

ASSESSING STUDENTS' SELF-LEARNING ABILITY: A CASE STUDY AT THU DUC COLLEGE OF TECHNOLOGY

Thu Ngoc Anh Huynh¹, Hung Tri Tang², Thien Huu Nguyen^{2*}

¹*Thu Duc College Of Technology*

²*Dong Nai Technology University*

*Corresponding author: *Thien Huu Nguyen, nguyenuuthien@dnvu.edu.vn*

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ABSTRACT

This research examines the self-learning capabilities of students at Thu Duc College of Technology, specifically those majoring in Finance and Accounting, in the context of the Industrial Revolution 4.0. This study aimed to provide recommendations for improving the quality of student education and training. Quantitative research methods and regression analyses were employed using data collected from 201 students majoring in Finance and Accounting. The results revealed that five factors: Ability to set goals and plan for learning; Learning environment and methods; Ability to recognize and solve problems; Difficulties in the learning process; and Self-assessment of your process influenced students' self-learning abilities. These findings contribute to a better understanding of students' self-learning capabilities and offer practical implications for fostering independent thinking, creativity, and innovation in higher education, particularly in Finance and Accounting.

1. INTRODUCTION

The main goal of higher education – college – has always been to train high-quality human resources, improve personal knowledge, and nurture talent (Adeoye, 2024). At the heart of this pursuit is the role of scientific and technological research in the creation of new knowledge, an aspect that is particularly relevant for students majoring in Finance and Accounting, for whom keeping up with advances is crucial (Maiya & Aithal, 2023). Therefore, focusing on fostering self-study skills is urgent to support students in achieving this goal.

The Education Law No. 43/2019/QH14 also emphasizes the need for educational methods that encourage learners' initiative, self-discipline, and creative thinking. The development of self-learning abilities is an important requirement for meeting the goals set by this law. Encourage self-directed learning in line with the overarching goal of forming well-rounded individuals capable of independent thinking and innovation (Adeoye, 2024; Orn, 2022).

The advent of Industrial Revolution 4.0, has also ushered in transformative changes in many different social sectors, especially in education. The integration of technology and improvement of students' self-learning abilities are urgent requirements for effective adaptation to the digital

learning environment (Altbach et al., 2019; Liang, 2023).

Therefore, the research brings practical significance, contributing to (1) enhancing the quality of student education and training; (2) clarifying students' ability to self-study in the context of Industrial Revolution 4.0; and (3) helping students develop the skills they need to cope with the challenges posed by the age of technology 4.0.

2. THEORY

2.1. Concepts

Proficiency refers to the capacity to execute or fulfill a particular requirement within a specific context or profession. According to the OECD, proficiency is defined as an individual's ability to effectively respond to their own needs within a specific context. Proficiency is considered an individual characteristic that enables them to perform particular tasks and attain desired outcomes under particular conditions (Schneider, 2019).

According to Ngoc (2022), ability is a personal trait that emerges through a combination of pre-existing qualities, learning, and training, allowing individuals to carry out specific activities effectively under particular circumstances (Ngoc, 2022). The authors outlined the fundamental aspects of competence, which are demonstrated through activities and outcomes. The structure of competencies encompasses "knowledge," "skills," and "attitudes." An individual's competence is shaped by their practical or professional experience. In this study, competency refers to a combination of knowledge, skills, attitudes, and individual characteristics, such as quality, interest, and belief that enable the successful implementation and attainment of desired results under specific conditions.

Self-study refers to the process of actively discovering and acquiring knowledge through intellectual capacities such as observation, comparison, analysis, and synthesis (Ahammad,

2023; Ngoc, 2022). It involves using emotions and motivations to gain mastery in a particular field or subject (Ahammad, 2023; Maiya & Aithal, 2023). According to Thu (2020), self-learning is the act of taking action to express oneself and discover knowledge through experience. Additionally, Lan (2022) explained that self-learning involves brainstorming, thinking independently, and utilizing one's personal qualities, motivation, emotions, and worldview to solve problems in a specific area of social life. From the author's perspective, self-learning is a process of self-awareness and self-improvement that utilizes a learner's intellectual abilities and qualities to acquire and retain knowledge.

Self-learning is a multifaceted concept that includes various factors, some of which have been identified by researchers. Candy (1991) listed 12 manifestations of self-learning abilities and divided them into two groups to determine the impact of the learning environment on these factors. The factors identified by Candy (1991) include the followings.

Personality groups include discipline, curiosity, analytical thinking, the ability to self-adjust, flexibility, the ability to communicate socially, be confident and positive, adventurous and creative, and the ability to learn on their own.

Learning method: having knowledge, information gathering skills, and the ability to evaluate, process information, and solve problems.

When exploring the subject of self-learning, Taylor (1995) identified several key characteristics that are indicative of an individual's self-learning ability, including attitude, sense of responsibility for their own learning, desire for personal growth, willingness to take on challenges, and the fact that learning is a need to actively seek out. Additionally, self-learners are characterized by their motivation, independence, confidence, discipline, and ability to engage in purposeful activities. They possess the necessary skills to participate in learning activities, effectively manage their time, and are adept at

planning. Taylor's research (1995) confirmed that individuals who engage in self-learning are highly motivated to learn and persist, possess a strong sense of independence and discipline, and have a clear sense of purpose (Taylor, 1995). They also possessed the necessary operational skills to achieve their learning goals. According to Taylor, attitude, personality, and skills are fundamental building blocks of self-learning.

