



DESIGNING INTERNSHIPS FOR THE DEVELOPMENT OF DIGITAL SKILLS OF AGRICULTURAL STUDENTS IN VIETNAM

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Abstract

To prepare citizens for the digital era, the Vietnamese government has issued guidance for higher institutions to play a vital role in cultivating digital skills. However, these institutions face challenges due to limited digital technology capacity, resulting in inadequate skill development. To address this, they collaborate with industries through internships to provide students with opportunities to enhance their digital skills in real work settings. Nonetheless, the strategies that higher institutions have implemented in designing internships for the development of students' digital skills are questionable to the public. Hence, this study aimed to explore the educational strategies implemented by higher education institutions in Vietnam to design internships that enhance learners' digital skills. Using a qualitative approach, primary data was collected through interviews with six policymakers from a higher institution in southern Vietnam, and additional data was gathered from documents related to internship and curriculum designs. Thematic analysis of the data revealed several strategies implemented in internship design, including curriculum design, pre-internship preparation, stakeholder regulations during internships, and evaluation actions. These strategies were identified as major themes for effective internship designs and the development of students' digital skills. The study also suggests various applications for multiple stakeholders and highlights the need for further research in this area.

Keywords: *designing internships, development of digital skills, agricultural students, Vietnam*

Introduction

The rapid digitalization in recent decades has gradually formed new trends for almost all aspects of human activities, and especially, it strongly affects the market force, shaping new forms of the nature of vacancies worldwide. As Restuccia (2019) noted, a significant majority of low-skill job postings (77%) require candidates to have digital skills, while intermediate (85%) and high-skill (75%) job postings require a higher level of digital proficiency. The demand for digital skills in the workforce is also evident in the earning potential of such skills. Jobs that require digital skills have an average income of approximately £40,000, which is 40% higher than jobs that do not require digital proficiency, whose average income is around £28,600. Furthermore, the demand for digital skills in both developed and developing nations is high, although it is lower in inquiry in developing nations compared to it in developed nations (Yungshin, 2021).

To assist students in preparing digital skills for employability, educational institutions worldwide have initially tried to equip the digital skills to their learners; however, it is recognized that this effort is just in the initial stage (Jackman et al., 2021). Therefore, there have arisen two key issues in the teaching of digital skills to students at the higher institutions, and these issues have been a big concern for higher institutions worldwide. The first issue is the need to deal with the equipment of digital technology. With adequate digital technology capacity, institutions can offer learners a suitable digital environment, which strongly supports

the enhancement of students' digital skills (Scottish Government, 2016). The second issue is the need for attention to the nature of the curriculum design, as a curriculum design that promotes digital usage across the whole training course is the most suitable for the development of digital skills of students (Diana et al., 2016). Critically, solving these two issues is often the difficulty to many educational institutions worldwide. Although the constructed theories (Diana et al., 2016; Rouvrais et al., 2020) suggested the cooperation between the university and industry as the feasible approach to solve the lack of technology at the educational campuses, the obsolete technologies still lead to the hinderance of the development of digital skills to learners (Devaux et al., 2017).

In Vietnam, similar to other nations, the Vietnamese central government released the Educational Management Innovation strategy, understanding the vital role of digital skills in the success of work, study, and entertainment of its people. The strategy aims to boost various kinds of digital skills in students, such as information technology, internet usage, e-communication, and the ability to operate essential digital tools to improve life standards further (Pham & Nguyen, 2020). In line with the series of plans for educational reform for social-economic development, which is called Doi Moi (Prime Minister of Government, 1997; Duggan, 2001), the guidance on curriculum innovation for higher institutions around the nation has been provided with a focus on market orientation. Due to the recent evaluation of the need for a market force in digital skills (World Bank, 2021), higher institutions in Vietnam have included the training of various digital skills in the curriculum design to better assist and enable students to develop digital competency (Nguyen & Anita, 2021). However, the concern on the curriculum design is not enough to assist learners to improve digital skills sufficiently, as higher institutions in Vietnam have encountered a severe lack of digital technology on their campuses (Phung, 2021). To better solve this issue, many higher institutions have been collaborating with the industry to bridge the gap in market demands and solve the lack of technology in higher institutes by sharing technology from the industry (Hoc & Trong, 2019). For instance, on July 4th, 2018, Hanoi University of Science and Technology and SAP Corp from Germany signed a contract for collaboration in the development and enhancement of digital skills.

