

Evaluating the Readiness of University Lecturers to Implement Technology in the Classroom in Asia: Literature Review

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ABSTRACT

Many researchers believe that using technology to improve educational quality is one of the things that should and must be done (Mustapha et al., 2020). However, it should be emphasised that in order to optimise the function of the application of new technical features, it is required to increase users' technological skills. In other terms, its users' ability. One of the factors influencing the success of teaching and learning methodologies is the human factor. Before putting a new technology into a specific educational setting, a standard scale for recognising and evaluating the user factor is also required (Mardiana, 2020). The purpose of this study is to investigate the flexibility and readiness of teachers in various countries to incorporate technology into university-level teaching contexts, with the goal of drawing experience and lessons from research in order to evaluate university lecturers' and Vietnamese teachers at all levels' abilities to incorporate technology into the classroom.

KEYWORDS: *readiness, e-learning, university lecturers, technology, evaluating, recommended framework*

1. Introduction

In the 4.0 era, the incorporation of technology into daily life is no longer a peculiar occurrence. Technology is present in every aspect of life and makes people's lives easier (Deb, 2014). Compared to the past, for example, manual labours were usually used in huge factories, but now they are replaced by robots which are able to work non-stoppable and produce products at a high level of precision. Everything we do today, from kitchen utilities to robots working in outer space, all needs technology. Especially in developing countries such as Viet Nam, the emergence of technology in the last decade has shown a positive impact on people's lives.

The educational value that technology brings to us is hardly denied; however, according to statistics, there are many places that keep following the traditional way of teaching, especially in developing countries (Flynn & Himel, 2022). The answer to this trend is the lack of technological infrastructure and teachers' abilities to integrate technology into their lessons. Firstly, a number of teachers show that they have neither access to the Internet nor a projector to use in their classes. If they want to use games to motivate students, they must spend 2 to 3 hours making slides, meanwhile they can upload a question list to an online quiz and it quickly helps generate a quiz for students, which is considered an effective way to save time rather

than wasting it. Secondly, another major reason is the ability to utilise technology in their lessons. According to Marandi (2014), teachers feel overwhelmed by choosing appropriate applications which are aligned with their lesson plans and truly improve their teaching quality rather than making both teachers and students become confusing. With all the aforementioned problems, technological integration in education in Viet Nam has been neglected for over a decade. The likelihood that all classrooms and schools would be outfitted with electronic equipment such as projectors, speakers, and interactive whiteboards to enhance the quality of teaching and learning was quite out of reach.

According to Tang and Nguyen (2020), the style of education utilising an Internet platform only flourished when it had to answer to the emergency caused by the Covid-19 outbreak, with concerns about the incorrect training period as a result of the extension's implications. Social distance during the anti-epidemic phase serves as a reminder of the necessity of incorporating technology into education. Since then, there have been more online contact options between students and teachers, and between parents and schools, such as the use of social networking platforms, as opposed to paper letters. Therefore, no more scenarios of teachers handing out printed exercises every day, which makes both teachers and pupils feel exhausted and uncomfortable since they must carry a heavy weight.

After the Covid-19 outbreak in Vietnam, the environment has been favourable for the deployment of technology in schools. Utilizing online learning tools for up to one year has helped teachers adjust to the technological environment. Since then, the capacity to implement technology in education has also been significantly improved (Pham & Ho, 2020).

The reality, however, is that upon returning to a face-to-face learning environment, a lot of teachers fear using electronic devices because, in their perceptions, technology is associated with difficulty and complexity; hence, the use of technology is still hindered by substantial obstacles (Vu, 2021). Teachers and students must be aware of the significance of using technology in teaching and learning for Vietnam's education system to gradually develop in the coming years.

