



**DEVELOPMENT OF HYBRID LEARNING APPLICATION MODEL FOR LECTURERS  
STUDY PROGRAM DOCTORS OF POSTGRADUATE EDUCATION TECHNOLOGY OF  
JAKARTA STATE UNIVERSITY**

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**Abstract:**

Purpose of this study is the development of the application of *hybrid learning learning* at Postgraduate State University of Jakarta. The targets in this study were lecturers who took courses in the UNJ Education Technology doctoral program. Considering this research is in the form of developing an online learning system, the research method used is *research and development* (R&D). the results of this study conclude as follows: 1) Readiness of students in implementing *hybrid learning* has met. The analysis shows that 3% is very high, 41% is high, 34% is moderate, 16% is low, and 6% is very low. 2) Lecturer readiness in implementing *hybrid learning* has fulfilled. From the results of the analysis showed as much as 14% Very High, 29% High, 57% Moderate, 0% Low, and 0% Very Low. 3) Readiness of facilities and infrastructure as well as policies on implementing *learning hybrid learning* is sufficient and fulfilled.

**Keyword:** Hybrid, Learning, Implementation, Technology

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## INTRODUCTION

The rapid technological development of the industrial revolution era 4.0 is very influential on the characteristics of jobs that exist today, where skills and competencies are the main things that need attention. The era of the industrial revolution 4.0 integration of the use of technology and the internet that is so sophisticated and massive also greatly influences changes in the behavior of the business and industrial world, the behavior of society and consumers in general. Therefore, the world of education and industry must be able to develop industrial transformation strategies by considering the human resource sector that has competence in their fields.

According to Hussin in the article titled *Education 4.0 Made Simple: Ideas For Teaching* says the following (Hussin, 2018):

*"Some of the common changes that have been embraced by institutions include lecturers post students' grades and assignments online, students use collaborative software / applications to complete group tasks, students complete their assignments online and upload them in an online class portal or the institution learning management system, students' high dependency on cloud storage to store their*

*work and communication among students, parents, lecturers and administration is done via social media platforms "*

Statement above shows there has been a change in the world of Education, which began to occur, from teachers raising grades through the internet, or giving assignments and receiving assignments through the internet network. At this stage there is less face-to-face process because it is replaced by a machine. According to Andrey Andoko, routine and daily work has been taken over by machines. In the future, jobs that still cannot be taken over by machines and robots are jobs that require the ability to analyze, make decisions or collaborate (Harususilo, 2018).

Facing these challenges Educational institutions must be able to prepare superior human resources that will not be replaced by machines. According to Jane Piirto, there are 3 skills that must be prepared in the face of changing times in the future, *namely Think Creatively, Work Creatively with Others and Implement Innovation* (Piirto, 2011). By having these skills humans or students can prepare themselves in the face of the industrial revolution 4.0, where most human work will be replaced by machines or robots. In line with the statement Piirto Zahan Jian stated that *Network independent learning is one of the essential qualities for the new generation of college students, and the ability of the network independent learning determines the adaption ability to the society* (Zhang, 2018). Therefore, in the development of education for future generations a major change is needed in carrying out learning methods that are appropriate to the needs of the era.

This statement is supported by Baygin et al *in the Industry 4.0, there will be a fundamental paradigm shift caused by the combination of the Internet / technologies and future-oriented technologies. Devices, machines, sensors, and people are planned to be able to communicate with each other by using Internet technology known as the Internet of Things (IoT)* (Baygin, Yetis, Karakose, & Akin, 2016). Some of the descriptions above show a change of habit in the era of the industrial revolution 4.0. where humans, machines can be connected to each other resulting in changes in the way of communication which will also bring major changes in the world of Education. The Education World can take advantage of this opportunity to adapt to new paradigms that will be formed due to technological developments in the industrial revolution era 4.0.

According to Muawiyah et. al ways of teaching in the Industrial Revolution 4.0 are undergoing change, teaching must pay attention to the following things, such as: (1) using devices that can support learning, teaching, and training; (2) using Massive Open Online Courses (MOOCs); (3) development of student skills; and (4) using blended learning (Muawiyah, Yamtinah, & Indriyanti, 2018). Learning and teaching in Education 4.0 are expected to pay attention to this, the use of *online courses* or *Blended Learning*, should be considered by higher education to formulate strategic policies in various aspects ranging from institutions, fields of study, curriculum, resources, and teaching methods. In addition, research from Almmary states over the past decade, *Blended Learning* has grown in demand and popularity in higher education and has become a widespread learning phenomenon (Alammary, Sheard, & Carbone, 2014). According to Wong, Tatnall, & Burgess (2014), the readiness of an institution is seen from the readiness of the university, the readiness of staff and the readiness of students.

