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Application of technology in teaching and learning at the University - Opportunities and challenges for lecturers and students in Vietnam today

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Abstract

Vietnam is just one of several countries that have embraced the use of technological innovations in its classroom practices. From the start of the Covid-19 pandemic in 2020 until the present day, lecturers at all levels have increasingly made use of technology in the classroom. The best way to apply the policy of isolation during the Covid-19 pandemic while maintaining communication and university operations is through the use of technology in education, most notably online learning. The university's output standards, program structure, and knowledge base have all been guaranteed by the growth of online education. Important university events can also be coordinated online, ensuring that they go off without a hitch. For lecturers, incorporating technological tools into the classroom is a radical departure from the approaches they have relied on in the past. Students now have access to more resources, more recent information, and more efficient ways to utilize lecture content, thanks to the widespread adoption of technology in the classroom. The article employs a document-analysis methodology to examine the advantages and disadvantages of employing technology in the classroom from the perspectives of both instructors and their students.

Keywords: technology, student, lecturer, university

Introduction

Vietnam is just one of several countries that have embraced the use of technological innovations in its classroom practices. From the start of the Covid-19 pandemic in 2020 until the present day, lecturers at all levels have increasingly made use of technology in the classroom. The best way to apply the policy of isolation during the Covid-19 pandemic while maintaining communication and university operations is through the use of technology in education, most notably online learning. The university's output standards, program structure, and knowledge base have all been guaranteed by the growth of online education. Important university events can also be coordinated online, ensuring that they go off without a hitch. For lecturers, incorporating technological tools into the classroom is a radical departure from the approaches they have relied on in the past. Students now have access to more resources, more recent information, and more efficient ways to utilize lecture content, thanks to the widespread adoption of technology in the classroom. The article employs a document-analysis methodology to examine the advantages and disadvantages of employing technology in the classroom from the perspectives of both instructors and their students. But in reality, both

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lecturers and students need to put in work for technology to be properly applied in higher education.

Features of technology application in education

Now that we're on the cusp of the Fourth Industrial Revolution, where technology like AI is becoming integrated into every aspect of human endeavor, this is especially true in the classroom. By presenting material graphically online (through movies or stories on YouTube, for example), lecturers are able to pique their students' attention and motivate them to study more through the application of technology in education (Sudarsana et al., 2019). Alternatively stated, it is possible to envision scenarios in which internet access and synchronized clocks, the use of projectors and images, the integration of digital applications into the classroom, and the conferral of degrees over the InternetInternet are all standard features of educational institutions (Raja, 1984). Learning and teaching are both bound to benefit from the increased use of technology in the classroom (Ottestad et al., 2008). As a result, incorporating technological tools into the classroom is often seen as an essential step toward improving educational quality and student access towards preparing high-quality individuals for entry into the work market.

Opportunities and challenges when applying technology in teaching and learning at university

Opportunities for lecturers and students
Opportunities for lecturers

First, the closest example of incorporating technology into the classroom is the use of digital microphones by the instructor. Lecturers can use these digital wireless mics to communicate with students in large, noisy classrooms. The microphone will pick up the speaker's voice and amplify it so that every student can hear the lesson. It's a relief for lecturers not to have to raise their voices to convey concepts to their classes (Padmanabhan, 2020). Lecturers can save time and energy with digital microphones, which are also excellent for keeping tabs on students' work and raising hands when they have something to say, as well as for facilitating the distribution of speaking roles throughout the class. Lazy students in Vietnam often find themselves in the back of the classroom. With the use of digital microphones, even the quietest students at the back of the room may be heard by everyone. Digital microphones are excellent for use in the classroom when lecturers plan to show videos or clips or even perform a song or play related to the covered material. Although digital microphones are standard in many lecture halls today, this is not the case at all universities.

Second, lecturers will use tools like projectors, laptops, the Internet, and whiteboards to provide instruction and real-time examples from sites like youtube.com. Lecturers can facilitate the development of students' social skills through group projects that use materials or conferencing technology (Ottestad et al., 2008). As was previously indicated, instruction is greatly enhanced when digital microphones are used in tandem with video and clip presentations. Watching an informative video with its bright colors and clear sound can help break up a dull lecture. However, the lecturer also needs to give some thought to and review the video content before showing it to the students. In other words, if lecturers take the necessary precautions, inappropriate video will never be used in the classroom.