2. Research objectives

The majority of institutions in Vietnam are implementing a variety of study programmes through online or blended learning, which demands a substantial contribution from contemporary technology from an Internet-connected network to an adequate computer system for meeting basic performance requirements. Classrooms are outfitted with projectors, televisions, interactive whiteboards, and a variety of supplementary programmes, including an online student management system, an attendance software system and an online test system. The online environment is always perfect for optimising current technology, allowing instructors to focus on quality without being hindered by complex bookkeeping laws and extensive time. However, a great number of lecturers are still hesitant to utilise the utility, adaptability, and convenience of technology to lessen the burden of teaching and enhance its quality. Consequently, it is required to conduct more

in-depth studies on the level of preparation to use technology for each type of teacher at each school level, as well as to develop a standardised assessment scale for instructors from various schools and for each grade levels.

Depending on the characteristics, nature, and academic level at each school level, the evaluation scale may vary, teachers may not need to be very specialised at the elementary level, particularly in grade 1. For example, being proficient with Excel spreadsheets is not truly necessary for the teacher at primary school, but for the usage of physical projectors, it is imperative that they should have a thorough understanding, as object projectors enable teachers physically and vividly demonstrate how to position pens and handwriting for each student. Writing on the board has always failed to suit the needs of primary school kids. Consequently, this research is conducted for the following reasons:

- To determine a mechanism for evaluating the technology application capacity of universities in Vietnam.
- Based on the lessons from other countries, to provide recommendations about the research of training programmes and the promotion of capacity-building in the technological application of instruction and learning.

3. Literature review

About 56% of university professors at Malaysia's MMU university believe that the use of technology in the classroom makes their teachings more engaging to students (Rahmat et al., 2019). In addition to fostering greater student engagement and interaction, skills training courses help teachers prepare for integrating technology into the classroom (Rahmat et al., 2019). The authors conducted their research by administering questionnaires and interviews with a total of 111 university faculty members from different specialised departments. Notable in Rahmat et al.'s study (2019) is the regularity with which online assignment or test-taking platforms are utilised in the context of instruction. These tools greatly minimise the number of labour teachers must perform, such as grading tests, allowing them more time to focus on preparing lectures. However, the author of the study noted that the results of the study only focused on lecturers and not on students, which would have significantly contributed to the success of the study in the technological application.

Another larger-scale study by Soetan and Coker (2018) at three institutions in Nigeria with a total of 254 faculty members revealed a substantial difference between male and female faculty in terms of flexibility and readiness to implement new technologies in the classroom. The result shows that men are more likely than women to utilise information technology, which can be explained by the fact that women frequently have fewer possibilities to access technology than men, in part due to gender bias. This outcome is also consistent with the research outcome of Mutambik et al., (2020). However, the author linked to many other earlier studies and found the consensus of many authors about the technology learning attitudes of both sexes to be comparable (Saboowala & Mishra, 2021). Additionally, the author mentions a variety of application platforms, such as Facebook and WhatsApp,

that are frequently utilised because of their popularity among teachers and students. Although, according to Soetan and Coker (2018), these platforms are not encouraged for academic usage, they still contribute significantly to the exchange of learning content or keeping in touch between students and teachers. The authors recommend that current technology should be utilised more heavily in university instruction and that academic standards should be established to ensure uniformity in the deployment of technology in institutions. The author also stresses the importance of providing women with more creative and application-based chances in order to increase their teaching passion and quality.