## **State of Art**

The concept of digital learning has also encouraged the development of students' abilities in communication, computing, collaboration and critical thinking (Kotzer & Elran, 2012).

The 2017 study results say 75% of teachers believe that digital learning content will replace printed textbooks in the next 10 years. 81% of teachers also believe that the use of technology in schools makes a positive difference in learning (Jeghesta, 2017).

Research by Wibowo (2016), the results of the study show that: The source of learning *by utilization* which is utilized by teachers in the learning process includes the environment around schools, the environment around where students live, and learning outside of school. The ability of teachers to use learning resources *by utilization*, that is overall all class teachers are able to use them, but they are still not maximized. The implication of the use of learning resources on the quality of teachers in the learning process is that teachers are more able to provide greater motivation, maximize learning time, and maximize creativity (Wibowo, 2016). This is in line with research comparing student achievement using learning resources and students not using learning resources. The study found that there were significant differences between students who had high utilization of learning resources intensity and students who had low use of learning resources intensity regarding learning achievement (Taiwo, 2009).

According to the results of research by Amris and Akhyar (2015), regarding the effect of the use of learning resources on social studies learning achievements, based on the results of research and data analysis, it was concluded that the use of learning resources affects the social learning achievement of fifth grade students of SD Negeri 1 Bulurejo (Amaris, Akhyar, 2015). Abdalraheem and Rabane also found that the use of textbooks in the classroom was still very dominant (Abdelraheem & Rabane, 2006).

The younger generation prefers to use electronic-based learning materials rather than print-based learning materials and in the future the ability and usefulness of electronic-based learning materials will increasingly increase with the cost incurred (Annan, 2008). In conclusion, it is time to integrate the learning process with ICT because the characteristics of student learning are increasingly integrated with the use of information and communication technology.

## LITERATURE STUDY

### 1. Learning and Learning

The term learning is not something new that is widely known, but in this discussion each expert has a different understanding and definition. Gagne et. al (2015) explains learning is *a natural process that leads to changes in what we know, what we can do, and how we behave* (Gagne, Wager, Golas, Keller, & Russell, 2005). The learning process is the process of changing from knowing to not knowing, from being able to being able to and learning also influences the attitude that we show. appropriate and through the interaction of learners with their environment. Besides that from Dale (H. Schunk, 2011) *"Learning is an enduring change in behavior, or in the capacity to behave in a given fashion, which results from practice or other forms of experience"*. This statement of learning emphasizes behavioral change from the results of practice or experience. Furthermore, Harold Spears in the book of Educational psychology (Suryabrata, 2004) states that *"learning is to observe, to read, to imitate, to try something themselves, to listen, to follow direction"*. Learning activities in question are to follow systematic rules in observing, reading, imitating and trying new things.

While learning according to Taylor and Mackenney (Taylor & MacKenney, 2008) *learning is a change in performance through conditions of activity, practice, and experience*. In line with the definition of learning according to Ellington and Harris (Prawiradilaga, 2012) is a change in sedentary behavior (permanent) due to experience and directed learning. The statement of learning emphasizes the change in performance through activity, practice and experience and learning.

Learning is identified with the process of change, not all behavioral changes can be called learning. Quoted in Eveline and Hartini the characteristics of learning are as follows (Siregar & Nara, 2010):

- 1) New abilities or changes in aspects of knowledge (cognitive), skills (psychomotor) and values and attitudes (affective)
- 2) Changes do not last for a moment or are permanent
- 3) Change does not just happen but with effort and interaction with the environment
- 4) Change is not solely caused by physical growth, not due to fatigue, illness or the influence of drugs.

From several definitions of learning that have been put forward by experts, it can be concluded that learning is an activity carried out by a person intentionally in a conscious state to obtain a concept, understanding, or new knowledge so that a person's behavior can change.

