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Interaction Patterns and Blended Learning Activities Using the Moodle Platform During a Pandemic In Vocational High School

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Abstract. Blended learning with online learning platforms is the main solution recommended by education experts and practitioners during the learning period from home. The main problem during the learning period from home using this online learning platform, educators are more oriented towards assessment activities compared to learning activities, this shows that the ability of educators to choose and determine learning activities is still low, limited to giving assignments and evaluations. The more prominent use of social media in learning activities also shows that the understanding of educators in selecting and determining the relevant interaction patterns is still low. Meanwhile, students expect more direct guidance and interaction from educators in online learning activities. The pattern of interactions and activities of this online learning process needs to be resolved immediately. This study aims to reformulate the various patterns of interaction and online learning activities that exist, in order to obtain the right patterns of interaction and activities to be applied during the learning period from home using the Moodle platform. The method used is a literature review. The resulting interaction and activity patterns consist of 6 components; (1) interaction between educators and students, (2) interaction between students and other students, (3) interaction between students and v-lab, (4) interaction between educators and v-lab, (5) interaction between students with learning materials, (6) educators' interactions with materials.

INTRODUCTION

Since the outbreak of the corona virus in early 2019, it has had many impacts, especially in the world of education. This has prompted the Indonesian government, especially the Minister of Education, to issue a policy for implementing education related to the spread of the virus in order to anticipate its spread. One of these policies is the implementation of an online distance education system (PJJ) in their respective homes. The only option is that educators must be able to innovate in utilizing Information Technology (IT) as an online platform for learning, but its unexpected implementation causes students, educators, and parents to experience problems due to their unpreparedness in implementing the distance learning system (PJJ). .

The survey results show that 76.7 percent of students are not happy to take PJJ due to several aspects, including student complaints about limited internet quota, inadequate online equipment, not having a laptop or computer, and heavy tasks imposed by educators. The survey also found that 81.8 percent of students were limited to doing assignments and minimal discussion or getting material, and 77.6 percent of educators were more oriented towards assessment activities than learning activities. Another finding, as many as 83.4 percent of educators are only able to use social media such as WhatsApp, Line, Facebook, and Instagram. Though the application is not primarily intended for online learning.

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This fact shows that the main problem of PJJ educators is more dominating assessment activities than learning activities, this shows that the ability of educators to choose and determine both synchronous and asynchronous learning activities that are in accordance with learning objectives is still low, limited to giving assignments and evaluations. The more prominent use of social media in learning activities also shows that the understanding of educators is still minimal in selecting and determining appropriate learning resources according to learning objectives, only limited to providing alternative content as a face-to-face substitute and has not provided content to support learning activities that interactive and collaborative, the ability to choose and determine the relevant interaction patterns applied is still low. Meanwhile, students expect more direct guidance and interaction from educators in online learning activities.

Facing these conditions as practitioners in the field of education, of course, we must not remain silent, we must try to find ways so that students continue to learn from home without the need to eliminate interactive learning and continue to receive guidance during the pandemic or in new normal conditions in online learning activities. Blended learning with online learning platforms is the main solution recommended by education experts and practitioners during the learning period from home.

Blended Learning in the world of education is not new. This method has been widely used in schools in various parts of the world because of its extraordinary potential. Higher education institutions in Asia such as China, Japan, Korea and Singapore have also followed Western countries in adopting blended learning. Blended learning is generally defined as a learning process that combines face-to-face learning and online materials systematically. Thorne explained that blended learning is an effort to integrate advances in innovation and technology offered online with the interaction and participation offered in traditional learning.

Some experts suggest that blended learning is a learning activity that uses synchronous and asynchronous activities, synchronous activities such as face-to-face with educators, collaborating with fellow students, while asynchronous activities are individual activities carried out by students. A similar understanding explains that blended learning is a learning activity that combines synchronous and asynchronous learning activities with the aim that learning objectives are achieved optimally and effectively.

