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Digital transformation in national defense and security education: Readiness, technology use, and implementation constraints at ho Chi Minh City University of Industry and Trade

Dinh Van Quyen
Ho Chi Minh City University of Industry and Trade (HUIT), Le Trong Tan Street, Tay Thanh Ward, Ho Chi Minh City, Vietnam

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Abstract
Digital transformation is increasingly reshaping higher education, yet its implementation in national defense and security education (NDSE) is complicated by the practice-intensive, skills-based nature of the discipline. This study examined attitudinal readiness, technology-use patterns, perceived benefits, and implementation constraints in NDSE at Ho Chi Minh City University of Industry and Trade (HUIT), Vietnam. The study employed a descriptive cross-sectional institutional design. The primary survey component included 25 NDSE lecturers and 120 students; a separate infrastructure-readiness assessment involved 72 lecturers and management staff. Descriptive statistics were used to summarize frequencies and percentages, while document review, pedagogical observation, and contextual interview evidence were used to interpret the institutional setting. Results show that 76% of lecturers rated digital transformation as important or very important, while 79.2% of students agreed or strongly agreed that digital technology is beneficial for NDSE learning. LMS use among lecturers remained uneven: 24% reported frequent use, 44% occasional use, 28% rare use, and 4% no use. Among students, 62.5% reported using training-support applications regularly or occasionally, while 37.5% used them rarely. Infrastructure readiness was a major constraint: only 16.7% of respondents in the infrastructure assessment rated provision as fully adequate, whereas 31.9% rated it inadequate. The findings suggest that HUIT is at an early stage of digital adoption in NDSE rather than having achieved fully integrated digital transformation. Priorities include pedagogically focused digital-capacity development, improved connectivity and portable equipment for training spaces, interoperable learning and training-data systems, and staged implementation linked to institutional strategy.

Keywords: Digital competence, digital transformation, higher education, national defense and security education, technology adoption

Introduction

Digital transformation has moved beyond the digitization of teaching materials toward the redesign of learning processes, assessment, institutional governance, and data-supported decision making. In Vietnam, this trajectory is reinforced by national policy, including Resolution No. 52-NQ/TW on proactive participation in the Fourth Industrial Revolution and Decision No. 131/QD-TTg on digital transformation in education and training to 2025 with orientation to 2030 [1, 2]. For NDSE specifically, the legal and curricular context is defined by the Law on National Defense and Security Education and the national curriculum for higher education institutions promulgated under Circular No. 05/2020/TT-BGDĐT [16, 17]. Digital transformation in NDSE therefore concerns not only technical infrastructure but also the capacity to integrate technology with a compulsory curriculum that combines political-security knowledge, military knowledge, practical skills, assessment, and institutional management.

National defense and security education present a distinctive setting for digital transformation. Unlike predominantly classroom-based subjects, NDSE combines knowledge acquisition, practical-skill training, observation, feedback, and assessment in classrooms and training grounds. Digital tools can support these processes through learning management systems (LMS), video demonstration, mobile applications, simulation tools, artificial intelligence, and digital formative assessment. Recent NDSE-specific evidence in Vietnam has begun to identify digital competence, technological infrastructure, and blended-learning design as important enabling conditions [18, 19], while institutional evidence from Can Tho University shows that limitations in technology use are also linked to teaching content and implementation methods [20].

At the same time, technological adoption is not equivalent to pedagogical transformation. Because the NDSE-specific evidence base remains comparatively small, this study also draws selectively on adjacent research from physical education and other practice-intensive learning environments. Such studies are not treated as direct evidence for NDSE; rather, they provide transferable insights concerning digital feedback, motor-skill learning, technology acceptance, blended instruction, and infrastructure constraints [3, 15]. This distinction is important because the political, military, security, and curricular characteristics of NDSE require context-sensitive interpretation rather than simple transfer from other disciplines.

In the Vietnamese context, institution-level empirical evidence remains limited. Recent studies have examined the application of information technology in NDSE, blended-learning implementation, and the digital competence of NDSE teachers [18, 20]. However, less attention has been paid to how lecturer perceptions, student perceptions, actual LMS/application use, and infrastructure readiness interact within a single university setting. This creates three related

gaps: a contextual gap concerning digital transformation in university NDSE; an analytical gap between favorable attitudes and actual pedagogical use; and an institutional gap concerning the enabling conditions required to move from fragmented technology use toward integrated digital practice.

HUIT has introduced university-wide digital systems, including LMS services, institutional email, online learning resources, and upgraded audiovisual facilities. At the same time, the practical spaces used for NDSE create implementation constraints that may not be visible in general university-level digital transformation assessments. HUIT therefore provides a useful institutional case for examining whether positive perceptions of digital transformation are matched by routine pedagogical adoption and adequate enabling infrastructure.

