2009).

Regarding the main learning media for distance learning, at first, it only used a correspondence model and printed teaching materials such as modules, but along with the development of ICT, various learning support media have been widely used, making it more possible for interaction

between educators and students, as well as improving services and quality of distance learning that is more effective and efficient. Moore (1993) proposes the limitations of distance learning as a learning method that provides opportunities for learners to learn separately from teaching and learning activities so that media assistance must be used to bridge communication between teachers and learners. Therefore, distance learning requires special techniques in designing learning materials, communication methods through various media and organizational management, and special administration as well. The development of distance learning from generation to generation can be shown in Figure 1 below:

Figure 1. Development of Distance Learning



Source: Kemenristekdikti (2016)

Distance learning will be much more effective if it involves interaction between teacher and learner, learner and learner, learners with media/learning facilities. So, the pattern of distance learning interaction also needs to be carried out interactively and using technology-based learning media to help build interactions face-to-face between learners and teachers as in regular learning. The point is that both distance learning and regular learning emphasize that distance education will be more effective if learners feel comfortable and motivated to learn through communication. Because without communication, learning will feel like indoctrination. Besides, the use of ICT in distance learning must also be considered to help facilitate communication and learning interactions.

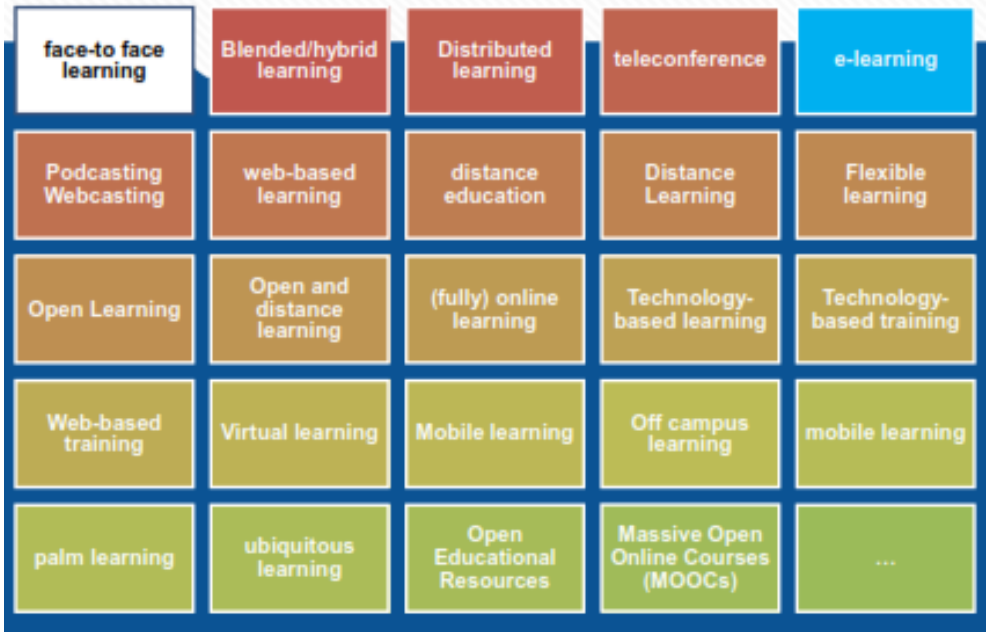
The presence of ICT has a very big role in providing direction for the development of distance learning. In current developments, especially since the Covid-19 pandemic, distance learning is mostly held with an online learning system that uses internet facilities. The use of the internet has increasingly created a very flexible learning situation and facilitates various learning media. Thus online learning is referred to as a method for making educational opportunities accessible to a wide range of audiences, which introduces teaching flexibility, and lowers education costs (Taplin et al., 2013).

Bonk Curtis J (2002) suggests that the concept of online learning is the same as electronic-based learning (e-learning), namely e-learning as instructional content or

learning experiences delivered or enabled by electronic technology (J. & Graham, 2002). Online learning is also defined as a large collection of computers in networks that are tied together so that many users can share their vast resources. Because online learning includes aspects of hardware that are interconnected and can transmit data, both text, messages, graphics, and sound, it also includes software aspects (Riyana, 2018).

