E-readiness Measurement in the Virtual Application Learning

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Abstract. Indonesia in the early 2020s was being rocked by the outbreak of Coronavirus Disease (Covid-19) which hit almost all parts of the world. Indonesia spontaneously implements a policy of learning from home (SFH) and working from home (WFH). Higher education during the WFH period needs to strengthen online learning. Universitas Negeri Surabaya has had e-learning developed using Moodle LMS and has been used as a form of learning called Vilearning Unesa (Vinesa). The research aims to measure the implementation readiness of Vinesa. This measurement needs to be done as an effort to support the successful development of e-learning. To know which factors are still weak and require improvement and which factors have been considered successful or strong in supporting the implementation of Vinesa. There are eight indicators used to measure the readiness of e-learning, namely the psychological readiness, sociological readiness, environmental readiness, human resource readiness, financial readiness, technological skill readiness, equipment readiness, and content readiness. However, this research focuses on one indicator that is directly related to students, namely content readiness. The research method used is qualitative research methods. The study began with a literature study on e-learning readiness. Then an indicator is set to be reduced to the items in the questionnaire. The object of research is students of Informatics in Universitas Negeri Surabaya.

Keyword: e-learning, e-learning readiness, ELR Chapnick, measurement

1. Introduction

Indonesia in early 2020 is being shocked by the outbreak of Coronavirus Disease (Covid-19) which has hit almost all parts of the world [1]. Covid-19 started in Wuhan, China (Shi, et al., 2020) and has been declared a pandemic by the World Health Organization (WHO) [2]. Various countries have implemented isolation, namely the separation of sick people with infectious diseases from uninfected people to protect people who are not infected [3]. Quarantine is also implemented, which is to restrict the movement of people suspected of having contracted an infectious disease but not sick, either because they are not infected or because they are still in the incubation period. Various countries have implemented social distancing (social distancing) which is designed to reduce interactions between people in the wider community, where individuals may be infected but have not been identified and thus have not been
isolated [4]. Indonesia spontaneously implemented policies of learning from home, working from home, and worshipping at home [5]. Higher education during the WFH period needs to strengthen online learning [6].

The implementation of online learning classes to reach a massive and broad target group, so that online learning can be held anywhere and followed for free or paid for [7]. E-learning is a system that is expected not only to replace conventional learning methods and materials but to add new innovative methods and strategies in today's learning process. The application of e-learning is a new medium that can overcome students' passive attitudes, increase enthusiasm for learning, allow direct interaction, and allow students to learn independently [8].

Various platforms can be used to support online learning. Both are managed independently by the institution using a Learning Management System (LMS) or those provided freely by third parties. Surabaya State University already has e-learning which was developed using the Moodle LMS and has been used as a form of learning called UNESA Vilearning (Vinesa). Lecturers at the State University of Surabaya in particular have used Vinesa, both in the form of uploading documents (Semester Learning Plans to lecture materials) as well as in online learning activities such as discussions, and assignment submissions.

Measurement of the readiness to implement Vinesa must be done to support the success of its development. UNESA virtual learning or abbreviated as Vinesa is a Learning Management system owned by the State University of Surabaya. Vinesa is provided to support teaching and learning activities online. Initially, vinesa was only used as an alternative in the teaching and learning process. During the Covid-19 pandemic, online learning is mandatory. Because of this, there is a demand to use vinesa as a distance learning medium.

The readiness of an organization to adopt e-learning can be defined as mental or physical preparation for the organization to experience and act in e-learning. This includes business readiness, technology readiness, content readiness, training process readiness, culture readiness, human resource readiness, and financial readiness [9]. Meanwhile, the model proposed by Chapnick [10] has 8 (eight) indicators that can be used in measuring the readiness of implementing e-learning. These indicators are (1) psychological readiness, (2) sociological readiness, (3) environmental readiness, (4) human resource readiness, (5) financial readiness, (6) technological skills (aptitude) readiness, (7) equipment readiness, and (8) content readiness. Besides, there are other models, one of the e-learning readiness evaluation models for developing countries is the Aydin & Tasci model [11].