The study addresses three questions: (1) How do lecturers and students perceive the importance and benefits of digital transformation in NDSE? (2) To what extent are LMS platforms and training-support applications currently used? and (3) What infrastructure and implementation constraints limit deeper digital transformation? The study contributes institution-level evidence by jointly examining attitudinal readiness, pedagogical technology use, student digital-training practices, and infrastructure readiness. The central analytical proposition is that positive attitudes toward technology should not be equated with institutional digital transformation; rather, transformation depends on the alignment of willingness, pedagogical adoption, enabling conditions, and institutional integration.

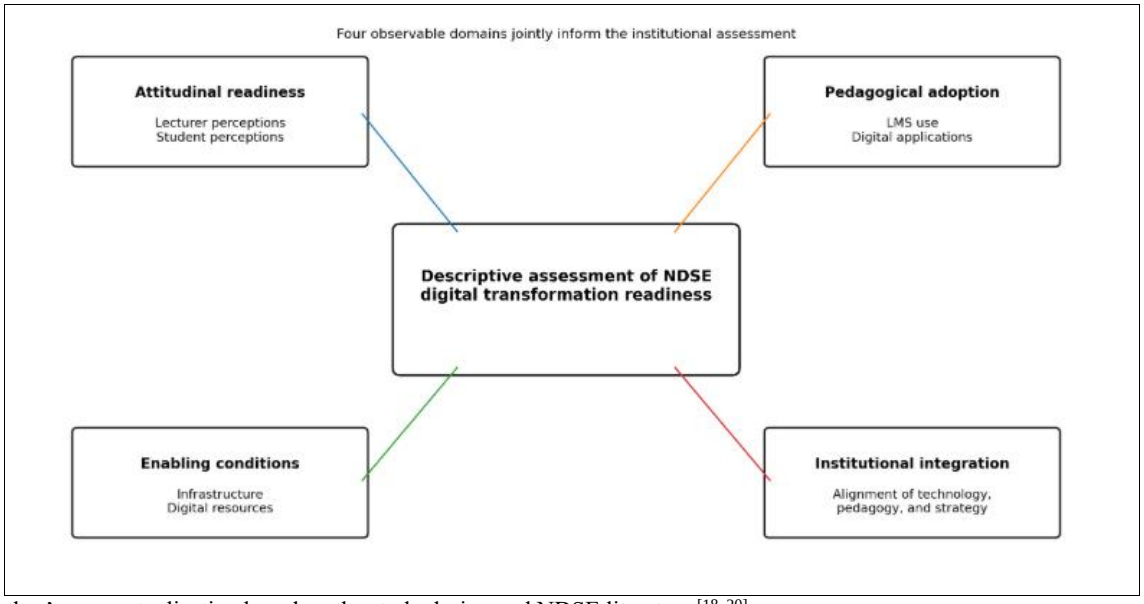
Literature Review and Analytical Framework

1. Digital transformation readiness in NDSE

For the purposes of this descriptive institutional study, digital transformation readiness is not treated as a validated latent construct or a single index. Instead, it is operationalized through four observable domains supported by the available data: (i) attitudinal readiness among lecturers and students; (ii) pedagogical adoption reflected in LMS and training-support application use; (iii) enabling conditions, especially infrastructure and digital resources; and (iv) the degree to which these elements can be aligned at the institutional level. This operationalization is deliberately modest because the available questionnaire items were not designed as a validated multidimensional readiness scale. Recent NDSE-specific scale-development research demonstrates that teacher digital competence itself is multidimensional and should be measured with validated instruments when the research objective is psychometric assessment [18].

2. Analytical framework

The analytical framework distinguishes readiness from transformation and organizes the available evidence into four observable domains: attitudinal readiness, pedagogical adoption, enabling conditions, and institutional integration. These domains are treated as complementary dimensions of an institutional assessment rather than as sequential causal stages. Favorable perceptions provide an attitudinal foundation, but meaningful transformation also requires routine pedagogical use, appropriate infrastructure and resources, and alignment at the institutional level. Evidence from blended-learning research in Vietnamese NDSE similarly identifies infrastructure and digital competence as preconditions for implementation [19], while institution-specific research at Can Tho University underscores the role of teaching methods and application practices [20]. Adjacent evidence from physical education is used only to illuminate mechanisms relevant to practice-intensive learning, such as video feedback, formative assessment, mobile support, and learner acceptance [3, 15].



Source: Author's conceptualization based on the study design and NDSE literature [18, 20].