Well-constructed theories on university-industry collaboration (UIC), as reported Dunbar (2013), Wallin et al. (2014), and Jiboku and Akpan (2019), have proven that learners can enormously enhance their competencies through UIC programs or projects that prioritize students as the key beneficiaries. Theories on UIC also suggest that internships are a key program under the UIC approach, which can bring significant benefits to learners (Ankrah & AL-Tabbaa, 2015). This nature of UIC is not exclusive to developing nations, including Vietnam. Proper studies, such as the one conducted by Nguyen and Nguyen (2020), as an example, which focus intensively on UIC in the context of Vietnam, are in line with other existing theories on this topic, proving the vital role of internships in the development of students' competencies under UIC.

However, since the central government released the first policy on teaching IT in educational institutions in 2007 (Pham & Nguyen, 2020), there has been a shortage of evidence and often unclear information on the approach of higher educational institutions in designing internships with an intensive focus on developing learners' digital skills. It is possible that higher institutions in Vietnam have not sufficiently and professionally focused on internship designs to help students scale up their digital skills. This study aimed to shed light on the strategies that higher institutions in Vietnam have implemented in their internship designs to enhance students' digital skills. To achieve this aim, the study developed two research questions that were used to guide the research design for practical activities and the interpretation of findings.

1. How important are digital skills in the objectives of internship designs in higher institutions in Vietnam?
2. What are the strategies that higher institutions in Vietnam have applied to design the internships for the development of digital skills of learners?

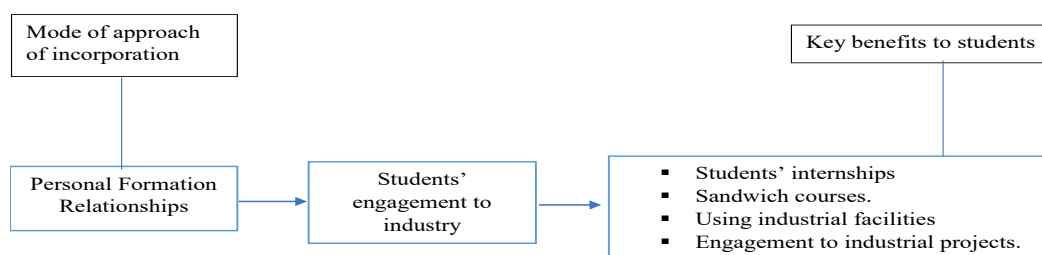
Literature Review

Internships as University and Industry Cooperation for Students' Benefits

The notion of cooperation between universities and industry (UIC) is said to have originated in the early 18th century (Borrell-Damian, 2009). Since then, it has become a popular educational trend in recent decades (Behrens & Gray, 2001). The concept of UIC has been widely adopted across nations, including both developed nations (Gertner et al., 2011; Lee & Win, 2004; Lehrer et al., 2009; Woolgar, 2007) and developing nations (Mgonja, 2017; Jonbekova et al., 2020). The widespread application of UIC is driven by its value-added benefits, particularly in terms of technology sharing and collaborative development between academia and industry for the benefit of various stakeholders (Bekkers & Bodas-Freitas, 2008). Based on this purpose, UIC can bring benefits to multiple stakeholders, including industrial staff, higher education staff, and students (Antonia et al., 2021; Franco et al., 2019; Laursen et al., 2011; Plewa et al., 2015). Regarding students' benefits, UIC focuses on the design of internship programs aimed at enhancing students' employability and employment prospects. Through these programs, students are exposed to technical competencies and other skill sets that meet market demands (Bernarte, 2014; Chang & Chu, 2009). A well-organized internship can potentially help students make progress and improvements in specific domain competencies, increasing their employment possibilities (Afonso et al., 2012) while also enhancing their learning motivation and satisfaction (Stansbie et al., 2013).

Figure 1

Students' Benefits for Having UIC (Ankrah and AL-Tabbaa (2015))



Internships' Design for Students' Development in Digital Skills

Taking internships into consideration in curriculum design can bring various benefits to students (Busby & Gibson, 2010; Busby, 2005; Gibson & Busby, 2009). Generally, an internship is an industrial-based activity in which higher education students experience real tasks in a working environment within a scheduled timeframe (Anjum, 2020). It is described as a one-time service experience with the primary objective of preparing students for their careers (Koc et al., 2019). According to literature, well-organized internship programs can cover approximately 80% of the tasks that students learn in universities (Marsono et al., 2017). An effective internship can enhance students' employability by providing them with an opportunity to familiarize themselves with workplace tasks and further strengthen their competencies (Thiyazan & Kamal, 2021).