Som Naidu in his book e-learning: a guidebook of principles, procedures, and practice also mentions several other terms such as online learning, virtual learning, distributed learning, network, and web-based learning which are widely used to describe e-learning. They all refer to educational processes that utilize ICT to mediate asynchronous and synchronous teaching and learning activities (Naidu, 2006). The development of the term distance learning shows the existence of an ICT-based learning spectrum as shown in the following figure 2:

Figure 2. ICT-based Learning Spectrum



Source: Kemenristekdikti (2019)

In essence, online learning is not limited to an electronic form of regular lectures. The online learning process focuses on students, empowers the independence of students, and refers to the principles of distance learning, which include (Ristekdikti, 2016) :

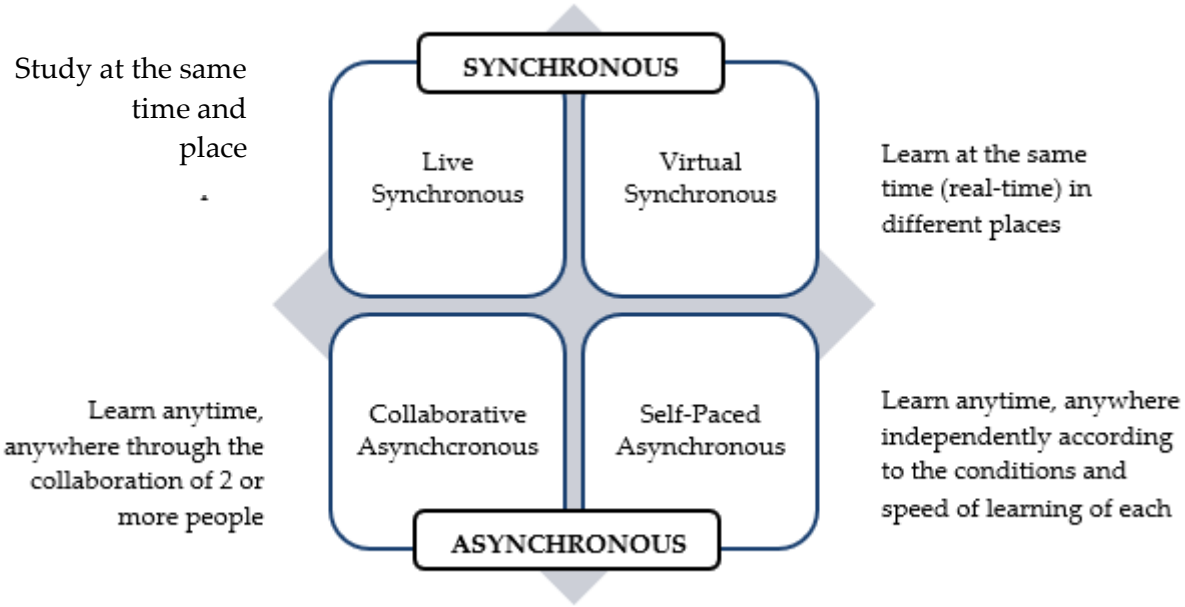
1. The existence of separation between educators and learners across space and time, so that emphasizes independent learning
2. Interaction ICT-based learning using a variety of sources and media
3. Organized systematically according to the rules
4. Strived for limited face-to-face presence.

These principles are applied in five aspects of online learning which include; 1) learning design, 2) learning activities, 3) delivery strategies, 4) learning media and technology, 5) learning assistance services. The five aspects are interconnected so that no aspect is omitted to carry out online learning to the fullest (Dirjendikti, 2014).

Online learning is also implemented by following e-learning modalities which

include: 1) individual and group learning processes, 2) online and offline learning processes, 3) synchronous learning processes (same time), and asynchronous (time difference). Online learning settings with these modalities can be more clearly described in the quadrant of learning settings as follows:

Figure 3. Quadrant of Learning Settings



Source: Adapted from Chaeruman (2013) by Intan NN Puspitasari (2021)

On the other hand, e-learning also has a continuum, which by Rashty (1999) classified into the following three categories (Chaeruman, 2019):

1. Adjunct is a traditional learning process supported by an online delivery system as additional enrichment. For example, to support classroom learning, the lecturer instructs students to find more information on the internet.
2. Mixed/blended is an online learning system as part of learning as a whole. Here the blended system does not place online delivery as an additional, but as an important factor in adjusting the relevance of the topic to the learning objectives, material, characteristics, and conditions.
3. Fully online, is a learning system where all interactions occur online. In fully online learning there is no face-to-face, but it is done virtually.

The learning settings and learning continuum above are the references for researchers to carry out online learning at IAIN Kediri for 1 semester, by applying the model collaboratively as will be explained in the findings and discussion of this study.

