Information Technology Application in Teaching Theoretical Courses: Current Practices at Ho Chi Minh City University of Physical Education and Sports

Nguyen Minh Huan
Ho Chi Minh City University of Physical Education and Sports
No. 639, Nguyen Trai Street, Cho Lon Ward, Ho Chi Minh City, Vietnam
Email: huannm@upes.edu.vn

***Abstract*—The rapid advancement of digital transformation has made the integration of information technology (IT) an essential strategy for improving teaching quality and promoting innovation in higher education. This study aimed to investigate the current status of IT application in teaching theoretical courses at Ho Chi Minh City University of Physical Education and Sports. A cross-sectional survey was conducted with 50 lecturers and 320 students using structured questionnaires and semi-structured interviews. The collected data were analyzed using descriptive statistics, including frequencies, percentages, means, and standard deviations. The findings revealed that lecturers demonstrated highly positive perceptions of the importance of IT in teaching theoretical courses and possessed adequate basic digital competencies, particularly in computer operation, Internet use, and office software applications. However, competencies related to designing digital learning materials, utilizing digital learning resources, and applying learning management systems and online teaching platforms remained limited. The overall level of IT application in teaching was rated as high, although its use was primarily concentrated on routine instructional and administrative activities. Students mainly used IT to search for learning materials, access online resources, and participate in digital learning activities, whereas the use of digital learning platforms and specialized educational technologies remained relatively limited. These findings highlight the need to strengthen lecturers' digital competencies, improve technological infrastructure, expand digital learning resources, and promote the effective integration of digital technologies into teaching and learning to enhance the quality of theoretical course instruction in the context of digital transformation in higher education.**

***Index Terms*—information technology, digital transformation, higher education, theoretical courses, teaching and learning.**

I. INTRODUCTION

In the context of the ongoing digital transformation in higher education, the integration of IT into teaching has become a key requirement for improving educational quality, innovating instructional practices, and promoting student-centered learning. Under Vietnamese law, IT is defined as a combination of scientific methods, technologies, and modern technical tools used to produce, collect, process, store, transmit, and exchange digital information. In educational settings, IT encompasses not only technological infrastructure such as computers, Internet services, software applications, and Learning Management Systems (LMSs), but also digital learning resources and technology-enhanced teaching approaches that support more effective teaching and learning.

The integration of IT into theoretical courses offers substantial benefits for both lecturers and students. For lecturers, IT facilitates the development of digital teaching materials, access to diverse educational resources, the implementation of interactive teaching strategies, online assessment, and efficient management of learning activities. For students, IT enables flexible access to learning materials, promotes self-directed learning, supports academic communication, and encourages active learning through digital platforms. In the field of physical education and sports, the use of instructional videos, technical simulations, visual learning resources, digital content repositories, and learning management platforms can significantly enhance the delivery of theoretical knowledge and strengthen students' academic preparation for subsequent practical and professional courses.

Although IT integration in higher education has received increasing attention and has been widely promoted in recent years, the extent of its implementation in teaching theoretical courses is still influenced by several factors, including lecturers' digital competence, institutional facilities, technological infrastructure, the availability of digital learning resources, and students' digital readiness. At Ho Chi Minh City University of Physical Education and Sports, theoretical courses provide the essential knowledge base that supports students' learning in practical and professional subjects. However, there is still a lack of systematic evidence regarding the current status of IT integration in teaching these courses.

Against this background, the present study was conducted to investigate and evaluate the current status of IT integration in teaching theoretical courses at Ho Chi Minh City University of Physical Education and Sports. The findings are expected to provide empirical evidence on the strengths, challenges, and emerging issues associated with IT integration, thereby informing institutional strategies to enhance teaching effectiveness in the context of digital transformation.

II. METHODOLOGY

Participants

The study involved 50 lecturers who were directly responsible for teaching theoretical courses and 312 students enrolled in these courses at Ho Chi Minh City University of Physical Education and Sports. Participants were selected using a random sampling method to ensure that the sample was representative of the target population and appropriate for the objectives of the study. Participation in the study was voluntary, and all participants provided informed consent prior to completing the questionnaire.