Like the development nature of other skills, higher institutions can offer their students an opportunity to improve their digital competency through internship programs (European Commission, 2017; Patrick, 2019). However, the existing literature does not provide specific evidence regarding the design of internships for the explicit purpose of developing digital skills

in students. When it comes to competency development, the design of internships to enhance digital skills is not expected to differ significantly from other skills. The general approach to designing an effective internship for competency development is to consider various input elements (Ramadhani & Rahayu, 2020). The input should encompass all the essential elements necessary for the success of the internship program in helping students enhance their digital competency. These key elements should include the relevance of the competency to curriculum training objectives and the real working environment, students' characteristics, and the involvement of multiple stakeholders during the internships.

Important Elements in Consideration for Effective Internships

To ensure the success of students' development in internships and the acquisition of expected skills, it is essential to implement suitable design strategies. Firstly, it is worth noting that curriculum design is the core element for the success of internships (Abuhusain et al., 2009; Ramadhani & Rahayu, 2020). If the curriculum can equip students with the fundamental knowledge and skills relevant to real market demands, students are more likely to develop their competency sufficiently during the internship. Secondly, the activities carried out by multiple stakeholders during the implementation of internships are vital for assisting students in skill development (Phoebe, 2010; Sudiyatno et al., 2020). All stakeholders involved, including students, industrial staff, and faculty members, should be engaged and follow specific regulations to ensure their activities support the internships. Therefore, it is crucial for all stakeholders to receive sufficient information about internships (Purnomo et al., 2020). Thirdly, it is essential to consider the nature of tasks assigned to intern students to ensure they benefit from them (Phoebe, 2010). The tasks and work undertaken by students during the internships should support the development of their expected skills; otherwise, they may fail to enhance their skills during the internship. Finally, great attention should be paid to students' characteristics for the success of internships (Phoebe, 2010; Ramadhani & Rahayu, 2020). Various personal characteristics of students can potentially affect their success in improving during internships. Key factors include self-knowledge, basic competency, self-regulation, and effort in learning.

Demand for Vietnamese Higher Education in Cultivating Digital Skills to Students

The Doi Moi reform, which began in 1986, aimed to modernize the educational system to meet the demands of the labor market (Duggan, 2001). Specifically, the reform emphasized that education and training should focus on socio-economic development, and training programs should consider the social needs of the time to provide effective solutions for social development policies (Prime Minister of Government, 1997). In order to achieve the objectives of the reform, higher education institutions have conducted a critical assessment of the market demands (Tri & Nhe, 2021). This assessment has revealed the urgent need for higher institutions to produce graduates equipped with various digital skills (Pham & Nguyen, 2020). In addition to cultivating digital skills within their settings, higher institutions also collaborate with the industry, placing special emphasis on internships to enable students to develop the necessary skills, particularly in the digital domain (Bilsland et al., 2014; Bilsland & Nagy, 2015).

Research Methodology

Approach

This present study employed a qualitative approach as the research design, which allows researchers to gain a comprehensive understanding of the contexts and participants' experiences (Teherani et al., 2015). Instead of using a quantitative approach, qualitative design is suitable to this study, as it allows the researcher to gain an in-depth understanding of the elements surrounding the learning issue, with the ability to explain the nature of phenomena in the cohort of “how” and “why” (Cleland, 2017). Hence, with the purpose of gaining insights into the strategies for designing effective internships for students' development on digital skills, a qualitative method was suitable to seek the information to answer the research questions.

Instrument and Data Sources

This study utilized documents and interview protocols as the primary sources of data. The documents used included the curriculum framework, curriculum objectives, and internship designs of two selected departments at a university in Vietnam, from 2015 to 2021. These documents were considered important as they provided critical background information relevant to the study's context (Bowen, 2009). Semi-structured interviews were the main data collection instrument used. These interviews provided a balance between allowing participants to freely express their perspectives while maintaining some level of control to ensure accurate answers (Jamshed, 2014; Magaldi & Berler, 2020). The semi-structured format was chosen as it allowed for the exploration of the participants' viewpoints on the research objectives. Additionally, this format enabled the interviewers to restate or clarify respondents' viewpoints through follow-up questions (Kajornboon, 2004).

Location

The study was conducted at a renowned agricultural university in the southern part of Vietnam, which is known for its innovative approach and support for the nation's innovation movement. The university is recognized for promoting curriculum and teaching innovations in line with market demands (Le et al., 2022; Hoang et al., 2023). Also, it is experiencing rapid growth and offers a range of innovative programs that integrate digital technology into teaching and learning. It provides 30 programs across 15 faculties, including the Faculty of Agronomy and the Faculty of Fisheries, among others, to ensure students acquire the necessary skills to meet market demands in various fields.