### 2. Understanding Learning

The learning process is a different thing from learning. Law No.20 of 2013 concerning the National Education system states that learning is a process of interaction of students and learning resources in a learning environment. In this definition the emphasis is on the interaction process between students and educators. Learning is the task of educators how to condition the learning process supports changes in behavior for students. According to Sadiman (Ibrahim, 2012) argues that learning is planned efforts in manipulating learning resources so that learning processes occur within students. It seems from this definition that learning is identified as managing learning resources, this processing certainly requires planning so that the learning process is more effective. Furthermore Rusman (Rusman, 2017)

defines Learning as a process of communication interaction between learning resources, teachers and students. Communication interactions are carried out either directly in face-to-face activities or indirectly by using media. The definition stated by Rusman illustrates that interaction between teacher and student does not have to be done face-to-face, giving room for the teacher to make an effort to codify learning that is done non-face-to-face in the classroom.

While Miarso (Personal, 2009) states learning is an activity or activity that focuses on the conditions and interests of learning. In line with Miarso, Reigeluth and Chellman (Reigeluth & Carr-Chellman, 2009) *instruction as anything that is done purposely to facilitate learning*. This definition shows that learning should be centered on the learner's activities. Teachers must be able to make or condition all processes in order to be centered on the learner.

Based on the understanding of the experts above, it can be concluded that learning is an external condition that is designed in such a way as to support the internal processes in each learning event.

### 3. Online Learning

Stern, Klein *et.al* in Rita R Richey *et.al* defines *Online learning is instruction delivered using the Web, the Internet and other distance technology* (Rita R Richey, James D. Klein, 2011). This statement views *online learning* as learning delivered using the *web*, internet and distance education technology. Distance can be interpreted as learning does not take place face to face in the classroom, but anywhere as long as connected to the internet.

Smaldino *et.al* said *online learning is the result of instruction that is delivered electronically using computer-based media. The materials are often accessed through a network, including websites, the internet intranets, CDs and DVDs* (Smaldino, Sharon E.; Lowther, Deborah L.; Russell, 2008). From this statement, it can be seen that online learning or electronic learning usually uses electronic devices such as computers, where the meter can be accessed using the network, such as *websites, intranets, CDs and DVDs*.

Furthermore, Linda Harasim (Linda, 2012) defines *online learning* with 3 (three) models, namely

1. *Online Collaborative Learning* (OCL): Application of education by emphasizing collaborative discourse and building infrastructure that is mediated by the internet.
2. *Online Distance Education* (ODE): a correspondence model to deliver learning, independent learning and private communication to tutors.
3. *Online Courseware*: independent learning without interaction with instructors or colleagues.

According to Nada Dabbagh (Dabbagh, 2005) there are 2 (two) learning models *online*:

1. *Fully online course*: learning environment is done *online*, where the learning process and interaction take place virtually.
2. *Blended Learning*: a learning method that combines face-to-face learning with *online learning*.

Based on the definitions of these experts it can be concluded that *online learning* is a learning environment that uses computers, the internet to access learning, to interact with learning content, instructors and other learners and provides support during the learning process in an effort to obtain, shape knowledge and build learning experiences .

### 4. Independent Learning

According to Malcom S. Knowles (Knowles, 1975) in his book *Self-Directed Learning: A Guide for Learners and Teachers*

*"self-directed learning" describes a process in which individuals · take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes "*

Independent Learning is defined as students being able to analyze learning needs, formulate learning goals, identify learning resources , choose a learning strategy that suits him and be able to evaluate his own learning outcomes. Meanwhile, Kesten quotes from Ibrahim, defining independent learning as a form of learning where students can make important decisions according to their own learning needs. So it can be concluded in independent learning students have the responsibility to regulate their own learning activities (Ibrahim, 2012). Agreeing with Knowles, Brookfield in Paulina

Haren quoted by Yamin defines independent learning as learning activities carried out by students freely determining their learning goals, direction of learning, using the chosen learning resources, making academic decisions and carrying out activities in order to achieve the goals learning (Yamin, 2007).

Each student has a level of learning independence that is not the same or different. Schunk & Ertmer in Rahayu and Widodo stated that learning independence refers to the thoughts, feelings, and actions of someone planned and systematically adjusted according to their needs so that it affects one's learning and motivation (Widodo, 2017). In other words, students who have low levels of learning independence tend to have low learning achievement in schools and vice versa, students who have high levels of independence tend to have good learning achievements in school.

