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VOCATIONAL TEACHER ACTIVITIES IN THE USE OF TECHNOLOGY DURING THE COVID 19 PANDEMIC

Nizwardi Jalinus, Sukardi, Syahril, *Syaiful Haq, Rizky Ema Wulansari

Lecturers of the Faculty of Engineering - Universitas Negeri Padang, Indonesia

*E-mail: syaifulhaq@ft.unp.ac.id

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ABSTRACT

Education has had a big impact on covid-19, especially vocational education because practical activities are the main part of learning. Humans can not do their normal activities during the pandemic, as well as activities in vocational education. The best solution given by the government is online learning, this is a challenge for vocational teachers. This research was conducted on vocational education teachers in Sumatra Barat Indonesia, examining their activities in the use of technology during the pandemic. Samples were taken from six cities; Padang, Bukittinggi, Tanah Datar, Payakumbuh, Agam, and Pariaman. This result shows that there are many variations of teacher activities in carrying out learning during the pandemic using technology and there are many teacher's efforts to train themselves by training their self to use information technology in online learning, but it is not easy for them. Teachers are more dominant in using computers and smartphones, and using whatsApp and youtube applications to support the implementation of learning during the pandemic. Teachers must continue to adapt and innovate in online learning using hardware technology as well as the use of offline and online software applications

Keywords: Competence, Vocational teacher, Technology, Pandemic.

INTRODUCTION

Technological changes in the modern era provide challenges, threats, and opportunities to human life (Schwab, 2018; Jambunathan, 2020), then humans should be able to see this well and in different perspective. This condition touches all aspects of life today. This is not a problem, but a condition that must be faced together, especially in view of education which has a central role in human life because humans cannot be separated from education. So, it is necessary to explore and analyze together the factors related to education (Sukardi et al., 2019; BPS, 2020). The development of technology and the Covid-19 pandemic that has occurred has opened up another perspective for modern humans. This change in perspective begins with the emergence and development of the term industrial revolution 4.0 and its characteristics. The large part affected covers economic, health, social, cultural aspects, and includes education (Jambunathan, 2020; Dong et al., 2020).

Changes in the situation that occur must not weaken education because it is a great asset that must be maintained and must continue anytime, anywhere. Evidently, the pandemic limits direct human interaction due to various government policies to break the pandemic, but education can be done online. However, there are many criticisms about online learning, especially in vocational education (Fonseca, 2018; Herliandry & Suban, 2020). Teachers are an important part in implementing the educational curriculum with the main requirement that they have standardized competencies to be able to work according to their

functions (Haq & Giatman, 2019). In the midst of the dilemmas and challenges of today's conditions, teacher competence is a basic concern of society. Teachers must also have expertise in using technology in addition to their main competencies as professional teachers, such as pedagogic competence, personality competence, social competence, and professional competence.

Technological developments that occur today cause teachers to have a choice in using learning tools which can be divided into three main parts, such as; hardware, offline software, and online software. These three points cannot be separated from today's computerized life, even most modern humans already have smartphones that can help them in their activities, as well as teachers.

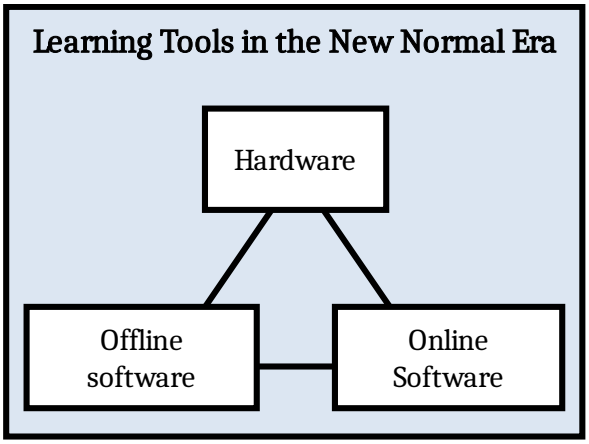


Fig 1. Teacher learning tools

In Fig 1 it can be seen that the learning tools are divided into three, namely hardware, offline software, and online software. the three parts are connected by a line which means that they are currently interrelated. Therefore, it is necessary to reveal the activities of teachers in using technology during the pandemic.

