Journal of Current Research and Studies

Volume 01 Issue 01 July-August 2024
https://journalcurrentresearch.com/
ISSN:3048-9911

OPEN ACCESS

***CORRESPONDENCE**
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Works Cited

Xiaojue, L., Yajid, M. S., & Tham, J. (2024). The Impact of professional Training, Teaching facilities on the Development of ICT Knowledge Among Private Vocational Teachers. *Journal of Current Research and Studies*, 49-57.

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The Impact of professional Training, Teaching facilities on the Development of ICT Knowledge Among Private Vocational Teachers

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Abstract

With the development of education modernization, network technology and artificial intelligence and other technologies are more and more widely used in education. However, the use of technology indoctrination teaching is more detrimental to student development than traditional indoctrination teaching, and in the process of education, a series of problems such as teachers' professional education, professional training, and teaching facilities affect teachers' development of ICT knowledge. What stage is the current information and communication technology (ICT) application ability of teachers, what are the factors affecting teachers' ICT application ability, and how to improve teachers' information literacy and promote teachers' professional development with informatization are urgent problems that need to be solved. Based on the technology acceptance model, theory of reasoned action, theory of planned behavior and unified theory of acceptance and use of technology, this study explores the influencing factors of teachers' development of ICT knowledge in private vocational colleges, develops questionnaires and scales that affect teachers' development of ICT knowledge , and studies the factors affecting ICT awareness towards the development of ICT knowledge among private vocational teachers in JiangXi Province ,China. Questionnaire surveys were conducted on teachers from five private vocational colleges in Jiangxi Province to construct a conceptual framework and study the driving factors behind them.

Keywords

ICT, ICT awareness, development of ICT knowledge

1. Introduction

ICT advancements in China's vocational education in recent years have spawned a variety of ground-breaking new teaching and learning techniques (Bin et al., 2020; Hong, 2010). The use of technology into classrooms is becoming increasingly common as educators seek to enhance students' levels of subject-matter comprehension, better their capacity for focused attention, and create more efficient organizational systems for students' academic work

It can be difficult to acquire the skills necessary to use technology in such a way that it improves students' educational experiences without interfering with teachers' ability to deliver content in the classroom; however, there is an abundance of support material available to assist educators in tackling this significant challenge. But the absence of ICT understanding among professors is a major obstacle to ICT adoption in vocational colleges (Andryukhina et al., 2020; Antonietti et al., 2022). It is not yet clear whether information and communication technology (ICT) can be an innovation that improves learning outcomes in vocational education. On the other hand, it seems that there is a digital divide that is more pronounced than usual since older professors are not as comfortable with modern technology as pupils in their age group. Because it is difficult for many of these instructors to make the trip to the training center in the major cities on a consistent basis, there is also a worry over the best way to give training sessions for all of these teachers who come from remote places (Arifin et al., 2020). If this occurs, the associated expenditures will be expensive and beyond of reach for most institutions. This article will present the context of the study within the context of China's vocational college before discussing factors affecting ICT awareness towards the development of ICT knowledge among private vocational teachers in JiangXi province.

2. Literature Review

2.1 Professional education

We understand the teacher's professional ability as the condition for the formation of their professional ability, which is reflected in the qquantitative grasp of teaching technology and practice. It must be pointed out that professional competence is not inherent to any teacher but develops in the course of teaching activities according to the teacher's personal character. According to Kuzmina, a teacher's professional competence is a stable personal trait, manifested by a specific sensitivity to the object of instruction, the methods and conditions of instruction, and the design of effective educational models. At the same time, the complexity of teachers' professional competence requires specific evaluation methods, which must include self-evaluation, that is, teachers' evaluation of their own professional competence (Kuzmina,2001). The most common way in which pupils access information and new technologies is either through the internet or using mobile phones. This use is reported as being extremely limited and not used to assist with learning and teaching. Consequently, there is not much knowledge available when these devices are first introduced in the classroom. There is no doubt that teachers' professional competence is one of the key factors to ensure the application of technology and teaching efficiency. ICT competence is realized based on the use of tools and technical equipment. Teachers need to improve their knowledge and skills, strengthen, improve and explore their own teaching practice. Competence is defined as "the set of knowledge, skills and experience necessary for the future as embodied in specific teaching activities (Liu,2002).

2.2 Professional training

On account of, individuals are denied the opportunity to attend classes and get training in emerging technology. As a consequence of this, many educators lack the self-assurance necessary to make effective use of technology in their classrooms because they do not believe they have sufficient professional knowledge or skills (El Nabahany & Juma, 2019; Zhang & Nielsen, 2018). This includes a failure to provide educators with information about new software, updates, and training opportunities that are at their disposal. As a consequence of this, more serious issues arose, such as a lack of adequate information and communications technology (ICT) skills among educators. These ICT skills included insufficient computer literacy, poor online search skills, and difficulty creating multimedia resources, such as presentations and digital materials, for their classrooms (Tondeur et al., 2018; Zhou et al., 2022).