Synchronous learning is learning that is carried out jointly between educators and students without having to be in the same place. Synchronous learning is of two types. The first type is face-to-face learning in the classroom, by Khan this type is called physical synchronous learning, and the second type is online synchronous, by Stahl this type is also called virtual collaboration. The face-to-face or physical synchronous type occurs simultaneously at the same time in the same place. Examples of synchronous physical activity are face-to-face learning in class, research in the laboratory, field trips, presentations and group discussions in class, and all other traditional learning methods. Meanwhile, synchronous online activities such as audio/video conferencing, chatting, live online learning, instant messaging and others. Asynchronous learning activities can be grouped into two categories, namely asynchronous virtual collaboration (such as learning activities such as online discussion forums, mailing lists, emails, etc.) and independent asynchronous (such as simulations, online tests, material search, materials in pdf format, docs, html, videos, animations, etc.).

As stated above, blended learning is not just a combination of face-to-face learning and online learning. However, then select and determine the right combination of synchronous and asynchronous learning strategies to achieve the learning objectives that have been set. Therefore, in planning blended learning, it is necessary to determine which learning objectives are in accordance with the synchronous strategy and which learning objectives are suitable to be implemented with the asynchronous strategy, as well as what learning activities are appropriate for each of these strategies. In designing blended learning, regardless of synchronous or asynchronous learning strategies, it is basically intended to develop higher order thinking skills, reflection and self-assessment, motivation and curiosity, through learning activities that pay attention to goals, learning styles and learning environments.

As the operational definition of blended learning has been described above, there are basically two learning settings, namely asynchronous learning and synchronous learning. This statement shows that blended learning emphasizes various efforts designed in such a way as to allow the learning experience to occur optimally. The concept of blended learning can be explained simply. However, in practice, it is not that simple. Educators must be able to choose and determine the right strategy to achieve learning objectives. Therefore, blended learning must emphasize the learning experience. This is in line with what was stated by Novak that in the implementation of blended learning, educators must be able to develop the cognitive potential of students through a meaningful learning process. This is also reinforced by Graham who finds at least three things that are strong reasons for using blended learning, one of which is being able to improve the pedagogical aspect. Thus, it can be concluded that in blended learning, both in planning and design, meaningful learning becomes very important. Therefore, educators have a very important role in designing blended learning. In addition, knowledge and ability to consider the

advantages and limitations of blended learning are very important. The design of blended learning is very dependent on good planning and design from educators.

Current research related to blended learning revolves around how to combine blended learning appropriately. Blended learning is an effort to integrate various learning resources and appropriate learning activities where learning participants can interact and build ideas with each other. One of the advantages of blended learning is to increase interaction between students, between students and educators, and students with various learning resources, anytime and anywhere without being limited by space and time. Researchers suggest that the interaction between students and the interaction between students and educators is a key factor in the learning process of students and is an important element in creating an effective learning experience. In addition to its potential, blended learning still has big challenges. One of these challenges is how to create an active and constructive learning environment, where information and communication technology is the tool.

RESEARCH METODS.

This article tries to formulate the pattern of interaction and activity during learning from home in Vocational High Schools (SMK) through a literature review. The author tries to examine the online learning interaction pattern offered by Anderson combined with the learning experience cone that has been proposed by Edgar Dale and tries to develop so that the interaction pattern can be used in SMK. The author develops this pattern by adding a v-lab component (virtual lab) and using the Moodle platform as an interface. Furthermore, conducting a synthesis analysis by examining various patterns of interaction and online learning activities that exist in order to obtain an accurate picture of the patterns of interaction and online learning activities that can be applied in SMK during the learning period from home

LITERATURE REVIEW AND DISCUSSION

Blended Learning Interaction Pattern

In utilizing online technology as a medium and source of learning, where communication and community determine the characteristics of learning. This means that by utilizing online technology a person can communicate more personally, can be done anytime, anywhere and with anything, and allows someone who has the same interests in an unlimited space to connect online to build a community, in learning theory this is termed with the learning community. In a learning community the most important thing presented is interaction. Through interaction, it is expected that mutual learning processes occur so that the process of constructing knowledge and skills can be formed as described in the theory of social constructivism.