METHODS

This survey research was conducted with a descriptive quantitative approach (Sugiyono, 2012; Haq & Giatman, 2019). This study reveals the activities of vocational education teachers in their learning using technology for the Sumatra Barat region. This study uses a survey method by distributing questionnaires to all vocational school teachers in Sumatra Barat in collaboration with the Sumatra Barat Provincial Education Office. This research began by asking permission from the head of the education office in Sumatra Barat, then meeting with each school principal who was the target of the research. The sample schools taken were selected based on two main criteria, namely vocational schools in engineering fields such as civil engineering, electrical engineering, mechanical engineering, and automotive engineering. and vocational schools in non-technical fields such as the culinary arts department, cosmetology department, and the hospitality department.There were six cities as sampel, that are Padang, Bukittinggi, Tanah Datar, Payakumbuh, Agam, and Pariaman.The sample of this research is 463 vocational teachers spread over six cities. The research instrument was tested at SMK N 5 Padang and SMK N 2 Padang with the results of the validity of r arithmetic being greater than r table (0.26/Pearson collection) and the reliability of Cronbach's alpha 0.939.

RESULTS AND DISCUSSION

3.1 Results

After collecting data from six regencies/cities in Sumatra Barat, the following results were obtained.

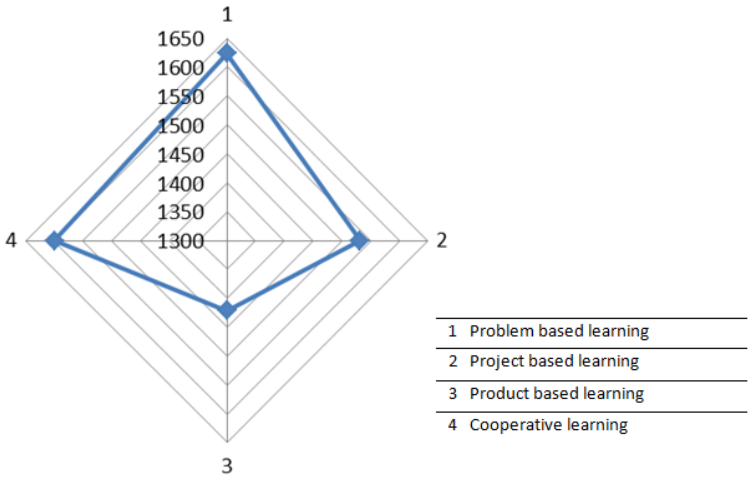


Fig 2. The use of learning models used by teachers during the pandemic

Based on Fig 2, It was found that during the pandemic, vocational school teachers in Sumatra Barat were more dominant in using two learning models, such as the problem based learning model and the cooperative learning model. Furthermore, vocational teachers use project-based learning models, the least used is the product-based learning model. These four types of learning models were chosen as assessment indicators because they are all recommended learning models from the Indonesian government.

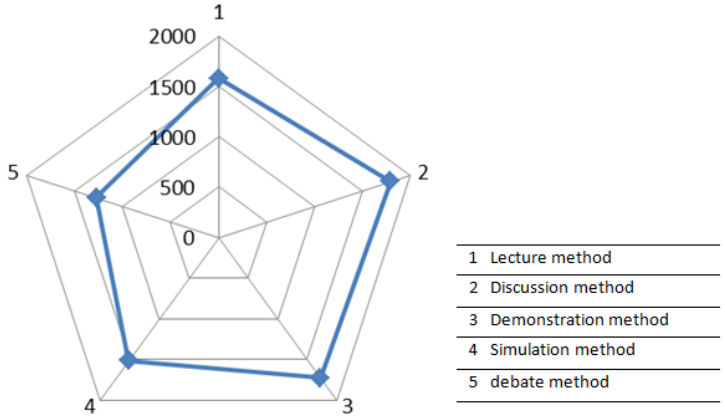
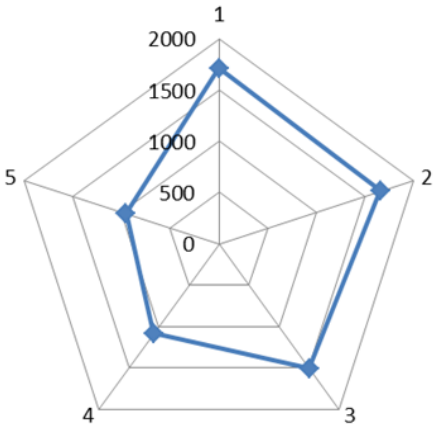