Third, technology gives lecturers new tools for inspiring and energizing their students, like the opportunity to transport them almost anywhere in the world (Padmanabhan, 2020). The use of VR in the classroom, with professors guiding students through immersive environments, is a cutting-edge innovation in education. Aside from being a cutting-edge approach to education,

this method has proven to be highly effective in the real world. Electronic components developed with 3D observation photographs will produce clear and vivid effects for engineering students when instructors teach them to build design models based on virtual reality. Doing so will give them a more complete and accurate grasp of the material being taught, even though the Covid-19 pandemic was at its height in Vietnam during the enrollment period. So that prospective students and their families may get a feel for campus life without having to travel there physically, many educational institutions are now equipping their classrooms with virtual reality technology. Vietnam's future educational institutions will inevitably adopt the use of technology to facilitate student enrolment.

The employment of modern technology in the classroom has, if anything, increased the popularity of old-fashioned classroom tools like chalkboards, notebooks, and lecturer's notebooks. Technological advancements have made it possible for lecturers to create and save their own lessons on the computer. Lecturers can use VR technology in the classroom or incorporate YouTube videos into their lesson preparations. A fourth benefit of using technology in the classroom is that it reduces the number of paper instructors needs to keep records on (Padmanabhan, 2020). Paper is also utilized less frequently as a result of the infinite storage capacity of computers and the Internet. When it comes to the environment, using less paper probably helps preserve the forest. This might be considered an advantage when using technology in education and training.

Fifth, instructors have access to the same wealth of information that students do today, making it easier than ever to find tools to enhance the classroom experience (Padmanabhan, 2020). Indeed, the advent of technology, and more specifically, the use of the Internet, has enabled lecturers to access a plethora of materials, both domestic and foreign, to utilize in their classrooms. Lecturers who have access to high-quality resources are better able to keep their own knowledge up-to-date and deliver lectures that are both interesting and informative to their students. Lecturers of foreign languages in Vietnam have some challenges, but this should motivate them to push themselves. That's the expectation of today's students, the stress of trying to stay up with their peers, and the mandate of the Ministry of Education and Training that IT be used in the classroom (Dang Xuan Thu - Nguyen Minh Phuc, 2015). Students nowadays are part of a young, innovative age that has a natural knack for learning and adapting to new technologies. Therefore, professors constantly strive to incorporate cutting-edge technology into their lectures in an effort to pique their students' interests. Lecturers, however, should push themselves to match or even outdo their peers in innovative uses of technology in the classroom. This is why academic institutions hold lecture conferences annually, where IT integration is evaluated. Or, universities can organize IT competitions aimed at motivating and supporting faculty members in their pursuit of IT expertise development.

Opportunities for students

When applying technology in teaching and learning, there are many opportunities for students, including the following:

Learners will benefit greatly from the abundance of materials available to them. First, the material is readily available to students. Digital cameras, projectors, mind training software, laptops, point presentations, and 3D visualization tools are all examples of recent technological advancements that lecturers can use better to convey their lessons' meaning to their students. In addition, when resources are digitized, students from all over the world have access to them. Access to digital documents in Vietnam can help students from low-income backgrounds or those living in rural or remote places save money and improve their chances of successfully self-studying.

Second, many different styles of instruction emerge when technology is used in the classroom. It promotes social interaction among students. Having access to mobile devices in the classroom allows students to more quickly and easily access current events and information (Krohn, 2003). Students now have instantaneous access to course materials via devices like tablets and mobile phones. Students' ability to grasp new material quickly can be boosted by direct application. Concerns about course material can be discussed with the instructor. A quick response from the professor and some direction for the class to get the necessary readings is possible. This demonstrates the usefulness of university investments in technology for enhancing students' educational experience. Rather than emphasizing the lecturer as in the conventional reading-and-copying model of education, the modern approach to education uses technology to focus on the students, who generate the essential conversation topics. Less engaging, more traditional lessons will be replaced by interactive ones in which students work in small groups to debate the day's material, fostering an environment of healthy academic rivalry and a positive, motivating, and forward-thinking university culture.