Hargis (2000) states there are 4 benefits associated with student independence in learning, namely:

1. Students with high independence tend to learn better than controlled learning.
2. Students with high independence are able to monitor, evaluate, or manage their learning effectively.
3. Independent learning is able to reduce the learning time needed to complete lessons.
4. Students with high independence are able to manage their learning and time efficiently.

According to Prawiradilaga (2012) there are a number of things that are included in the context of independent learning which are absolute requirements in the presentation and learning activities *online*, namely:

1. The formulation of learning objectives (general / specific) or competence must be clear.
2. Syllabic formulation that is in accordance with learning objectives / competencies or often referred to as competency-based curriculum (KBK).
3. Availability of learning programs such as various forms of material, training, games, virtual labs and learning resources.
4. Development of material is packaged into small segments. The learning design principles applied are task analysis and learning levels. This is done by referring to competencies, so that the scope of each segment of teaching material is in accordance with specific objectives. After that, the material is categorized in a variety of knowledge in order to determine the right presentation technique.
5. Availability of a tutor to ask questions online
6. The learning activity guide itself consists of
  - a) Learning cues: verbal guidance that emphasizes how material absorption is carried out by students, such as inserting conclusions, certain warnings and certain signs.
  - b) Navigation: facilities available digitally and optimized for use so that students can explore the teaching material themselves through visual symbols such as *icons*.
  - c) Clear and immediate feedback
  - d) *Self-pacing*
7. Learning Assessment
8. program. *Assessment* and repair

Independent learning as a system has a basic concept as a learning program arrangement that is organized in such a way that each student / student can choose and or determine their own learning materials and progress. As a system, independent learning can be seen as a structure, process or product. As a structure is the existence of an arrangement with a certain hierarchy. As a process is a procedure or a continuous procedure. One of the learning processes that require independent learning is the teaching method *blended learning*.

## 5. Blended Learning

According to Garrison and Kanuka in Stein and Graham " *The real test of blended learning is the effective integration of the two main components (face-to-face and Internet technology) such that we are not just adding to the existing dominant approach or method*" (Stein & Graham, 2014). The statement can be concluded that Blended Learning is an effective amalgamation of two components. The intended component here is face-to-face learning and online learning. The learning is put together in such a way that one of the components is not just an additional method but becomes a single unit. In line with Stein and Graham, stated that *Blended learning is a coherent design approach that openly*

*assesses and integrates the strengths of face-to-face and online learning to address worthwhile educational goals* (Garrison, R., Vaughan, 2008).

Another definition of blended learning from Driscoll (2003) refers to four different concepts, namely:

1. Blended learning is learning that combines or combines various web-based technologies, to achieve educational goals.
2. Blended learning is a combination of various learning approaches (such as behaviorism-me, constructivism, cognitivism-me) to produce an optimal learning achievement with or without learning technology.
3. Blended learning is also a combination of many techno-logical learning formats, such as video tapes, CD-ROMs, web-based training, films) with face-to-face learning.
4. Blended learning combines learning technology with actual work assignment commands to create a good influence on learning and work.

Furthermore according to Johhan Hoffmann *Blended learning* is a series of content blocks that are sorted to create a learning experience. The facilitator matches the learning objectives with the most appropriate delivery media and learning environment to ensure that participants learn by the facilitator anywhere, anytime, and immediately (Hofmann, 2018). In this sense the role of the facilitator is very important in learning to create learning experiences that are suitable for the learning objectives.

According to Roblyer (Roblyer, 2016) there are 3 models *blended learning* that are commonly used in learning and training, namely:

1. Traditional classes with activities *online*: learning activities are *online* used to enrich learning activities in traditional classes.
2. classes *Online* with face-to-face activities: learning activities carried out *online*, but there are face-to-face activities that are conducted. For example students are asked to attend to do the exam, there are activities to visit learning resources to study learning, hold face-to-face classes between learning facilitators and students to discuss several topics in an effort to involve students in learning
3. *Flipped classroom model*: a learning model in which the teacher gives assignments to students to actively learn in advance the material to be conveyed through digital media in the form of videos or *e-books* along with some task instructions / practice questions, as discussion material when activities in class (face-to-face).

learning *Learning online* was developed with reference to the theory of teaching and learning. The use of digital technology and the internet for learning processes has an impact on one's learning patterns. Blended Learning will fill the lack of face-to-face learning, where Blended learning offers a combination of Face to Face and online learning which will certainly fill each other's shortcomings.