Fig 3. Use of learning methods during the pandemic

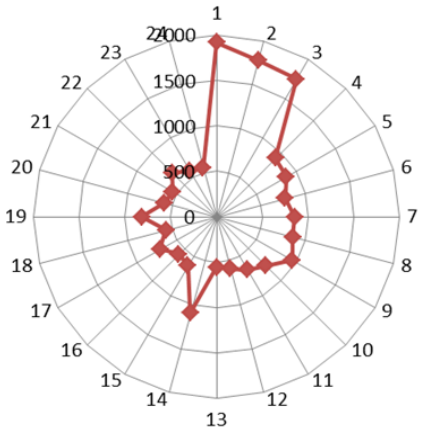
Based on Fig 3, It was found that during the pandemic, there were five learning methods used by vocational teachers in learning. The most dominant learning methods are the discussion method and the demonstration method. After that followed by the lecture method and simulation method. the least used method in learning is the debate method.



1	Computer/ PC
2	Smartphone
3	LCD Projector
4	Smartboard
5	Digital equipment

Fig 4. Use of Hardware Technology during the pandemic

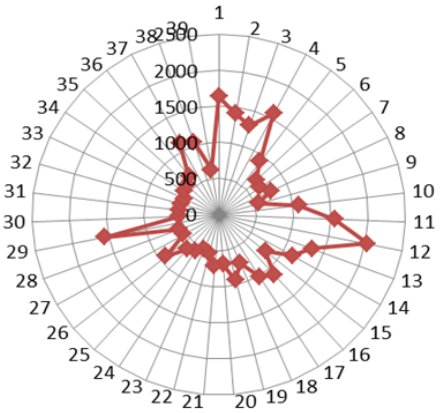
Based on Fig 4, assessment of vocational teachers in the use of hardware as learning media such as the use of computers, smartphones, LCD projectors, smartboards, and digital equipment. Sumatra Barat vocational teachers are more dominant in using computers as hardware in learning during the pandemic. after that the vocational teacher uses a smartphone and an LCD projector. in the fourth part there is a smartboard and the last part is the use of digital equipment.



1	Ms. word	9	Paint	17	Camstudio
2	ms. excel	10	autoCAD	18	Mendeley
3	Ms. power point	11	SketchUp	19	Kinemaster
4	Ms. project	12	Solidwork	20	Inventor
5	Ms. access	13	Lumion	21	Catia
6	coreldraw	14	Adobe Reader	22	mastercam
7	Photoshop	15	SPSS	23	Matlab
8	nitro	16	SAP 2000	24	Dev-C++

Fig 5. Use of offline software during the pandemic

Based on Fig 5, the use of offline software when learning during the pandemic, there are 24 offline applications or offline software commonly used by teachers. Sumatra Barat vocational teachers are more dominant in using Microsoft as a learning medium during the pandemic. followed by the use of Microsoft Excel and Microsoft PowerPoint. after that followed by the use of Adobe Reader, Paint, and Microsoft Project. In addition, there are offline software applications that are also commonly used, such as Microsoft Access, Corel Draw, Photoshop, Nitro, Camstudio, and Kinemaster. Of these 24 applications, the least used are Lumion, Inventor, and Matlab applications.