Participants

In this study, purposive sampling was employed using a non-probability sampling method (Campbell et al., 2020). This approach was chosen to select participants based on their professional expertise, ensuring that they could provide valuable insights related to the research questions (Yin, 2011, pp. 93-96). Six staff members from two departments, namely Aquaculture-Seafood Science and Agronomy from the selected university, were recruited for the study. Prior to their involvement, their consent to participate in the study was obtained to adhere to ethical guidelines. The selection criteria for participants included: (1) their involvement in curriculum and internship design between 2015 and 2021, (2) their understanding of the significance of digital skills in curriculum and internship objectives, and (3) their clear comprehension of the strategies employed in designing internship programs to enhance students' digital skills. The

recruited participants included deans, vice-deans, and program chairs. The majority of them had over 15 years of experience in curriculum and internship design, while two participants had 5 or 6 years of experience. On average, the participants had 13 years of professional experience in the field.

Table 1
Overview of the Demographic Information of the Participants

Participants	Gender	Departments	Experience-years in internships' design
Staff 1	Male	Aqua-Seafood	20 years
Staff 2	Male	Aqua-Seafood	16 years
Staff 3	Male	Aqua-Seafood	15 years
Staff 4	Male	Agronomy	16 years
Staff 5	Female	Agronomy	6 years
Staff 6	Male	Agronomy	5 years

Data Collection

The research process began by sending invitation letters to three departments at the selected university: Agronomy, Aquaculture-Seafood Science, and Food Science. The researcher sought access and acceptance to conduct the study in these departments. To comply with the requirements of the university, the researcher contacted the International Relations Office (IRO) of the selected university to obtain approval for conducting the study on campus.

After receiving approval from the IRO in December 2021, the researcher sent invitation letters, along with the study objectives and a list of interview questions, to the three selected departments. In late January 2022, responses were received from all the departments. The Department of Food Science declined to participate, while the heads of two departments, Aquaculture-Seafood Science and Agronomy, agreed to appoint staff members to take part in the research, based on the provided criteria. The Department of Aquaculture-seafood Science had a total of 5 staff, but only three staff members met the criteria settled. Similarly, in the department of agronomy, only three staff members satisfied the settled criteria, among the total of 5 staff. Hence, in the end, the researcher obtained a total of six potential candidates. After sending the consent informed form to all candidates to sign to get their full consensuses to join the study, the researchers and candidates discussed the suitable times and places for the interviews.

On February 5th, 2022, the first interview was conducted with the first participant and by 15 March, the last interview was carried out to close the data collection procedure. All the interviews were conducted in the form of online, via Zoom, with a face-to-face approach. Also, all the interviews were recorded with the participants' agreement to aid in the coding process. Each interview took approximately 60 minutes.

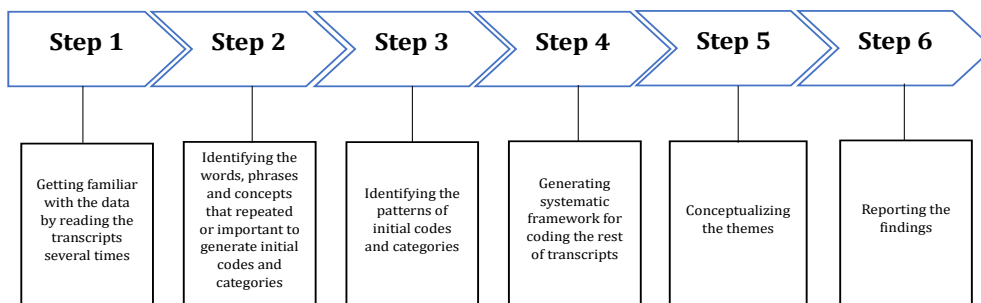
Table 2
Overview of the Sources of Data Collected

Departments	Interviews	Documents
Aqua-Seafood	Staff (n = 3)	Documents related to the curriculum objectives and internship program's design (2015-2021)
Agronomy	Staff (n = 3)	Documents related to the curriculum objectives and internship program's design (2015-2021)
Total 6		

