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ENHANCING SELF-LEARNING AWARENESS AMONG STUDENTS AT HANOI UNIVERSITY OF NATURAL RESOURCES AND ENVIRONMENT IN THE ERA OF DIGITAL TRANSFORMATION

Nguyen Thi Phuong Thu

Hanoi University of Natural Resources and Environment, Vietnam

ABSTRACT

In the context of digital transformation and the Fourth Industrial Revolution, higher education in Vietnam faces new challenges regarding teaching methods and learning approaches. Students' self-learning awareness has become a core competence, determining both learning effectiveness and adaptability to the modern labor market. This article analyzes the theoretical foundations of self-learning, assesses the current state of self-learning awareness among students at Hanoi University of Natural Resources and Environment and identifies existing limitations. To enhance self-learning effectiveness, a set of coordinated solutions is necessary, including: raising awareness and responsibility of the university, improving teaching methods, developing self-learning and digital technology skills, fostering learning motivation, creating a supportive learning environment and providing guidance on effective time management. Implementing these solutions will help students cultivate proactive and creative thinking, improve learning outcomes and better meet the demands of the digital transformation era, thereby contributing to the development of high-quality human resources.

Keyword: Self-learning, University students, Digital transformation, Learning skills, Digital competence, Hanoi University of Natural Resources and Environment

1. INTRODUCTION

In the context of globalization and international economic integration, coupled with the Fourth Industrial Revolution, digital transformation across all sectors has become inevitable. The 13th National Congress of the Communist Party of Vietnam (2021) emphasized: "Rapid and sustainable development must primarily rely on science and technology, innovation and digital transformation. It is necessary to innovate thinking and action, proactively seize and effectively utilize the opportunities of the Fourth Industrial Revolution in conjunction with international integration to restructure the economy, develop the digital economy and digital society, considering this as a decisive factor to improve productivity, quality, efficiency and competitiveness" (Communist Party of Vietnam, 2021). Digital transformation requires individuals to acquire knowledge quickly, flexibly and appropriately, proactively utilizing digital platforms, making self-learning awareness increasingly important.

In this context, self-learning awareness becomes a core competence, playing a decisive role in learning effectiveness, adaptability to professional requirements and lifelong learning ability of students. Self-learning awareness is not only the ability to actively seek, receive and process information, but also the attitude and responsibility of learners in enhancing knowledge, skills and personal competence (Pham Thi Xinh, 2025). For students, self-learning awareness helps develop critical thinking, problem-solving abilities, time management skills and self-improvement. In the digital transformation era, where information is digitized and easily accessible, students lacking self-learning awareness may become overly dependent on technology and fail to develop independent research, critical thinking and effective application of knowledge.

Hanoi University of Natural Resources and Environment, with its mission to train high-quality human resources in the fields of natural resources, environment and science and technology, faces the challenge of enhancing students' proactive

learning abilities. Many students still rely on passive learning methods, lack time management skills and struggle to utilize knowledge from digital learning resources effectively. Moreover, the rapid transformation of the digital learning environment necessitates building students' digital competence, self-learning skills and critical thinking to meet the demands of flexible and effective learning in the context of international integration. Recognizing the vital role of self-learning awareness, researching, assessing the current situation and proposing solutions to enhance students' self-learning awareness is not only theoretically significant but also practically valuable in improving training quality, developing personal competence and preparing students to adapt to modern learning and working environments. This article evaluates the current state at Hanoi University of Natural Resources and Environment and proposes solutions to enhance students' self-learning awareness in the digital transformation era, contributing to the development of high-quality, proactive, creative and sustainable human resources for the country.