1	Youtube	14	Telegram	27	Kipin
2	Zoom	15	Twitter	28	Meja Kita
3	Google meet	16	Firefox	29	Google classroom
4	Gmail	17	sekolahmu	30	icando
5	Opera	18	Cisco webex	31	Cerebrum
6	Java	19	Ruang guru	32	indonesiaX
7	Bing	20	Brainly	33	NF Juara
8	Cloud	21	Edmodo	34	Quipper
9	Ebsco	22	Snapask	35	Zenius
10	Yahoo	23	EdX	36	Microsoft Edge
11	Google drive	24	Classting	37	Elearning
12	whatsApp	25	Kelas pintar	38	Akun Guru Belajar
13	Instagram	26	Rumah belajar	39	Canva for education

Fig 6. Use of online software during a pandemic

Based on Fig 6, the use of online software when learning during the pandemic, there are 39 online software applications that are commonly used by teachers. The most widely used/dominant application is WhatsApp. After that, Vocational teachers in Sumatra Barat often use Google Classroom, YouTube, and Gmail. followed by the use of the Google Drive, Zoom, and Google Meet applications. Vocational teachers also often use Instagram and Telegram applications. Vocational teachers in Sumatra Barat use the yahoo, kando, cerebrum, indonesiaX, NF champion and quipper applications at least.

3.2 Discussions

Implementation of learning during the pandemic is not easy for teachers and students, especially in vocational education that carries out practical learning. Vocational teachers are asked to be more creative and have innovations in learning by using technology media, especially during the pandemic. This research has revealed the conditions and activities of vocational teachers in using technology during learning, but not only that the teaching activities of vocational teachers are also viewed in terms of teaching methods and teaching models used during the covid-19 pandemic.

The use of learning models that are often used by vocational teachers in Sumatra Barat is more dominant using problem-based learning model and cooperative learning model. After that, it was followed by a project-based learning model and product-based learning. The application of problem-based learning during the pandemic shows that teachers try new variations by presenting problems in learning to revive learning activities during the pandemic. Vocational School teachers in Sumatra Barat rarely use product-based learning models during learning during the pandemic.

There are four dominant learning methods used by vocational teachers during learning during the pandemic, namely the discussion method, demonstration method, lecture method and simulation. The method that is rarely used is the debate method, while the most frequently used is the online discussion method. This shows that in a pandemic situation learning can still be done in the form of discussions.

Vocational teachers in Sumatra Barat have used computers in general for the implementation of learning during the pandemic. Followed by the use of smartphones and LCD projectors. Hardware that is rarely used is smartboard and digital equipment.

Vocational teachers are more dominant in using offline applications such as Microsoft word, Microsoft excel, Microsoft power point as learning media during a pandemic. After that, it was followed by adobe reader, nitro, coreldraw, and photoshop applications. The

use of Microsoft word as an offline application that really helps teachers in carrying out learning during a pandemic.

Using online applications, vocational teachers are more dominant using the Google Classroom and WhatsApp applications. Followed by the use of googledrive, youtube, and gmail. In the third row followed by the application zoom, google meet, instagram, and telegram. The use of whatsaap can be used via a computer and is easier if through a smartphone. This shows that the interaction of teachers and students in learning during the pandemic can be done via smartphones. This activity is certainly very helpful for teachers and students.

Based on the findings of this study, it was found that vocational teachers in Sumatra Barat were more dominant in using problem-based learning models and using online discussion and demonstration methods. Vocational teachers are more dominant in using offline applications such as Microsoft word, Microsoft excel, and Microsoft power point as learning aids. Besides that, teachers are also more dominant in using online applications such as WhatsApp and Google Classroom in interacting with students during learning during the pandemic.

CONCLUSION

The implementation of learning in vocational education during the pandemic can still be done with maximum efforts. Teachers began to adapt using a variety of problem-based learning models and various learning methods such as online discussions. Teachers mostly use offline applications such as Microsoft word as a media to support the implementation of learning. Teachers also have the initiative in using various online applications such as whatsapp to interact with students. This shows that vocational teachers in Sumatra Barat have tried their best so that learning continues to take place as evidenced by a variety of vocational teacher learning activities using technology during the pandemic.

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