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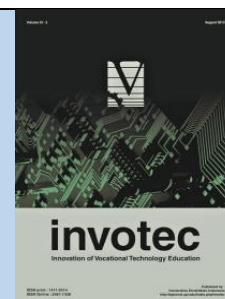Innovation of Vocational Technology Education

The Use of the Internet for Learning in Vocational High School

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A R T I C L E   I N F O

A B S T R A C T

The internet continues to interact with almost every aspect of life, teachers will have more choices to utilize the Internet into the learning process. This study aims to determine the use of the internet by teachers in vocational high schools based on their age. The results of the study were obtained from interviews with teachers. Data from interviews were processed using qualitative methods. The results of the study describe that teachers use the internet to support their learning process. The findings obtained in this study are that older teachers have conducted software development training, while younger teachers have not yet attended training, attracting younger teachers to be more skilled in internet use than older teachers.

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1.   Introduction

The internet is a source of rapid dissemination of information to the wider community and goes beyond time and space. People have started to access all types of information easily on the Internet and also use it for social, educational and entertainment purposes. The internet is a good channel for increasing public investment (Peng & Chan, 2018). The effect of digital technology is to moderate the main role of job satisfaction, the impact is stronger, or weaker than internet usage (Castellacci & Viñas-bardolet, 2019). Information technology has increased the flexibility and speed of information and knowledge acquisition and has shifted the way students engage in learning activities. The internet brought significant changes in teaching and learning (Feng et al., 2019). Adult environment and good thinking play an important role when supporting young people with intellectual disabilities in the use of the Internet and social media (Molin, Sorbring, & Löfgren-Mårtenson, 2015). As educators must support trainees in using the Internet and developing educational programs to overcome problems and challenges in using the Internet both in the form of literature and our own (Childs, Sorensen, & Twidle, 2011). With the internet can expand the information needed by teachers

as a basis for knowledge development, improve the efficiency of the learning process as well as with the Internet can foster lifelong learning (Chuang, 2015). Digitalization and the Internet have big consequences on training which must consider that teachers are not simple users, teachers play an important role in developing resources for teaching (Brahim et al., 2014). The use of the internet along with other media such as television, radio, and newspapers differs depending on the type of internet connection, and teenagers not only use the internet but other types of media to meet specific objectives related to the internet (Jung, Lin, & Kim, 2012). Intergenerational transfer of Information Technology (ICT) skills from children to adults is greater, where parents depend on children to do online tasks for them (Galperin & Arcidiacono, 2018).

In recent years, internet literacy can facilitate teachers in teaching and also strengthen their confidence in teaching. In addition, teachers are able to develop different teaching strategies when teaching students using the internet (Chiu et al., 2019). Other research suggests that the Internet clearly has the potential to support teaching in this field, but this consideration poses further challenges for us as educators (Childs, Sorensen, & Twidle, 2011). Though the internet can be used for educational purposes with direction by the teacher positively (Yilmaz & Orhan, 2010). The productivity of the use of the internet in education is reflected in the fact that students can learn easily and they are willing to accept assignments with new technology (Mura & Diamantini, 2014). Resources embedded on the internet can be used to help teacher preparation and presentation of content knowledge to students by taking the latest information about related content knowledge and finding various resources for their teaching (Tzuo, Toh, & Liang, 2015). Research that has been done states that teachers are not ready to use the internet in education (Stošic & Stošic, 2015), as well as in research Machin, McNally and Silva stating that it is difficult to build relationships between teachers and the internet in the learning process (Machin, McNally, & Silva, 2007). However, previous research did not explain the clear differences between older educators when teaching compared to younger educators in accessing and using the Internet in supporting the learning process.

This study is focused on knowing the extent to which teachers use the internet to support their learning, the learning process, knowing the intensity of internet use when using it and how the internet is used in daily work by a teacher in education. Every aspect of people's lives cannot be separated from the use of the internet, including the world of education. The importance of technology in the classroom is to enhance the effective learning of students in the classroom. It is clear that older teachers are not sure how to best use the internet to improve their learning. The hope is that all teachers can be skilled in utilizing the promising technology available.