Fig 1: Non-causal analytical framework for digital transformation readiness in NDSE.

Materials and Methods

1. Research design

The study employed a descriptive cross-sectional institutional design combining questionnaire data with document analysis, pedagogical observation, and contextual interviews. The quantitative component was used to describe perceptions and patterns of technology use rather than to test causal relationships. Interview and observation

evidence was used only to contextualize the survey findings and was not subjected to a separate formal qualitative coding procedure. The available source records do not support reconstruction of a fully integrated mixed-methods protocol; the qualitative material is therefore treated as contextual evidence rather than as an independently analyzed dataset.

2. Participants and data components

The analysis is based on the participant numbers documented in the available institutional study records. The principal survey component included 25 NDSE lecturers and 120 students. Lecturer items addressed perceived importance of digital transformation and frequency of LMS/E-learning use; student items addressed perceived benefits of digital technology and frequency of using digital applications or devices for self-study and practical training. A separate infrastructure-readiness assessment included 72 lecturers and management staff. Because the available records do not establish whether the 72-person infrastructure group overlaps with the 25-lecturer group, the two samples are reported separately and are not pooled. The records available for this manuscript do not provide sufficiently reliable information on the original sampling frame, recruitment procedure, response rate, or exact data-collection period; these limitations are explicitly acknowledged rather than reconstructed retrospectively.

3. Measures

Questionnaire items used categorical or five-point response formats. Lecturer awareness was measured from "Very important" to "Not important at all." Student perceptions of benefit were recorded on a five-point agreement scale. LMS use was classified as Frequently, Occasionally, Rarely, or Never. Student use of training-support applications/devices was classified as Regularly, Occasionally, or Rarely. Infrastructure adequacy was classified as Fully adequate, partially adequate, or Inadequate. The available study records do not document a formal psychometric validation procedure, the complete item-development process, or pilot testing. Accordingly, the items are treated as single-item descriptive indicators and are not interpreted as validated latent constructs. The term readiness in this article therefore refers to a descriptive pattern across attitudinal, usage, and infrastructure indicators rather than to a standardized readiness score.

4. Data analysis

Data were summarized using frequencies and percentages. No inferential statistical tests were applied because the available dataset is structured primarily as descriptive institutional survey data and does not provide the sampling documentation required for population-level inference. Interpretation therefore focuses on observed distributions, the gap between favorable perceptions and routine pedagogical use, infrastructure constraints, and the consistency of these patterns with NDSE-specific and adjacent literature.

5. Ethical considerations

Participation was treated as voluntary and survey responses were analyzed and reported in aggregate. No personally identifiable information is presented in the manuscript. The available study documentation does not provide a formal institutional ethics-approval code or sufficient evidence to claim a formal ethics-review exemption; therefore, no approval number or exemption status is asserted. This limitation should be considered when interpreting the study and should be addressed prospectively in future data collection through documented informed-consent and institutional ethics procedures where required.

Results

1. Lecturer and student perceptions of digital transformation

Lecturer perceptions were generally favorable. Of 25 lecturers, 12 (48%) considered digital transformation in NDSE very important and 7 (28%) considered it important. Five lecturers (20%) selected moderately important and one (4%) selected slightly important; none selected not important at all. Thus, 76% rated digital transformation as important or very important, while the remaining 24% expressed a more moderate level of perceived priority.

Table 1: Lecturers' perceived importance of digital transformation in NDSE.

Response	Lecturers (n)	Percentage (%)
Very important	12	48.0
Important	7	28.0
Moderately important	5	20.0
Slightly important	1	4.0
Not important at all	0	0.0
Total	25	100.0

Source: Author's survey.

Students also reported predominantly positive perceptions. Among 120 students, 46 (38.3%) strongly agreed and 50 (41.7%) agreed that applying digital technology is beneficial for learning NDSE. Fifteen students (12.5%) were neutral, while 8 (6.7%) disagreed and 1 (0.8%) strongly disagreed. In total, 79.2% expressed a positive perception of digital technology in NDSE. Percentages are rounded to one decimal place and may not be exactly 100%.