Self-directed learning is a critical aspect of higher education that piques educators' interest in the domestic sphere. Previous researchers have identified certain traits that distinguish self-learners from others, including their ability to brainstorm, think independently, exhibit passion, perseverance, and willingness to confront difficulties and hardships in order to acquire knowledge. According to these scholars, self-learning ability is a highly intricate skill set that encompasses a range of abilities and techniques that must be accompanied by appropriate motivation and habits to meet the demands of future careers (Lan 2022; Ngoc 2022).

In essence, self-learning ability encompasses learning methods, skills, and content, as well as the overall integration of these elements in various situations and problems. Individuals with self-learning ability have the ability to determine their own motivations for learning, manage their learning independently, maintain a positive attitude towards learning activities, adjust their learning activities, and evaluate their own learning outcomes. This enables them to work independently and collaborate with each other.

2.2. Factors affecting the development of self-learning ability for students

2.2.1. Internal factors of learners

The internal factors that contribute to the development of learners' self-learning abilities include innate, genetic, personality, motivation, interest, and cognition. These factors form the basis of the formation and growth of self-learning skills.

For students, to develop their self-learning abilities effectively, they must be aware of their objectives, training requirements, and the role of self-learning in the learning process. They must also understand the responsibilities and motivations for self-learning, as outlined by Candy (1991), Rasulova and Ottoson (2022), and Zhao (2016).

It is essential that students actively engage in self-study, as their efforts play a significant role in the development of their self-learning abilities. Learners must actively participate in self-learning activities, overcome challenges, and consistently work towards achieving their goals.

In addition, learners must have the ability to think independently, creatively, and apply the theoretical knowledge learned during theoretical credit hours to practical situations, experiments, or discussions. The internal factors that make up the foundation for training and developing learners' self-learning abilities are crucial to their success.

2.2.2. Objective factors

The expectations for class hours, modules, disciplines, and self-study requirements must be clearly understood by each student upon enrolment (Ahammad, 2023; Ramli et al., 2018; Uz & Uzun, 2018). The lecturer's role is to guide the students' self-study efforts and motivate them to maintain their self-learning motivation. This guidance is essential for facilitating group learning, discussion, and lesson preparation. Through the lecturer's orientation, students are taught how to effectively utilize the module's content and knowledge for self-learning.

Physical resources, such as learning materials, lecture halls, and other facilities, are crucial in supporting students' self-study and self-research. To facilitate credit-based teaching, universities must ensure that classrooms and libraries are fully equipped with necessary equipment and materials for students to engage in self-study activities. An open library system and comprehensive reference

materials are essential for students to study independently and outside class hours, as required by lecturers. Classrooms should also be equipped with practical equipment to enable students to practice their professional skills. Self-learning is widely acknowledged to play a significant role in human cognitive activity. In higher education, self-study and self-research are essential tasks. Moreover, these are mandatory requirements, and the duration structure of the subject includes a certain proportion of the time allocated for these activities in credit-based training.

3. RESEARCH METHOD

3.1. Research hypothesis

Ability to set goals and make learning plans

Students with strong goal-setting abilities demonstrated greater self-learning capacities than those with weaker goal-setting skills. This hypothesis is rooted in the belief that setting specific and attainable objectives offers students guidance and inspiration, thereby fostering their engagement in self-directed learning endeavors (Ahammad, 2023; Rasulova & Ottoson, 2022).

Previous research has demonstrated a positive relationship between the efficacy of students' learning plans and their capacity for self-directed learning in the contemporary digital age. Effective planning involves the organization and prioritization of study tasks, scheduling time, and judiciously employing resources. Students who exhibit proficiency in learning planning are more likely to attain greater success in their individual study endeavors owing to their ability to structure and optimize their learning experiences (Juhaňák et al., 2023; Nurjannah et al., 2020).

Students who proactively establish objectives and plan their studies display a heightened ability to adapt to challenges posed

by the digital era, thereby enhancing their self-directed learning capabilities. In an era characterized by information overload and rapid technological advancement, students must quickly adjust to novel learning environments and tools. Proactive goal setting and learning planning can foster adaptability by allowing students to anticipate and respond effectively to shifts in their learning context (Ahammad, 2023; Ngoc, 2022).

Considering the aforementioned issues, the authors assert the following:

Hypothesis H₁: The ability to set goals and make learning plans has a positive effect on the self-learning ability of students in the Faculty of Finance and Accounting in the era of technology 4.0.

Learning environment and methods

Previous research has demonstrated that the learning environment and methods play a significant role in students' self-learning capabilities in the industry 4.0. Students who have access to a supportive learning environment, are equipped with appropriate facilities, and have a collaborative space tend to exhibit greater self-study ability than those in less favorable environments (Ahammad, 2023; Orn, 2022). The emergence of online platforms and digital learning tools has expanded the range of learning methods available to students. These methods, including traditional learning, online courses, and interactive simulations, affect the students' ability to learn independently. With technology increasingly permeating educational activities (Wang, 2023; Zhao, 2016), students must develop skills to utilize technology-enhanced learning tools, such as educational applications and virtual reality simulations, to enhance their self-learning abilities.