2. THEORETICAL BASIS

2.1. Concepts of Self-Learning and Self-Learning Awareness

There are various perspectives on self-directed learning, viewed from different disciplines such as education, sociology and psychology. Three main viewpoints on self-directed learning can be identified: (1) self-directed learning is the conscious and proactive pursuit of learning; (2) self-directed learning involves independently carrying out learning activities; (3) self-directed learning is the use of personal factors to learn effectively. According to Nguyen Hien Le (1992), self-directed learning is the process of exploring and acquiring knowledge independently, without relying on teachers. Ho Chi Minh, on the other hand, emphasized that self-directed learning is a responsibility that requires self-discipline, perseverance, learning coupled with practice, learning at all times and places and lifelong learning. Ho Chi Minh also highlighted the purpose of learning (learning to work, to develop as a person and to serve the community), the content of learning (integrating virtue, knowledge and practice), the method of learning (self-study combined with discussion and guidance) and lifelong learning. Thus, self-directed learning can be understood as the conscious and autonomous acquisition of knowledge, development of skills and cultivation of thought and moral values by the learner.

Regarding self-learning awareness, in Le Chi Lan's work (2020), self-directed learning awareness is considered the learner's self-discipline in studying, independently performing learning tasks without waiting for reminders or instructions. It involves proactively receiving, researching and perfecting knowledge already acquired in school according to the learner's plan. This view is closely linked to school-based learning activities. Therefore, self-directed learning awareness should be understood in a broader sense, as self-directed learning that occurs anywhere and at any time.

From the above perspectives, self-directed learning awareness can be generalized as follows: It is the conscious, autonomous, proactive, positive and creative acquisition of knowledge, the development of skills and the improvement of personal character under specific conditions and circumstances.

The structure of self-directed learning awareness includes: knowledge about self-learning, attitudes toward self-learning, belief in self-learning and determination in self-learning. Clarifying the concept of self-directed learning and self-directed learning awareness provides a foundation for studying the impact of digital transformation on students' self-directed learning awareness.

2.2. Digital Transformation and Its Impact on Students' Self-Learning Awareness

Digital transformation is the comprehensive process of changing lifestyles, work and learning methods based on digital technologies (Ministry of Information and Communications, 2021). Digital technologies include cloud computing, big data, artificial intelligence, blockchain, virtual reality, etc. Digital data refers to information represented in the form of text, numbers, images or sound and can be shared as data messages. Digital transformation affects students' self-learning awareness through factors such as cognition, attitude, belief and determination.

Digital transformation brings many positive effects on students' self-learning awareness. Firstly, it enhances awareness of the importance of self-learning, helps students define clear learning objectives and expands both learning

content and resources. At the same time, it fosters proactivity, creativity and motivation in learning, contributing to higher self-discipline and determination. Additionally, digital tools and platforms allow for personalized learning methods, providing flexibility in time and learning environment.

However, digital transformation also has potential negative effects. Students may struggle to distinguish accurate information in a rich data environment, leading to misconceptions or over-reliance on technology. Moreover, excessive exposure to digital tools and content can cause distractions, reduced critical thinking, lack of focus, decreased self-discipline and lower determination due to attention fragmentation from various digital platforms. Thus, digital transformation both creates opportunities to enhance self-learning awareness and poses challenges that require students to self-adjust, develop learning skills and manage themselves effectively.

3. CURRENT STATUS OF STUDENTS' SELF-LEARNING AWARENESS AT HANOI UNIVERSITY OF NATURAL RESOURCES AND ENVIRONMENT DURING THE DIGITAL TRANSFORMATION PERIOD

3.1. Student Characteristics and Some Digital Transformation Activities at the University

3.1.1. Student Characteristics

Students at Hanoi University of Natural Resources and Environment are mainly between 18 and 25 years old, a youth stage characterized by specific physiological and psychological traits. At this stage, students are forming and refining both their physiological and psychological structures and personalities. They tend to be curious, sensitive, imaginative, fond of novelty and easily influenced by changes in their surrounding environment. This can be both an advantage, allowing students to be quick in perception and a challenge, as a lack of proper guidance and practical experience may lead to deviations in their learning process.