2. Context and Review of Literature

2.1 Internet

The internet began in August 1962 which was first proposed by J.C.R. Licklider from MIT (Institute of Massachutts Technology). Internet or Internetworking is generally defined as the largest computer network in the world that connects millions of computers spread all over the world (Intranet, Wide Area Network, Metropolitan Area Network, Personal Area Network, etc. Together with all computers, connected devices (Smartphones, Tablets, Switches, routers, hubs and other connecting devices), as well as the computer itself, into one computer network container.The internet can connect all computers even though they are located in different places.The internet can also be interpreted as a global network connection around one million computer network organizations to more than two thousand continental countries (Rainer et al., 2014). The Association "Association of Colleges and Research Libraries (2010)" defines Internet literacy as a person related to the use of computers, software / applications, databases, and other technologies to achieve certain goals.

Time spent using e-mail and browsing online has increased significantly from year to year, various types of Internet use have been associated with positive and negative effects, dysphoric symptoms have been linked to several types of internet use such as shopping, playing games, or doing research, the conclusion drawn from this study is that the use of the Internet is one of the main factors influencing students' academic performance and social life (Chuang, 2015). Nowadays the use of the Internet is increasingly widespread, not only in developed countries, but also in many developing countries, including Indonesia, India and China. Challenges inherent in using the internet for academic purposes Much work has been invested in exploring how users in general, and students in particular, find and evaluate Internet resources, often offered arbitrarily. Although time spent on people in general for online access can be very productive, the use of compulsive internet can be a bad influence on life, work and relationships in the family. If your child or your child feels more comfortable with friends online than with friends in the real world, or you cannot refrain from playing online games or unlock your smart phone or other gadget, maybe you or your children are already using the internet too many (terms: internet addiction) (Karaseva, 2016). Internet usage is one of the influencing factors academic performance and social life of students. The number of hours spent on the internet will affect students' social lives unless the internet is used for learning / academic purposes (Soegoto & Tjokroadiponto, 2018). Figure 1 show the internet utilization environment.
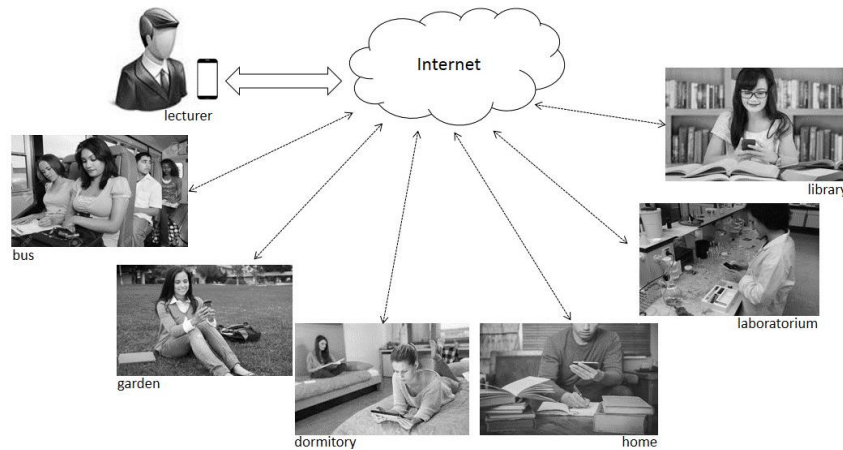
Figure 1. Internet utilization environment (Umam, Mardi, & Hariadi, 2017)