Building an interaction vehicle for formal education needs can use a learning management system (LMS) with the Moodle platform. Through this application, educators can build a structured and focused online learning community. Anderson and Gerison mention six forms of interaction patterns when online learning communities are formed, namely interactions between educators and educators, educators with students, students with students, educators with learning resources, students with learning resources, and learning resources with learning resources. The interaction pattern is presented in the following figure.

FIGURE 1. Anderson and Gerison online learning interaction pattern

The pattern of interaction above describes three components that interact with each other, namely educators, students, and learning resources (content). The pattern of interaction between educators and students, and students and students is carried out synchronously. The interaction between educators and students uses a community inquiry approach. Meanwhile, the interaction between students and students uses a collaborative approach. This interaction pattern is an online learning pattern.

The pattern of interaction between students and learning resources is carried out asynchronously, and this is an independent learning pattern. Anderson asserts that although students learn independently, in this system they are not alone. Colleagues at work, other friends and family members are significant sources of support when it comes to self-study. In addition, the emergence of software for social communication provides opportunities for students to meet and build groups that support cooperative and collaborative activities. Through this interaction, it allows students to learn social skills, collaborate and build social relationships with others in the knowledge construction process, and the interaction pattern between educators and learning resources is an educator activity in order to prepare learning program plans. Through this interaction, educators can monitor, compile, and update materials and learning activities that will be carried out.

The interaction between the material and the material shown in the pattern above is a new interaction pattern that has emerged along with the development of information and communication technology. This interaction pattern is programmed so that it can automatically interact with other learning material sources in the context of developing and updating its content. While interactions between educators and other educators are held so that online learning can be guaranteed continuity for educators and different materials.

Based on the above study clearly illustrates that online technology can build a very large learning community where members in the community can learn together, interact anytime, anywhere and with their own speed and style in utilizing technology. It means that the character of this technology has the potential to be empowered as a learning mode.

