HYLBUS (Hybrid Learning Based on Asynchrononous Learning Network): Inovation of Learning Model for Hight School to be uAgaints Industrial Revolution 4.0

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Abstract: This study conducted focused on creating learning media based on Hybrid Learning Based on the Asynchronous Learning Network as an effort to improve effectiveness in Entrepreneurship learning. The research and development method carried out by researchers originated from Borg and Gall with the trial subjects, namely teachers who taught in 5 schools throughout Malang. The researcher used two types of validators, namely material expert validators and media expert validators. The researcher used two types of data namely qualitative data and quantitative data with data collection techniques in the form of documentation, questionnaires, interviews, and tests (pretest and posttest) to respond. The data analysis technique used is descriptive percentage technique that refers to Arikunto. This study uses two test cycles to determine the effectiveness of media created for teachers. HYLBUS is a learning media website that is intended for entrepreneurship subject teachers with the basic principle of the Asynchronous Learning Network that integrates several aspects needed by students in enhancing the capture of entrepreneurial learning delivered by the teacher. The advantages of this website are (1) user friendly, (2) responsive, (3) accountable, (4) transparent, (5) trusted. Based on the test results it was found that an increase in student learning outcomes reached 25.76%, besides that there was an increase in teacher activities reaching 19.45% from pre-action to action 1 and an increase of 3.72% from action 1 to action 2 with criteria "Very good" and an increase in student activity by 33.34% from pre-action to action 1, and an increase of 6.33% from action 1 to action 2 with the criteria of "very good"

Keywords: Asynchrononous Learning Network, Entrepreneur, Hybrid Learning Methode, Industrial Revolution 4.0, Teacher Competence

1. Introduction

Departing from the fact that the industrial revolution has reached its peak in the industrial revolution phase 4.0 (Kemenristekdikti, 2018a). Today industrial revolution 4.0 has developed more massively marked by the growing development of Internet of think, big data, financial technology, e-commerce and sharing economy-based businesses such as Go-Jek, Shopee, Lazada, Traveloka, Tokopedia, and I-grow. Industries that use high technology certainly have a big impact to achieve the main objective of industrial revolution 4.0, namely to make Indonesia into the top 10 of the world economic power based on Gross Domestic Product (GDP). One sector that needs to be prepared to support industrial revolution 4.0 is the education sector which can be measured by increasing the quality of human resources by involving several educational components. Important components in education include educators (teachers), students, curriculum, learning methods, learning environment, and learning media (Ahmadi, 2014: 63). Learning methods are proven to be one of the important components that can be used to improve the quality of education through increasing human resources.

In line with of industrial revolution 4.0 that had been formulated by the Indonesian government, the learning methods used by teachers must certainly support the achievement of these goals. The use of internet-based learning media must be carried out by teachers to increase the students' capture of entrepreneurship material that they want to convey. Rusman (2011: 77) states that the use of information and communication technology (ICT) media in the teaching and learning process is very much felt the need and importance to improve the quality of learning. The use of information and communication technology media in the field of education is called E-Learning (Electronic Learning). Wahono (2007:...
226) states that E-Learning is a solution in education in the era of globalization. E-learning and information technology support the delivery of information from conventional learning processes to digital, both in terms of content and system. Munir (2009: 99) states that E-Learning has three main functions in learning, namely as a supplement that is optional (optional), complementary (component), or substitute (substitution). In this study focused on E-learning which functions as a complement, one of them is the use of Hybrid E-Learning (HEL). Efendi (2014: 1) in his research stated that HEL is a redesigned online learning media in the Learning Management System (LMS) by combining online and face-to-face systems in class to create independent, active, effective and efficient learning activities; 2) the use of HEL as a basic vocational competency learning media using Hybrid E-Learning models has internal and external effectiveness.

Hybrid Learning is a methodological learning approach that connects several Asynchronous Learning Network based approaches or learning methods through internet learning. Guellern et al (2000: 189) revealed this learning developed ALN (Asynchronous Learning Network) by using computer technology to communicate via the internet network. Asynchronous Learning Network through internet learning that is done at different times. Learning by using the internet in Indonesia is popularly called E-Learning. Interesting learning can be made using a variety of learning media. Arsyad (2014: 3) says that media is a tool that conveys learning messages. Learning media can be made by utilizing the facilities and infrastructure available at the school. The facilities provided by the school are currently experiencing many developments. This is evident from the many schools that provide technology-based facilities and infrastructure such as computers, laptops, LCD projectors, etc. The online learning media in the Learning Management System (LMS) is redesigned by combining online and face-to-face systems in class to create independent, active, effective and efficient learning activities, the use of HEL as a basic vocational competency learning media using the Hybrid E-Learning model has internal and external effectiveness that is able to improve understanding skills or theoretical learning for students.