Learners' enthusiasm and engagement in class are evident in projects they've created themselves, including videos developed in video editing classes (Mohammed, 2020). Students' capacity to think critically and creatively, as well as collaborate, has been honed through the production of movies and presentations utilizing Powerpoint in the classroom. With the use of videos or exercises, traditional methods of instruction have become more engaging, fun, and age-appropriate for today's youth. Students can get more physically active by watching videos or participating in group activities, but they should also take the opportunity to learn something new and use their imaginations. They are able to improve their performance and gain self-assurance with the assistance of technology. Students will critique their own work and the work of their peers even when presenting group projects. Students benefit from these visual comparisons because they increase their practice, memory, and adaptability in the classroom and when utilizing technology.

Third, students who are unable to attend class physically can still be an active part of the learning process through the use of remote access. As opposed to traditional teaching, where students are confined to classrooms on a specific street, online learning allows them to engage from anywhere with an internet connection. A connected mobile device, such as a phone or computer, is all that's required. Pham Thi Oanh et al. (2021) highlight the success of employing technology in the classroom at the Industrial University of Ho Chi Minh City. Research findings demonstrate that the vast majority of lecturers assess their students' attention when using technology in the classroom as average or above average. Extreme enthusiasm is rated higher than typical contentment. This information demonstrates that students are open to the new instructional approach and are making some adjustments to accommodate it. In addition, the authors noted that several colleges have professors who teach from home using specialized computers and classroom equipment. In order to maintain administrative oversight of the classroom experience, several colleges demand that lecturers be physically present on campus during instruction. Whatever the case may be, it cannot be denied that technological advances have been a boon to education in Vietnam in recent years.

Fourth, technology also makes it easier and safer to keep track of and store records. (Cukurova & Luckin, 2018; Nguyen Thi Bich Nguyet, 2021) pointed out the use of information technology in general in the management of research and technology transfer activities in universities in Vietnam, including the following basic contents: managing the registration and granting of codes for scientific and technological research projects; management application of scientific research activities; application in output management of scientific research products; application in the administration and protection of intellectual property rights. Accreditation

requirements, for example, necessitate the maintenance of student records. Lecturers in higher education institutions benefit greatly from having a secure place to keep documents and even midterms. Student registration, re-learning, conversion of knowledge, etc., have all become simpler thanks to technological advancements. In the past, for instance, registering students required an application, multiple procedures, and multiple offices. All the information a student might ever need, such as their exam schedule, exam topics, course enrollment, library borrowing privileges, etc., is now accessible with just their student ID number. This program helps universities better manage their students, cut down on transportation expenses, and save time.

Lecturers can actively distribute survey links to students and save student work in Google Drive during group activities. With such safekeeping, homework won't go missing in the shuffle. It is also simple to locate when conducting university accreditation.

Fifth, using technology in higher education facilitates communication with distant experts for both students and professors (Flemming et al., 2016). Making use of museums, libraries, and other non-traditional educational spaces is made easier with the aid of technology (Balyer & Öz, 2018). Learners can "meet" their partners through video conferencing without leaving the classroom. This technology helps students learn foreign languages online by pairing a group of students with a lecturer from another country (Raja, 1984). At the moment, universities like Hanoi Open University, National Economics University, Ho Chi Minh City Open University, Tra Vinh University, Vinh University, Thai Nguyen University, and Hanoi University have set up distance classes for students to take. (Open University, 2021) This saves students money on travel and gives them more freedom with their schedules. Many Vietnamese students have taken distance classes from other universities. Some Vietnamese universities continued to train students from neighboring countries like Laos and China even as the Covid-19 pandemic raged on. There may be time zone disparities, but thanks to modern advancements, physical distances between people are less noticeable, and more people are able to further their education.