Aydin & Tasci developed an ELR model with four factors that can measure e-learning readiness. These factors are as follows: (1) Technological factors. This factor considers ways to make the adaptation of technological innovation effective, namely e-learning in a school or organization. (2) The innovation factor. This factor considers the experience of human resources in schools and organizations in adopting innovation, namely e-learning. (3) Human factors. This factor considers the characteristics of human resources in schools and organizations. (4) Self-development factors. This factor considers the trust of schools and organizations in self-development in the application of e-learning.

Furthermore, Swatman [12] classifies six components of e-learning readiness to measure e-learning readiness that is more specific in educational institutions, namely; (1) Students' preparedness, namely the readiness of students to implement e-learning, (2) Teachers' preparedness, namely the readiness of lecturers to use e-learning facilities in learning, (3) IT infrastructure, namely the readiness of IT infrastructure which includes hardware, software, and networks, (4) Management support, namely support from institutions related to regulations, policies, and finance on the application of e-learning, (5) School culture, which is how the culture in universities is related to building student and lecturer relationships, regulations governing reward and punishment, (6) Preference to meet face-to-face, namely how the learning process takes place that allows students and lecturers to meet or the learning process online.
Aksalan and Effie [13] specifically measure readiness for teaching staff. The components are technology, people, content, and institutions. Seakow and Samson [14] use the components of the policy, technology, financial, human resources, and infrastructure in measuring e-learning readiness. This study refers to Chapnick's model which focuses on students' perceptions regarding content readiness on vinesa.

According to Chapnick [10], there are 8 (eight) indicators that can be used in measuring the readiness of implementing e-learning. These indicators are (1) psychological readiness, (2) sociological readiness, (3) environmental readiness, (4) human resource readiness, (5) financial readiness, (6) technological skills (aptitude) readiness, (7) equipment readiness, and (8) content readiness. This study focuses on students' perceptions of lecture content at LMS Vinesa. The research method was carried out by qualitative methods for students majoring in informatics engineering, State University of Surabaya. The literature study was carried out to formulate question items that would later be compiled in the form of a questionnaire.

The reason for choosing e-learning readiness as a research topic is because the development of distance learning content is something that must be done by teachers during the COVID-19 pandemic. By conducting this research, it is hoped that lecturers as providers and fillers of learning content at LMS Vinesa will know more about what should be done. Besides, it can also be used as input for the Surabaya State University e-learning team to be able to equip lecturers in managing learning content in LMS Vinesa.

The research question that we proposed are:

RQ1: The content of the course material on vinesa supports distance learning
RQ2: The maximum interaction between lecturers and students is done in vinesa
RQ3: Vinesa evaluation is easy to understand and transparent

2. Method

We applied the qualitative approach to conduct this study. We conducted phenomenological qualitative research because we expected to comprehend the profound situated social circumstance, draw patterns, and investigate the popularity of vinesa as a medium for distance learning. Phenomenology studies can be used to explore the general meaning of the life experiences of some individuals who are related to phenomena [15]. The issues of research topics were identified based on the interesting phenomenon which was happened in society. Information, theories, and previous research were conducted to establish the basic theories involved with research topics.

Respondents for this study focused on students, especially students majoring in informatics engineering, State University of Surabaya. Data were collected through a questionnaire survey. The data used for research include initial data which is useful for formulating problems and primary data used to assess e-learning readiness. Primary data were taken from the study population by distributing questionnaires to students.