In addition to the physical and technological components of the learning environment, sociocultural factors also have a significant impact on students' attitudes, motivations, and behaviors regarding self-study (Ahammad, 2023; Ramli et al., 2018). Cultural norms, social expectations, and peer interactions can either encourage or impede students' engagement in self-directed learning activities. Variables such as individualism, collectivism, academic culture, and social consciousness about education can influence students' willingness to assume responsibility for their learning (Ramli et al., 2018; Thu, 2020; Uz & Uzun, 2018).

Hypothesis H₂: Learning environment and methods have a positive influence on self-learning ability in the era of technology 4.0 of students of the Faculty of Finance and Accounting.

Ability to recognise and solve problems

Students who exhibit proficiency in problem identification will possess a higher level of self-learning ability in the 4.0 era. This hypothesis posits that recognizing problems is a crucial skill that underlies effective self-guided learning (Ahammad, 2023). Students who identify knowledge gaps, difficulties, or challenges in their learning are better prepared to take proactive measures to address these issues and engage in targeted self-guided learning activities (Kim & Kim, 2019; Ramli et al., 2018).

The efficacy of problem-solving abilities positively influences students' self-learning capability in the 4.0 era. Based on the first hypothesis, this proposal suggests that the application of problem-solving techniques and strategies is critical for students to overcome obstacles and achieve their academic goals autonomously (Kim et al., 2017). Students with robust problem-solving skills, such as

analytical thinking, critical reasoning, and creativity, are better equipped to devise and implement solutions to the intricate problems encountered in their self-directed learning pursuits (Ahammad, 2023; Ngoc, 2022).

The incorporation of problem-based teaching strategies enhanced students' capacity for self-directed learning in the era of 4.0. Problem-Based Learning (PBL) is a teaching method that employs authentic real-world problems as a context for learning. This conjecture posits that the use of PBL bolsters students' problem-solving and cognitive abilities, thereby fostering their aptitude for self-initiated learning (Adeoye, 2024; Ahammad, 2023). Through immersion in problem-solving activities resembling those in real life, students cultivate cognitive adaptability, metacognitive insight, and self-regulation, all of which are fundamental aspects of self-learning proficiency.

Metacognition in cognition and problem-solving has an impact on students' self-learning capabilities in the digital era. Metacognition refers to an individual's awareness and management of their cognitive processes, including planning, monitoring, and evaluating learning activities (Orn, 2022; Rasulova & Ottoson, 2022). According to this theory, students' metacognitive skills play a crucial role in identifying problems, selecting suitable problem-solving techniques, and assessing the effectiveness of solutions during their independent study processes (Ahammad, 2023; Kim & Kim, 2019). It is anticipated that higher levels of metacognitive awareness and regulation are positively correlated with students' ability to learn autonomously.

Hypothesis H₃: The ability to recognize and solve problems has a positive effect on the self-learning ability of students in the Faculty of

Finance and Accounting in the era of Technology 4.0.

Difficulties in the learning process

Students with cognitive learning challenges may face difficulties in the era of 4.0, as their ability to process and comprehend information is hindered by limitations, such as learning disabilities, lack of focus, and memory constraints (Ramli et al., 2018; Rasulova & Ottoson, 2022). These challenges may impede their autonomy and proficiency in engaging with digital learning environments and in utilizing online resources (Ahammad, 2023; Kim & Kim, 2019).

Emotional obstacles also had a detrimental impact on students' self-directed learning abilities in the 4.0 era. Emotional factors, such as anxiety, stress, low self-esteem, or lack of motivation, can significantly impede a student's ability to engage in self-directed learning (Borisovich & Anatolievna, 2022). This hypothesis suggests that negative emotional states can undermine students' self-confidence, perseverance, and intrinsic motivation, thus hindering their willingness and ability to achieve self-directed learning objectives (Hia et al., 2018; Rasulova & Ottoson, 2022).

The obstacles posed by environmental factors can impede students' capacity for self-directed learning in the digital age, as per the findings of studies conducted by Borisovich and Anatolievna (2022) and Ramli et al. (2018). These environmental barriers, which include deficient access to resources, disrupted learning environments, and insufficient support systems, may hinder students' ability to engage in self-directed learning activities, even if they possess a high level of intrinsic motivation and cognitive ability. Thus, the hypothesis suggests that external and contextual limitations can restrict student participation in autonomous learning activities.

Hypothesis H₄: Difficulties in the learning process have a positive effect on the self-learning ability of students in the Faculty of Finance and Accounting in the era of technology 4.0.

Self-assessment student's own process

Self-assessment has a significant impact on students' self-learning ability in the 4.0 era. This hypothesis proposes that engaging in regular and structured self-assessment activities can help increase students' awareness of their strengths, weaknesses, and learning needs, thereby empowering them to take proactive steps to improve their academic performance. By regularly assessing their progress, students are better equipped to identify areas for improvement, set meaningful learning goals, and adjust their learning strategies accordingly (Ahammad, 2023; Vosniadou, 2020).