Research Method

This research is a self-study by taking a qualitative research approach. Researchers act as participant observers (Glesne, 2016) and take an important role in the design and instruction of the online learning process for 1 semester, namely the odd semester of the 2020/2021 academic year. Self-study is one of the well-established genres of educational research that has evolved over the past 15 years. In 1999 Zeichner recognized it as

having the potential to have a major impact on education and the transformation of teaching practice.

Self-study as investigation-guided research must be credible so that others can find that this research is meaningful and potentially generative about educational practice. This belief needs to be achieved by presenting data that clearly and can illustrate "methods for transforming the data into findings, and the linkages between data, findings, and interpretations" (Tidwell et al., 2009). In this self-study, the researcher works to ensure that the data collected is not just fiction, the researcher tries hard to look at the data systematically, to ensure that the researcher does not only pay attention to findings a support subjective expectations and desires. However, objectively ensuring interpretations that also supported by other people's interpretations (Garbett & Ovens, 2016). So this research is concerned about making personal knowledge public through rigorous and systematic qualitative methods (Loughran, 2007).

The role of researchers in self-study or the role of educators is closely related and generally inseparable. Here the involvement of researchers as lecturers teaching in the online lecture process relies on observations of the five elements of the methodology self-study which recommend that studies (a) start and focus on their own, (b) improvement the purposes, (c) interactive, (d) depend on several main qualitative methods, and (e) using example-based validation (Yamagata-Lynch, 2014).

So in this study, the researchers chose topics that were being studied and were useful, such as online learning that is very relevant to the current pandemic conditions. The quality self-study research requires researchers to sensitively balance subjectivity and objectivity as best as possible. The researchers also triangulated data by collecting data from various sources. The data source of this research is the results of a survey to students regarding the online learning experience. Researchers collected this survey at the beginning and end of the semester, totalling 133 responses. Other data also comes from the results of student assignments, recordings of synchronous and asynchronous discussion participation.

In the initial preliminary survey, the researcher asked students to answer questions regarding the conditions of internet access/signal, the electronic learning support devices they had, the social media they used, and the proposed learning method they wanted. Whereas in the final survey, students were asked to give their impressions, suggestions, and criticisms of online learning that had been passed during the odd semester of the 2020/2021 academic year.

Regarding data analysis, the researcher begins by reading the results of the student survey. The results of the preliminary survey serve as a starting point for identifying conditions and suggestions that emerge, which then become the basis for researchers to develop online learning models. While the results of the final survey become material for reflection to determine the effectiveness and efficiency of the online learning model that has been implemented.

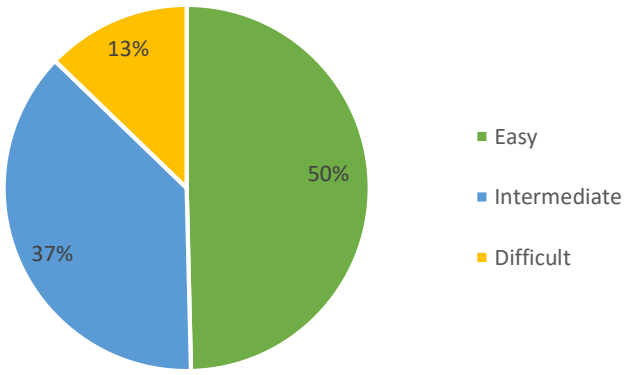
Findings

Systematic Steps for Online Learning Implementation

Learning which is closely related to the use of ICT requires preparation from the planning, implementation to assessment. the stages will be described referring to aspects of online learning. First, the planning stage is related to aspects of online learning design which are manifested in the form of a comprehensive semester learning plan. Semester learning plans in online learning must focus on the paradigm of student-centred learning, student-oriented towards independence, skills, needs, and experiences. The lecturer prepares a learning plan for this semester before the online learning process is implemented.

Second, the implementation stage is related to aspects of activities, strategies, media, and learning technology. Online learning activities must facilitate meaningful interactions between students and lecturers, students and students, and students with their learning materials. Learning materials are arranged systematically and structured according to subject study materials. Strategies, media, and online learning technology are selected according to the tools that are relevant to the student's condition. Here the researcher conducts a preliminary survey of students via a google form, which questions about the conditions of internet access/signal, the learning support electronic devices they have, the social media they use, and the suggestions for the desired learning method. The preliminary survey was completed by approximately 133 students, with closed and open response patterns. The results of the survey answers are as follows:

Graph 1. Student Internet Access/Signal Conditions

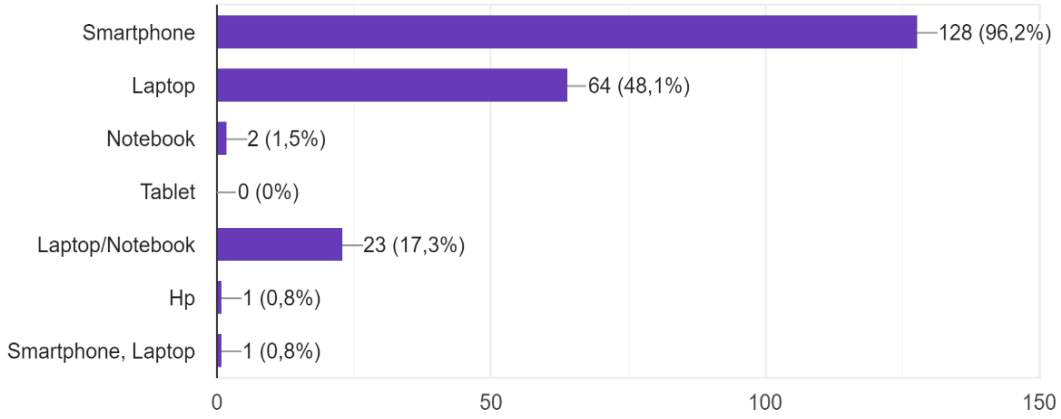


Source: Primary Data (2020)

From graph 1 it can be seen that the conditions of student internet access/signal coverage are 50% easy, 37% intermediate, and 13% difficult. In general, seeing this condition online learning can be implemented because the continuity of online learning cannot be

separated from the existence of the internet as the main infrastructure. What about difficult access? That this difficult condition is related to the location and support of the provider network, usually the students change providers with a stronger network or use public wifi available at the village office and the houses of residents. The next infrastructure is the ownership of electronic devices that support student learning, which can be shown in the following graph 2:

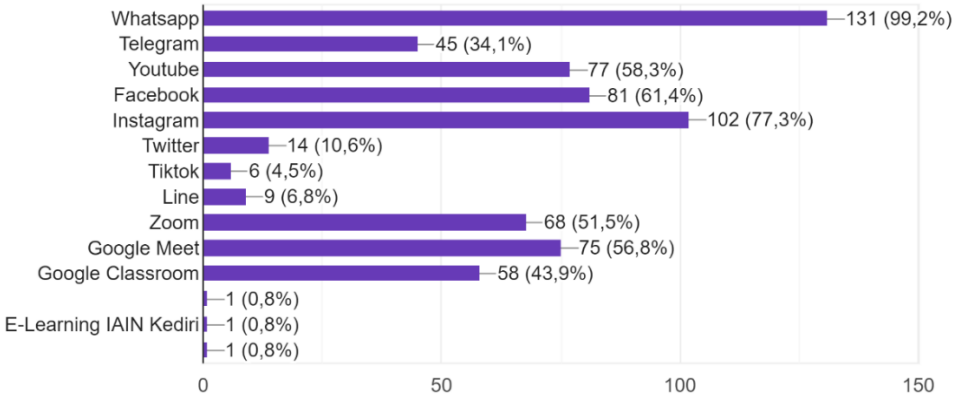
Graph 2. Learning Support Devices Owned by Students



Source: Primary Data (2020)

From graph 2 it can be seen that 96.2% of students already have smartphones as learning support electronic devices, in addition to 48.1% of students owning laptops and other devices such as notebooks, 18.8%. Smartphones have become the devices most owned by the current generation because smartphones have simpler practicality to carry and use anywhere at any time. So the lecturer uses supporting learning media that can be accessed via smartphones and has been widely used by students, as can be seen in the following graph:

Graph 3. Social Media / Chats / Meetings Used



Source: Primary Data (2020)

From graph 3 it can be It is known that the highest percentage of social media used by students is WhatsApp at 99.2%, then Instagram 77.3%, Facebook 61.4%, YouTube 58.3%, Google Meet 56.8%, and zoom 51.5%. Other media such as google classroom, Twitter, TikTok, and line are also used by students but with a percentage below 50%. Regarding the proposed online learning method that students want is also conveyed in an open survey answer, some of which suggest: 1) use methods that are easily accessible, interesting, varied, and affordable, 2) provide text-based and audiovisual learning materials, 3) explain the theory and train skills, 4) giving tasks that are not burdensome and giving feedback on the assignments given, and 5) holding virtual meetings in several meetings.