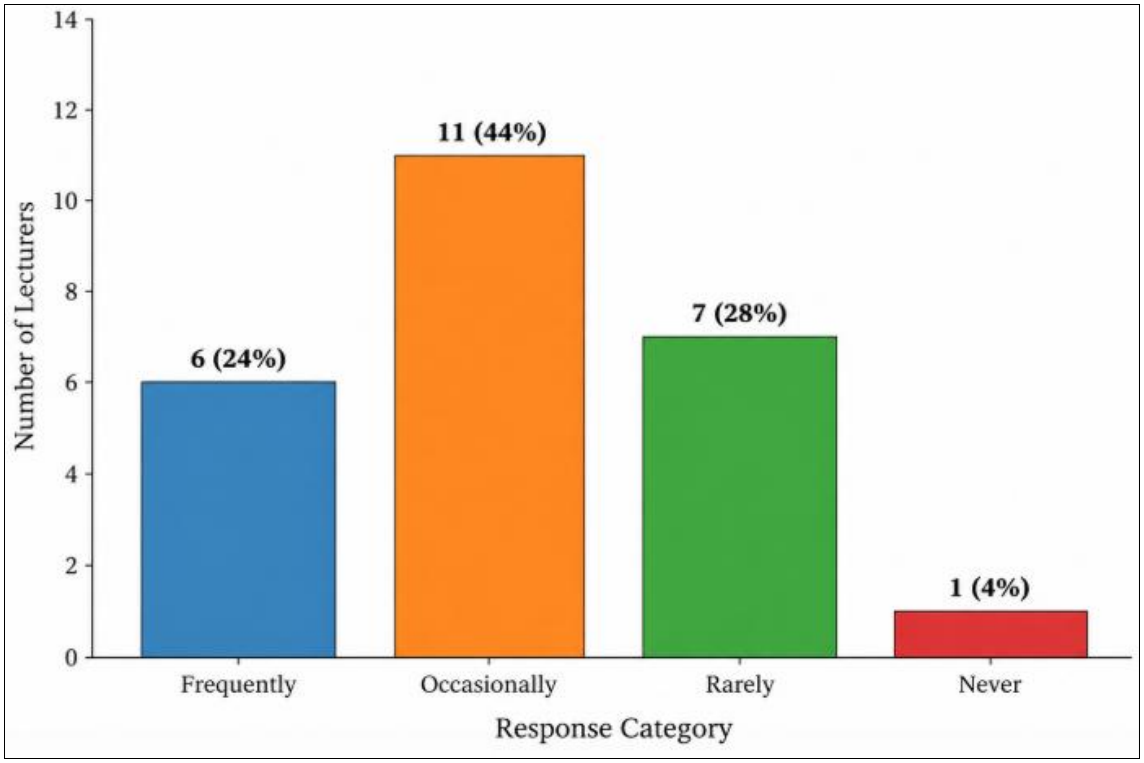
Table 2: Students' perceived benefits of digital technology in NDSE.

Response	Students (n)	Percentage (%)
Strongly agree	46	38.3
Agree	50	41.7
Neutral	15	12.5
Disagree	8	6.7
Strongly disagree	1	0.8
Total	120	100.0

Source: Author's survey.

2. LMS and e-learning use among lecturers

The use of LMS/e-learning platforms was present but inconsistent. Six lecturers (24%) reported frequent use, 11 (44%) occasional use, 7 (28%) rare use, and 1 (4%) no use. The dominant pattern was therefore occasional rather than routine integration. Contextual interview, observation, and document-review evidence further suggested that existing LMS use mainly involved uploading syllabi and teaching plans, sharing reference materials and technical videos, and assigning or collecting theoretical exercises and reflection reports. More interactive functions-such as online testing, discussion forums, formative quizzes, and learning-data analytics-appeared less developed. Because these latter observations were not measured through the frequency item itself, they are interpreted as contextual rather than survey-derived findings.