Data Analysis

There are two techniques for the data analysis. For the documents, qualitative content analysis was applied to analyze the documents (Kohlbacher, 2006). While, on the other hand, for the recorded interviews, they were all transcribed into Vietnamese, and then were translated into English by the author before they were processed through the thematic coding process. The coding process followed six stages, as outlined by Braun and Clarke (2006): becoming familiar with the data, creating initial codes, identifying themes, reviewing and refining the themes, defining the themes, and presenting the findings as indicated in Figure 2. To facilitate the coding process, the MAXQDA, a qualitative data analysis software was used. In the first stage, the researchers became familiar with the data by carefully reading the transcripts multiple times. From this process, they generated initial codes and categories by identifying similar ideas or phrases in the transcripts. These codes and categories were then organized to create a systematic framework, which served as a guide for coding the remaining transcripts. As the coding process progressed, the researchers continuously reviewed and refined the themes to ensure accuracy and consistency. Irrelevant phrases were eliminated during this stage. Once the coding process was completed, the researchers extracted the codes and sorted them into their respective categories and themes. The final framework of themes was conceptualized, and appropriate headings were assigned. The researchers used the coded data to interpret the findings of the study.

Figure 2
Procedure of the Thematic Coding for Data Analysis



Trustworthiness

The study ensured various elements of trustworthiness, as suggested by Nowell et al. (2017). Credibility was achieved by employing appropriate data collection methods and recruiting qualified participants. Purposive sampling was predominantly utilized to select staff members with specialized knowledge relevant to the research questions, and stringent criteria were established to ensure the inclusion of highly qualified participants. Furthermore, as the study solely relied on semi-structured interviews for data collection, a comprehensive list of interview questions was developed under the guidance of experts. Trial interviews were conducted, and modifications were made to the questions before the actual interviews. The findings of this study, which focused on internship design strategies in the context of Vietnam as a developing nation, hold significant value due to their high applicability and transferability to stakeholders in developing nations worldwide. Moreover, confirmability was upheld through a meticulous coding process, and external experts examined and validated the themes and categories derived from the analysis before interpreting the findings (Nowell et al., 2017).

Ethical Considerations

In this study, the name of the university is hindered from the text upon the request of the heads of the selected departments. Also, the names of all participants and their working positions were ignored to be mentioned in the text. These actions were to uphold the basic principle of the qualitative approach, with a specific contract between the researcher and participants.

Research Results*Digital Skills on the Objectives of Internship Designs*

The themes for this research question highlighted the vital roles of training in digital skills in both internship and curriculum designs at the selected departments. Additionally, there is a need to consider the timing of when students undertake their internships.

Digital Skills in the Objective of Curriculum and Internship Designs

The obtained data revealed that training digital skills was one of the major objectives of the curriculum designs, the digital skills were classified into three main domains: information technology or informatics, communication technology, and generic foundation technology. Information technology and communication technology skills were trained throughout all courses with the assistance of teachers. On the other hand, generic foundation digital skills were mostly cultivated through practice in the laboratories.

In the period of 2015–2021, and continuing until the present time, we have placed great emphasis on the development of students' digital skills in the curriculum objectives. This focus aims to enable students to perform tasks in diverse demanding environments, including informatics, various communicative approaches using digital platforms, and the operation of modern digital technology. Students primarily acquire informatics and communication technology skills throughout the teaching and learning process, while also gaining generic foundation digital skills through training tasks in the laboratories... (Staff 2).

Concerning the internships' design, respondents said that digital skills were a major concern for the development of these skills in a practical working nature.

The internships are primarily concerned with the development of students in the practice of these skills...however, the attitude and the knowledge related to the training program are also a concern of the internship design... (Staff 6).

Structure of the internships in curriculum designs

The total time that Selected university students had to spend on internships was 3.5 months, and this time span included the time needed for two internship programs. Internship I was about 1.5 months, and Internship II was about 2 months.

At our department, students are highly required to undertake two internships, Internship I and Internship II. Internship I is required to be taken at the end of the first year, while Internship II is required to be taken at the end of the second year. The total time of internships - time that students must undertake should be about 3.5 months. Internship I is about 1.5 months long, and Internship II is for two months... (Staff 4).

It was also shown that there was no distinction in the intensification of the level of skills and knowledge of these two internships, as they were organized to offer students chances to familiarize themselves with a wide range of skills and knowledge related to the training programs.

Internship I and Internship II do not differ in terms of the level of practical experience. Internship I aims to familiarize students with skills and knowledge related to basic agronomy courses, such as farm management and irrigation systems. On the other hand, Internship II provides students with an opportunity to become acquainted with the operation of tools for specific purposes in agronomy, such as conducting soil quality assessments or evaluating the quality of fertilizers... (Staff 3).

Students are required to complete both Internship I and Internship II. These two internships are not distinct in terms of the level of skills and practical knowledge they provide. However, they collectively offer students opportunities to acquire skills and knowledge in seafood technology. While Internship I allows students to become familiar with the process of feeding aquatic species for consumption, Internship II offers them the chance to become acquainted with the seafood production process...(Staff 5).