Moreover, the depth and specificity of self-assessment have a significant impact on students' self-learning ability. Effective self-assessment requires students to reflect on their progress in-depth and provide detailed feedback, which will allow them to gain a deeper understanding of their learning processes and make more informed decisions about their learning strategies (Orn, 2022; Ramli et al., 2018; Rasulova & Ottoson, 2022). Therefore, it is important for students to engage in regular and effective self-assessment activities to improve their self-learning ability in the 4.0 era.

The incorporation of self-assessment into the learning process enhances students' metacognitive awareness and self-regulatory abilities, thereby nurturing their self-learning capacity in the 4.0 era (Kim & Kim, 2019; Vosniadou, 2020). This hypothesis posits that engaging in self-assessment activities cultivates students' hypercognitive competencies such as supervising, planning, and regulating their own

learning. Through self-reflection, identification of learning gaps, and goal-setting for improvement, students can achieve greater autonomy, self-competence, and self-direction in their academic pursuits (Borisovich & Anatolievna, 2022; Vosniadou, 2020).

The influence of feedback from friends and instructors on self-assessment exercises had a favorable impact on students' self-learning capacity in the 4.0 era. Recognizing the significance of external feedback in the self-assessment process, this hypothesis proposes that receiving constructive feedback from peers and instructors strengthens the effectiveness of self-assessment (Ahammad, 2023; Vosniadou, 2020). Peer and instructor feedback can provide valuable insights, alternative viewpoints, and actionable suggestions for improvement, thereby facilitating students' self-directed learning.

The incorporation of technology-mediated self-evaluation instruments enhances students' capacity for self-guided learning in the 4.0 era. In an age marked by digitalization and technological advancements, the utilization of digital tools and platforms for self-evaluation purposes is becoming increasingly prevalent (Orn, 2022; Rasulova & Ottoson, 2022). This hypothesis posits that technology-mediated self-assessment tools such as online quizzes, self-assessment surveys, and learning analytics dashboards provide distinct advantages in terms of accessibility, interactivity, and personalization, thereby enhancing students' self-directed learning experiences (Vosniadou, 2020).

Based on the aforementioned points, the authors assert the following:

Hypothesis H₅: Self-assessment of your process has a positive effect on self-learning ability in the era of technology 4.0 for students of the Faculty of Finance and Accounting.

3.2. Data collection and process

Researchers have devised scales to quantify the study variables. To ensure the reliability of the measurements in light of the research context at Thu Duc College of Technology, we initially created a survey questionnaire. The authors subsequently administered a questionnaire to five students to assess the clarity and simplicity of the measures employed in their study. Subsequently, the questionnaire was standardized, and a comprehensive investigation was carried out among students enrolled at the Faculty of Finance and Accounting.

The questionnaire featured a 5-point Likert scale for the independent variables, with 1 indicating "Completely disagree," 2 signifying "Disagree," 3 representing "Neutral," 4 indicating "Agree," and 5 denoting "Completely agree." The dependent variable scale comprised 1 for "poor," 2 for "weak," 3 for "average," 4 for "fair," and 5 for "good." The questionnaire contained 43 questions that were divided into two sections.

Part 1 comprised 37 questions, including six questions under the "Ability to set goals and make learning plans" factor, nine questions for the "Learning environment and methods" factor, six questions under the "Ability to recognize and solve problems" factor, three questions for the "Difficulties in the learning process" factor, seven questions for the "Evaluate your own process" factor, and six questions for the "Self-learning ability in the era of technology 4.0" And, part 2 provided general information about the survey subjects.

The data were collected either directly by the authors or through the use of Google Forms, which was then sent to first-year, second-year, and third-year students enrolled in the Accounting and Finance program at the Faculty

of Finance and Accounting, Thu Duc College of Technology.

The collected data were then cleaned and processed by the authors using SPSS 23 software, and invalid survey forms were discarded. The remaining valid survey forms were used to conduct descriptive statistical analysis, and the reliability of the scale was evaluated using Cronbach's alpha coefficient to determine the correlation between the items on the questionnaire. Exploratory factor analysis (EFA) and multivariate regression analyses were performed to verify the suitability of the research model. Frequency statistics were used to calculate the mean values and standard deviations of the participants for each observed variable, with the level of consent being assessed.

4. RESULTS AND DISCUSSION

4.1. Results of data analysis

The students participating in the survey comprised five first-year students, four second-year students, and two third-year students. Consequently, 139 students participated in the online survey and 67 students participated in the direct survey. Regrettably, five samples were excluded because of insufficient information provided by the survey respondents or because they made identical selections across all questionnaires. Ultimately, 201 valid

samples were included in data analysis. The relevant details pertaining to the students who participated in the survey are as follows:

Table 1. Information of students

Items	Amount	Percent
<i>Academic year</i>		
First year	61	30.3
Second year	82	40.8
Third year	58	28.9
<i>Gender</i>		
Female	181	90.0
Male	20	10.0
<i>Major</i>		
Accounting	182	90.5
Finance	19	9.5

Note: Total of 201 observations

With 201 students participating in the survey and eligible to perform data analysis, ensuring the satisfaction of the minimum sample size of the study, the results revealed that the percentage of second-year students participating in the survey was the largest (40.8%), corresponding to 82 students. This was followed by first-year students (30.3%), corresponding to 61 students, and the rest were third-year students (28.9%). Among them, 90% were female, and 90.5% were majoring in accounting.