The authors' research provides the solution to the question of what factors can evaluate instructors' readiness to employ technology in the classroom (Junus et al., 2021). To ensure the reliability and validity of the application, the authors combined the qualitative research method and the quantitative research method. The results indicating the application's use in the classroom: Basic technological capabilities, Time management and Communication in class, and Course design are the four primary elements that influence the capacity to implement technology in the classroom. Due to the widespread usage of mobile phones in Indonesia, the instructors who participated in this study possess technology abilities that exceed the minimum requirements. Second, the adoption of user-friendly digital platforms also provides lecturers and students with convenience and ease of operation during the teaching process, which is supported by (Al-Adwan et al., 2021). The third aspect that makes teachers hesitant to use technology in the classroom is time management and communication, as most teachers feel uncomfortable expressing their personalities and emotions through the use of technology. Smart devices that directly alter the traditional classroom. Setting learning objectives throughout the course design process also has a significant impact on the quality of student learning and instructor instruction. Due to the requirement to present via smart devices, communication is restricted, prompting lecturers to modify the content and presentation of their lectures, which makes it easier for them to lose the desire to teach. The speed of Internet connection and the level of the self-discipline of students are two topics that will need to be investigated in greater depth in the future. According to Aboelmaged (2014), based on the local technological infrastructure and the degree of education, the upcoming study must include additional research that examines in greater depth the influence of the aforementioned four criteria on the capacity of instructors to utilise high-tech teaching methods to improve the interaction between students in such classes.

Last but not least, a group of academics from universities in Egypt issued a fresh study in July 2021 on the topic of measuring the readiness of teachers from three distinct universities (Hosny et al., 2021). According to the new study by Hosny et al. (2021), there was a time of online instruction notwithstanding the Covid-19 embargo. It is important to note that the subject analysed in this study is a medical major, one of the vocational training for which it is frequently deemed difficult to convey the material through online apps because medicine is a specialisation in which improving students' skills involves practise time and close instruction

between teachers and students (Rabiman et al.,2020). The study's findings indicate that there are two competing viewpoints regarding the elements influencing the optimization of the evaluation tool. Several scholars, such as Sun et al. (2016), believe that prior teaching experience is sufficient to use the software in the classroom, while others disagree and argue that technology expertise is necessary to use scientific technology effectively in teaching and learning. The following things must be considered when conducting training courses: course design, course communication, time management, and fundamental technical abilities, which all align with the previous study by Junus et al. (2021). However, a major flaw of the study is that the authors focus primarily on understanding the professors' views and attitudes regarding the ability to utilise technology and a series of actions that the lecturers believe are appropriate for such a teaching situation. The research has not objectively evaluated the lecturers' knowledge, and skills, such as by administering tests, but rather by asking participants to answer survey questions. Finally, the author advises additional evaluation research on the actual knowledge of teachers in order to develop a standard assessment framework.

4. Methodology

This article's sole purpose is to aggregate facts regarding the assessment of university lecturers' readiness to use technology in the classroom so that a standard can be derived for Viet Nam to assess the capacity of university-level lecturers and then design a comprehensive training programme to enhance their capacity. Therefore, the author wishes to examine and integrate the material from as many studies as feasible; nonetheless, the majority of studies covered in this article were published during the past five years. Before and during the global Covid-19 outbreak, the author found a distinct shift in technology usage capacity, which explains this tendency.

To ensure the validity of the research results, the author focuses on searching for research through the Google scholar tool and selecting studies from the past 5 years. The author uses the keywords "readiness", "lecturer", "technology" and "teaching" to find studies with similar orientations.

5. Results and discussions

The studies described above allow for a summary of the study methodology and general findings based on the literature review.

Year of publication	Title	Authors	Research methods	Results
2018	The readiness of MMU lecturers towards the implementation of blended learning	Hawa Rahmat, Rohaidah Mashudi, Mohd Hairul Anuar Razak, Nor Huda Abd Hamid, Nurhazlini Rahmat	Survey, Questionnaire	Lecturers understand and are ready to implement technology into their teaching.