Times for internships to be taken

Respondents have noted that between 2015 and 2021, there was a change in its internship strategy. During this period, students were required to complete Internship I and Internship II in their first and second academic years. This strategic shift aimed to gain insights into students' performance and development in digital skills, enabling the department to provide further assistance in enhancing their digital skills effectively.

We realized that postponing internships until the end of the training programs was not the most effective approach to support students in developing the expected skills. Therefore, we now require students to complete Internship I and Internship II in the first and second year. This adjustment in the timing of internships allows us to continue assisting students in enhancing their technology skills based on their performance outcomes during the internships... (Staff 3).

Strategies that Higher Institutions in Vietnam Have Enacted to Build up the Internships for Students to Take Enhancement of Digital Skills

Strategies for the Preparation of Pre-Internships

Curriculum designs

Based on the participants' responses, approximately 30% of the courses were found to provide students with knowledge and skills related to the use of technology. In these courses, students had the opportunity to integrate with the digital environment and utilize technology to enhance their foundational knowledge and digital skills.

About 30 percent of the total courses offered in our departments enable students to comprehend the fundamental usage of digital tools and equipment within the agronomy program. By completing these courses, students can become familiar with operating digital machinery at the internship sites... (Staff 1).

The respondents highlighted that digital competency was included as a significant objective in the curriculum designs. Moreover, the integration of the digital environment was implemented in each course to provide students with more contextual opportunities for developing their digital skills.

Every course provides students with the chance to enhance their IT skills. Teachers have been instructed to familiarize students with the usage of tools such as Excel, Microsoft Word, and PowerPoint. Additionally, digital platforms like Facebook and Zalo are utilized for group discussions. This enables students to engage with the basic digital environment, thereby assisting them in enhancing their practical digital competency... (Staff 4).

The respondents emphasized that curriculum designs aimed to equip students with the necessary knowledge and skills to operate digital tools and machines that are in demand in the Vietnamese labor market, in order to prevent students from being either overqualified or underqualified.

Our focus is on developing digital competency to meet the job competition in the current labor market of Vietnam. The courses offered in their setting provide students with the appropriate skills and knowledge in digital competency. This strategic approach ensures that students are neither overqualified nor underqualified in terms of digital competency, aligning with the market demand at the time of their graduation... (Staff 5).

Students' readiness

Respondents asserted that for successful internships, students were expected to be involved in preparation before the internships. Firstly, students were assisted in becoming aware of the importance of digital skills for their career effectiveness and advancement.

If students do not participate in the preparation, they might not be able to improve their digital skills during their internships. As a result, we always assist students in understanding the significance of digital technology in people's lives during the digital transformation. We also help them realize that without sufficient digital competency, they may struggle to perform well in the workplace and hinder their career progression... (Staff 2).

Secondly, respondents indicated that short-term courses were provided, typically lasting about one week, to equip students with workplace knowledge and strategies related to work-based learning.

Since internships are a form of work-based learning, the most effective way to assist students in enhancing their digital skills is by training them with appropriate strategies for work-based learning. Therefore, we offer students short-term training courses to help them grasp the key points of work-based learning strategies. These courses also provide students with workplace knowledge, including rules and regulations... (Staff 5).

Concerns about digital technology capacity at the industrial partners

All the respondents emphasized that the presence of digital equipment at the internship sites is crucial and has a significant impact on the success of students in developing their skills during their internships. Consequently, it is expected that industry partners have access to modern and up-to-date digital technology.

In our department, we are unable to provide the digital technology and machines necessary to support students' learning due to the rapid evolution of technology in the labor market. Therefore, we require companies interested in being our partners to be equipped with modern technology, with a particular emphasis on digital technology... (Staff 3).

Secondly, respondents claimed that industry partners are required to prepare jobs that help students experience the digital working environment.

The companies within our network of collaboration are required to prepare or offer jobs that allow our students to experience a digital working environment. The environment is diverse, so the jobs should provide students with opportunities to either become accustomed to IT skills and communication using digital tools or jobs that involve the operation of digital machines... (Staff 6).

Additionally, due to the limited number of industry partners, students are strongly encouraged to choose the companies they are interested in. However, it is essential that they select firms that meet the standard requirements for digital facilities and environmental conditions.

Given the limited number of partners who meet our requirements, we permit and encourage students to search for firms for their internships. However, the firms chosen by students must fulfill the standard requirements for digital facilities and provide a digital working environment suitable for the nature of the internships... (Staff 3).