Sixth, using technology encourages student engagement in a variety of online activities (Bulman & Fairlie, 2016). Students who choose to pursue their education via the Internet save time and money by not having to physically attend class or complete homework assignments at a physical location. Because of the government's order to keep people at a safe distance during the Covid-19 pandemic, many universities have turned to online learning and distance education tools to ensure that classes and pieces of training don't have to be put on hold for too long. IT tools facilitate student collaboration on projects and online interactions with professors. Zoom or Google Meeting is the software most commonly used in Vietnam's higher education institutions, and it has been shown to be a successful tool for both lecturing and student interaction. In particular, at the time of graduation, students can avoid having to travel to campus by completing their final projects and presentations online instead of in person with their professors.

In addition to its obvious educational benefits, technology also has a place in other types of group settings, such as the first day of university or the study of national defense education. Given the intricacy of organizing group activities, assembling a sizable number of students is important. But the Covid-19 pandemic has proven that colleges can launch lectures via Zoom software with a high capacity, which has drawn students to engage. In addition, the university plans to host online games in order to entice prospective students to attend the first day of the university ceremony. This is a good side effect of using technology in educational settings, which has been demonstrated. The university will be even more quiet than usual, and student's motivation to learn will dwindle if no celebrations are held on significant holidays while the

distance is still present. On the other hand, the technology was used effectively and in a timely manner. In the case of certain institutions' use of Zoom to deliver a mandatory military education course to incoming freshmen, the last week of drills is put on hold until the distance directive is lifted.

In addition to the aforementioned benefits, students' access to technology also facilitates the acquisition of many transferable skills, such as the ability to design and deliver effective presentations, practice appropriate online behavior when chatting or sending emails, hone their communication abilities, and even find part-time work while still in university. These are the undeniable advantages that students gain from using technology in the classroom.

Challenges when applying technology in teaching and learning at university

Challenges for lecturers

First, not all students or lecturers embrace the shift that technology has ushered into the classroom (Manoj D, 2017). As a result, many lecturers struggle to integrate technology effectively into their lessons. While the majority of lecturers agree that edtech's potential benefits outweigh its drawbacks, many also worry that incorporating it into their classrooms will demand too much prep time and that their administration won't appreciate it (Asian Development Bank, 2017). Vietnam's diverse student population might make it challenging for lecturers to bridge the gap between students' abilities. When it comes to teaching a foreign language, it can be especially challenging to use technology because some students already have the preconceived notion that it's hard to learn a foreign language (Pham Thi Dieu Linh et al., 2022). This is what lessens the value and impact of technology in higher education.

Second, it is difficult for long-time lecturers who lack familiarity with technology to use its benefits in the classroom (Amy M. Johnson, Matthew E. Jacovina, Devin G. Russell, 2016). Even if teachers use inappropriate technology, it can lead to limiting learners' thinking(Chau Thuc Quyen & Nguyen Thi Thanh Hong, 2021). People who have been teaching for a while are likely to be familiar with the use of chalk and a chalkboard. They are unwilling to adapt their own personalities and worldviews to the information age for fear of being left behind. By sticking to the same practices for decades, they risk becoming stagnant and resistant to change, which in turn saps their ambition to improve professionally and utilize technological tools to better their students' educational experiences. With a group of youthful, energized, and creative professors, perhaps incorporating technology into the classroom will be less of a challenge.

Third, investing in technology equipment can be difficult due to restricted financial resources for higher education institutions (Bulman, George; Fairlie, 2016). Many educational institutions need help with allocating funds for the purchase of computers, Internet access, software, and suitable information and communication technology. This challenge is also mentioned in the research of Pham Ngoc Kim Tuyen (2022) at the University of Social Sciences and Humanities - Vietnam National University, Ho Chi Minh City. Unfortunately, not all universities can afford to provide their students with a reliable internet connection and state-of-the-art projectors for use in the classroom. Furthermore, face-to-face education has been shown to be more effective than online courses (Bulman, George; Fairlie, 2016). Simply said, there is no substitute for face-to-face communication. Several colleges offered online courses during the 2009 Covid-19 pandemic; however, many lacked the resources to adequately monitor and manage their online students, faculty, and assessments. Despite the fact that there is still a class going on, students in an online class can easily work independently.