Table 2. Results of the reliability of the scale

Factors	Cronbach's Alpha	Accepted scales
Ability to set goals and make learning plans (LAKH)	0.850	LAKH1 to LAKH7
Learning environment and methods (PPHT)	0.829	PPHT1 to PPHT3 and PPHT5 to PPHT9
Ability to recognize and solve problems (GQVD)	0.831	GQVD1 to GQVD6
Difficulties in the learning process (KH)	0.754	KH1 to KH3
Evaluate your own process (DGBT)	0.907	DGBT1 to DGBT6
Self-learning ability in the era of technology 4.0 (NLTH)	0.901	NLTH1 to NLTH6

Based on the summary table of the results assessing the reliability of the independent variables, all five factors of the independent variable exhibited a Cronbach's alpha coefficient that exceeded 0.7. Specifically, the "Ability to set goals and make learning plans" factor comprises six observed variables; the "Learning environment and methods" factor encompasses eight observation variables; the "Ability to recognize and solve problems" factor comprises six observation variables; the "Difficulties in the learning process" factor includes three observed variables; the "Self-assessment of your process" factor encompasses six observation variables; and the "Self-learning ability in the era of technology 4.0" factor comprises six observation variables, each with a total variable correlation surpassing 0.3. Consequently, an exploratory factor analysis was conducted on 41 observational variables.

From the results in Table 3, it was discovered that all factor weights were greater than 0.5, indicating that these variables effectively measured the concept in question. These findings suggest that the scale achieved convergence. Based on the matrix table outcomes, there are factors that influence students' self-learning abilities in the Faculty of Finance and Accounting. These factors are extracted as follows: (1) Setting goals and creating learning plans, consisting of LAKH1, LAKH2, LAKH3, LAKH4, LAKH5, and LAKH6; (2) Learning environment and methods, comprising PPHT1, PPHT2, PPHT3, PPHT7, and PPHT9; (3) Ability to recognize and solve problems, consisting of GQVĐ1, GQVĐ2, GQVĐ3, GQVĐ4, GQVĐ5, and

GQVĐ6; (4) Difficulties in the learning process, including the three variables KH1, KH2, and KH3; (5) Evaluating one's own process, comprising six variables: DGBT1, DGBT2, DGBT3, DGBT4, DGBT5, and DGBT6; (6) Self-learning abilities in the era of technology 4.0, consisting of six variables: NLTH1, NLTH2, NLTH3, NLTH4, NLTH5, and NLTH6.

The findings from the examination of the Pearson correlation matrix between the variables reveal that all correlation coefficients are substantial and exhibit a positive linear relationship between the dependent variable and the independent variables in the model, with the exception of the correlation between the dependent variable and the "Environment and Learning Method" variables, which demonstrates 95% reliability. Among the correlations, the strongest correlation is observed between "Self-learning ability" and "Ability to set goals and make learning plans," with a correlation coefficient of 0.631, while the weakest correlation is found between "Learning environment and methods" and the dependent variable, with a correlation coefficient of 0.118. These independent variables may be incorporated into the model to explain the self-learning ability of students enrolled in the Faculty of Finance and Accounting at Thu Duc College of Technology. Additionally, a multicollinearity test was conducted to assess which independent variables should be retained or eliminated from the model in the regression analysis because of the correlations among the independent variables.

Table 3. Rotated Component Matrix

Items	Component				
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
DGBT2	0.847				
DGBT3	0.840				
DGBT5	0.832				
DGBT6	0.819				
DGBT1	0.790				
DGBT4	0.687				
PPHT6		0.799			
PPHT5		0.789			
PPHT1		0.736			
PPHT2		0.724			
PPHT3		0.684			
PPHT7		0.676			
PPHT9		0.549			
GQVD6			0.812		
GQVD3			0.804		
GQVD2			0.730		
GQVD4			0.692		
GQVD5			0.685		
GQVD1			0.655		
LAKH1				0.767	
LAKH3				0.755	
LAKH5				0.727	
LAKH2				0.727	
LAKH4				0.712	
LAKH6				0.687	
KH2					0.823
KH3					0.814
KH1					0.780

Table 4. Pearson Correlation Matrix

Items		LAKH	PPHT	GQVD	KH	DGBT	NLTH
LAKH	Coefficient	1	0.000	.250**	.173*	.417**	.631**
	Sig. (2-tailed)		0.997	0.000	0.014	0.000	0.000
PPHT	Coefficient	0.000	1	-0.095	-0.044	-0.016	0.118
	Sig. (2-tailed)	0.997		0.182	0.537	0.818	0.094
GQVD	Coefficient	.250**	-0.095	1	.152*	.197**	.383**
	Sig. (2-tailed)	0.000	0.182		0.032	0.005	0.000
KH	Coefficient	.173*	-0.044	.152*	1	0.111	.319**
	Sig. (2-tailed)	0.014	0.537	0.032		0.116	0.000
DGBT	Coefficient	.417**	-0.016	.197**	0.111	1	.404**
	Sig. (2-tailed)	0.000	0.818	0.005	0.116		0.000
NLTH	Coefficient	.631**	0.118	.383**	.319**	.404**	1
	Sig. (2-tailed)	0.000	0.094	0.000	0.000	0.000	