Strategies for Having Sufficient Criteria for the Implementation of the Internships

Students' responsibilities

The respondents stated that the departments assist students in understanding the basic rules and regulations to help them cultivate the appropriate attitudes during their internships. As part of the short-term training courses, students are provided with information about the rules and regulations that apply when they participate in internship programs. The objective of this training is to equip students with the necessary knowledge and attitude required in the workplace... (Staff 1).

Furthermore, respondents emphasized that students are strongly urged to follow the instructions provided by their intern supervisors as it is crucial for assisting them in developing their digital skills adequately.

Internships are an integral part of the curriculum designed to cultivate students' expected skills and knowledge. Therefore, students receive evaluations based on their performance and development during the internship. It is also expected that students strictly adhere to the instructions and advice given by their supervisors, as the comments from supervisors can have a significant impact on the learning outcomes of the students... (Staff 5).

Intern instructors' roles

The respondents stated that qualified staff members were assigned as intern supervisors to guide students during their internships. These supervisors had multiple responsibilities. Firstly, they closely monitored the performance of students as they carried out tasks at the internship sites. Secondly, in cases of urgency, they acted as consultants or mentors for students, assisting them with any issues they encountered during their internships. Thirdly, the supervisors collaborated with the companies to discuss and assign suitable tasks to each intern, ensuring that they were on the right track to develop their digital competency.

We appoint staff members to act as intern supervisors for students during their internships. The supervisors' responsibilities include providing instructions and guidance to students regarding their performance during the internships. They also serve as the main point of contact for students in urgent situations. Additionally, the supervisors work directly with the companies to discuss and allocate appropriate tasks and responsibilities to each intern. It is expected that the supervisors will closely monitor and ensure that students have sufficient opportunities to develop their digital competency... (Staff 2).

Benefits to students during internships

The respondents emphasized that intern students would be highly motivated to excel in their internships if they were treated fairly. As a result, various provisions were included on the list of support for intern students, which are provided by industry partners. These provisions include standard working hours per day, adequate salary, and days off.

Given that the purpose of internships is to facilitate the development of students, companies interested in becoming our internship partners must agree to treat intern students with the same basic benefits that regular employees are entitled to. For instance, companies cannot compel interns to work more than 8 hours per day, and they should provide interns with a salary and allocate days off, just as they do for their regular employees... (Staff 5).

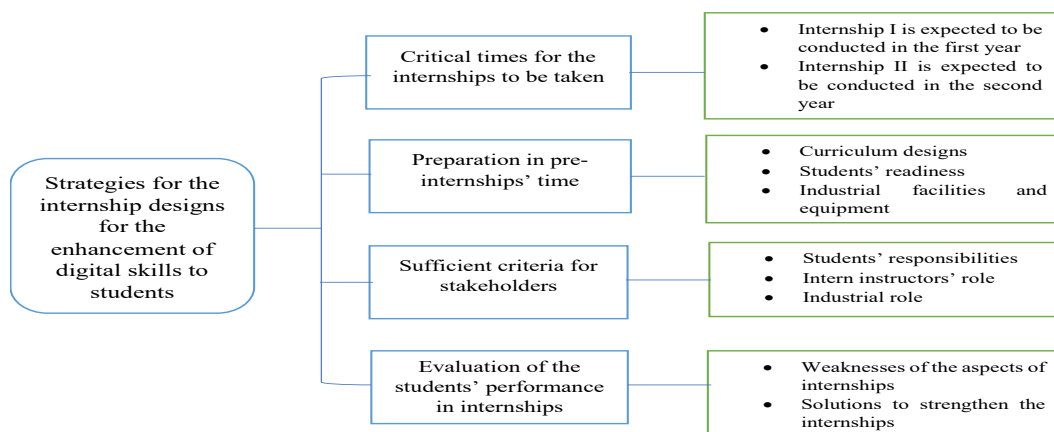
Evaluation of intern students' performance

The respondents highlighted that data evaluation concerning the performance of students during their internships was utilized to improve various aspects of the program. The main focus was on enhancing the curriculum design, the performance of intern supervisors, and the support from industry partners. The evaluation data for internships were collected from multiple stakeholders, including students, intern supervisors, and companies.

We conducted evaluations not only to identify weaknesses in the internship program but also to find solutions for addressing those weaknesses. Our primary concern during evaluations was to enhance the curriculum design and better prepare students for the challenging tasks in the professional world. We observed and collected data on the performance and ideas of students to develop improved procedures that would assist them in enhancing their digital skills. Our main focus during evaluations was to enhance the performance of intern supervisors and the support provided by industry partners, thereby fostering the development of interns' digital skills... (Staff 4).