2.2 Internet as a learning resource

The increasing use of technology in teaching and learning has led to expansion in the production and dissemination of digital content. One of the skills that must be possessed in the world of education is information technology literacy skills. In developing learning the use of information and communication technology at this time should be optimized. By using digital technology, communication facilities and / or networks that are appropriate for accessing, managing, integrating, evaluating and creating information to function in a knowledge economy. In addition, by using technology as a means for research, regulation, evaluation and delivery of information, and have a basic understanding of ethical / legal issues surrounding access and use of information (Umam, Mardi, & Hariadi, 2017). Internet technology is one part of information and communication technology that has long been developed. The rapid development of the Internet has changed many aspects in the process of computer data communication, after the Internet network has been transformed into a global network, many new applications have developed to support the effectiveness and flexibility of data crossing in the Internet network, and the Internet has changed into a topic that is always up to date to be discussed at the level of research and lecture material in universities throughout the world. This rapid change eventually changed the pattern of the use of the Internet by universities, which were originally only used for research, to become a means to publicize the results of the research, and finally how to use this network as a means in the educational process. Some facilities on the Internet that are often used in learning such as Search Engines, Emails, Mailing Lists, Blogs, Web Learning, Group Chat, Social Media, CMS (Content Management Systems), and so on (Mura & Diamantini, 2014).

With the facilities provided, it can change certain students to achieve their goals. With the development and implementation of the Internet in education two aspects of E-learning have emerged: traditional and personal. While traditional E-learning is already a one-to-many learning concept, the benefits of the internet in learning can be personalized one-to-one or many-to-one and independent learning while students can learn independently (Kurilovas, Kubilinskiene, & Dagiene, 2014).

Internet is used as a tool for (Brahim et al., 2014):

- Documentary research on the history of mathematics concepts, texts and pedagogical guidelines on discipline.
- Communication between teachers, between teachers and students and between students.
- To provide, operate and participate in the production of online resources.
- Sharing digital resources for courses, scenarios and simulations.
- Learning extension outside class through digital working environments (ENT).
- The networking of teachers and students.

Learning platforms using the internet will produce various benefits (Kurilovas, Kubilinskiene, & Dagiene, 2014) :

- help meet individual learning needs and encourage collaboration,
- provide all learners and teachers with access to rich, sub- ject-related, interactive content, appropriate to their needs,
- enable more engaging models of learning for disaffected learners, and alternative models for those not in school,
- create an open and accessible system available to learners and families beyond school and out of normal school hours,
- enable assessment for learning,
- promote communication and collaboration within and beyond the institution,
- enable schools to gain best value, with a reduced technical burden.

2.3   Qualitative methods of content analysis

In general qualitative studies that data are based on 1 to 30 informants (Fridlund & Hildingh, 2000). However, the sample size must be determined based on the information requirements so that research questions can be answered with sufficient confidence (Krippendorff, 2018; Patton, 2014). The concept unit of analysis refers to a sample, and the researcher must determine whether the material will be analyzed as a whole or divided into smaller units. Analysis in qualitative research is used to analyze text, where text can be found in deeper units of meaning. The benefits of content analysis and methodology in the learning process make it possible to incorporate teacher knowledge and experience in training teaching materials (Brylla, 2018; Dwyer, 2013).

3.   Methods

The informants in this study were 6 active teachers at Vocational High Schools in Bandung, divided into two categories according to the age range. 3 teachers were accepted 24-42 years and 3 teachers were accepted more than 43-60 years. In interviews Informants voluntarily agreed to explain their views on the meaning of using the internet to support teacher learning both as a source

of information, as a medium of learning and as a supporter of work. We collected data from two age groups to determine whether the findings depend on this relationship. In this study we used semi-structured interviews for teachers about internet use provided by Kolikant and Ma'ayan, used as an interview instrument (Kolikant & Ma'ayan, 2018). Semi-structured interviews with discussion topics previously designed, participants are asked to think about and experience themselves during the interview and at the same time, provide interviews for the topics and content being accessed. The interview instrument consisted of 11 questions to find out whether the teacher uses the Internet to support learning. We also ask them about the difficulties they have encountered compiling using the Internet, and how they have overcome them. We ask them about relevant values, that is, responses to the right and improper use of the Internet. Likewise, we ask teachers how they use the Internet for learning, how they study the Internet in relation to seeing their Internet interactions in their students' learning, and inhibiting what happens in the use of the internet. Interviews last 50-100 minutes for each teacher.