Fourth, there are fewer options for teachers and lecturers in the field of foreign languages to travel overseas to gain experience teaching and to develop their proficiency in other languages

and the use of technology in the classroom (Pham Thi Dieu Linh et al., 2022). It is quite difficult for families in Vietnam who fall into poverty, belong to an ethnic minority, or live in the country's remote mountain regions to afford a phone or computer for their children's education. Therefore, it is not always possible for the lecturer to implement the lecture for all students. Therefore, although the use of technology in education will be efficient for those who can afford it, it will largely benefit the students of the affluent. But it would be unfair if any course at a university necessitated a personal computer for attendance or participation. The high price of such courses means that they are out of reach for many Vietnamese students.

Challenges for students

First, unsuitable materials are readily available when technology is used in higher education. These days, bad pornography, violence, and unsuitable information are all too easy to find, thanks to technological advancements (Krohn, 2003). Students, especially those far from home and without parental supervision, are especially vulnerable to the seductions of malicious content, which can lead to physical damage, time away from university, and eventual degeneration into poor character. Even as they are engaged in online education, students utilize many programs beyond their ability to manage, such as electronic games, social networking applications like Facebook and Zalo, and advertising applications like Shopee, Tiki, and Lazada. As a result, many times when students join a class online, they are in a "turn off the camera, turn off the mic" state because they are not paying attention to the lecturer's presentation but rather to something else, such as a game or their work (Nguyen Thi Tuyen, 2021). It might be challenging to instill a love of studying in students via the Internet. Lecturers have a hard time disciplining students when they present believable explanations for their lack of focus, such as a bad internet connection, a dead battery, a computer crash, etc.

Second, R. Krohn (2003) warns that "disconnected adolescents" (those who spend too much time online) are more susceptible to cyberbullying (Dang Nguyen, 2019). Since then, students have expressed hurt because of friends' negative influences, which has affected their schoolwork. Students will quit university because of their pessimistic outlook. In addition, the learning curve associated with using computers or phones excessively can cause serious health issues, including eyestrain, dry eyes, and myopia. Back discomfort, pains, and osteoporosis are just a few of the muscle, bone, and joint issues that can result from spending so much time teaching and studying online rather than in a traditional classroom setting (Nguyen Thi Tuyen, 2021). Virtually every university offered online classes in Vietnam during the recent Covid-19 pandemic. When children of school age spend too much time glued to screens, it can cause a lot of stress in families. In spite of the fact that education is proceeding as expected. In contrast to their serious demeanor in class, students who sat in front of a computer screen to study did not maintain the same level of focus. Another group is the multi-subject student who spends the entire day studying online, resulting in exhaustion, disinterest, and wasted time.

Third, "force majeure cheating" is a real possibility when technology is used in higher education (Krohn, 2003). At those times, students simply need an internet-connected device, such as a smartphone, to gain access to a wealth of knowledge. These days, it's easier than ever to cheat with the help of a mobile phone. However, academic dishonesty is not tolerated because a lack of honest students in higher education means fewer qualified workers in the future. However, the convenience of conducting research via phone makes it hard to prevent fraud. Lecturers may still have difficulty ensuring students are honest on online tests. In order to prevent cheating, the rules state that each student must have access to the Internet on two separate phones. This allows the lecturer to monitor the student and the article simultaneously. Not all students adhere to the rules because not everyone can afford to have two phones. They may

also leave one phone off the hook in order to cheat on an exam, or they may have two phones but only use one.

Fourth, students face difficulty while utilizing technology for educational purposes, notably online learning during the Covid-19 pandemic. According to research conducted by a team of writers from the Faculty of Sociology & Social Work, University of Sciences, Hue University, students have a lot of trouble while trying to use technology for online learning since they don't have the necessary abilities. Student depression, disinterest in online education, and unreliable network connections undermine students' ability to master essential skills like interacting with professors and using media (Bui Quang Dung et al., 2020). Similarly, research conducted by the author (Tran Thi Ngoc Ny, 2022) at the Hanoi University of Home Affairs - Quang Nam branch demonstrates that the lack of access to computers and phones is a significant barrier to online education. This presents challenges for certain students from low-income backgrounds, especially those from rural areas. Consequently, there are still numerous instances in which students must learn using a friend's device.