Based on the results of the data in graph 3 and the answer to the proposed method from the student, the lecturer determines the choice of media used to support online learning which is classified in the following media services:

Table 1. Online Learning Media Services Learning

Platform	Media Type	Description	URL
Web and blog services	e-learning IAIN Kediri	The web-based platform that can be accessed directly via the browser or the Moodle application by entering the enrollment key set by the lecturer, is used as the main learning portal that must be accessed by students to make attendance and access all lecture information connected to other media	http://elearning.iainkediri.ac.id/
	WordPress	Lecturer personal blog/journal machines that are used to provide text-based learning materials that are archived according to course categories and can be connected with other media	(http://intanuzulis.home.blog/)
Social networking service	WhatsApp	A cross-platform messaging application that is used to exchange messages/course information via chat	WhatsApp groups according to the class of each subject

	Instagram	The social networking application, which is widely used by millennials, is used to display photo and video-based student assignments more aesthetically by applying filters. Photo and video posts can be given captions and comments, which are uploaded to the feed or IGTV by marking the Instagram of the course.	• https://www.instagram.com/edupreneurship.iainkediri/ • https://www.instagram.com/filsafatumum.iainkediri/ • https://www.instagram.com/filsafatpendidikan.iainkediri/ https://www.instagra.com/eventmpi.iainked/
Media sharing service	Youtube	Video sharing and watching websites are used to provide video-based lecture materials arranged in playlists according to courses	https://www.youtube.com/results?search_query=intan+nuzulisnaini
Video Conference Services	Zoom	A video communication service developed by a technology company in the United States is used for virtual meetings or conferences that can be recorded and connected to YouTube streaming	https://zoom.us/
	Google Meet	The video communication service developed by Google with limited features is used as a second alternative after zooming in on the needs of virtual meetings or conferences	https://meet.google.com/

Media services as shown in table 1 above show that each media has its characteristics so that lecturers can use it according to their needs, situations, and circumstances in an integrated.

The third stage, assessment in online learning is indirectly related to aspects of learning assistance services. This assessment stage can be done in a formative or summative assessment, which assesses all dimensions of student attitudes, knowledge, and skills. Formative assessment is carried out during the learning process through the process of observation, journal notes, and assignments. This assessment is intended to determine student mastery of the material being studied and is also used as a basis for improving the learning process. Here students can consult, then the lecturer provides directions and advice. Meanwhile, the summative assessment carried out at the end of the lesson will provide information to students about their learning achievement and success. On the other hand, students also provide an assessment of the lecturer through

the final course survey (see Graph 4 in the discussion chapter).

Combination Format for Synchronous and Asynchronous Models

Referring to the results of the preliminary survey described in the previous findings, then how can the forms of online learning models in synchronous and asynchronous learning settings be combined according to the competencies to be achieved? In this context, researchers follow Chaeruman's (2013) recommendation which uses the concept of 4 quadrant learning settings in Figure 3, classification of learning strategies, and learning process standards in the context of an e-learning environment. The results of setting and learning activities in online learning by researchers at IAIN Kediri for 1 semester can be shown in the following illustration table 2:

Table 2. Setting Learning Activities in the Context of Online Learning

Model	Category	Activities	Media
Synchronous	Live Synchronous	Not done because it is fully online	----
	Virtual Synchronous	Conducted via video-conference, audio-conference, and chat / text-based conference in realtime	Zoom. Google meet, Whatsapp
Asynchronous	Collaborative Asynchronous	Conducted through online discussion forums, question and answer, and online assignments (project work)	E-learning, Whatsapp, Google form
	Self-Paced Asynchronous	Conducted through doing assignments, searching material, studying material/learning objects in various formats (text, graphics, audio, video, etc.)	Google, Blog, Youtube: Instagram

Source: Adapted from Khan (2005) and Staley (2007) in Chaeruman (2013) by Intan NN Puspitasari (2021)

From table 2 above, it can be interpreted that synchronous model learning is a learning process that occurs simultaneously at the same time between students and lecturers, although not necessarily in the same place (Littlejohn & Pegler, 2007). Khan (2005) categorizes synchronous models into 2 types, namely live synchronous (face to face) and virtual asynchronous (face to face). Meanwhile, asynchronous learning is a learning process that allows students to experience the same teaching material at different times and places (Smaldino et al., 2008). Staley (2007) divides the asynchronous model into 2 categories, namely collaborative

asynchronous and independent asynchronous.