Before the start of the study, the data collection and analysis procedures were discussed by the school to ensure the research was based on volunteers and was not approved by the participants. After obtaining permission, we asked the class teacher, explained the complete instrument and asked them to help answer the questions asked by the researchers. All interviews were approved and fully transcribed. When the interview is finished, the answer sheet is processed and then processed to get answers from the use of internet teachers. Interview data were analyzed separately by researchers based on qualitative methods. We look for patterns, themes, concepts, and similar thoughts, which are then described as the right sentences. From all the results of interviews that were approved and returned by us for a portion of the number of categories with the same translation.

4. Results

According to informants' responses, all teachers consider the internet to be very supportive to support learning. The teacher uses the internet to increase the learning material reference. The internet can help in the development of teaching materials and the learning process. As the Internet continues to interact with almost every aspect of life, teachers will have more choices for utilizing the Internet into the learning process. However, without proper training and adequate facilities, teachers cannot take advantage of what is on the Internet to improve learning. The use of the internet for learning certainly requires the ability to access the internet. Especially teachers who have served as civil servants have attended software development training to improve their competencies, conversely, non-permanent teachers not yet participated in software development training. In the implementation of the training, teachers who took part in the training tended to be 43-60 years old, teachers under 42 years of age tended not to take part in software development training, especially the use of the internet. Implementation of the internet to support learning, teachers with ages 24-42

are easier to use. Conversely, teachers aged 43-60 years have difficulty in implementing the internet to support learning due to new applications that have sprung up. The internet allows teachers to innovate in the learning process. However, a lack of skills can cause problems for teachers. The teacher does not set clear boundaries for students in internet use, students can become unfocused and cannot take advantage of the breadth of information available on the Internet. Although the Internet offers an endless variety of choices, teachers should be able to enhance learning by limiting the choices available to students in certain subjects. The results exposure to interviews with vocational high school teachers can be seen in Table 1.

Table 1. Results Exposure to interviews with vocational high school teachers (Kolikant & Ma'ayan, 2018)

Issues	24-42 years	43-60 years
Internet use	Use of the internet in the learning process with very high intensity	Use of the internet in low-intensity learning processes
Training	Never participated attended training on the use of the internet to support learning.	Never attended training on internet utilization or software development.
Positive impact	Very significant and helps in the development of teaching materials and increases the reverence of learning materials..	Add reverence of learning materials and facilitate learning activities.
Negative impact	Risk of dishonesty of students in carrying out assignments	Risk of a tendency towards excessive internet use so that it is used for other activities.
Social type media	Social media used in utilizing various kinds of internet applications include: Instagram, Facebook, Twitter, Line, telegram	Tend to be more monotonous use of media used including: facebook and instragram.
Media use of the internet	Web, youtube, email, facebook, google classroom	Web dan youtube
Duration of use	Almost every meeting uses the internet to support learning	Only at certain meetings in the use of the internet
How of use	Skilled in internet usage	Less skilled in use especially with the development of technology. Need help in the operation.
Location of internet utilization	At school using smartphones and computers are available, while at home using smartphones	Using a smartphone or tablet
Availability of tools to access Internet	using internet networks and personal smartphones	Use a Computer when a wifi network is available
Obstacles	Facilities and infrastructure, networks that are less stable	Facilities and infrastructure, networks that are less stable, and the number of software that has not been understood.

If the Internet is to be used to enhance learning, teachers must learn content that is on the internet. The teacher uses several available media tools to utilize the internet. Due to various limitations older teachers are less skilled in teaching students about computers and the Internet independently. The disadvantage of learning to use the Internet is that there is a higher risk of academic dishonesty by students, excessive use of communication tools, and negative use of the internet. Some ways to reduce the disadvantages of using the internet by working with students to establish clear policies for using their internet in class. One of the benefits of using the Internet in class is the reduced dependence on the curriculum and the limited teaching materials that have been provided. If the teacher can competently use the Internet to teach, the teacher will be able to find unusual material found in books and available references.