2. Literature Study
2.1 The Industrial Revolution 4.0

A famous German economist who is also the founder and chairman of the Executive World Economic Forum (WEF) was the one who introduced the concept of the Industrial Revolution 4.0. in his book entitled “The Fourth Industrial Revolution” explains that the Industrial Revolution 4.0 has fundamentally changed human life and work. The Industrial Revolution 4.0 was different from the previous Industrial Revolution phase, because in the Industrial Revolution 4.0 it had a wider scale, scope, and complexity. The technological advances that took place in the Industrial Revolution 4.0 integrate the physical, digital and biological worlds that affect all disciplines, economics, industry and government. According to Klaus Schwab (2016) the industrial revolution has four phases that have occurred since the beginning of the 18th century until now. Today the Industrial Revolution phase reached its peak which was marked by the existence of massive impact of internet technology that was directly related to millions of people throughout the world. Not only that, technology has also become the basis for online trade and transportation transactions. The emergence of the online transportation business. This situation illustrates that the industrial revolution 4.0 has occurred Klaus Schwab (2016).

Figure 1. The Industrial Revolution Phase
Source: www.kompasiana.com
2.2. Asynchronous Learning Network

Efendi (2014: 1) in his research stated that HEL is a redesigned online learning media in the Learning Management System (LMS) by combining online and face-to-face systems in class to create independent, active, effective and efficient learning activities; 2) the use of HEL as a basic vocational competency learning media using Hybrid E-Learning models has internal and external effectiveness that is able to improve comprehension skills or theoretical learning for vocational students. According to (Brooks, 2003) HEL is the main element that is very important in student learning success where this method combines traditional / face-to-face models in front of the class with online-based models. Rovai and Jordan (2004) define Hybrid Learning as a flexible learning approach where learning is not only done in one time and place but can also be done at different times and places. In this learning model learning is done full online based without leaving direct interaction between teacher and student (face to face interaction).

Hybrid Learning is a further development of the E-Learning method, namely learning that combines E-Learning systems with conventional or face-to-face methods (Face to Face), Hybrid Learning is a methodological learning approach that connects several Asynchronous based approaches or learning methods. Learning Network through internet learning. Guellern, et al (2000: 189) revealed this learning developed ALN (Asynchronous Learning Network) by using computer technology to communicate via the internet network. Asynchronous Learning Network through internet learning that is done at different times. Learning by using the internet in Indonesia is popularly called E-Learning.

3. Research Methods

3.1. Procedure for Research and Development

This research is guided by research and development procedures from Borg and Gall in Sugiyono (2013: 409). Researchers don’t have to use all the steps of research and development from Borg and Gall, but researchers can choose and determine the most appropriate steps by adjusting the specific conditions faced in the process of research and development that is being carried out with the following steps:

![Figure 2. Procedure for Research and Development](image)

3.2. Trial Subject

The subject of the trial in the development of this learning media is the teacher who teaches in Senior and Vocational High Schools. The school used is 5 schools at Malang city. While for the purposes of validation, researchers will choose material expert validators, namely tutor teachers who have the task of guiding teachers in schools and IT experts as media validation.

3.3. Data Collection Techniques and Research Procedures

Data collection techniques used in this study are documentation, questionnaires, interviews, and tests (pretest and posttest) to respond. This research was preceded by conducting initial observations aimed at obtaining data on learning activities that will take place in the classroom. The stages of
classroom action research are carried out in two cycles, where in one cycle there are two meetings. Each cycle consists of four stages, as for the stages, namely the planning stage (planning), the stage of action (action), the stage of observation (observation) and the stage of reflection (reflection).