Furthermore, Smaldino explains what learning strategies/methods are suitable for combining synchronous and asynchronous models, which can be illustrated in table 3 below:

Table 3: Learning Strategies/Methods in the Context of Online Learning

No	Learning Strategy	Implementation
1	Presentation	• The lecturer gives a general explanation • Students present a presentation of their assignments
2	Demonstration	• Lecturer demonstrates learning materials/materials • Students observe, try and apply
3	Drill & Practice	• The lecturer repeats the explanation • Students review and practice
4	Tutorial	• Lecturers provide special guidance on certain materials • Students pay attention and imitate
5	Discussion	• The lecturer presents the topic of discussion • Students are actively involved and question and answer
6	Game & Simulation	• Lecturers make interesting games • Students demonstrate actively and interactively
7	Assignment	• Lecturers give assignments independently or in groups based on problem-solving • Students do assignments well and responsibly

Source: adapted from Smaldino et. al (2008) in Chaeruman (2013) by Intan NN Puspitasari (2021)

Table 3 above shows the application of learning strategies that are more student-centred, meaning that students are positioned as active and independent subjects as adult learners who can be responsible for their learning. Meanwhile, lecturers position themselves as facilitators of learning, including as learning partners, which are no longer the main source of knowledge (Harsono, 2008).

This strategy also leads to active learning which provides opportunities for students to actively interact with lecturers, with fellow students and be able to develop knowledge, not just passively receiving information and instructions from lecturers.

Furthermore, referring to the illustration of table 2 and table 3, synchronous and asynchronous learning settings can be combined with learning strategies/methods, as shown in Table 4 below:

Table 4. Combination of Learning Settings and Learning Strategies/Methods

Strategy/ Method	**Learning Setting**			
	Live synchronous	**Virtual Synchronous**	**Self-Paced Asynchronous**	**Collaborative Asynchronous**
Presentation	---	Presentations via video conference with zoom, google meeting, audio/chat conference with WhatsApp	Learning video presentations on Youtube and IGTV, Learning material on blogs, e-learning	---
Demonstration	---	Demonstration via video conference at Zoom/google meet	Learn the demonstration via video on youtube and IGTV	---
Drill & Practice	---	Drill & practice via video conference at Zoom/google meet, via audio/text with WhatsApp	Drill the material via blog, youtube, IGTV, then review and practice	Personal / group assignments for learning practice
Tutorial	---	Tutorial via video conference at Zoom/google meet	Tutorials via blog, youtube, and Instagram	---
Discussion	---	Discussion via video conference with zoom, google meeting, audio/chat conference with WhatsApp, and e-learning	Questions and answers via comments on youtube, blog, and Instagram	---
Game & Simulation	---	Online games and simulations via google quiz, Kahoot, Mentimeter, jam board	Online or offline games and simulations via PowerPoint, word, hot potatoes	---
Assignment	---	Case studies and questions and answers via video conference via zoom, google meet, via audio/text with WhatsApp	Personal assignments for performance and learning products	Group assignments for learning projects and products

Source: adapted from Chaeruman (2013) by Intan NN Puspitasari (2021)

In table 4 it can be seen as a whole that for 1 semester in the odd semester of the 2020/2021 academic year at IAIN Kediri, researchers (lecturers) carry out online learning with the synchronous and asynchronous combination model. The

synchronous model only occurs in a virtual synchronous, because the delivery of online learning in that semester is continuously included in the fully online category. Fully online means that all learning interactions and delivery of learning materials occur 100% online. For example, a lecturer makes teaching materials in the form of text and then posts them on a blog, uploads them on Google Drive, and then the links are shared and accepted via the internet by students via e-learning and WhatsApp. Lecturers also make learning videos and upload them on Youtube, then upload videos of students' work on IGTV. Meanwhile, asynchronous, learning occurs in both types of asynchronous, namely independent asynchronous and collaborative asynchronous. Although in some types of strategies/methods cannot be done.

Discussion

The implementation of synchronous and synchronous combination models in online learning is known to need to consider the quadrant of learning settings, which refers to learning strategies/methods, using various relevant ICT-based tools and media. The next consideration is to see how the situation and condition both in terms of students, lecturers, and educational institutions at IAIN Kediri.

From the student side, based on the results of survey data on graph 1, graph 2, graph 3, it can be seen that their situation and condition in facing online learning can be said to be ready, because in general students already have easy access to internet access/signals, have electronic learning support devices and has become a user of several relevant social media/platforms to be used in online learning. The students are also actively involved in determining the online learning model which they think is proportional to be applied.

From the lecturer side, it can be seen as the data in table 1, table 2, table 3, and table 4 which shows the readiness of lecturers in preparing for online learning. Where it can be seen how the lecturers' efforts in designing, implementing, and evaluating with the synchronous and asynchronous combination format are to meet the standards of the learning process in stages. The standard stages of the learning process include (Chaeruman, 2019) : 1) the learning stage, 2) the deepening stage, 3) the applying stage, and 4) the measuring stage.