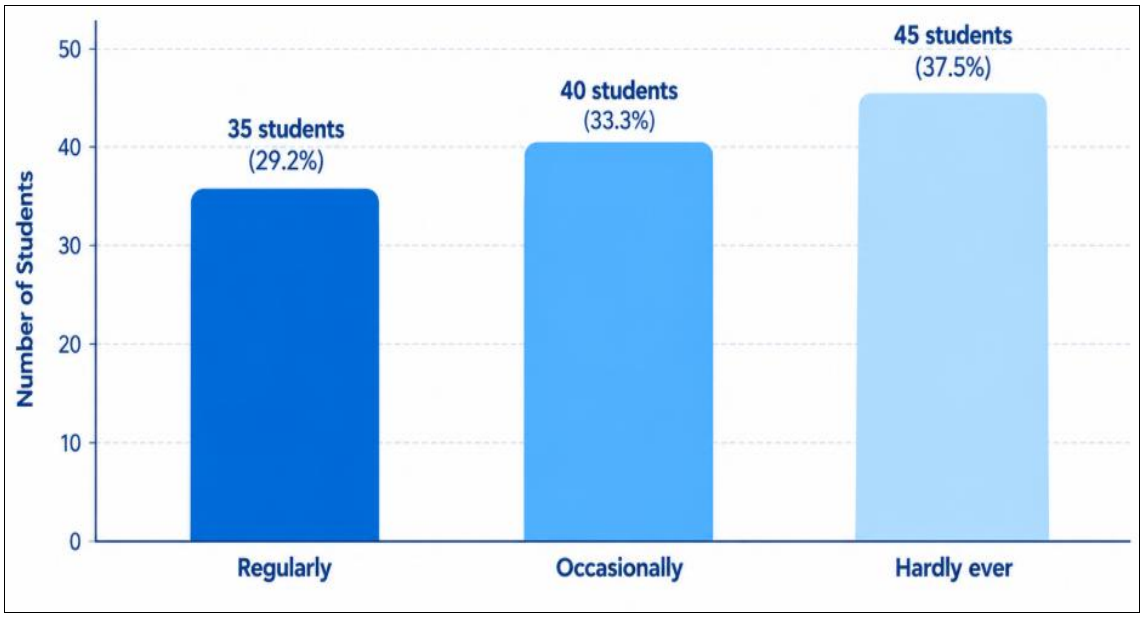
Source: Author's survey

Fig 2: Frequency of LMS/E-learning use among lecturers (n = 25).

3. Student use of digital applications and devices for self-study and practical training

Among 120 students, 35 (29.2%) reported regular use of digital applications or devices for self-study and practical training, 40 (33.3%) reported occasional use, and 45 (37.5%) reported rare use. Consequently, 62.5% used these tools either regularly or occasionally.

The distribution suggests uneven use of digital training-support tools among students. However, because the survey item did not directly measure curricular integration, the data cannot establish the extent to which such use was formally embedded in NDSE courses. The available data do not permit direct testing of whether application use improved learning outcomes.

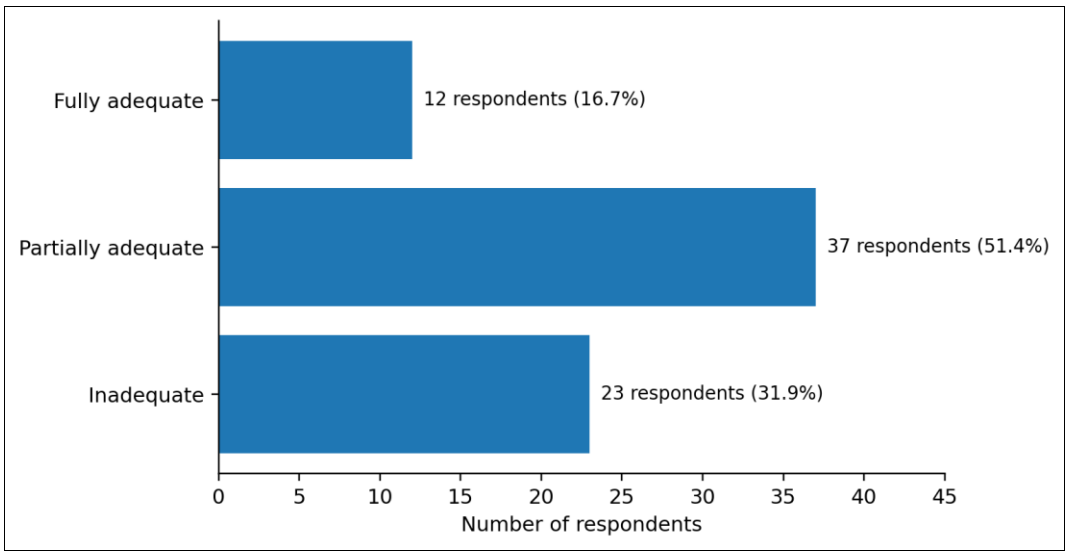


Source: Author's survey

Fig 3: Student use of digital applications/devices for self-study and practical training (n = 120).

4. Infrastructure and digital learning resources

Infrastructure emerged as a major implementation constraint. In the separate assessment of 72 lecturers and management staff, 12 respondents (16.7%) rated the available technical infrastructure as fully adequate, 37 (51.4%) as partially adequate, and 23 (31.9%) as inadequate. The results indicate that most respondents saw the infrastructure as incomplete rather than fully ready for comprehensive digital NDSE.



Source: Author's survey

Fig 4: Perceived adequacy of technical infrastructure for digital NDSE (n = 72).

Institutional strengths identified in the study include an existing LMS, internal email accounts, upgraded internet transmission lines, modern audiovisual classrooms, and an expanding stock of electronic learning materials. The main constraints are concentrated in NDSE-specific environments: Wi-Fi and transmission coverage are not yet complete across training grounds and practical classrooms, and specialized equipment such as cameras, mobile projectors, simulation devices, and practice-support equipment remains limited and fragmented.