Year of publication	Title	Authors	Research methods	Results
2019	'University lecturers' readiness and motivation in utilising online technologies for instructional delivery in Kwara State, Nigeria	Aderonke Kofo Soetan, Adesina David Coker	Questionnaire	Poor ability in utilising the Internet in teaching but positively ready to use after being given instruction.
May 2021	Lecturer Readiness for Online Classes during the Pandemic: A Survey Research	Kasiyah Junus, Harry Budi Santoso, Panca Oktavia Hadi Putra, Arfive Gandhi and Titin Siswantining	Survey, Questionnaire.	Lecturers have strong technical skills and have adapted quickly; however, they have no confidence in achieving learning goals through using technology in the classroom.
July 2021	Developing, Validating, and Implementing a Tool for Measuring the Readiness of Medical Teachers for Online Teaching Post-COVID-19: A Multicenter Study	Somaya Hosny, Mona Ghaly, Mona Hmoud AISheikh, Mohamed Hany Shehata, Abdel Halim Salem, Hani Atwa	Survey, Pilot test, Descriptive statistics.	The three participating institutions were adequately prepared, with room for improvement in "Online Teaching and Course Design" and "Using Learning Management Systems."

Through the reference process of studies on teachers' readiness to apply technology, it has been determined that there are several relevant studies, with the majority focusing on application in online teaching or blended learning. There is a small number of studies on the actual use of assistive technologies in face-to-face teaching in the classroom, such as the ability to prepare courses with presentation slides or the usage of electronic boards, etc. However, the results of the aforementioned studies can assist the author of this study in directing additional research on assessing technology acquisition capacity and practical application in the online classroom setting.

When it comes to receptive capacity, there are two streams of research. The majority of studies indicate that university professors have a positive opinion regarding their willingness to implement classroom technology. One side believes it is simpler for males to absorb technology-related knowledge, while the other believes there is no difference between men and women when it comes to learning to utilise technology by females. This is an unanswered question that must be investigated in the context of Vietnam's educational environment beside the two research questions.

According to the aforementioned studies, the degree of influence on the readiness of lecturers to employ technology is dependent on four primary factors: course design, course communication, time management, and fundamental technical skills. In addition, a study by a group of academics Phan and Dang (2017) from the Open University of Ho Chi Minh City revealed that additional factors, such as the attitude of teachers, can influence teacher preparation, application and length of training. This is the key to assisting future new research in going into further depth in order to create a general competency assessment framework and a specialised assessment framework for each major.

With the results mentioned above, the author can use them to initially make predictions for the upcoming research results in the field of assessment and measurement of teachers' ability to apply technology in teaching at FPT University.

Teachers may be very supportive of the use of technology in teaching and already have some basic skills to deal with problems with technology applications in the classroom. With the above cases of teachers, the author intends to give a higher assessment of applied competence or the need to make a breakthrough in education.

As a developing country, Vietnam also has many outstanding problems in bringing technology into education in remote areas. It is inevitable that teachers feel the lack of assistive devices as well as students. So in this case, the author needs to adjust the application capacity assessment table to match the actual situation, thereby offering more general and effective solutions.

6. Recommendation

Based on the findings of the study by Phan and Dang (2017), it is evident that training programmes to improve the application of technology are crucial for optimising instructional resources and rapidly responding to adaptive demands with the technology of university professors and teachers of all levels in general. However, it is a fact that during technology training sessions in Vietnam, teachers are simply instructed to use the programme independently. According to Tuan and Cuong (2019), Vietnam is making attempts to convert the TVET system from supply-driven to market-oriented; nonetheless, the LMIS is not actually existed at a national level. Therefore, when designing a framework for a training programme, it is vital to assess if the training content is truly realistic and relevant to the users' needs, or whether it is merely adequate and disconnected from reality.

Using the acquired data, it is possible to answer the question presented at the outset of the study. A hybrid strategy that combines qualitative and quantitative research should be the most comprehensive research approach. To comprehend the viewpoints of study participants, it is natural to employ both survey and questionnaire methods. To verify the veracity of these opinions, however, it is still necessary to combine Observation with other methods of data collection, because, according to the author (Gautam, 2021), this method enables the study of natural behaviour in different contexts and thus enables a more comprehensive and in-depth description of such behaviour. It is simple for research participants to alter their real personal ideas when they know they are participating in a scientific research response (Tourangeau et al., 2000). This is why it is crucial to incorporate observation. Inferred, comparing data from surveys and questionnaires with data from Observation can assist researchers with removing psychological influences and understanding how faculty react to the real use of technology in the classroom.