Some solutions for applying technology in teaching and learning in higher education

The benefits of using technology in the classroom and in higher education have already been discussed. However, obstacles must be overcome before the technology can be fully integrated into Vietnam's higher education system. The following are a few of the author's suggestions for how universities might better integrate technology into their classrooms and curricula.

Each instructor needs to actively have rigorous disciplinary procedures if copying is identified in order to limit cheating, whether learning online or using technology in the teaching and learning process. Individually, students should adopt a dedicated study mindset, make honest use of available technologies, and refrain from any forms of academic dishonesty.

All classrooms and universities cannot benefit equally from the same instructional technology. Therefore, lecturers should use whichever medium they feel most at ease with (Amy M. Johnson, Matthew E. Jacovina, Devin G. Russell, 2016). So, universities require a policy to encourage lecturers to actively investigate technology, utilize it flexibly in teaching, and allow them to select to construct lesson plans in keeping with the university's output standards, in addition to encouraging lecturers to study and enhance their abilities in technology. To ensure the training program's output standards are met, lecturers must actively construct their own lectures using modern technologies in order to keep students engaged and keep classes vibrant. The university can have a technological competition once a year, providing a motivating environment for lecturers to expand their expertise in that area.

Universities should hold seminars on a regular basis to introduce lecturers to various educational technology and their applications (Dikriansyah, 2018). Although the idea sounds great in theory, the high cost of organizing technology seminars means that they are rarely held at Vietnamese colleges. The organization of technology-focused courses or seminars is, nevertheless, crucial if the IT skills of lecturers are to be improved. The best seminars are run by professionals in the field who are invited to the university to run the seminars and advise professors on how to integrate technology effectively into their classrooms. This will encourage lecturers to participate in professional development seminars and use what they learn.

Colleges and universities need to collaborate with corporate sponsors and other educational stakeholders to ensure that they receive the technologies they need. It should also inspire lecturers to take the initiative to develop and use new forms of educational technology in their

classrooms (Dikriansyah, 2018). In addition to the allocated funds, universities should work closely with local businesses, investors, and alumni to secure additional funding for university equipment upgrades. The institution also actively solicits lecturers' annual proposals for new ways to enhance and employ technology in the classroom. The professors' initiatives allow them to take part in the university's emulation movement while also making use of the university's intellectual and human capital.

In a distance learning setting, universities must also facilitate frequent interaction between students and lecturers (Renes & Strange, 2011). Lecturers must develop relationships with their students and show that they truly care about them. But beyond that, the institution should plan events to make online learners feel safe and supported. The professor will be busier, but online or distant education will run more smoothly as a result. In addition, students need to be warned about the dangers of social media and given programs to help them avoid them at university. In order to maximize their educational potential, have students use computers and mobile devices for appropriate amounts of time and in appropriate ways.

The institution has to develop an electronic library system with a comprehensive range of books so that students may access and search for materials (Tran Thi Ngoc Ny, 2022). This is just one of a number of suggestions for making efficient use of technology in higher education. Lecturers encourage their students to document best practices in their communities using multimedia presentations and videos. This method of implementing technology is both adaptable and appealing. There are a lot of students from all over the world, and they all have something to share about where they grew up and where they're from. Faculty and administration should emphasize the value of academic advisors who keep an eye on students' progress and point them in the proper direction if they need to make changes or adjustments to their course of study. Even academic advisors now advise students on the best ways to study online, where to get relevant materials, and how to use the resources available to them.

Conclusion

There has never been a time when technology was used in so many different ways. There has never been a time when there were so many resources and methods of education available as there are today. There has never been a more convenient time for students to take advantage of technological advancements that allow them to acquire and study an infinite variety of human-created resources. The role of the lecturer now is to use technology to keep students engaged during class. The goal of the institution is to use technology to improve access to education, broaden students' horizons, and increase enrollment. But technology is likely to be of significant support for education in Vietnam, a developing country, both now and in the future. Still, many universities need help in their pursuit of better training facilities and more advanced technologies for faculty. This is not a problem that can be fixed overnight; rather, it calls for sustained investment in government policy, academic institutions, and the work of faculty and students.

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Biodata

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