According to Husni (2011) learning based on *blended learning* combines face-to-face and high *e-learning* that has at least 6 (six) elements, namely: (a) face-to-face (b) self-study, (c) application, (d) tutorial, (e) collaboration, and (f) evaluation. From this statement, it can be seen that *blended learning* is not only about face-to-face learning and online learning but it contains various elements that are interrelated to one another. Face-to-face learning as usual is done in class with the intention to give lectures and directions and to learn more about the difficulties of students in the course. Independent learning where students themselves determine their ways to learn with the help of applications developed in such a way. Computer-based learning programs require face-to-face tutorial activities, but the nature of the tutorial is different from conventional face-to-face learning. In the tutorial, active learners to convey the problems encountered, a teacher will act as a guiding tutor. Cooperation or collaboration is one of the important characteristics of future learning, therefore future products are products that are produced from collaborative activities (Piiro, 2011). Evaluation of learning based on *blended learning* will certainly be a little different compared to evaluation of face-to-face learning, evaluation in *blended learning* can use applications / *tools* to facilitate the evaluation process.

From some of the statements above it can be concluded *Blended Learning* learning is a mixture of learning / mix between face-to-face and online meetings with a variety of rock *tools* / tools as well as the use of various strategies so that it becomes a complementary whole to create an effective learning environment in achieving learning objectives.

## METHODS

The approach used in this study is a quantitative approach and with descriptive research methods. Descriptive research is an approach that does not intend to test hypotheses but rather describes conditions as they are about a variable, phenomenon or state (Suharsimi Arikuntoro, 2010: 234). Then according to Sugiyono (2011: 8), quantitative research methods can be interpreted as a research method based on the philosophy of positivism, used to examine a particular population or sample, data collection using research instruments, quantitative or statistical data analysis, with the aim to test hypotheses which have been set. So this research will be presented in the form of categorization and percentage.

This research model uses a questionnaire or questionnaire. Questionnaire is a data collection technique that is done by giving a set of questions or written statements to respondents to answer (Sugiyono, 2011: 142). Questionnaires were distributed to respondents in order to obtain data that would be relevant information. Respondents in this research are Lecturers and Postgraduate students.

Place and Time This research was carried out using the help of the google form tool, which can be accessed by the internet for students and lecturers at Postgraduate. Questionnaires were distributed through WhatsApp Group and Chat to students and lecturers. Students and lecturers fill out the questionnaire directly via Google forms that have been created by researchers conducted in July-October 2019

Data collection techniques are a way for a researcher to collect data needed in research. Data collection techniques in this study using a questionnaire (questionnaire). Questionnaire in the form of statements that have provided the answer, the respondent only needs to choose the answer that has been provided. In the data collection process, the instrument used by researchers in the form of a questionnaire (questionnaire) is used to measure the needs and readiness of lecturers and students for Blended learning in the Postgraduate Program of UNJ. Questionnaire is a data collection technique that is done by giving a set of questions or written statements to respondents to answer (Sugiyono, 2011: 142).

## RESULTS AND DISCUSSION

### Research Results

#### 1. Analysis of staff and lecturer needs

At this stage the interview method was conducted to analyze staff and lecturer needs data.

There were 6 questions raised to the interviewees with two categories of needs analysis of staff and lecturer abilities and organizational characteristics. From the interview data, it was found that lecturers and staff have been trained several times to be able to develop learning / material *online*, in terms of completeness, almost all lecturers and staff have computers and internet access. Thus learning *Hybrid* in ICT courses will be carried out.

Analysis of needs on organizational characteristics for computer access is provided in the library room and internet access is available on every floor. Postgraduate routinely provides training and encourages developing *hybrid learning courses* in each study program. This supports the implementation of learning *Hybrid* in ICT subjects. A room is provided for vicon on the 6th floor of the cylearn room as a means of learning infrastructure and *Hybrid* in PPs UNJ. However, there are no standard rules to support learning *online* in PPs UNJ.

#### 2 Analysis of student

needs Technology needs and learning resources are all things that are needed by students, technology and good learning resources must be able to provide the needs of students and lecturers. In this study 32 samples were taken. Then the data analysis is carried out in accordance with the data obtained from a questionnaire given to Postgraduate students.