7. Conclusion

Education is not exempt from this technology-driven competition to enhance quality. To accomplish this, however, requires the constructive cooperation of teachers, who play a crucial role in this revolution. In order to achieve this goal, scientists from all around the world agree on the importance of analysing the abilities of instructors so that they can develop choices to improve and enhance the quality of education throughout time.

From the results of the review of the studies, the author realizes that there is great potential in applying technology to teaching at universities in Vietnam. If it is possible to continue to do further research to come up with an accurate assessment survey, it can help university leaders improve the quality of teaching and learning at their own institutions. The common benefit that can be achieved at hand is that higher education in Vietnam will always be updated and innovated, improving the quality thanks to the application of technology by the lecturers in the school.

This is an advantage, yet there are a variety of other challenges and limitations that researchers could have to contend with. It is a problem with the facilities as well as the mentality of the people who utilise them, especially professors at universities. Because there is a situation in Vietnam in which the nature of the teaching job is heavy on paperwork, the attitude will probably change if it is pushed to use technology in teaching. Another issue that the author has encountered is that, if university professors are proficient at using technology and are fully aware of the benefits it provides, but online and hybrid learning is not particularly popular in Viet Nam.

References

- Aboelmaged, M. G. (2014). Predicting e-readiness at firm-level: An analysis of technological, organizational and environmental (TOE) effects on e-maintenance readiness in manufacturing firms. *International Journal of Information Management*, 34(5), 639–651. <https://doi.org/10.1016/j.ijinfomgt.2014.05.002>

- Al-Adwan, A. S., Albelbisi, N. A., Hujran, O., Al-Rahmi, W. M., & Alkhalifah, A. (2021). Developing a Holistic Success Model for Sustainable E-Learning: A Structural Equation Modeling Approach. *Sustainability*, *13*(16), 9453. <https://doi.org/10.3390/su13169453>
- Deb, S. (2014). Information technology, its impact on society and its future. *Advances in Computing*, *4*(1), 25-29. 10.5923/j.ac.20140401.07
- Dilip Potnis, D., & Pardo, T. A. (2011). Mapping the evolution of e-Readiness assessments. *Transforming Government: People, Process and Policy*, *5*(4), 345–363. <https://doi.org/10.1108/17506161111173595>
- Flynn, G., & Himel, J. (2020, March 23). School closures highlight inequality in education as classes move online. *Cambodianess*. <https://cambodianess.com/article/school-closures-highlight-inequalityin-education-as-classes-move-online>
- Gautam, S. (2021, July 18). *Observational Research: Steps, Types, Advantages, Disadvantages*. Sociology Group: Sociology and Other Social Sciences Blog. <https://www.sociologygroup.com/observational-research/>
- Hosny, S., Ghaly, M., Hmoud AlSheikh, M., Shehata, M. H., Salem, A. H., & Atwa, H. (2021). Developing, Validating, and Implementing a Tool for Measuring the Readiness of Medical Teachers for Online Teaching Post-COVID-19: A Multicenter Study. *Advances in Medical Education and Practice*, *12*, 755–768. <https://doi.org/10.2147/amep.s317029>
- Junus, K., Santoso, H. B., Putra, P. O. H., Gandhi, A., & Siswantining, T. (2021). Lecturer Readiness for Online Classes during the Pandemic: A Survey Research. *Education Sciences*, *11*(3), 139. <https://doi.org/10.3390/educsci11030139>
- Marandi, S. S. (2014, March 28). Iranian EFL teachers' perceptions of the difficulties of implementing CALL. *ReCALL*, *26*(3), 298–314. <https://doi.org/10.1017/s0958344014000172>
- Mardiana, H. (2020). Lecturers' Adaptability To Technological Change And Its Impact On The Teaching Process. *JPI (Jurnal Pendidikan Indonesia)*, *9*(2), 275. <https://doi.org/10.23887/jpi-undiksha.v9i2.24595>
- Mustapha, A., Mohammed, A., Raji Egigogo, A., Abubakar Kutiriko, A., & Haruna Dokoro, A. (2020). Factors Affecting the Utilization and Adoption of Technology in Education. *The Role of Technology in Education*. <https://doi.org/10.5772/intechopen.85712>
- Mutambik, I., Lee, J., & Almuqrin, A. (2020). Role of gender and social context in readiness for e-learning in Saudi high schools. *Distance Education*, *41*(4), 515–539. <https://doi.org/10.1080/01587919.2020.1821602>
- Pham, H. H., & Ho, T. T. H. (2020). Toward a 'new normal' with e-learning in Vietnamese higher education during the post COVID-19 pandemic. *Higher Education Research & Development*, *39*(7), 1327–1331. <https://doi.org/10.1080/07294360.2020.1823945>