3. Results and Discussion

RQ1: The content of the course material on vinesa supports distance learning
As much as 75.7% of respondents agreed that the content of learning material in vinesa was easily understood by students. Meanwhile, 18.9% of students disagreed with this. As many as 73% of respondents agreed that the content of learning materials in vinesa was easily accessible to students. Meanwhile, 18.9% of students disagreed with this statement. 62.2% of respondents agreed that the contents of learning materials in Vinesa were easy to apply in completing assignments or evaluations. Meanwhile, 29.7% disagreed with this. The responses related to this are:
Response 1: Sometimes the content of the lesson is still difficult to access because the interface from vinesa sometimes confuses students, therefore we often have to go to friends who already understand how to access it
Response 2: easier access via mobile
Response 3: Better the material with video or ppt which has sound
Response 4: IOS operating system is still not facilitated
Response 5: The very poor user interface. So there are many bugs and sometimes difficult to access

Most of the respondents stated that the content in the form of lecture material in vinesa supports distance learning. However, there are still some respondents who disagree with this. From the responses they gave, it can be analyzed that vinesa needs to make improvements to the user interface. The user interface is still monotonous and unfamiliar because it is too written instructions rather than graphical instructions. Can also display a more minimalistic arrangement of written writing, namely in the form of graphics and sound. So that students who are currently generation Z are easier to understand. Then the next analysis, there needs to be an adjustment between the appearance of the website accessed using a PC or laptop with the appearance of the website accessed using a mobile phone. It is also supported by its application on iOS.

RQ2: The maximum interaction between lecturers and students is done in vinesa
As much as 81.1% of students stated that they had no difficulty interacting with lecturers through vinesa. Meanwhile, 18.9% disagreed with this. As much as 89.2% of students stated that it was easy to ask questions to lecturers through vinesa. Meanwhile, the other 10.8% disagreed with this. As much as 78.4% agree that the instructions given by lecturers in vinesa are very clear. Meanwhile, the other 16.2% disagreed with this. The responses related to this are:
Response 1: In my opinion, there is even less interaction between students and lecturers because they only give assignments and then collect them, it's like that
Response 2: Improving the media in the interaction between students and lecturers
Response 3: There needs to be mutual understanding and understanding between lecturers and students so that better learning interactions can be created
Response 4: It is better if the lecturer is there and monitors when the learning is taking place so that if asking questions is easy
Response 5: instructions can look taboo and sometimes hesitate to ask a lot, in my opinion, it is better if the material or assignment given can explain it well

Most of the respondents agreed that the interactions that occurred between lecturers and students at Vinesa were well facilitated. Another minority stated the opposite. Their response regarding this matter was based on the assignment given by the lecturer to students, without knowing the feedback by them. So it is necessary to make media or features that can accommodate these aspirations. Lecturers are also expected to be able to monitor student activities during the course. With the hope that students can immediately ask questions or provide responses if they find difficulties or ideas on the material.
**RQ3: Vinesa evaluation is easy to understand and transparent**

As much as 78.4% of respondents agree that the evaluation technique on vinesa is easy to do. Meanwhile, the other 16.2% disagreed with this. As much as 83.8% of respondents agreed that it is very easy to evaluate vinesa. Meanwhile, the other 10.8% disagreed with this. As much as 81.1% of respondents agreed that the evaluation assessment was transparent enough. Meanwhile, the other 13.5% disagreed with this. The responses related to this are:

Response 1: The assessment is accompanied by which one is wrong and which one is correct so students can find out mistakes in the process

Response 2: I never know how many marks I got or where my wrong answer came from if told I think it will make it easier for me to learn where I haven't been maximal

Response 3: There must be an explanation regarding the correct answer

Response 4: Can display the results of each student

Most of the respondents stated that the evaluation features provided by vinesa are easy to use and transparent. Most of the others expressed their disagreement. This is influenced by the absence of a statement regarding the right and wrong positions in the answer. Besides, it is not accompanied by the correct answer. So that they can learn in the future to better understand the material.

4. **Conclusion**

The research findings out the three research questions that have been proposed which are still related to these research objectives that can be implications for vinesa can improve distance learning features in the future. The findings are:

- The user interface can be designed using graphics and sound, not just sentences
- Provided a forum for students to ask questions and provide responses from the course material given. Lecturers are expected to be able to monitor student activities during distance learning
- There is direct feedback on the results of student evaluations

Future research also can add more factors to Chapnick’s theory. User classification can be done to measure user satisfaction in all stakeholders. So that input for the development of vinesa in supporting distance learning can be felt by all parties.

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