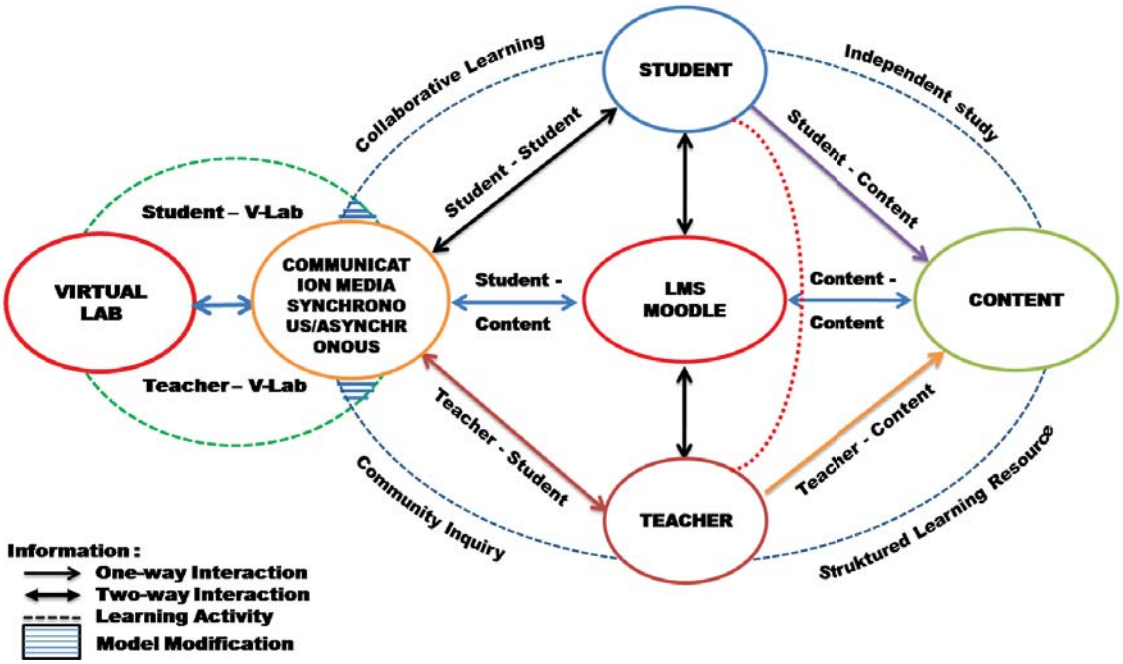

FIGURE 2. Blended learning interaction patterns in SMK

The pattern above is a modification of Anderson's online learning interaction pattern. Modify the existing pattern by adding a component, namely a virtual laboratory (v-lab). This pattern is designed as an alternative to hone students' psychomotor skills during a pandemic where everyone has to learn from home. Based on the variety of interactions, this online learning activity is held in a blended learning (synchronous and asynchronous) manner. The interaction patterns that occur in this learning include:

1. The interaction between educators and students, this interaction occurs synchronously and asynchronously. This activity begins with distributing video conferencing links to students through social media groups, then explaining the ethics of conducting the meet, and explaining the road map of learning activities for 2x45 minutes using online learning portals starting from how to login, attendance, pre-test, pre-test. or providing stimuli to students, interactive learning, independent learning or independent practice / workshops, online

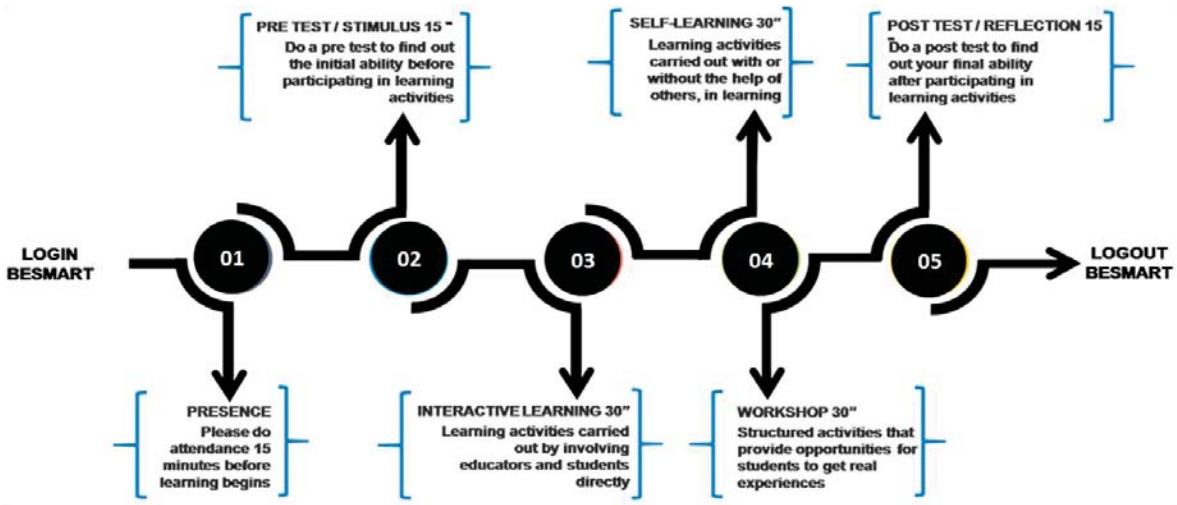

FIGURE 3. Road map of computer system learning activities in SMK

This initial activity also equips students with the necessary prerequisites, namely the skills to run simulators and the necessary online practical learning tools, all of which are done synchronously. Meanwhile, asynchronous activities are carried out by posting announcements about online learning activities through social media group applications by educators that are read by students at different times, collecting and assessing report assignments and their feedback on online learning portals.

