

Implementation of Science Literacy Through E-Learning During the COVID-19 Pandemic for Student of Health Sciences Faculty of ITS PKU Muhammadiyah Surakarta

Septi Aprilia, Siti Shofiyatun, Nurdiyanti

*ITS PKU Muhammadiyah Surakarta
Universitas Sebelas Maret Surakarta*

E-mail : septi@itspku.ac.id, shof_fiia@itspku.ac.id, nurdiyantiyan@student.uns.ac.id

Abstract. The role of students in facing the challenges of global education in the 21st century during the Covid-19 pandemic must still be carried out properly. Students must be able to adapt and face the big impact of the Covid-19 pandemic, one of which is the culture of scientific literacy through e-learning. Scientific literacy is needed by students in solving problems related to lecture material and can increase their knowledge. This research is a qualitative descriptive study that aims to map the implementation of scientific literacy through e-learning on campus. To obtain research data, researchers used 3 kinds of techniques, namely interview techniques, questionnaires and documentation. Research results the implementation of scientific literacy learning through e-Learning during the Covid-19 pandemic for students of Health Sciences Faculty of ITS PKU Muhammadiyah Surakarta has not run optimally so it is necessary to reflect and improve when viewed from the planning, process and evaluation aspects. The main obstacle faced is the factor of using e-learning methods and media during learning.

Keywords: covid-19, e-learning, scientific literacy, students

INTRODUCTION

The current Covid-19 pandemic in Indonesia is still not over. Since the first case was announced on March 2, 2020 by the government through the Ministry of Health of the Republic of Indonesia, until now it still shows a surge in confirmed positive patients continues to increase. With this increase in cases, it has an impact on all aspects of people's lives, including the lecture process on campus.

The role of students in facing the challenges of global education during the Covid-19 pandemic must continue to be pursued. Students must be as "agents of change" as the golden generation of creative, innovative and character, and continue to be committed to maximizing all their potential, both soft skills and hard skills. So that students can adapt and face the big impact of the Covid-19 pandemic outbreak, one of which is by implementing a culture of scientific literacy through e-learning.

According to PISA (2010) Scientific literacy according is the ability to use scientific knowledge, identify questions and describe evidence based on related to lecture material and can increase their knowledge. This is in line with Dahtiar (2015) which states that scientific literacy is seen as important because it can help students in addressing and making decisions related to science issues in life as well as developing knowledge, skills and using science as citizens and individuals.

The scientific literacy culture movement during the COVID-19 pandemic must still be intensified through e-learning technology-based learning by the Ministry of Education and Culture of the Republic of Indonesia. As stated in the Ministry of Education and Culture Regulation Number 109 of 2013 concerning the Implementation of Distance Education or online learning in higher education (Kemendikbud RI, 2013).

But in fact, the culture of scientific literacy in students has not been as expected. Many factors are the cause of the low scientific literacy of students. According to Ashari and Hartuti (2015) suggest that one of the factors causing low literacy skills is the selection of learning resources. Meanwhile, according to Stake & Easly (in Aqil, 2018) states that textbooks are used by 90% of all science teachers and 90% of the allocation of learning time. From the two opinions above, it can be concluded that the learning process that takes place is in the form of a text book, the ability to process information in an effort to find concepts is not explored, so this can cause the mindset of students to not develop properly. Therefore, mapping the implementation of scientific literacy on campus needs to be done so

that an initial picture of the condition of scientific literacy can be obtained, especially during the Covid-19 pandemic through e-learning.

LITERATURE REVIEW

Basic Concepts of Literacy

According to literacy experts, Alberta (2009) states that literacy is not just the ability to read and write, but adds knowledge, skills and abilities that can make a person have critical thinking, be able to solve problems in various contexts, be able to communicate effectively and develop potential and participate active in social life. Meanwhile, according to Pangesti Widarti, et al (2016) stated that literacy culture plays an important role in the era of globalization. Based on the opinion above, a person's literacy ability is not only the ability to read, write but includes broader fields such as the ability to think critically, politics, be sensitive to the surrounding environment, and technological literacy as a form of demands for the development of science and technology.

Scientific Literacy

Scientific literacy comes from two Latin words, literacy, namely literatus which means letters, literate or educated and science or scientia which means having knowledge. Science is related to how to find out about nature systematically, so that science is not only the mastery of a collection of knowledge in the form of facts, concepts, or principles but also a process of discovery (Depdiknas in Mahyuddin, 2007). Meanwhile, according to the National Research Council (Depdikbud, 2017) states that the series of scientific competencies needed in scientific literacy reflect the view that science is an ensemble of social and epistemic practices common to all sciences, which frames all competencies as action. Based on some of the opinions above, it can be concluded that scientific literacy is the ability, skill, competence possessed by students in using knowledge and understanding of scientific concepts and processes to identify, acquire new knowledge, explain scientific phenomena, and draw conclusions relating to nature. based on natural changes through human activities.

E-Learning

Wadhai and Thakare (2016) stated “e-Leaning has already established its credentials and its popularity can be gauged from the fact that delivery is not restricted to just plain text but has crossed boundaries to video creating virtual class rooms via video conferencing. The introduction of a variety of technologies has made it possible to convert it from impersonal to highly interactive medium of pedagogy (the art and science of teaching)”. Meanwhile, according to Elfaki et al (2019) stated that e-learning courses are specifically delivered via internet to somewhere other than the classroom for enhancing or supporting learning. It can be concluded that e-learning in a broad sense includes learning carried out on electronic media (internet) both formally and informally. Formal e-learning, for example, is learning with curriculum, syllabus, subjects and tests that have been arranged based on a fixed schedule has been agreed upon by the relevant parties (e-learning managers and learners themselves). Informally using simpler interactions with facilities such as video conferencing that can be done anywhere, anytime and with any dress code just by sitting in front of a computer, laptop, gadget, or smartphone.