The relationship between the learning stages, strategies/methods, and learning settings with the standard of the learning process in the context of online learning can be described as follows:

Table 5. The relationship between learning strategies/methods, learning settings, and the standard stages of the learning process

Stages	Learning strategies and settings
Learning	• Lecturers carry out presentation and demonstration strategies, which students can study in a synchronous or asynchronous virtual independent learning setting

	• Lecturers digitally package teaching materials in various types and formats of media (text, audio, video) provided through platforms that can be accessed by students and studied anytime, anywhere. Like WhatsApp, blog, youtube, google drive, IGTV
Deepening	• Lecturers carry out demonstration strategies, drills, practice, and tutorials, then students can learn in a virtual synchronous, independent asynchronous, and collaborative asynchronous learning setting. • Lecturers demonstrate the direct practice of certain materials that require in-depth online explanations which are packaged in various types, formats, and media platforms such as the learning stage
Applying	• Lecturers carry out discussion strategies, games, and simulations that include question and answer activities, critical thinking, problem-solving, and collaborative learning, which can be applied by students in synchronous virtual learning settings, independent asynchronous and collaborative asynchronous learning. • Lecturers apply discussion strategies, games, and simulations through media/platforms such as WhatsApp, e-learning, YouTube, IGTV, jam board, PowerPoint, word, hot potatoes
Measuring	• Lecturers evaluate the process and student learning outcomes in a formative and summative assessment, which includes the dimensions of attitudes, knowledge, and skills, which students can do in the synchronous virtual learning setting, independent asynchronous or collaborative asynchronous • Lecturers package the assessment in the form of objective tests, performance tests, observation through quizzes, assignments, project learning, product learning

Source: adapted from Chaeruman (2013) by Intan N.N. Puspitasari (2021)

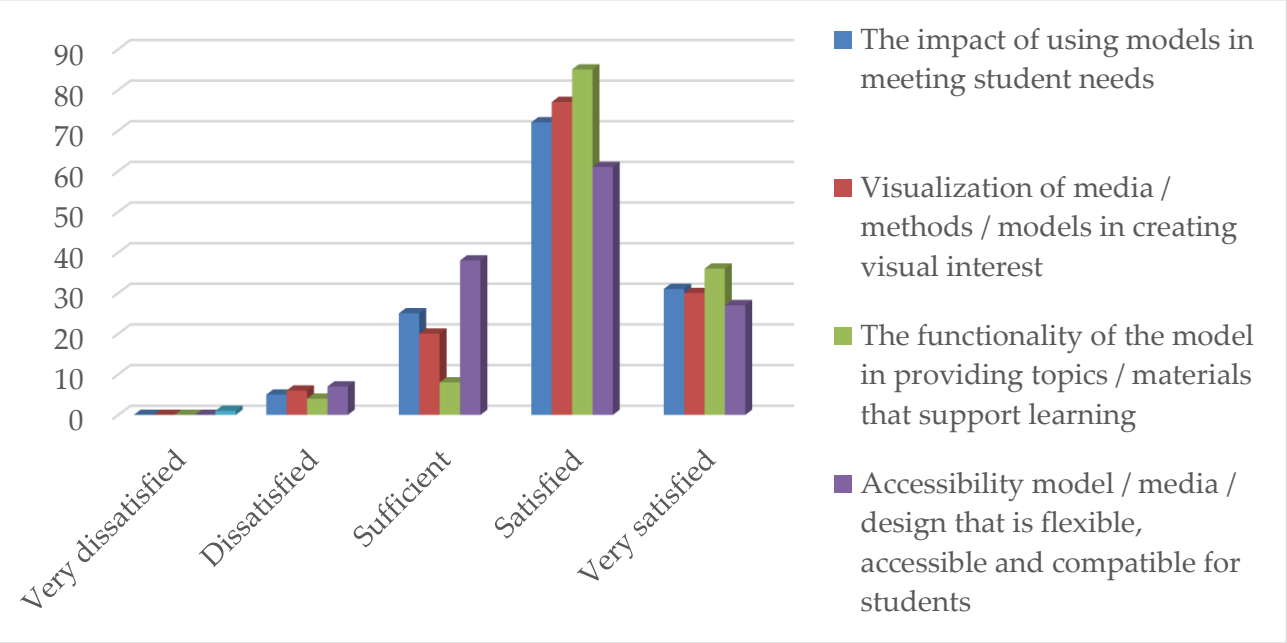
The description of the relationship between strategies/methods, learning settings, and the stages of the learning process in table 5 above shows, although various strategies, methods, and ICT-based media play a key role in online learning, lecturers must still be able to focus their attention on the process and student learning outcomes. not just the technology of delivery. Because in substance, the foundation of the effectiveness of online learning is how to pay attention to student needs, learning content, obstacles faced by lecturers and students (Suyantiningsih, 2003)