5. Discussion

From the results of research data prove that the use of the internet occurs in support of the learning process, where teachers browse the web, search for videos and other material to add references to their teaching materials, teachers use the internet to teach through several features available on the device. Previous studies have explained the use of the internet as a useful tool, which still considers it useful as a source of information (Childs, Sorensen, & Twidle, 2011; Cobb, 2010). The easier access to the internet in this era, children are also increasingly easy and proficient in its use, so teachers have strategies to improve their learning. Information technology has increased the flexibility and speed of information and knowledge acquisition and has shifted the way students engage in learning activities (Feng et al., 2019). So teachers can use the internet to bring significant changes in teaching and learning. However, without proper training and adequate facilities, teachers cannot take advantage of what the Internet provides to enhance learning. The use of the internet for learning certainly requires the ability to access the internet. Teachers aged 43-60 years tend to have participated in software development training to improve their competence, whereas teachers aged 24-42 years have not yet participated in software development training. The use of the Web as a teaching and learning tool has the potential to increase teacher responsibilities and attitudes towards the internet that are guided as sources of information in secondary schools so that they need skills to use them (Glava & Glava, 2012).

Distinguished instruction in learning is an effective learning strategy that can be helped by the Internet. Teachers can ease the burden of their teaching assisted by the use of the internet for educational purposes. While the Internet can be a great educational tool, teachers need to be aware of the impact of internet use. The internet as an educational tool can be used for educational purposes that are very promising for the future (Dogruer, Eyyam, & Menevis, 2011). Previous studies have shown teachers believe that the use of the internet in university studies makes learning more interesting and effective and that having internet skills will help their future job prospects (Gialamas,

Nikolopoulou, & Koutromanos, 2013). Textbooks available in schools are influenced by the curriculum that has been determined by the ministry, so the content of textbooks is limited. As a step to eliminate dependence on textbooks, teachers can effectively use the Internet to improve student learning (Anderson et al., 2010)

Implementation of the internet to support learning, teachers with ages 24-42 are easier to use. Conversely, teachers aged 43-60 years have difficulty in implementing the internet to support learning due to new applications that have sprung up. A clear difference exists between older adults when young people are easier to access and use the Internet and have better Internet skills than their older counterparts (Hunsaker & Hargittai, 2018). The obstacle of teachers in using the internet is the risk of higher academic dishonesty by students, excessive use of communication tools, and negative use of the internet. Excessive use of the internet results in deteriorating academic performance of students. This causes weakening of students' self-regulation and poor academic activities and enables students to face the problem of losing interest in their learning (Islam et al., 2018).

In general, teachers use the internet to teach but do it through distribution tools, such as using YouTube, Web, Facebook applications. A survey about using youtube as an effective tool that can enhance the learning experience if the video is indeed relevant to the subject at hand. Internet usage along with other media such as television, radio, and newspapers differ depending on the type of internet connection especially video, to explain the material that makes it easier for students to visualize and truly understand the topic (Chen et al., 2014; Jung, Lin, & Kim, 2012). Another study shows that various resources available on the internet can be used to help teachers prepare and present content knowledge to children by taking up-to-date information about related content knowledge and finding various resources for their teaching (Liang, 2015).

6. Conclusion

The internet is an effective educational tool to support the learning process so as to achieve educational goals. The teacher uses the Internet to increase reference and teaching material and is used as a learning medium. Teachers with younger age categories have better skills in internet use, whereas older teachers are less skilled in internet use. Excessive use of the internet results in deteriorating academic performance of students and can lead to changes in habits in learning behavior in terms of reading, writing, and in terms of supervision. So, the teacher must have a way to utilize the internet for positive activities, especially in the learning process.

In the use of the internet, teachers have understood the needs of information and technology, and consistently applied the technology as a reference for conducting daily activities including in the world of education. This shows that the informants have made use of the internet in everyday life but older teachers do not maximize their full potential in supporting the learning process.

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