The students come from various provinces, resulting in diversity in personality, lifestyle and learning styles. This diversity directly affects their self-learning habits and how they acquire and apply knowledge in the context of digital transformation. Academically, students are enrolled in a wide range of fields, spanning both technical-natural sciences and social sciences, including environment, natural resources and land management, accounting, tourism management, law, information technology and English language studies. Their thinking backgrounds also vary: students from groups A, B and D tend to lean towards logical and natural science thinking, while group C students focus more on social sciences. Entry scores of students in recent years range from 15 to 27.75, reflecting varied general knowledge levels from average to good. Additionally, students choosing this university often have a passion for natural resources and a sense of environmental protection.

3.1.2. Digital Transformation Activities at the University

The university has implemented various digital transformation activities to enhance management efficiency, teaching and learning support.

First, in service operations, the HUNRE AI virtual assistant provides online consultation and interaction for prospective students, current students and staff, helping them access information on admissions, class schedules, credit registration, conduct scores and administrative procedures.

Second, in work management, the HUNRE TASK and HUNRE ERP software facilitate task assignment and monitoring for staff, lecturers and employees. Despite some limitations such as data entry errors, security risks and dependence on devices, these tools have enabled more effective remote work and task management.

Third, in academic management, the Student Management platform is applied to manage student information and streamline processes although there are still issues with data synchronization and loading speed.

Fourth, in providing digital materials, the Digital Library Center has developed an electronic library and open educational resources. However, many resources are not fully digitized, coverage across all majors is incomplete and access depends on copyrights and technological platforms.

Finally, for online teaching, the university has deployed HUNRE E-Learning with an LMS, supporting lecture uploads, assignment submission, discussions, automatic attendance

and online examinations. From the second semester of the 2023–2024 academic year to the first semester of 2024–2025, online learning has expanded to cover multiple courses and programs, aiming to optimize the digital learning environment. However, during implementation, students and lecturers have still faced challenges related to infrastructure, technological skills and organizational and management processes.

3.2. The Current Status of Students' Self-Learning Awareness in the Digital Transformation Era

To evaluate students' awareness of self-learning in the context of digital transformation, the research team surveyed 564 students from the first to the fourth year. The survey results reflect students' perceptions, goals, methods, difficulties and their ability to apply technology in the self-learning process.

3.2.1. Awareness of Self-Learning

Most students understand that self-learning is a voluntary, autonomous process of actively completing study plans and persisting through difficulties. Specifically, 552 students (97.9%) chose this definition. A small number of students still have limited understanding, considering self-learning as studying alone or not essential, with rates of 0.7% (4 students), 0.9% (5 students) and 0.5% (3 students), respectively. This indicates that students have a correct understanding of the role of self-learning and possess strong will and motivation in their studies.

Regarding the importance of self-learning in the digital transformation era, the majority of students assessed it as "very important" (452 students, 80.1%) or "important" (108 students, 19.1%), while only 2 students (0.4%) considered it less important and 2 students (0.4%) thought it was not important. In total, 99.2% of students recognize the essential role of self-learning in the current period.

3.2.2. Learning Objectives

In terms of learning goals, 456 students (80.9%) stated that their purpose is both to obtain a degree and acquire knowledge. Ninety students (16%) chose to study to gain knowledge only, while 15 students (2.7%) study only for a degree and 3 students (0.5%) study according to trends or family expectations. This shows that the vast majority of students have a clear purpose, combining credentialing with knowledge development, providing strong motivation for self-learning activities.

3.2.3. Self-Learning Methods and Habits

Students prioritize searching for materials on reputable websites (355 students, 62.9%) and materials recommended by lecturers (298 students, 52.8%). The use of artificial intelligence software such as ChatGPT is also relatively common, accounting for 49.3% (278 students), while using materials from all websites is 46.5% (262 students) and school library materials is 34.9% (197 students). This indicates that students actively apply digital technology, but also need skills to select appropriate knowledge effectively.