Based on the data processing that has been done, Analysis of Student Needs in Learning *Hybrid* in ICT courses in the Postgraduate Program UNJ with a sample size of  $N = 32$  obtains a maximum value of 53 , minimum value 26, mean (mean) 40.5, median 41, mode 41, and standard deviation (SD) of 6. After the data description results are obtained, then it can then be converted into five categories, namely: very high, high, medium , low, very low. Description of the results of research needs of students in Learning *Hybrid* in ICT courses in the UNJ Postgraduate Program can be seen in the following table: Table Frequency Distribution Analysis of Needs in Learning *Hybrid* in ICT courses in the Postgraduate Program UNJ

Tabel 1. Frequency Distribution Analysis of Needs in Learning *Hybrid*

No	Interval	Category	Frequency	Presentation
1	$X \geq 50$	Very High	1	3%
2	$44 \leq X < 50$	High	13	41%
3	$37 \leq X < 44$	Medium	11	34%
4	$31 \leq X < 37$	Low	5	16%
5	$X < 31$	Very Low	2	6%
<b>Total</b>			32	100%

From the distribution table categorizing the Needs of Students Against Learning *Hybrid* in ICT courses in the Postgraduate Program UNJ above, as many as 1 respondent (3%) has a Very High category, 13 respondents (41%) have a High category, 11 respondents (34%) have Medium category, 5 respondents (16%) had the Low category, and 2 respondents (6%) were in the Very Low category. Thus the needs of students for technology and learning resources in the UNJ Postgraduate Program are high with 41% data acquisition.

From the above data it can be seen that, the majority of respondents in this case are students stating that they need Learning *Hybrid* in ICT courses in the Postgraduate UNJ program. Low and very low respondents only 7 people out of 32 total respondents and 14 respondents stated that they were high and very high.

### 3 Lecturer needs analysis

learning needs are *Hybrid* also needed by lecturers, learning *Hybrid* good must be able to provide the needs of students and lecturers. In this study, samples taken were 7 lecturers. Then the data analysis is conducted in accordance with the data obtained from the questionnaire given to UNJ Postgraduate lecturers.

Based on the data processing that has been done, Analysis of Lecturer Needs for Learning *Hybrid* in ICT subjects in the UNJ Postgraduate Program with a total sample of  $N = 7$  obtains a maximum value equal to 74, minimum value 71, mean (mean) 72, median 71, mode 71, and standard deviation (SD) of 1. After the data description results are obtained, then it can then be converted into five categories, namely: very high, high, medium, low, very low. Description of the research needs of faculty Against in Learning *Hybrid* in the course of ICT in the Graduate Program UNJ can be seen in the following table:

Table 2. Frequency Distribution Needs Analysis Lecturer Against in Learning *Hybrid* in the course of ICT in the Graduate Program UNJ

No.	Interval	Category	Frequency	Percentage
1	$X \geq 74$	Very High	1	14%
2	$72 \leq X < 74$	High	2	29%



3	$71 \leq X < 72$	Medium	4	57%
4	$70 \leq X < 71$	Low	0	0%
5	$X < 70$	Very Low	0	0%
<b>Total</b>			7	100%

From the distribution table categorizing Lecturer Needs in Learning *Hybrid* in the ICT subjects at the Postgraduate Program UNJ above, there are 1 respondent (14%) having a Very High category, 2 respondents (29%) having a High category, 4 respondents (57%) having a category Medium, and there are no respondents included in the category of Low and Very Low. Thus the need for Lecturers in Learning *Hybrid* in ICT subjects in the Postgraduate Program UNJ is moderate.

From the above data it can be seen that, the majority of respondents in this case are lecturers stating that they need Learning *Hybrid* in ICT courses in the Postgraduate UNJ program. In the absence of low and very low levels, it can be concluded that lecturers need Learning *Hybrid* in ICT subjects in the UNJ Postgraduate Program.

## Discussion

In this day and age, technology is increasingly advanced and teachers are required to be able to adjust to the times. Learning media can not be separated from the influence of the times. Teachers are required to have quite extensive knowledge.-based learning media *Online* is one of the results of technological advancements. It is undeniable that currently everyone is dependent on the internet. All information can be obtained through the internet. By utilizing this internet,-based learning media *online* can be applied in the teaching and learning process.