- Phan, T. N. T., & Dang, T. T. L. (2017). Teacher Readiness for Online Teaching: A Critical Review. *International Journal ODEL*, 3(1). https://ijodel.com/wp-content/uploads/2017/12/001_Phan_Dang.pdf
- Rabiman, R., Nurtanto, M., & Kholifah, N. (2020). Design And Development E-Learning System By Learning Management System (LMS) In Vocational Education. *International Journal of Scientific & Technology Research*, 9, 1059–1063.
- Rahmat, H., Mashudi, R., Razak, M. H. A., Hamid, N. H. A., & Rahmat, N. (2019). The readiness of MMU lecturers towards the implementation of blended learning. *Journal of Social Sciences and Humanities*, 16(1), 1–8. <https://ejournals.ukm.my/ebangi/article/view/31923>
- Saboowala, R., & Manghirmalani Mishra, P. (2021). Readiness of In-service Teachers Toward a Blended Learning Approach as a Learning Pedagogy in the Post-COVID-19 Era. *Journal of Educational Technology Systems*, 50(1), 9–23. <https://doi.org/10.1177/00472395211015232>
- Soetan, A. K., & Coker, A. D. (2018). University lecturers' readiness and motivation in utilising online technologies for instructional delivery in Kwara State, Nigeria. *World Journal on Educational Technology: Current Issues*, 10(4), 1–15.
- Sun, Y., Strobel, J., & Newby, T. J. (2016). The impact of student teaching experience on pre-service teachers' readiness for technology integration: A mixed methods study with growth curve modeling. *Educational Technology Research and Development*, 65(3), 597–629. <https://doi.org/10.1007/s11423-016-9486-x>
- Tang, S. M., & Nguyen, T. H. (2020). Digital Transformation Trend in Vietnam Higher Education: Blended Learning Model. *International Journal of Social Science and Economics Invention*, 6(07). <https://doi.org/10.23958/ijsssei/vol06-i07/218>
- Tourangeau, R., Rips, L. J., & Rasinski, K. (2000). *The Psychology of Survey Response* (1st ed.). Cambridge University Press.
- Tran, B. X., Nguyen, H. T., Le, H. T., Latkin, C. A., Pham, H. Q., Vu, L. G., Le, X. T. T., Nguyen, T. T., Pham, Q. T., Ta, N. T. K., Nguyen, Q. T., Ho, C. S. H., & Ho, R. C. M. (2020). Impact of COVID-19 on Economic Well-Being and Quality of Life of the Vietnamese During the National Social Distancing. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.565153>
- Tuan, N. D., & Cuong, N. H. (2019). Technical and Vocational Education and Training (TVET) in Vietnam. *Perspectives on Rethinking and Reforming Education*, 229–256. https://doi.org/10.1007/978-981-13-6617-8_10
- Vu, M. T. (2021). Sustainability of E-learning in Vietnam: The case study of FPT University. *SHS Web of Conferences*, 124, 25. <https://doi.org/10.1051/shsconf/202112407005>