Regarding the format of study materials, 454 students (80.5%) use both printed and digital materials, 81 students (14.4%) use printed materials only and 29 students (5.1%) use digital materials only. This shows the widespread adoption of digital resources while traditional materials still play a supporting role.

In terms of learning methods, most students combine individual self-study with regular group discussions with peers (380 students, 67.4%) or both group discussions and guidance from lecturers (247 students, 43.8%). Some occasionally discuss in groups and seek lecturers' guidance (198 students, 35.1%), while only self-studying without interaction accounts for 12.1% (68 students) and self-study with frequent lecturer guidance accounts for 10.3% (58 students). This demonstrates that students recognize the importance of discussion and guidance in effective self-learning.

3.2.4. Difficulties in Self-Learning

Students mainly face skill-related difficulties: selecting appropriate knowledge in digital materials (288 students, 51.1%), limited self-learning skills (280 students, 49.6%) and limited digital technology skills (157 students, 27.8%). Learning environment and study space are also challenges for 131 students (23.2%), while lack of devices or internet access affects only 41 students (7.3%). This shows that although students are proactive and use digital technologies, skills in knowledge management and selection remain major challenges.

3.2.5. Learning via E-Learning Platforms

Students believe they perform best when partially using E-Learning for both theoretical and practical courses (178 students, 31.6%) or partially for theoretical courses only (163 students, 28.9%). Full E-Learning for theoretical courses is chosen by 126 students (22.3%), while full E-Learning for both theoretical and practical courses is the least chosen (97 students, 17.2%). This reflects that students still need direct guidance from lecturers and direct interaction with peers to learn effectively, even in the digital transformation era.

3.3. General Assessment of Students' Self-Learning Awareness at Hanoi University of Natural Resources and Environment

Based on survey results and lecturers' observations, it is possible to outline a general assessment of students' self-learning awareness in the digital transformation era, highlighting both strengths and limitations.

3.3.1. Strengths

Overall, students at Hanoi University of Natural Resources and Environment demonstrate a high awareness of self-learning, its role and purpose. Nearly all students (97.9%) correctly understand what self-learning entails and 89.2% recognize its importance in the digital era. In terms of learning objectives, 96.9% of students pursue learning either to gain knowledge or both knowledge and a degree. This awareness provides a strong foundation and motivation for effective self-learning.

Students also effectively utilize both printed and digital learning materials. They primarily rely on reputable websites (62.9%) and resources recommended by lecturers (52.8%), while the use of AI applications ranges from 46.5% to 62.9%. This allows them to access diverse, up-to-date knowledge although it also requires critical selection skills.

In addition, students combine individual study with peer discussions and lecturer guidance. About 67.4% study independently while regularly exchanging ideas with peers and 43.8% additionally seek guidance from lecturers. This collaborative approach not only enhances learning outcomes but also reflects students' proactivity and communication skills.

Furthermore, students show a positive attitude and readiness for E-Learning, with participation rates ranging from 17.2% to 31.6% for partial or full online courses. Most students are motivated in self-learning, with 88.7% reporting high or very high interest and 82.8% dedicating regular time to study activities.

3.3.2. Limitations

Despite these strengths, several limitations are evident. A significant proportion of students rely on all available websites (46.5%) or AI tools (49.3%), which can create challenges in selecting accurate and relevant knowledge. Overreliance on digital tools may also reduce critical thinking, problem-solving abilities and practical skills and can increase the risk of academic dishonesty.

Students self-report limitations in key learning skills: 51.1% feel constrained in selecting knowledge from digital resources, 49.6% in self-learning skills and 27.8% in digital technology usage. Some students face environmental challenges (23.2%) or lack proper learning devices (7.3%), affecting their study effectiveness.

Finally, a small proportion of students show low engagement: 10.6% report limited interest in self-learning, 0.7% have no interest and 16.5% study irregularly. While not the majority, these students require additional support to improve learning motivation and outcomes.