Based on the results of research that has been done, it shows that the analysis of the needs of postgraduate students of Masters of Educational Technology at UNJ for learning *hybrid* has the greatest frequency of 13 students with a percentage of 41%, namely in the high category. Thus the analysis of the need for postgraduate students of Masters of Educational Technology at UNJ for learning *hybrid* is high.

In contrast to the results of the analysis of lecturer needs, it shows that the analysis of the needs of postgraduate lecturers of Masters of Educational Technology at UNJ for learning *hybrid* has the largest frequency of 4 lecturers with a percentage of 57%, namely in the medium category. Thus the analysis of the need for postgraduate students of Masters in Educational Technology at UNJ for learning *hybrid* is moderate.

Mastery of learning *hybrid* is one of the main competencies required of students and lecturers of educational technology masters. Normatively, learning as a process of communication interaction between learning resources, lecturers and students. Communication interactions are carried out either directly in face-to-face activities or indirectly by using media. The definition expressed by Rusman illustrates that the interaction between teacher and student does not have to be done face-to-face, providing space for the teacher to make an effort to codify learning that is done non-face-to-face in the classroom. (Rusman, 2017). Therefore, in *hybrid learning*, classroom learning provides the social interaction needed for active learning, while *online learning* offers some flexibility, which is not commonly found in a classroom environment. In other words, *hybrid learning* is the perfect mix of face-to-face and learning classes *online learning* in providing a conducive environment for learning for current students (Tang & Chaw, 2013).

According to Norman (Norman, 2016), one of the problems in traditional face-to-face learning is asking for higher tuition fees in advance at renowned universities. Students agree about a face-to-face classroom learning community with students and instructors, learning *online* cannot support it (Tang & Chaw, 2013). On the other hand, it should be the essence of all kinds of lessons about experience, so the question is not about mixing but "how to mix" (Lieser & Taff, 2013). To be effective, materials *hybrid learning* must still be designed and presented in accordance with appropriate pedagogical principles (Johan, 2016). According to Sleator (Sleator, 2010), the factors that must be considered in discussing a system *hybrid* effective learning are:

- a) Direct interaction: interaction in the face-to-face learning process of students (and also students and instructors) in an open classroom environment is debated. When the face-to-face component and learning component are *online* combined, several studies determine the choice of face-to-face components for students to be in significant proportions. Some observers, based on the learning experience, claim that most face-to-face components are not necessary;
- b) Student choice itself: learning approach *online learning* allows students to set the place and pace of learning better than traditional face-to-face learning methods; adequate guidance must also be given on how the impact of experience can be obtained with *hybrid learning* (both positive and negative). learning component *Online learning* generally requires significant self-discipline from students, and therefore a joint learning system must be designed to facilitate student maturity, make appropriate choices to improve self-management skills;
- c) this support and training is needed at all levels of the organization with both students, instructors and institutions, changing the culture of the organization to be able to accept a mix of face-to-face and learning approaches *online learning* or *hybrid learning*
- d) Cultural adaptation; the advantage of *hybrid learning* is the ability to distribute learning materials uniformly to a diverse student population, there is often a need to adjust the material to make it more accessible and culturally relevant to local audiences. Thus, it needs to be regulated so that the approach *hybrid learning* finds a balance between local and global qualifications;
- e) Balancing innovation and production: with information and communication technology (ICT) always developing, it is necessary to balance innovation (the development of new technology platforms) with production which is still a significant obstacle for everyone who designs and develops *hybrid learning*.

## CONCLUSION

1. Based on the results of this study, it can be concluded that in general lecturers and students of Education Technology Study Program in Information Technology courses have had readiness in implementing *hybrid learning learning*. Specifically, the results of this study conclude as follows:
2. Students' readiness in implementing *hybrid learning* has met. The analysis shows that 3% is very high, 41% is high, 34% is moderate, 16% is low, and 6% is very low.
3. Lecturer readiness in implementing *hybrid learning* has fulfilled. From the results of the analysis showed as much as 14% Very High, 29% High, 57% Moderate, 0% Low, and 0% Very Low.
4. Readiness of facilities and infrastructure as well as policies on implementing learning *hybrid learning* is sufficient and fulfilled.

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