An Assessment of Teachers’ Readiness for Online Teaching

Sri Suryanti¹*, Deni Sutaji², Toto Nusantara³, Subanji³

¹ Mathematics Education Department, Universitas Muhammadiyah Gresik, Indonesia
² Informatics Department, Universitas Muhammadiyah Gresik, Indonesia
³ Mathematics Department, Universitas Negeri Malang, Indonesia

* srisuryanti@umg.ac.id

Abstract. Teachers in online learning play an important role in success or failure in the online learning system. Their ability to design learning content in LMS affects the quality of information presented, the interaction in learning and student satisfaction during lectures. This study aims to check the readiness of teachers at the Universitas Muhammadiyah Gresik in online learning by using two measuring instruments, namely the results of monitoring the completeness of the content of courses in LMS as well as a survey conducted on 209 teachers using a questionnaire of teacher confidence in TPACK consisting of 11 items. The response of 209 lecturers was analyzed descriptively from data obtained from online surveys, while rubric completeness of courses using the category of completeness with a scale of 1-5. The assessment results of the completeness of the content of the courses showed that 57% of courses had complete content, 14% of courses had fairly complete content, and 29% of courses had incomplete content. While the survey results on teacher readiness show TPK component are believed to be the essential component in online teaching readiness.

Keywords: Assessment, Teachers’ Readiness, Online Teaching, Content Course, TPACK

1. Introduction

Online learning is a learning innovation in the 21st century because it utilizes communication, multimedia, knowledge transfer without limited space and time. Universitas Muhammadiyah Gresik has been implementing online learning since 2017, with 151 courses held online; along with the development, there are currently 1329 courses held online. The application of online learning is very supportive of learning process activities. The online learning system uses LMS (learning management system) to improve the quality of teaching by managing the content of courses provided to students. The study results have identified related to the dimensions of LMS, namely the software and technology of the LMS itself, the content and structure of the course, and the interaction between teachers and students [1]; [2]; [3].

Teachers in online learning play an important role in success or failure in the online learning system. Their ability to design learning content in LMS affects the quality of information presented, the interaction in learning and student satisfaction during lectures [4]; [5]. Teachers, as key LMS users who play a significant role in the success of online learning, require them to have good readiness in providing online learning content, as well as the ability to integrate technology for e-learning success [6]; [7]; [8]; [9].

Readiness in online learning is defined as how users are ready to implement their online learning experience in LMS [10]; [11]; [12]; [13]. Readiness in online learning has been widely researched in Australia [14], Indonesia [15], Hongkong [16], Malaysia [17], Taiwan [18]; [19], Turkey[20], and USA [21]; [22]; [23]; [24]. The World Economic Forum has assessed 142 countries on their e-learning...
readiness in terms of infrastructure and affordability; thus, universities in several Countries, Barbados, Jamaica, Trinidad, ranked 51st, 62nd and 43rd, respectively. This ranking shows some aspects of online learning readiness but does not show the whole aspect of education. Therefore, further research is needed to evaluate the success of online learning [10]; [25].

Some research on online learning for instructors more focused on the use of e-learning in learning; for example, Arabaugh [26] researched the characteristics of online learning at one of the U.S. universities, then [27] surveyed teachers at universities in the Netherlands about their reasons for using technology in learning. Hrtoňová, Kohout, Rohlíková, and Zounek [28] researched the factors that influence teachers in receiving e-learning. However, there is still little research exploring how readiness teachers in universities are in online learning.

Recently, researchers, especially in Indonesia, have explored the readiness of mathematics students in online learning [29]. The results of their research showed that the four components of online learning readiness, communication, and technical competence obtained a higher average than the other two components, namely the attributes of online courses and time management. We can observe that technical competence is a component that is considered necessary by students in the readiness to learn online.

Student readiness in online learning is undoubtedly different from teachers’ readiness in teaching online [30]. However, the research results related to essential components of students in online learning are certainly a consideration for teachers in their readiness to teach online. In terms of technical readiness of teachers, evaluations have been conducted based on technological skills and their pedagogical training in using LMS [31]; [32]; [8]. There is a particular need to research further related to the readiness of teachers in online learning based on other dimensions, including the completeness of the content of courses that have been developed by teachers, as well as from the dimension of teacher confidence in their TPACK by adapting the TPACK self-efficacy scale instrument [33]. So the purpose of this research is to assess the readiness of teachers in online learning, especially teachers in higher education in East Java Indonesia, with this research question formulated as follows:

a. To what extent does the completeness of course content affect the readiness of teachers in online learning?
b. Of the three-dimensional TPACK self-efficacy scale, which dimensions are believed to be most important in online learning readiness?

2. Methodology

There are two methods that we use in assessing the readiness of educators in online teaching. First, we use an assessment instrument on the completeness of the content of courses in the LMS (www.Spada.umg.ac.id) and 1329 Courses from various disciplines. Second, we use the TPACK self-efficacy scale instrument that we distribute from January to March 2021 through google form to assess educator readiness for online teaching. Educators who participated as many as 209. Educators are fully informed of the purpose and purpose of the research before they fill out a questionnaire. As of March 30, 2021, all data were identified before being analyzed; the data set consisted of 209 educators from 32 study programs at the Universitas Muhammadiyah Gresik, with an average age of 41.5 years, has an average teaching experience of 9.3 years, as well as from various disciplines (social humanities, natural sciences, applied sciences, engineering, and health).