So that the use of synchronous and asynchronous combination models is the right choice to optimize online learning with the proportional use of ICT. Important elements that must be considered in the use of ICT are seen from; 1) the impact of its use (can it meet the needs of students?), 2) its visualization (an information packaging create visual and aesthetic interest?), 3) its functionality (can it provide topics/materials that are important in supporting learning), 4) its accessibility (Is the design flexible, accessible and compatible for all students?) (Koohang & Durante, 2003).

These elements then become material for the final reflection in the online learning process for 1 semester using a combination of this synchronous and asynchronous model.

In this reflection, students are given a satisfaction survey with closed questions, as the results can be shown as follows:

Graph 4. Survey of Student Satisfaction Against the Combination of Synchronous and Asynchronous Models in Online Learning Odd Semester 2020/2021 academic year



The survey results showed that in general students were satisfied and very satisfied with the combination of synchronous and asynchronous models in online learning, although there were still some who were quite satisfied or even dissatisfied. These results are of course very useful as a material for reflection and evaluation of learning improvements in the following semesters.

Every strategy, model, and media used in online learning has its strengths and weaknesses. The combination pattern that is applied in online learning here is one of the right formulas to complement each other's weaknesses. Explicitly, the success of any strategy, model, and media depends on the consistent and integrative efforts of various elements.

The role of students and lecturers in the implementation of online learning here has been explained in many previous discussions, then what is the role of the institution in this case IAIN Kediri in supporting the success of online learning? Various supports and efforts that have been made by the institution include providing services, support, facilities, training, recognition, system arrangement as well as the infrastructure needed in the process of implementing online learning, so that online learning can be more optimal, of good quality, and achieve learning outcomes.

The institution also calls on the need for a combination of synchronous and

asynchronous models in online learning, so that lecturers must use campus e-learning, upload evidence of learning activities, and utilize other media that support the optimization of online learning.

Therefore, the findings of this self-study can be a reference for educators and educational institutions who want to design online learning proportionally, with a combination of synchronous and asynchronous models. This combination is needed because the essence of learning is not just knowledge, but also experience and value cultivation, so the main focus of designing online learning is to optimally facilitate meaningful learning experiences by utilizing appropriate learning and ICT strategies.

In practical terms, educators and educational institutions can take the following steps to achieve this goal:

1. Pay attention to the formulation of learning objectives or competencies to be achieved.
2. Determine the appropriate learning strategy according to the learning continuum and refer to the learning objectives or competencies to be achieved.
3. Determine the learning model by referring to the quadrants of learning settings and learning process standards.
4. Use the right information and communication technology, according to the conditions and situations of the learners and educational institutions.

Pour the results into a lesson plan or lecture outline that will be carried out for one semester.

Conclusion

The presence of online learning, which initially became part of distance learning and used as an alternative to conventional learning systems, due to limited space and time. Along with the rapid development of information and communication technology, online learning has become a necessity and unnecessity. Especially when the world faced with the global Covid-19 pandemic, the increase has an impact on the necessity to hold online learning. Instead of online learning as an alternative or the impact of Covid-19, online learning has become a portrait of education today and future.

This study resulted in a finding of a combination of synchronous and asynchronous learning models. First, the stages of implementing complete learning starting from the design process, implementation of the assessment. This implementation stage is pursued by a preliminary survey process and a final reflection of learning to students. Second, the format for the combination of synchronous and asynchronous models in online learning is adjusted and found through the quadrant framework of learning settings, the learning continuum, learning strategies/methods, and learning process standards.

Based on quadrant settings, online learning in this study is carried out on virtual synchronous, self-paced asynchronous, and collaborative asynchronous types. Meanwhile, the continuum of material delivery can enter the fully online stage. There are strategies/methods and student-centred media so that they can trigger student activity, facilitate student learning experiences and achieve learning goals.

The student learning experience optimized through four standard learning processes which include the process; learning, deepening, application, and measuring. All of these things are facilitated by the use of ICT following the conditions and needs of the students of IAIN Kediri. So that the combination of synchronous and asynchronous models in online learning is generally considered to be effective and satisfying, both from the elements of the impact of its use, visualization, functionality, and accessibility.

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