2. Interaction between students and other students, this interaction is carried out through online collaboration activities in interactive learning activities or online practices or discussions. This collaboration is carried out synchronously through joint access to the simulator using video conferencing applications, online learning portals and telegram social media groups.
3. Interaction between students and the v-lab in the form of a simulator, this activity can take place online or offline. Online through simulative practical activities through video conferencing applications, and these activities can switch to offline activities if there are problems related to data package limitations or poor internet connections. Blended learning in practical learning using simulators is important to consider considering that in this practical activity it is required that students have initial skills in running simulations before the practice is carried out.
4. The interaction between educators and the v-lab is carried out online in simulative practice guidance activities through video conferencing applications and can switch to offline activities if problems occur related to limited data packages or poor internet connections. Utilization of this v-lab can replace hands-on laboratories, besides that v-lab can help students understand complex and abstract learning processes.
5. Interaction between students and learning materials can take place online or offline. Online through synchronous activities through interactive learning activities. Offline students provide their own material in the form of an e-book by downloading it first from the online learning portal.
6. The interaction of educators with the material is carried out in the form of activities for making, supervising and updating materials by online educators.

Blended Learning Activities

The role of educators is very important in facilitating blended learning. One of the standard competencies that must be possessed by an educator is the ability to combine student participation in synchronous and asynchronous learning. Littlejohn & Pegler suggested that synchronous learning is learning that takes place simultaneously between educators and students, although not necessarily in the same place. The following illustrates a table of interaction patterns and learning activities in the context of blended learning in Vocational High Schools (SMK) which is adapted from the experience cone of Edgar Dale, Horton, and Khan.

TABLE 1. Patterns of interaction and blended learning activities in SMK

Blended Learning Activity	Interaction Patterns	Action Learning	Learning Activities		
			Edgar Dale (1969)	Horton (2006)	Khan (2005)
Synchronous	Educators - Students	20% of What they Hear	• Listen to Lecture (Hear)		• Audio conferencing
		30% of What they See	• Watch still pictures • Watch moving pictures	• Field trip	• Tutorial (video, animation)
		50% of What they See and Hear	• View exhibit • Watch demonstration	• Presentations	• Video conferencing
			• Participate in a hands-on workshop • Role-play a situation	• Drill and practice • Games	• Forum diskusi online, • E-mail • Chatting • Mailinglist • Blog • Wiki
	Students - Students	70% of What they Say and Write			

			• Model or Simulate a Real Experience • Direct Purposeful Experience -- Go through the real experience	• Simulation • Experiment	• Simulation • Experiment
	Students - V-Lab	90% of What they Do as they perform a task		• Ponder activities • Questioning activities • Story told by learners • Research activities • Original work	
Asynchronous	**Students - Materials**	10% of What they Read	• Read text	• Read text	• Study material • Material search • Online test • Doing task

Referring to the table above, it is clear that online learning patterns in the context of blended learning are set synchronously and asynchronously. Synchronous is a learning activity that occurs at the same time, but in a different place. Learning activities that can be presented in this activity are in the form of presentations, discussion forums, simulations, tutorials and others using technology with online learning platforms such as video-conferencing applications, blogs, wikis, learning management systems or perhaps social media applications such as telegram, whatsapp. . Learning activities in this context are able to provide a learning experience of 20% - 90% depending on the activities or activities given to students.

Asynchronous is an independent learning activity, this activity can occur anytime and anywhere without being bound by time and place. In order for these learning activities or activities to occur, students must be facilitated with digital teaching materials based on text, audio, video, animation, simulations, games or a combination of all of them. Learning activities in this context can also be carried out in collaboration by several people anywhere and anytime through online discussion forums or through online assignments. Learning activities in this context are able to provide a learning experience of 10% - 70% depending on the activities or activities given to students.

CONCLUSION

The pattern of interactions and activities in blended learning is very important, because in its implementation blended learning must emphasize the learning experience and not just the ratio of the modality of the assignment or assessment. Therefore, the ability of educators becomes important in choosing and determining the right pattern of interaction and activity between the two to achieve learning objectives, as well as combining student participation in synchronous and asynchronous learning activities using relevant technology.

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