Teachers reported the average experience in online learning was three years in total, but only 23.5% taught online before the covid-19 pandemic. The move to online teaching is mandatory for 67.1 teachers but not compulsory for 23.4% of teachers, and the remaining 9.5% expect a shift to online teaching. On average, teachers are given about six weeks to prepare online teaching (during the transition period between semesters).

TPACK Self-Efficacy Scale

In this instrument, three dimensions become the focus, namely TPCK, TPK and TCK, to represent online teaching readiness related to pedagogical competence and content [34]; [35]; [36]; [37]. The TPACK self-efficacy scale instrument has been validated [33], which is tailored to the context of
online teaching. Among the items in the TPACK self-efficacy scale is 'I believe in my abilities...' (e.g. implementing the curriculum in online learning), which is a total of 11 items, with details of 3 items for TCK, four items for TPK and four items for TPCK. Participants responded with agreements ranging from points 1 (strongly disagreed) to 5 (strongly agreed).

Furthermore, the data analysis procedure uses descriptive statistics to present completeness data of courses and data on the average assessment of teacher readiness in teaching online in each dimension.

3. Result and Discussion
3.1 Assessment of Course Content Completeness
A total of 1329 courses were registered and held online, evaluated using the completeness evaluation instrument of the courses developed by the research team. The entire course is spread over 32 courses. The evaluation results are presented in figure 1 below:

Figure 1. Results of evaluation of the completeness of the content of courses

Figure 1 shows that 57% of courses have complete content, 14% of courses have fairly complete content, and 29% of courses have less complete content. This shows that teachers' readiness to teach online, judging by the completeness of the content of their courses, can be said that as many as 71% of teachers have an excellent readiness to carry out online teaching.

3.2 Teacher Readiness Assessment with TPACK Self-Efficacy Scale
Furthermore, teacher readiness in teaching online is done using the TPACK self-efficacy scale to assess teachers' confidence in their TPACK. The results of the assessment are presented in table 1 below:

| TCK                                                                 | Importances | Confidence |
|----------------------------------------------------------------------|-------------|------------|
| My ability to use technological representations                      | 4.05        | 4.25       |
| My ability to implement district curriculum in an online environment  | 4.58        | 4.49       |
| My ability to use various courseware programs to deliver instruction | 4.12        | 4.17       |
| Mean                                                                | 4.25        | 4.30       |
| TPK                                                                 |

Table 1. An assessment results of teachers’ TPACK
Based on table 1, from the three dimensions of TPACK assessment, namely TCK, TPK and TPCK, for the category of importance, each obtained an average score above 4.00, with a breakdown of TCK 4.25; TPK 4.73; and TPCK 4.66. Then, from the teacher's confidence in their TPACK, the three components as a whole have an average of above 4.00. Each score averages for each component, 4.30 for TCK, 4.34 for TCK and 4.34 for TPCK.

The main purpose of this study is to assess the readiness of teachers in online teaching based on the completeness of the content of the course and their perception of readiness to teach online. First, an assessment of online teaching readiness is based on evaluating the completeness of the content of courses developed by teachers. From the evaluation, only 54% of courses that have been well developed in LMS, as well as 14% of courses have complete content, meaning that for these two categories of content completeness can be said that teachers have good readiness, and the remaining 29% of teachers do not have the readiness to teach online. This needs attention, especially for college managers. The completeness of course content in LMS is critical in supporting the success of online learning. Online learning is proven to build a comprehensive and interactive communication thinking pattern for students, lecturers and all academicians and become an alternative learning method that is quite effective and efficient in terms of implementation and evaluation of learning. With the development of complete course content, students can learn independently, understand the material and increase interest and motivation to learn, especially towards the course.

Furthermore, if the evaluation of the completeness of the content is associated with the results of the teacher's assessment of their TPACK, there are interesting findings. First, out of the three components of the teacher's TPACK assessment, TPK dimensions scored highest for the category of interest, meaning that teachers agreed that TPK components are considered the most important for online teaching readiness. Of the four TPK assessment items, teachers believe that creating an online learning environment that allows students to build new knowledge and skills is crucial (average score of 4.97). However, the teacher's confidence assessment for this item is below the interest score, although it is still above 4.00. This shows that teachers firmly believe that these skills are fundamental to have, but they lack the confidence to have an online learning environment that allows students to build new knowledge and skills.

Of the three components of the teacher's TPACK assessment, all three scored almost the same average for the teacher confidence category, which is at a high level (the average score is at a score of 4.30). While based on the category of interests, for two components, TPK and TPCK show a very high perception (the average score is above 4.5). This difference in perception is not too far away, but it becomes essential to be attentive. Teacher confidence represents their readiness to teach online. In general, if teachers express high confidence, teachers are more likely to feel confident and optimistic about online teaching and learning and will receive targeted support to develop their online teaching [38]; [39]; [40]; [41].
4. Conclusion

There has been a rapid transition from face-to-face learning to online learning recently, resulting in limited time for teachers to improve their skills and readiness. So the role of college managers is crucial to provide support to online learning and teaching and support teachers' readiness, especially concerning their ability to design learning content. There are differences in teachers' perceptions regarding their beliefs regarding the importance and confidence to teach online. The findings of this study provide important insights related to teacher readiness, which can be a reference for institutions and teachers themselves to support the development of pedagogy and online teaching conducted.

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