RESEARCH METHOD

This research is a qualitative descriptive study, namely research in which data is collected and expressed in the form of words and pictures, the words are arranged in sentences, such as sentences from interviews between researchers and informants. This research was conducted at the Faculty of Health Sciences, ITS PKU Muhammadiyah Surakarta. The data collected and analyzed are in the form of qualitative data, namely data related to scientific literacy. In addition, data sources are obtained from observations through e-learning and related documents. Data collection techniques in this study include: documentation, direct observation, and interviews (deep interviews). In this study, two data triangulation techniques were used to check the validity of the data. In accordance with Moleong (2012: 191) the data analysis used to obtain research conclusions in this study is data

reduction from the results of data triangulation, comparing non-reduced data, and drawing conclusions by linking non-reduced data.

RESULT AND DISCUSSION

Data on the implementation of science literacy learning in the Undergraduate Nursing Study Program of Anesthesiology and Nursing Diploma Study Program, Faculty of Health Sciences ITS PKU Muhammadiyah Surakarta is divided into three stages, namely planning, implementation, and evaluation. At the planning stage, which is reviewed from the lesson plan document developed by the lecturer with aspects of format, language, and content. At the implementation stage, it is seen from the process of implementing learning in class through e-learning with aspects of initial activities, core activities and closing. In the evaluation stage, by reviewing the evaluation document developed by the lecturer, it includes format, language, content and weighting. In full, each of these data is explained as follows:

Implementation data in terms of planning

The planning data taken are lesson plan level 1 and level 2 of Anaesthesiology and Nursing diploma. Triangulation data of lesson plan is carried out in stages by triangulating source 1 (lesson plan document), triangulating source 2 (informants) then the conclusions are both triangulated by method. After being triangulated, the linearity of the lesson plan data is obtained as follows.

TABLE 1. *Data on the Implementation of Literacy Learning in terms of Planning Aspects*

No	Aspect	Outline of Research Results
1	Format	The format used for the lesson plan is the same, because Study Program of Anesthesiology and Nursing Diploma are under the same faculty and the format is based on the KKNI curriculum (Indonesian National Qualifications Framework).
2	Language	In terms of linguistic aspects, the lesson plan developed by the lecturers of the Anaesthesiology and Nursing diploma Study Program is very easy to understand, so that the lecture juts follow the step in finding the concept and it is easy to implement well.
3	Content	If you look at the contents of the lesson plan developed by the lecturers of the Anaesthesiology and Nursing Diploma Study Program, it already refers to a contextual learning process and active learning. However, in the stages the lecture sometimes it is still not optimal in the implementation of the lesson plan.

Implementation data is reviewed from the lecture process

To fill this implementation data used research instruments in the form of field notes and check list sheets. Due to the current pandemic situation, lectures are conducted online. Then the notes were triangulated and the following conclusions were obtained.

TABLE 2. *Learning Implementation Data in terms of the Classroom Learning Process*

No	Aspect	Result
1	Initial activity	In this initial activity, the activities carried out by the lecturers were the same, namely greeting and conveying the purpose of the lecture. There is one lecturer who does not explain the learning objectives and apperception, but directly provides lecture material and immediately gives assignments.
2	Core	In the core activities of lectures using e-learning during the

	activities	Covid-19 pandemic, it illustrates that the process carried out by most of the Lecturers in the Anesthesiology and Nursing Diploma Study Program is not in accordance with the lesson plan stages. Lecture activities that take place emphasize the provision of material (lectures) so that at this stage it can be said that students' scientific literacy does not appear. Students seem passive and mastery of student concepts is not optimal. There are some lecturers who actually do not do lectures but directly assign assignments to students as a substitute for meetings.
3	Closing	In closing activities, on average, lecturers always close with assignments. Strengthening and reflection activities do not appear in the closing activities. So that students' scientific literacy skills in terms of giving conclusions are less stimulated.

Implementation data is reviewed from the evaluation process

The final stage of this research is to review the implementation of learning from the evaluation process. In the aspect of format, most of the lecturers use Google Classroom as a management for collecting learning assignments using e-learning and using Learning Management System (LMS) of ITS PKU Muhammadiyah Surakarta. Lecturers give assignments in the form of papers, problem solving/clinical cases and description questions. The linguistic aspect shows that the test evaluation language uses language that is easy for students to understand. In terms of content, the content on the evaluation sheet used by the lecturer is easy for students to understand. While in the aspect of weighting, the lecturer has done the weighting for each item/task given to students in the form of scores or in the form of an assessment sheet of observations.

Based on the analysis of the results obtained, it shows that the implementation of scientific literacy for students of the Health Sciences Faculty of ITS PKU Muhammadiyah Surakarta has not been maximized. Scientific literacy can be improved by adding stimulus from students and study programs. This is in line with the presentation of Limei Duan et al. (2013) that an effective step to improve scientific literacy is to build an educational environment with good science, and carry out science and technology activities that are rich and colorful. In addition, the role of the media in this case e-learning which is used as a learning medium during distance learning also needs to be optimized. Learning media is an influential factor in student scientific literacy (Rusilowati A: 2018). Therefore, the synergy of increasing student scientific literacy during lectures needs to be carried out by all relevant education components.

CONCLUSION

The conclusion of the research is the implementation of scientific literacy learning through e-learning during the covid pandemic in Health Sciences Faculty students of ITS PKU Muhammadiyah Surakarta have not run optimally. So it is necessary to reflect and improve when viewed from the aspects of planning, process and evaluation. The main obstacle faced is the factor of using e-learning methods and media during learning.

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