4. SOLUTIONS TO ENHANCE STUDENTS' SELF-LEARNING AWARENESS AND EFFECTIVENESS IN THE DIGITAL TRANSFORMATION ERA

To improve the effectiveness of students' self-learning during the digital transformation era and address current limitations, universities, lecturers and students should implement the following specific solutions:

First, raising awareness and responsibility of the university, faculties, lecturers, class advisors and academic mentors. The development of students' self-learning awareness is not only their personal responsibility but also heavily depends on guidance and support from the university and lecturers. Therefore, self-learning should be considered an integral part of the curriculum, clearly embedded in course syllabi and extracurricular activities. Courses on self-learning skills, knowledge selection in digital environments and the use of technology and AI tools should be

developed to provide students with a solid foundation for proactive and effective knowledge acquisition.

Second, improving teaching and learning guidance methods. Lecturers should apply active teaching methods, diversify instructional approaches, combine theory with practice and encourage students to participate in discussions, independent research, critical evaluation and self-assessment. Organizing small study groups, interactive classes and online guidance sessions allows lecturers to closely monitor students, promptly address questions and enhance the effectiveness of self-learning guidance. Active teaching methods help students develop habits of information seeking, knowledge evaluation and creative application, thereby improving problem-solving and critical thinking skills.

Third, enhancing students' self-learning skills and digital literacy. Students need guidance on study planning, setting specific learning goals for each subject and developing skills to search, select, analyze, synthesize and apply knowledge from digital sources, AI tools and the internet. Mastering these skills not only fosters autonomous learning but also promotes lifelong learning, enabling students to adapt to the rapid development of technology. It also helps them avoid relying on unverified knowledge, improving learning quality and adaptability in the digital era.

Fourth, fostering motivation and a positive learning attitude. Beyond skills, students need to cultivate proactive, determined and enthusiastic attitudes toward self-learning. Universities and lecturers can organize reward programs, seminars, study clubs and experience-sharing activities to create an environment that encourages learning motivation. Developing a positive attitude enables students to take initiative in learning, effectively apply knowledge in practice, build long-term self-learning habits and strengthen independent thinking abilities.

Fifth, creating a conducive learning environment and expanding digital learning resources. Universities should ensure adequate facilities, study spaces, computer labs, libraries and laboratories, along with easily accessible online learning resources. Providing diverse, up-to-date digital resources helps students actively search for information, exchange knowledge and practice self-learning effectively. A supportive learning environment reduces pressure in sourcing materials, allowing students to focus on developing thinking, creativity and learning quality.

Sixth, guiding time management and minimizing distractions. In the digital era, students are easily distracted by social media, video games and other entertainment sources. Therefore, they need guidance in planning study schedules, allocating time for each activity and cultivating self-discipline. Effective time management enables students to maximize self-learning, reduce dependence on lecturers for assignments and enhance academic performance and learning autonomy.

5. CONCLUSION

In the digital transformation era, students' self-learning at Hanoi University of Natural Resources and Environment plays a crucial role in enhancing professional competence, autonomy and the overall quality of human resource training. While students demonstrate a positive awareness and dedicate time to learning, limitations remain, such as overreliance on digital tools, uneven self-learning skills, limited ability to select appropriate knowledge and a portion of students lacking initiative and determination. These limitations arise from both external factors, such as institutional awareness, management mechanisms, teaching methods, class size and learning environment and internal factors from the students themselves. To overcome these limitations and improve self-learning effectiveness, close collaboration among the university, lecturers and students is essential. Recommended solutions include raising institutional awareness and responsibility, improving teaching methods, developing self-learning and digital skills, fostering positive attitudes and motivation, creating a supportive learning environment and guiding time management and distraction control. When implemented comprehensively and effectively, these measures will help students learn more proactively, develop critical thinking and creativity, improve learning outcomes and better meet the demands of the digital transformation era, contributing sustainably to the goal of training high-quality human resources for the country.

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