Questionnaire Survey

Based on a review of previous studies and relevant literature on the integration of IT in higher education, the research team developed a structured questionnaire covering four dimensions: (i) lecturers' perceptions of the importance of applying IT in teaching theoretical courses; (ii) the extent to which IT is integrated into lesson preparation, instructional delivery, assessment, and learner support; (iii) the use of technological devices, software applications, and digital platforms in teaching theoretical courses; (iv) students' perceptions of lecturers' use of IT and its effectiveness in supporting learning.

All questionnaire items were measured using a five-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). Higher mean scores indicated greater levels of IT integration or stronger agreement with the corresponding statements. Mean scores were interpreted using equal interval ranges as follows:

* Level 1: $1.00 \leq \text{Mean} < 1.80$ (Very low / Strongly disagree)
* Level 2: $1.80 \leq \text{Mean} < 2.60$ (Low / Disagree)
* Level 3: $2.60 \leq \text{Mean} < 3.40$ (Moderate / Neutral)
* Level 4: $3.40 \leq \text{Mean} < 4.20$ (High / Agree)
* Level 5: $4.20 \leq \text{Mean} \leq 5.00$ (Very high / Strongly agree)

Semi-structured Interviews

Semi-structured interviews were conducted with a purposive sample of lecturers to gain a deeper understanding of the questionnaire findings. The interviews focused on identifying the opportunities, challenges, and factors influencing the integration of IT into teaching theoretical courses at the university. The qualitative findings were used to complement, interpret, and explain the quantitative results.

Statistical Analysis

The collected data were coded and analyzed using IBM SPSS Statistics version 30.0. Descriptive statistical analyses, including frequencies, percentages, means (M), and standard deviations (SD), were performed to examine the current status of IT integration in teaching theoretical courses at Ho Chi Minh City University of Physical Education and Sports.

III. RESULTS

Lecturers' Perceptions of the Importance of Information Technology in Teaching Theoretical Courses

To examine lecturers' perceptions of the importance of IT in teaching theoretical courses at Ho Chi Minh City University of Physical Education and Sports, the study assessed lecturers' level of agreement with statements describing the role of IT in teaching.

Table 1. Lecturers' Perceptions of the Importance of Information Technology in Teaching Theoretical Courses (n = 50)

No.	Item	M	SD
1	Improving educational quality	5.00	0.00
2	Enhancing research effectiveness	4.55	0.69
3	Improving teaching and learning effectiveness	4.67	0.45
4	Supporting innovation in teaching methods	4.26	0.88
Overall		**4.62**	**0.51**

The results presented in Table 1 indicate that lecturers expressed a very high level of agreement regarding the importance of IT in teaching theoretical courses (M = 4.62, SD = 0.51). Among the four evaluated items, "Improving educational quality" received the highest rating (M = 5.00), followed by "Improving teaching and learning effectiveness" (M = 4.67), "Enhancing research effectiveness" (M = 4.55), and "Supporting innovation in teaching methods" (M = 4.26).

Overall, the findings demonstrate that lecturers highly value the role of IT in teaching theoretical courses. They recognize that integrating IT into teaching can improve instructional quality, enhance teaching and learning effectiveness, support research activities, and facilitate the adoption of innovative teaching approaches.

Lecturers' Knowledge and Skills in Applying Information Technology in Teaching Theoretical Courses

In addition to examining lecturers' perceptions, the study also investigated their knowledge and skills related to the application of IT in teaching theoretical courses. The results are presented in Table 2.

Table 2. Lecturers' Knowledge and Skills in Applying Information Technology in Teaching Theoretical Courses (n = 50)

No.	Item	M	SD
1	Knowledge of IT and the ability to update IT knowledge	3.87	0.59
2	Computer operation skills	3.52	0.78
3	Internet search and utilization skills	3.67	0.44
4	Ability to access and utilize academic databases and digital learning resources	2.18	0.95
5	Ability to design electronic teaching materials and digital learning resources	2.21	0.52
6	Ability to use LMSs and online teaching platforms	2.34	1.25
Overall		**2.96**	**0.71**

The results presented in Table 2 indicate that lecturers demonstrated a moderate level of competence in applying IT to teaching theoretical courses (M = 2.96, SD = 0.71). Although lecturers recognized the importance of IT in teaching, their practical ability to integrate technology into instructional activities remained limited.