Discussion

1. The readiness-implementation gap

The central pattern is a readiness-implementation gap. Although 76% of lecturers rated digital transformation as important or very important and 79.2% of students perceived digital technology positively, only 24% of lecturers reported frequent LMS use and 37.5% of students reported rare use of training-support applications. Positive attitudes therefore provide a favorable foundation but should not be interpreted as evidence of mature digital transformation. Within the analytical framework, favorable attitudinal readiness coexists with uneven routine pedagogical adoption, indicating an early institutional stage in which technology is broadly accepted but not yet systematically embedded in NDSE practice.

This interpretation is consistent with emerging NDSE-specific evidence in Vietnam. Phong's validated digital-competence scale emphasizes that NDSE teacher capacity is multidimensional rather than reducible to willingness alone [18]. Research on blended learning in Vietnamese university NDSE further identifies technological infrastructure and digital competence as key implementation preconditions [19], while evidence from Can Tho University indicates that the content and methods through which technology is applied are central to effective use [20]. Adjacent physical-education research provides additional, but indirect, support for the importance of teacher preparedness and institutional conditions [3, 5, 6]. At HUIT, the next stage should therefore focus less on promoting general awareness and more on converting favorable attitudes into regular, purposeful instructional practice.

2. From content distribution to digitally supported NDSE pedagogy

The current LMS pattern appears primarily administrative and content-distributive: syllabi, plans, resources, videos, and assignments are uploaded, while interactive assessment, discussion, formative feedback, and analytics appear less developed in the contextual evidence. This is a critical distinction. Digital transformation has greater educational value when technology changes the learning process rather than merely replacing paper-based distribution. Direct NDSE evidence from Vietnam shows that blended learning can be organized around the integration of face-to-face and online components when infrastructure and digital competence are sufficient [19]. Adjacent research in university physical education likewise suggests that blended approaches can support learning when digital components are aligned with practical instruction [4]; this evidence is used here as a transferable pedagogical analogy rather than as direct NDSE evidence.

NDSE-specific technologies are especially relevant because practical learning requires timely, concrete feedback and because some course components are conducted in practical training environments. Evidence from adjacent practice-intensive physical education indicates that video, motion-analysis applications, and systematic feedback can support skill learning [11, 13]. These findings should not be assumed to transfer automatically to military and security training, but they justify carefully designed pilots in comparable NDSE activities. At HUIT, a feasible progression would be to strengthen video-based demonstration and feedback, mobile learning support, digital training records, and LMS-supported formative assessment before adopting more complex systems such as advanced artificial intelligence or immersive simulation.

3. Student digital-tool use and implications for curricular integration

The finding that 62.5% of students use training-support applications either regularly or occasionally indicates that many students already report some experience with digital tools for self-study and practical training. However, 37.5% reported rare use, and the available data do not show a

systematic linkage between application use and course learning outcomes. This pattern indicates potential for curricular integration but should not be interpreted as evidence of effectiveness. Digital tools become instructionally meaningful only when lecturers define clear learning goals, appropriate feedback criteria, and rules governing data use, safety, and information security.

Adjacent evidence from physical education suggests that student acceptance of digital media is shaped by perceived usefulness and enjoyment rather than by novelty alone [9]. Because this evidence does not directly concern NDSE, it is used cautiously as a design principle rather than as a discipline-specific finding. In NDSE, digital tasks should therefore have an explicit instructional purpose-for example, accessing verified learning resources, recording appropriate practice performance, monitoring permitted training progress, reflecting on learning, or receiving feedback-while respecting course-specific rules concerning information security, safety, and the use of digital devices.

4. Infrastructure as an institutional bottleneck

The infrastructure assessment is the clearest institutional constraint in the study. Only 16.7% of respondents rated infrastructure as fully adequate, while 31.9% rated it inadequate. In NDSE, connectivity must extend beyond classrooms to training grounds and practical classrooms, and equipment must be portable, durable, and appropriate for practical training settings. The issue is therefore not simply university-wide internet access; it is the availability of NDSE-specific digital infrastructure at the point of instruction.

This finding aligns more directly with recent Vietnamese NDSE research. Blended-learning research identifies technological infrastructure and digital competence as implementation preconditions [19], and the Can Tho University study similarly reports limitations in information-technology application within NDSE teaching [20]. Broader higher-education and adjacent practice-intensive literature also identifies technical resources, support, data governance, teacher training, and equity of access as recurring constraints [7, 8, 14]. Artificial intelligence and intelligent sensing systems may eventually offer individualized feedback and monitoring, but evidence from adjacent fields also highlights accuracy, privacy, security, and unequal-access concerns [7, 14]. For HUIT, infrastructure investment should therefore be staged and linked to clear pedagogical use cases rather than driven by technology procurement alone.