4. Results and Discussions

4.1. Testing Result of Hybrid Learning Based on Asynchronous Learning Network

Achievement of competencies can be seen from student learning outcomes in 5 schools throughout Malang when pre-action carried out through pre-test was only 67.74% and there were a number of students with low academic abilities, and were less active in class. After applying this media, student learning outcomes have increased. Improvement of learning outcomes from pre-action, action 1, and action 2 are presented in the following figure:

![Figure 3. Increasing of Student Learning Outcome](image)

The application of Hybrid Learning Based on Asynchronous Learning Network Products has been able to improve student learning outcomes which are quite significant at 25.76%. With a very good category. The decline occurred at 6.4% from action 1 to action 2 because the factors that cannot be controlled by the researcher include 6 students who were permitted when the study took place because it coincided with the sudden assignment given by the school, while at the time of taking 6 students present, so there is a value gap. Students’ competeness percentage can be seen in the following graph:

![Student Learning Outcomes](image)

Student learning outcomes are also inseparable from the activities of teachers and students. Before applying Hybrid Learning Based on Asynchronous Learning Network teacher activity was not too high at 65.27%, while student learning activities were relatively low at 50.63%. The activities of teachers and students also increase after being given an explanation by the researcher and implementing learning in accordance with the Draft Learning Tools (RPP) that had been planned previously. Student and teacher learning activities starting from pre-action, action 1, and action 2 are presented in the table as follows:

|          | Pre-Action | Action 1 | Action 2 |
|----------|------------|----------|----------|
| Teacher  | 65.27%     | 74.72%   | 78.54%   |
| Student  | 50.63%     | 63.34%   | 66.33%   |

Application of Hybrid Learning Based on Asynchronous Learning Network Products can increase teacher activity and also student learning activities in 5 schools throughout Malang. Teacher activity increased by 19.45% from pre-action to action 1 and an increase of 3.72% from action 1 to action 2 with the criteria of "very good". The increase in student activity was 33.34% from pre-action to action 1, and an increase of 6.33% from action 1 to action 2 with the criteria of "very good". Increased teacher and student activities are presented in the graph as follows:
The application of Hybrid Learning Based on Asynchronous Learning Network Products is carried out in accordance with the stages in Arikunto, S (2010: 137). The stages of application include: planning (planning), the stage of action (action), the stage of observation (observation) and the stage of reflection (reflection). The Asynchronous Learning Network can improve student learning competencies due to the Asynchronous Learning Network, students not only passively accept material from the teacher but also actively participate in the learning process starting from self-study through the website, question and answer, group discussions, where each member group exchange ideas and help.

Dimyati and Mudjiono (2009: 62-63) state that to be able to cause learning activeness in students, the teacher can implement the following behaviors: 1) using multimethods and multimedia, 2) giving assignments individually and in groups, 3) giving opportunities for students to carry out experiments in small groups, 4) give assignments to read learning materials, record things that are not clear, and 5) hold question and answer and discussion. This can increase the interest and activity to take part in Entrepreneurship learning. In addition, students also do not feel bored and bored because of variations in the implementation of learning.

This is also in accordance with the results of Widya’s study (2016) which shows that the Asynchronous Learning Network can improve student learning effectiveness and also Rusman’s research (2011: 77) states that "the use of information and communication technology (ICT) in the teaching and learning process is very much felt by the needs and its importance to improve and improve the quality of learning ".

Based on the results achieved during the implementation of the Asynchronous Learning Network and Web-based Modules, students experience increased learning skills and competencies carried out not only in the classroom but also outside the classroom. This is consistent with research from Rovai and Jordan (2004) defining Hybrid Learning as a flexible learning approach where learning is not only done in one time and place but can also be done at different times and places.

5. Closing
5.1. Conclusion
Based on the results and findings, some conclusions can be drawn including:

1. HYLBUS: (Hybrid Learning Based on Asynchronous Learning Network) has become one of the learning media that integrates several aspects needed by students in increasing the capture of entrepreneur learning delivered by teachers with several advantages including (1) user friendly, (2) responsive, (3) accountable, (4) transparent, and (5) trusted.
2. Based on the five testing criteria used to test this website, it was found that this learning media is very good for use by teachers to improve their competence in supporting the achievement of industrial revolution 4.0

5.2. Suggestion
1. The Ministry of Research, Technology and Higher Education is expected to be able to consider the diffuse needs of the industrial revolution 4.0 in developing policies.
2. The government is expected to be able to provide supporting facilities for school learning in order to realize industrial revolution 4.0
3. Entrepreneurship teachers are expected to better prepare themselves to meet the competencies needed to realize industrial revolution 4.0
4. Entrepreneurship teachers are expected to continue to carry out scientific updates and updates on the latest information from the industrial revolution 4.0

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