The highest-rated competencies were knowledge of IT and the ability to update IT knowledge (M = 3.87), Internet search and utilization skills (M = 3.67), and computer operation skills (M = 3.52). These findings indicate that most lecturers possess the fundamental digital competencies required for routine teaching activities.

By contrast, the lowest-rated competencies were the ability to access and utilize academic databases and digital learning resources (M = 2.18), the ability to design electronic teaching materials and digital learning resources (M = 2.21), and the ability to use LMSs and online teaching platforms (M = 2.34). These findings suggest that lecturers' use of IT is still largely confined to basic digital skills, while more advanced competencies related to developing digital learning materials, utilizing academic resources, and integrating digital teaching platforms into instructional practice remain limited.

Overall, the findings indicate that lecturers possess adequate basic digital competencies; however, more advanced competencies required for the effective integration of IT into teaching theoretical courses remain limited.

Lecturers' Application of Information Technology in Teaching Theoretical Courses

Following the investigation of lecturers' perceptions and competencies regarding IT, the study further examined the current status of IT application in teaching theoretical courses. The results are presented in Table 3.

Table 3. Current Practices of Information Technology Use in Teaching Theoretical Courses (n = 50)

No.	Item	M	SD
1	**Application of IT in instructional activities**	**3.48**	**0.72**
	Preparing teaching documents (lecture notes, handouts, examinations)	4.87	0.54
	Managing students' grades and learning records	4.42	0.22

No.	Item	M	SD
	Using the Internet to search, store, and share teaching resources	3.58	0.87
	Developing digital learning materials using educational technologies	2.35	0.65
	Designing and using electronic lectures	2.12	0.94
	Communicating with students via email	4.62	0.31
	Using smart classrooms and multimedia classrooms for teaching	2.41	0.85
2	**Application of software in lesson preparation and instructional design**	**3.47**	**0.66**
	Microsoft Word	4.11	0.48
	Microsoft PowerPoint	3.96	0.55
	Microsoft Excel	4.06	0.47
	Learning Management Systems (LMSs)	2.44	0.87
	Online teaching platforms (Microsoft Teams, Zoom, Google Meet, etc.)	3.15	0.95
	Other educational software	2.95	0.64
3	**Sources of digital learning resources used in teaching**	**2.96**	**0.60**
	Self-searching on the Internet and online resources	3.22	0.74
	Support from colleagues and academic departments	3.16	0.63
	The university's digital learning resource repository	2.14	0.55
	Combining learning materials from multiple sources	3.35	0.51
4	**Application of IT in assessment**	**3.29**	**0.78**
	Developing question banks for assessments	3.35	0.81
	Using online assessment tools	3.32	0.92
	Using software to manage, analyze, and process assessment data	3.21	0.63

The results presented in Table 3 indicate that the overall level of IT application in teaching theoretical courses was high (M = 3.48, SD = 0.72).

Among the instructional activities, the highest-rated practices were preparing teaching documents (M = 4.87), communicating with students via email (M = 4.62), and managing students' grades and learning records (M = 4.42). In contrast, lower mean scores were observed for developing digital learning materials using educational technologies (M = 2.35), designing and using electronic lectures (M = 2.12), and using smart or multimedia classrooms for teaching (M = 2.41). These findings indicate that lecturers primarily use IT to support routine instructional activities, whereas the integration of digital technologies into instructional design remains limited.

Regarding software use, lecturers reported frequent use of general-purpose applications, including Microsoft Word, Microsoft PowerPoint, and Microsoft Excel, all of which received relatively high mean scores. In contrast, the use of Learning Management Systems (LMSs) and other educational software remained at moderate or low levels, suggesting that digital learning platforms have not yet been fully integrated into teaching practice.

With respect to digital learning resources, combining learning materials from multiple sources (M = 3.35) and self-searching on the Internet and online resources (M = 3.22) received the highest ratings, whereas the university's digital learning resource repository received the lowest rating (M = 2.14). This finding suggests that the institutional repository may not yet adequately meet lecturers' instructional needs.