Table 5. Results of testing hypothesis

Hypothesis	Results
H1: <i>The ability to set goals and make learning plans has a positive effect on the self-learning ability of students in the Faculty of Finance and Accounting in the era of technology 4.0</i>	Accept
H2: <i>Learning environment and methods have a positive influence on self-learning ability in the era of technology 4.0 of students of the Faculty of Finance and Accounting.</i>	Accept
H3: <i>The ability to recognise and solve problems has a positive effect on the self-learning ability of students in the Faculty of Finance and Accounting in the era of technology 4.0.</i>	Accept
H4: <i>Difficulties in the learning process have a positive effect on the self-learning ability of students in the Faculty of Finance and Accounting in the era of technology 4.0.</i>	Accept
H5: <i>Self-assessment of your process has a positive effect on self-learning ability in the era of technology 4.0 for students of the Faculty of Finance and Accounting.</i>	Accept

Table 6. Results of regression analysis

Items	B	Std. Error	Beta	t	Sig.	VIF
(Constant)	0.681	0.215		3.168	0.002	
LAKH	0.290	0.033	0.485	8.703	0.000	1.274
PPHT	0.092	0.030	0.150	3.026	0.003	1.011
GQVD	0.163	0.038	0.220	4.241	0.000	1.101
KH	0.114	0.030	0.193	3.826	0.000	1.047
DGBT	0.071	0.028	0.139	2.548	0.012	1.226

According to the results of the regression weighting table, the significance level for the five factors affecting self-learning ability was less than 0.05, indicating that the differences were statistically significant. Furthermore, the variance magnification coefficient (VIF) was less than 2, demonstrating that the regression model was not affected by multicollinearity.

The standardized regression equation for the factors affecting self-learning ability in the era of technology 4.0 for students in the Faculty of Finance and Accounting is as follows:

$$NLTH = 0.485 LAKH + 0.150 PPHT + 0.220 GQVD + 0.193 KHKH + 0.139 DGBT$$

In which:

NLTH: Self-learning ability in the era of technology 4.0

LAKH: Ability to set goals and plan for learning

PPHT: Learning environment and methods

GQVD: Ability to recognize and solve problems

KH: Difficulties in the learning process

DGBT: Self-assessment of your process

4.2. Discussions

According to the statistical results, descriptive and multivariate regression analyses were performed and are presented in the previous section to reflect the self-learning ability of students of the Faculty of Finance and Accounting. The characteristics of these factors are as follows:

Factor "Ability to set goals and make learning plans"

Setting goals and creating learning plans are crucial for providing students with direction and motivation, thus enhancing their

engagement in self-directed learning to boost their self-learning capabilities at the Faculty of Finance and Accounting, Thu Duc College of Technology. The factor "Ability to set goals and make learning plans" had the third most substantial impact on self-learning ability, with a regression coefficient of 0.485 and an average value of 3.57.

The study shows that "I clearly define my learning tasks" is the most significant factor among the six observed variables, with a mean value of 3.73, indicating that students' accountability in defining their learning tasks greatly influences their effective self-study. Therefore, students must understand the importance of clearly defining their learning tasks in order to achieve optimal learning outcomes.

"I identify resources and materials for the subject" ranks second among the six observed variables, with an average value of 3.63. This suggests that finding resources and materials is crucial for students during their self-study. By actively seeking these resources, students can maximize the value of their subjects and improve their self-study experience. The variable "I set short-term goals (daily or weekly) as well as long-term goals (monthly or semester)" has an average value of 3.60, placing it third among the six variables. This indicates that students who independently acquire learning resources can set and achieve learning objectives on short- and long-term bases. Possessing a roadmap allows students to execute their learning tasks effectively without confusion, thereby streamlining and enhancing the learning process.

The statement "I set criteria for my learning tasks" has an average value of 3.57, allowing students to convert general goals into specific, scientifically grounded criteria for

achievement. By focusing on particular content and utilizing resources aligned with each criterion, students ensure that their learning aligns with the subject matter and coursework requirements, thus meeting the necessary subject knowledge standards. Additionally, maintaining a timetable for each subject, which ranks fifth among the six observed variables, aids students in balancing their study time and fostering self-directed learning. Effective time management prevents passive study habits and avoids subject overlap, thus creating a stress-free learning environment.

Lastly, the "I make a plan to carry out learning tasks" category has the lowest average score of 3.39, highlighting the importance of diligent study to achieve self-set objectives. Recognizing this helps students develop the habit of serious study, which is essential for academic progress.

Factor "Learning environment and methods"

Leaders at Thu Duc College of Technology are devoted to providing students with an environment that encourages learning, offers top-notch facilities, and collaborative spaces that cultivate strong self-learning skills. Moreover, the administration at the Faculty of Finance and Accounting has been successful in establishing optimal learning conditions for students. This aspect significantly affected students' capacity for self-learning, with a regression coefficient of 0.150 and an average value of 3.44.