5. Institutional contribution and relation to prior Vietnamese evidence

The contribution of this study lies in its institution-level integration of four domains: lecturer perceptions, student perceptions, self-reported patterns of LMS/application use, and infrastructure readiness. This contribution is narrower but more defensible than claiming to provide a comprehensive readiness index. Recent Vietnamese studies have examined digital competence among NDSE teachers, blended learning across universities, and information-technology application at Can Tho University [18, 20]. The HUIT case complements this literature by showing a specific institutional configuration in which awareness and perceived benefits are relatively strong, whereas routine pedagogical use, specialized infrastructure, and curricular integration remain less developed. The resulting policy question is therefore not whether digital transformation is desirable, but which institutional capabilities should be strengthened first and how progress should be evaluated.

Policy and Institutional Implications

Based on the findings, five institutional priorities are proposed. First, HUIT should embed NDSE within the university's overall digital transformation strategy while establishing NDSE-specific short-, medium-, and long-term milestones. Second, professional development should move beyond basic LMS operations toward digital pedagogy, including video feedback, formative assessment, mobile learning support, responsible use of learning data, and information-security requirements appropriate to NDSE. Third, infrastructure investment should prioritize training grounds and practical classrooms through stable wireless coverage and a modest set of portable devices before advanced technology is scaled. Fourth, the university should progressively build an interoperable digital NDSE ecosystem connecting learning resources, course activities, assessment, and permitted student training records. Fifth, cooperation with universities, national defense and security education centers, and technology providers can support pilot projects, shared learning resources, and technical support, if pilots are evaluated against educational outcomes rather than technological novelty.

Table 3: Evidence-linked implementation priorities for digital NDSE at HUIT.

Empirical finding	Priority response
76% of lecturers rate digital transformation as important/very important	Convert favorable awareness into pedagogical digital-capacity development.
LMS use is mainly occasional and content-distributive	Expand interactive assessment, feedback, and blended-learning functions.
62.5% of students use training-support tools regularly/occasionally	Integrate selected applications into structured NDSE learning tasks.
31.9% of infrastructure-assessment respondents rate provision as inadequate	Prioritize Wi-Fi and portable NDSE-specific equipment in training spaces.
Digital resources exist but remain fragmented	Develop an interoperable NDSE learning and training-data ecosystem.

Source: Author's synthesis.

Limitations and Future Research

The findings should be interpreted considering several limitations. First, the study concerns a single university and therefore cannot be generalized to Vietnamese higher education. Second, the principal lecturer sample is small, limiting subgroup analysis. Third, the study relies mainly on

self-reported perceptions and frequencies rather than direct measures of learning outcomes, digital competence, or observed instructional quality. Fourth, the available study records do not document formal psychometric validation of the questionnaire items; consequently, readiness is represented through descriptive indicators rather than a validated multidimensional readiness scale. Fifth, the available records do not provide sufficiently reliable information on the original sampling frame, response rate, exact data-collection period, or item-development/pilot-testing process. Sixth, the infrastructure assessment uses a separate sample of 72 lecturers and management staff, and the degree of overlap with the 25-lecturer survey sample cannot be established. Seventh, formal ethics-approval documentation was not available for this manuscript. Future research should employ multi-institutional samples, validated NDSE-specific measurement scales, prospectively documented sampling and ethics procedures, and inferential or longitudinal designs. Intervention studies should also test whether specific tools-such as video feedback, simulation, digital practice monitoring, or blended NDSE models-produce measurable improvements in practical-skill learning, engagement, assessment quality, or other clearly defined educational outcomes.

Conclusion

Digital transformation in NDSE at HUIT is characterized by a clear gap between favorable attitudes and deeper institutional integration. Lecturers and students generally recognize the value of digital technology, yet LMS use remains uneven and student use of training-support applications is inconsistent. The extent of formal curricular integration cannot be established from the available data, while NDSE-specific infrastructure remains a substantial constraint. These findings should be understood as descriptive indicators of institutional readiness rather than as a validated readiness index. The evidence supports a staged approach centered on digital pedagogical capacity, training-space connectivity, appropriate practical-training technologies, integrated learning resources and data, and inter-organizational cooperation. For HUIT, the principal challenge is not simply to increase the number of digital tools but to align technology, pedagogy, infrastructure, curriculum requirements, information-security considerations, and institutional strategy so that digitalization produces demonstrable improvement in NDSE teaching and learning.