2.3 Teaching facilities

One further reason why many educators do not have access to all available technological resources is that there is insufficient financing available for activities such as professional development (Zhang et al., 2019; Zhang & Wang, 2019). So don't have access to professional facilities,it is difficult to improve teachers' awareness of ICT. The accessibility and quality of educational materials are crucial to the development of technology (Orii & Oga, 2020). The vast majority of educators face this challenge on a daily basis because they lack even the most basic resources in their classrooms. In addition, a lot of instructors use the computers at school for things that aren't connected to teaching, including looking something up on the internet or sending emails (Peciuliauskiene et al., 2022).

2.4 Perceived usefulness

Perceived usefulness (PU) is the main motivation for users to use information systems. It can help users better understand the system and generate sustained satisfaction and intention, which is an important prerequisite for improving user satisfaction and loyalty (Bhattacheijee, 2001; Davis et al., 1989). Motivation to visit a company's Internet page often involves a perception of usefulness (such as getting information about a product or service, sharing a helpful tip, or participating in a promotion), and perceived usefulness (PU) is expected to positively affect continued intent and satisfaction (SAT). The research shows that people are more interested in the usefulness and ease of use of products, which are the main factors to improve the willingness to use (Lu et al,2010). When users use sports-related apps, they respond positively to their ease of use and usefulness and are more willing to accept them. In a preliminary study based on a Korean context, found that perceived ease of use and perceived usefulness (PU) positively stimulated the willingness of sports participants to accept matching services (Chun et al ,2017).

2.5 ICT awareness

These research findings show that Green ICT practices and awareness is less among the students of the selected education institutions in Pune in India. Based on the result analysis, the author has suggested techniques to improve Green ICT awareness in higher education institutions in order to solve some of the most challenging problems related to future sustainability (Suryawanshi,2018). Information and Communication Technology (ICT) has improved education widely in China, transforming traditional teaching into an interactive one. It is important to build a new evaluation model to measure teaching efficiency in an “ICT-enabled classroom.” This study designed an evaluation model named “TPOCME Deep classroom” through ongoing five iterations. It includes six dimensions, which are higher-order Thinking, classroom Participation, Openness of educational system, Cooperative learning, Meaningful learning and Effectiveness of technology use (named TPOCME). This model helps educational researchers and teachers gain a comprehensive understanding of ICT in education (Li et al., 2019).

2.6 Development of ICT knowledge

According to the findings of many studies, one of the obstacles associated with the use of ICT in educational settings is the disparity that exists between the abilities expected of administrators and those expected of teachers (Almareta et al., 2020; Dhahri & Khribi, 2021). Teachers also seem to have poor knowledge of computer hardware and even worse knowledge of computer software (Liu et al., 2020).It's possible that teachers aren't very technically savvy, but that doesn't mean they can't effectively use technology in the classroom. It is common practice for administrators to operate on the assumption that teachers are not using technology or are not at ease with the manner in which it is being used in the classroom. Because of this, teachers may find themselves in a situation where they need to invest time and effort into striving to demonstrate that they comprehend what is required of them (Alt, 2018; El Nabahany & Juma, 2019). However, information and communication technology may be utilized as an adjunct to classroom education in order to enhance strong teaching and further practice via the use of specialised apps and resources. Teachers need assistance, training, and instruction on how to make successful use of technology, as well as guidance on how to best, cultivate these talents within their own schools (Chen,M., Zhou, C. Y. et al., 2019).

3. Findings & Discussion

3.1 Professional education Influences ICT awareness

One of the most apparent methods to enhance ICT use in teaching and learning is to improve more opportunities to develop teachers’ professional development (Rudhumbu, 2020; Sanchez-Prieto et al., 2019). Many studies have posited that this is still an area where we need a greater inquiry. However, scholars have highlighted the need to find out how to attain better results. Giving teachers the option to learn in a manner that was adapted to their existing competencies, and areas of interest has provided researchers with a significant amount of insight into the requirements that are necessary for teachers to be effective (Mndzebele et al., 2018; Pandey et al., 2020). Therefore, it is not surprising that scholars have posited that the most apparent method to enhance teaching is to improve teacher professional education, and this is still an area where it needs greater inquiry through research.

In addition, teachers have a limited understanding of computer hardware, and their knowledge of computer software is much more limited (Hatlevik & Hatlevik, 2018). It has also been noted that the curriculum does

not provide sufficient time for students to acquire the knowledge necessary to understand how computers may be used successfully in the classroom. Concerns have been raised by educators who believe they are not receiving assistance from the relevant authorities in their efforts to make good use of technology in the classroom (Gutierrez-Martin et al., 2022). The absence of assistance is felt more keenly by educators who are responsible for teaching specialized disciplines like mathematics, law, medicine, and science.