The statement "Every day, I identify tasks that need to be done and keep track of completed ones" has the highest mean value among the nine observed variables, at 4.16. This suggests that students are most engaged in daily small learning tasks, which align with their study plans and meet lecturers' daily and weekly requirements. Failure to complete these

tasks promptly may result in an excessive workload and poor learning outcomes. This dependence on lecturers indicates that students are yet to fully develop their autonomous learning capabilities.

The second most appealing choice for students in the Faculty of Finance and Accounting and Thu Duc College of Technology was to watch inspirational videos when they lacked motivation, which garnered an average interest rating of 3.64. Despite the popularity of this approach, it is important for students to maintain a balance between their leisure and academic pursuits to avoid derailing their study plans. The use of soothing music to facilitate focus and prevent drowsiness during study sessions is a highly effective strategy, as evidenced by its third-place ranking, with an average rating of 3.25 among students in the Faculty of Finance and Accounting.

The fourth highest average value of "I study on my own and read the lesson before the next day, study at home when the lesson is new so that I can absorb the lesson better the next day" is 3.24. Students regularly prepare for class, which facilitates easier learning during the sessions. Furthermore, they immediately summarized lessons after class, saved time, and improved lesson comprehension.

The fifth-highest average value of "I track the progress of achieving my goals" is 3.19. Students from the Faculty of Finance consistently monitor their learning progress to meet goals, which is crucial for habit formation and the immediate adjustment of learning behaviors when deviating from set objectives.

The statement "I always seek to study with people who understand the subject so that I can consult and answer on the spot, rather than studying alone" ranked sixth among the nine observed variables, with an average value of 3.15. In the Faculty of Finance and Accounting,

students frequently seek assistance from knowledgeable peers, foster supportive learning environments, and demonstrate proactive engagement in their studies.

Regarding the two observation variables "I often gather in a group meeting to meet with my classmates directly to discuss and solve problems" and "I often take the time to take notes on questions before learning a new lesson to answer and summarize after a new lesson," students' comments had the lowest average value among the nine variables, close to 3.13. Interaction with peers is crucial for resolving learning issues, and students spend time taking notes on questions before starting a new lesson and summarizing it afterward. These practices positively correlated with the effectiveness of students' learning plans and their self-learning ability in the 4.0 era.

Factor "Ability to recognize and solve problems"

Students who possess a strong ability to identify problems exhibit higher levels of self-learning competence in the 4.0 era. This is due to the fact that recognizing knowledge gaps and difficulties is essential for effective self-study. Students can address these issues by taking proactive measures and pursuing targeted self-learning. This factor had a regression coefficient of 0.220 and an average value of 3.94, which significantly influenced the self-learning capabilities of students in the Faculty of Finance and Accounting. The highest average value (4.06) was observed for the statement "I offered different ways to help me accomplish my goals, even if it is not something I like," indicating that students are committed to achieving their goals and have a strong sense of self-learning.

The second-highest average value, 4.02, was recorded for the statement "I always try different possibilities to achieve my goal,"

which shows that students are dedicated to exploring various learning solutions in order to reach their objectives. This is indicative of their willingness to experiment using different learning methods. The third-highest mean, 3.98, was found for the statement "I'm tracking how my plan is going," demonstrating that students consistently monitor and assess their study plans, which is a sign of responsibility in their academic pursuits.

The statement "I am capable of executing plans" was evaluated with an average score of 3.88, placing it in the fourth position. Students assess their self-learning abilities based on their plans and develop strategies to make the most of the available learning resources to achieve their objectives.

The lowest scores, 3.81, were observed for the statements "I will promptly address issues when they arise" and "I am confident in the goals I set, and I will strive to attain them." This indicates that students are relatively confident in recognizing and resolving learning challenges and believe in their ability to fulfill the set objectives. According to the survey, students from the Faculty of Finance and Accounting possessed effective self-learning strategies in the 4.0 era.

Factor "Difficulties in the learning process"

Students who experienced cognitive learning difficulties often exhibited lower levels of self-learning capabilities in the 4.0 era. These challenges were compounded by emotional and environmental barriers, particularly for Finance and Accounting students, with a regression coefficient of 0.193 and an average value of 3.93. The statement "I have trouble maintaining focus on long-term learning plans" recorded the highest average value of 3.62. Prolonged study periods without adequate rest can result in emotional and

physical exhaustion, further diminishing self-learning abilities in this technological era. The statement "I have trouble remembering all the things I need to accomplish" registered the second-highest average value of 3.56. Students who grapple with multiple simultaneous plans without clear objectives may experience psychological stress and lethargy, directly impacting their self-learning capabilities.

Furthermore, "I have trouble maintaining concentration while studying on my own" recorded the lowest mean value of the three observed variables at 3.49. This suggests that overstudying can cause students to tire and affect their health. Emotional factors, such as anxiety, stress, and low self-esteem, can significantly impair students' ability to participate in self-directed learning.

Factor of "Self-evaluation of your process"

Self-assessment is crucial to enhance self-learning abilities. By engaging in structured self-assessment activities, students can increase their awareness of their strengths, weaknesses, and learning requirements. This factor, ranked third in influencing the self-learning ability of Finance and Accounting students, had a regression coefficient of 0.139 and an average value of 3.31.