The application of IT in assessment was evaluated at a moderate level (M = 3.29, SD = 0.78). Lecturers reported using question banks, online assessment tools, and software for managing assessment data; however, these technologies have not yet become routine components of assessment practices.

Overall, the findings indicate that lecturers have made positive progress in integrating IT into the teaching of theoretical courses. However, the use of IT remains concentrated on routine administrative and instructional

activities, while its application to digital pedagogy, digital content development, and technology-enhanced learning remains limited.

Students' Application of Information Technology in Learning Theoretical Courses

In addition to investigating lecturers' application of IT, the study also examined the extent to which students applied IT in learning theoretical courses at Ho Chi Minh City University of Physical Education and Sports. The survey results are presented in Table 4.

Table 4. Current Practices of Students' Use of Information Technology for Learning Theoretical Courses (n = 320)

No.	Item	M	SD
1	Searching for learning materials on the Internet and academic databases	3.86	0.35
2	Self-directed learning through the Learning Management System (LMS) or online learning platforms	2.45	0.78
3	Participating in academic discussions through digital platforms (e.g., Zalo, Microsoft Teams, Google Classroom)	3.15	0.56
4	Accessing digital lectures and learning resources provided by lecturers	2.23	0.45
5	Using electronic lectures, infographics, and mind maps	3.12	0.67
6	Watching instructional and lecture videos	3.34	0.51
7	Searching for learning materials related to theoretical course content	2.87	0.98
8	Using online learning platforms and learning support software	2.57	0.74
9	Using online meeting and presentation tools for learning	2.44	0.55
Overall		**2.89**	**0.62**

The results presented in Table 4 indicate that students' overall use of IT in learning theoretical courses was moderate (M = 2.89, SD = 0.62). This finding suggests that students have begun to utilize digital tools and learning resources to support their studies; however, the extent of IT use remains limited and uneven.

The highest-rated activities were searching for learning materials on the Internet and academic databases (M = 3.86), watching instructional and lecture videos (M = 3.34), participating in academic discussions through digital platforms (M = 3.15), using electronic lectures, infographics, and mind maps (M = 3.12), and searching for learning materials related to theoretical course content (M = 2.87). These findings indicate that online learning resources have become important tools for supporting students' self-directed learning and knowledge acquisition.

Lower mean scores were observed for self-directed learning through LMSs or online learning platforms (M = 2.45), accessing digital lectures and learning resources provided by lecturers (M = 2.23), using online learning platforms and learning support software (M = 2.57), and using online meeting and presentation tools for learning (M = 2.44). These findings suggest that students mainly use IT to search for and access learning resources, whereas the use of digital technologies to support active learning, interaction, and academic engagement remains limited.

Overall, the findings indicate that although students are familiar with basic digital learning resources, their use of more advanced educational technologies and online learning platforms remains limited.

IV. CONCLUSION

The findings indicate that lecturers at Ho Chi Minh City University of Physical Education and Sports hold positive perceptions of the role and importance of IT in teaching theoretical courses. Basic digital competencies, including Internet use, computer operation, and the use of office software applications, were rated at relatively high levels. However, the actual integration of IT into teaching and learning remains uneven. Activities such as developing digital learning materials, designing electronic lectures, utilizing digital learning resource repositories, and applying technology platforms for teaching, assessment, and learning management were reported at only moderate or low levels.

For students, the results showed that the use of IT in learning theoretical courses was primarily associated with searching for learning materials, accessing online resources, and using visual learning materials. By contrast, the effective use of digital learning platforms and specialized educational technologies remained

limited. These findings suggest that there is considerable room for improvement in the integration of IT into the teaching and learning of theoretical courses.

Overall, the findings highlight the need for the university to strengthen lecturers' digital competencies through continuous professional development, further invest in technological infrastructure, expand digital learning resources, and promote the use of digital platforms for teaching, learning, and assessment. In addition, greater support should be provided to help students develop the digital skills necessary to effectively utilize educational technologies, thereby contributing to improved teaching quality and learning outcomes in the context of digital transformation in higher education.

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