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References

1. Politburo of Vietnam. Resolution No. 52-NQ/TW on a number of guidelines and policies to actively participate in the Fourth Industrial Revolution, 2019.
2. Prime Minister of Vietnam. Decision No. 131/QD-TTg approving the program on digital transformation in education and training to 2025, with orientation to 2030, 2022.
3. Jastrow F, Greve S, Thumel M, Diekhoff H, Süßenbach J. Digital technology in physical education: a systematic review of research from 2009 to 2020. German Journal of Exercise and Sport Research,2022:52(4):504–528. DOI: 10.1007/s12662-022-00848-5.
4. Wang Y, Wang Y. Effects of blended learning in physical education among university students: a systematic review. Education Sciences,2022:12(8) 530. DOI: 10.3390/educsci12080530.
5. Saiz-González P, Sierra-Díaz J, Iglesias D, Fernandez-Rio J. Exploring physical education teachers' willingness and barriers to integrating digital technology in their lessons. Education and Information Technologies,2025:30(5):5965–5987. DOI: 10.1007/s10639-024-13060-9.
6. Pürgstaller E, Schmeling J, Barkemeyer L, Ullmann M, *et al*. Attitudes of physical education teachers and student teachers regarding digital media in physical education: a systematic review. German Journal of Exercise and Sport Research,2025:55:541–554. DOI: 10.1007/s12662-025-01035-y.
7. Zhong Q, Jiang J, Bai W, Yin Z, Liao Z, Zhong X. Application of digital-intelligent technologies in physical education: a systematic review. Frontiers in Public Health,2025:13 1626603. DOI: 10.3389/fpubh.2025.1626603.
8. Youness M, Ouhrir S, Lotfi S. The effects of digital technologies on physical education outcomes: a systematic review and meta-analysis. Physical Education Theory and Methodology,2026:26(2):230–250. DOI: 10.17309/tmfv.2026.2.02.
9. Mackenbrock J, Kleinert J. Students' acceptance of digital media in physical education—a cross-sectional study. Frontiers in Sports and Active Living,2026:8 1654602. DOI: 10.3389/fspor.2026.1654602.
10. Aydin MK, Yildirim T, Kus M. Teachers' digital competences: a scale construction and validation study. Frontiers in Psychology,2024:15 1356573. DOI: 10.3389/fpsyg.2024.1356573.
11. Müller J, Wagner I. Formative assessment of motor learning through digital tools in physical education: a systematic literature review. European Physical Education Review,2026:32(2):383–403. DOI: 10.1177/1356336X251357207.
12. Yu H, Van Der Mars H, Hastie PA, Kulinna PH. Incorporating a motion analysis app in middle school badminton unit. Journal of Teaching in Physical Education,2022:41(4):729–737. DOI: 10.1123/jtpe.2021-0043.
13. Zhou Y, De Shao W, Wang L. Effects of feedback on students' motor skill learning in physical education: a systematic review. International Journal of Environmental Research and Public Health,2021:18(12) 6281. DOI: 10.3390/ijerph18126281.
14. Zhou T, Wu X, Wang Y, Wang Y, Zhang S. Application of artificial intelligence in physical education: a systematic review. Education and Information Technologies,2024:29(7):8203–8220. DOI: 10.1007/s10639-023-12128-2.
15. Yefremenko A, Krainyk Y, Fedoryna T, Fomenko V, Dolhareva M. Integration of mobile technologies in

physical education: a systematic review of digital learning approaches (2014-2025). Information Technologies and Learning Tools,2025:110(6):1–23. DOI: 10.33407/itlt.v110i6.6324.
16. National Assembly of Vietnam. Law No. 30/2013/QH13 on National Defense and Security Education, 2013.
17. Ministry of Education and Training. Circular No. 05/2020/TT-BGDĐT promulgating the National Defense and Security Education curriculum for teacher-training colleges and higher education institutions, 2020.
18. Nguyen Linh Phong. Construction and validation of a digital competence scale for National Defense and Security Education teachers in the context of digital transformation. HNUE Journal of Science: Journal of Educational Science,2026:71(5):22–31. DOI: 10.18173/2354-1075.2026-0065.
19. Nguyen Linh Phong, Tran Tuan Canh, Ngo Gia Bao. Apply the blended learning model in national defense and security education for university students in Viet Nam. International Journal of Evaluation and Research in Education,2026:15(2):1446–1453. DOI: 10.11591/ijere.v15i2.37236.
20. Ngo Nha Lam Duy, Nguyen Nhat Truong, Cao Ngoc Bau. Reality of information technology application in teaching the national defense and security education at Can Tho University. Can Tho University Journal of Science,2026:62(1):330–338. DOI: 10.22144/ctujos.2026.032.