The statement "I managed my emotions after implementing the plan" demonstrated the highest average value of 3.52, showcasing students' proactive attitudes and behaviors post-implementation. "Thinking about your past efforts when setting new goals" followed closely behind with the second-highest average value of 3.50, reflecting students' mature mindset about their progress in self-research and self-study to achieve new goals. These findings suggest that students are encouraged to continue to enhance their self-learning abilities.

After implementing the plan, the average score of "My academic performance improved" was the third highest at 3.47, indicating that students recognized an improvement in their self-study and demonstrated their motivation to continue enhancing their learning process. The fourth highest average score, "When I fail at something, I try to learn from my mistakes," was 3.46, showing that periods of self-study enable students to identify and correct their mistakes, thereby fostering more effective self-learning without discouragement. The fifth highest average score, "I feel accomplished when I complete tasks on time," was 3.45, suggesting that following a structured plan and goals, students felt that timely completion brought happiness and excitement, thereby enhancing their self-learning abilities. The lowest average score, "I discovered my strengths and weaknesses after implementing the plan," was 3.41, indicating that Vietnamese students' lowest average score in identifying their strengths and weaknesses suggests that they have not yet fully assessed this factor, signaling the need for lecturers to assist them in this area.

5. CONCLUSION

The Faculty of Finance and Accounting at Thu Duc College of Technology in the 4.0 technology era is particularly relevant and aligned with current trends. Industrial Revolution 4.0 is transforming various societal aspects, from production and business to education. Integrating technology into the learning process is a global trend and necessary requirement for enhancing the quality of education. Online learning, especially promoted during the COVID-19 pandemic, underscores the importance of self-study. This skill enables students to adapt to the digital environment and fosters independent and critical thinking. Therefore, studying and assessing students' self-learning abilities,

particularly in finance and accounting, is both necessary and practically significant.

The study reveals that factors enhancing students' self-learning capacity are positively correlated with "Students' Self-Learning Ability in the Era of Technology 4.0." The impact levels are as follows: "Ability to Set Goals and Make Learning Plans" has the strongest impact ($\beta = 0.485$), followed by "Ability to Recognize and Solve Problems" ($\beta = 0.220$), "Difficulties in the Learning Process" ($\beta = 0.193$), "Learning Environment and Methods" ($\beta = 0.150$), and "Self-Assessment of Your Process" with the lowest impact ($\beta = 0.139$).

Recommendations and Strategies

It is crucial for students to develop self-study, planning, research, document acquisition, organization, and self-assessment skills. These interrelated skills play a significant role in determining the success of self-study, and students should utilize various techniques and strategies to effectively manage and adapt their learning activities to achieve optimal academic outcomes.

To achieve success in self-study, students must first accurately identify their learning motivation goals. From the outset, lecturers must ensure that students have a clear understanding of the main objectives, content, and learning methods. This clarity helps students acquire knowledge and skills relevant to their future professional activities, fostering a positive attitude towards self-learning and continuous improvement.

To facilitate an effective self-study, students should create a detailed study plan tailored to their individual circumstances. After identifying priorities, they must logically organize tasks in terms of content and time, focusing on completing each part sequentially,

as outlined in the plan. This approach ensured a smooth learning process.

Improve students' ability to receive, process, and integrate information for educational activities. Furthermore, students must acquire external information to broaden their comprehension skills. Students must discerningly process and categorize information to bolster their studies and enrich their knowledge bases.

Instructors hold a vital position in steering and inspiring students' independent studies during classes, solitary studies, and research intervals. They must provide assistance, nurture, and support students promptly when self-study initiatives are mandated, systematically execute these activities, and sustain interactive rapport with students.

Lecturers must provide students with a comprehensive module outline prior to exploring the content of each module. This assists students in understanding the learning material, effectively managing their time, and engaging in proactive self-study and research to achieve module objectives and meet output standards. Lecturers should direct students to prepare by reading the syllabus and reference materials based on the suggested questions, equipping them with foundational knowledge and confidence to participate in problem solving during class. This preparation enables students to recognize critical issues, actively engage in lectures, and deepen their comprehension of module content.

Lecturers must employ various teaching methods to stimulate students' innovative thinking and ensure effective knowledge acquisition. They should organize online counseling sessions to aid learners in self-study, guiding them through planning, document searching, and problem-solving. Ongoing assessments through individual and group

exercises, large assignments, essays, projects, and tests are essential. Lecturers must evaluate and provide feedback on students' self-study and research and identify strengths and weaknesses to encourage self-learning. Enhancing student support with a comprehensive and up-to-date reading and online library system is crucial for meeting learning needs.

Ensuring that students have access to the necessary facilities, equipment, and a conducive learning environment is crucial for promoting self-study. This includes providing additional spaces for students to read and study, as well as maintaining a quiet, comfortable, and academic atmosphere. Reliable Wi-Fi and online lookup rooms are also essential for students to access necessary resources. Policies and activities that encourage and reward self-study can foster a research-oriented environment and enhance students' self-learning capabilities.

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