3.2 Professional training influences ICT awareness

For teachers' professional development in ICT, some initiatives ought to include one-to-one training conducted remotely through internet-enabled devices (Istenic et al., 2021; Khan & Markauskaite, 2018). In this session, the trainer can demonstrate using the interactive electronic whiteboard and all kinds of multimedia materials that they have access to in their classroom. At the same time, the trainer will be able to guide them through some specific tips and suggestions on how better these can be used in their classroom (Killian et al., 2021; Koh et al., 2022). This can be achieved with the help of a video conference over internet-enabled devices. Alternatively, the content and the resources used will be selected keeping in mind the need for specific training that needs to be imparted. The trainer can make use of several ICT tools in their training session using an e-learning platform such as:

a. Interactive whiteboards (Konig et al., 2020).
b. Video conferencing facilities using any digital device such as a computer, mobile phone or tablet etc. (Li, 2022).
c. Any webcam or camera-enabled digital device so that the trainer can conduct live demonstration (Macnish, 2019).
d. Screen-sharing facilities using any digital device such as a computer, mobile phone or tablet etc. (Siamisang et al., 2018).

3.3 Teaching facilities influence ICT awareness.

There is no single perfect design for a school building (Bin et al., 2020; Choustoulakis & Nikoloudakis, 2019). The design of education buildings should support educational goals. This can be achieved by providing effective learning environments that are attractive, attractive spaces for students to socialize, and a clean environment. One way to achieve this is by providing quiet rooms where students can work quietly or go online and engage with the outside world (Dele-Ajayi et al., 2019; Ferreira et al., 2018). A good example of such a space is the computer room or "Cloud Room" in the computer laboratory where there is access to online learning tools, films, and games. These spaces help cultivate independent thinking and encourage creativity and critical thinking skills. As encouraging students to engage with Web 2 and beyond.

In addition, inconsistency in the execution and assessment of various projects is one of the most significant barriers to the use of ICT in educational settings. According to the findings of other research, the implementation and assessment of ICT efforts are prone to become inconsistent whenever there is a shift in the school's administration, leadership, instructors, software, or hardware (Lim et al., 2018; Zhang et al., 2021).

3.3 Perceived usefulness Moderate Between ICT Awareness and Development of ICT knowledge

The research confirmed that users' perceived usefulness (PU) and ease of use of mobile applications play an important role in user satisfaction, and it is determined that they have a moderating effect on the technology acceptance model (TAM)(Nargis et al,2022). Internet connection and mobile phone use are by far the two most frequent ways for students to get access to knowledge and new technology (Ihmeideh & Al-Maadadi, 2018; Kaur, 2019a). According to other research, this usage is very restricted and is not utilized to aid with learning or teaching in any way. As a consequence of this, there is not a great deal of understanding about how to make efficient use of these gadgets in the classroom (Lim et al., 2018).

3.4 ICT Awareness as a Mediator on Development of ICT knowledge

On the other hand, studies have found that there is a strong correlation between ICT in schools and how well students perform (Tseng et al., 2022). A study done by the Organisation for Economic Co-operation and Development showed that students in the Czech Republic, where ICT was used the most, performed at one of the highest levels worldwide. Students who used ICT regularly reported that they enjoyed school more, used their time more efficiently and were better able to keep up in subject areas requiring constant use of information technology (Romero-Gazquez et al.,

2022). The same study also proved an increased interest in furthering studies related to computers, IT and engineering after graduation. In the context of vocational education, ICT can be used to construct a more authentic learning environment, bringing students closer to the real world by providing them with more realistic scenarios than a textbook or classroom discussion could ever deliver. Students can create video journals, blogs, podcasts and mashups that are linked to experience and sources of information beyond the school, allowing students to learn in new ways that are useful in their everyday lives, even helping them find jobs (Wang et al., 2022).

4. Conclusion

The adoption of ICT is contingent on a variety of elements including economic, social, political, and others (Forkosh-Baruch & Avidov-Ungar, 2019). Previous discussions have highlighted that adoption of information and communication technologies (ICT) has a beneficial influence on the progress of teachers and students in vocational colleges in China. In terms of theoretical significance, this study is important to support the current body of knowledge in the field and is speculated to enhance the adoption of ICT among low ICT literate teachers. However, this can only be achieved through a contextual study of selected vocational colleges in Jiangxi to understand their challenges and existing practices to lead to technological adoption. In terms of practical significance, the findings from the first and second research questions are used to eventually conceptualize a technology management model as a suggestion for policy change and intervention in Jiangxi's vocational college. In terms of stakeholder benefits, educational leaders, teachers, parents, and students can benefit from this study because ICT training, usage, and applications could be enhanced further in the future.

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