Figure 3

The Summary of the Key Findings on the Strategies that Higher Institution in Vietnam Use to Design Internship for students' Digital Skills Development



Discussion

In recent decades, digitalization has gradually transformed various aspects of societal activities, including the educational sector. Among these transformations, the domain most affected by digitalization is the capacity for digital technology. Consequently, the enhancement of learners' digital skills is significantly impacted (Timotheou et al., 2022). To address the challenges arising from the lack of digital technology, there is a growing call for the utilization of internships as an effective approach to help higher education learners improve their digital skills (European Commission, 2017).

Similar to many higher education institutions in developing nations across the globe, institutions in Vietnam are also confronted with substantial difficulties in equipping their campuses with digital technology for teaching and learning purposes. The limited technology capacity has led these institutions to prioritize internships as a crucial method to facilitate learners in effectively enhancing their digital skills. The design of internships for developing digital skills bears a resemblance to that of cultivating other skills. The primary objective of internship design is to support skill development through practical tasks within an authentic working environment (Abuhusain et al., 2009; Akomaning, 2019; Boots et al., 2009; Nguyen & Nguyen, 2020).

The success of students in developing the desired skills during internships is significantly influenced by the clarity and comprehensiveness of the objectives outlined in the internship design (Tolboom & Van-Rooyen, 2021). Recognizing this, the departments at Selected University have placed great emphasis on designing internships that enable learners to enhance their digital skills. Scholars such as Abuhusain et al. (2009) and Ramadhani and Rahayu (2020) proposed that curriculum designs that align with the nature of internship tasks can effectively facilitate skill development. Accordingly, Selected University has integrated digital skills as a focal point in the curriculum designs of their training programs. At Selected University, digital skills are categorized into three domains: information technology, communication technology, and generic foundation digital skills. Information technology encompasses proficiency in utilizing software applications such as Excel, Microsoft Word, and PowerPoint. Additionally, it involves the ability to employ statistical software for data organization, analysis, and interpretation. Digital communication, another objective of the university, emphasizes learners' competence in utilizing various digital platforms such as emails, Zalo, Facebook, Zoom, Google Meet,

and forums for effective communication, information sharing, and research. Lastly, operational digital skills encompass the aptitude to proficiently operate digital tools and machines pertinent to the specific learning programs. The incorporation of these digital skill domains into the curriculum design objectives was informed by an evaluation of market needs, ensuring that students are adequately prepared to excel in the professional realm (Akomaning et al., 2011).

In addition to the focus on curriculum design, the preparation and collaboration among various stakeholders play a crucial role in the success of internships for developing learners' digital skills (Akomaning, 2019). Adequate pre-internship preparation is essential for achieving the desired skill development during internships (Abdelrahman et al., 2022). Selected university has recognized these principles and implemented comprehensive guidance for multiple stakeholders involved in internship activities, including higher institutions, industry partners, and students, to ensure effective preparation prior to student recruitment for internships. Regarding higher institutions, competition-based curricula have been adopted to align with the demands of the labor market (Abuhusain et al., 2009). Understanding the increasing importance of digital competency in the labor market, Selected university has made training students in digital skills a primary objective in the curriculum designs of its departments. This includes dedicating a specific percentage of courses to develop students' proficiency in using digital tools and machines. Moreover, information and communication technology skills are integrated throughout the entire learning program with the guidance of teachers (Kieu, 2022). The university's laboratories are also equipped with digital technology tools and devices that resemble those used in industry firms in Vietnam. This strategy aims to ensure that students are well-prepared to effectively carry out tasks in the workplace during their internships (Anjum, 2020; Ramadhani & Rahayu, 2020).

In addition to the readiness of students, various approaches were carried out to assist learners in adequately preparing for their internships and enhancing their digital skills. One approach focused on teaching and learning activities, aiming to raise students' awareness of the importance of digital skills. This initiative significantly increased learners' motivation to develop their digital skills, aligning with the rapid digitalization happening in the country (Pham et al., 2021). Short-term preparatory courses, lasting approximately one week, were also provided to students. These courses aimed to provide them with valuable information on how to enhance their skills and knowledge during their internships. However, it's important to note that these short-term courses did not provide students with simulated experiences of real working environments, as recommended in the study by Laack et al. (2010). Furthermore, Selected university established criteria for companies interested in becoming internship partners. These criteria ensured that applying companies or firms were equipped with sufficient digital technology and facilities to be eligible as internship partners. The primary demand from industry partners was to offer students a digital working environment that would best facilitate the improvement of their digital skills (Adeosun et al., 2022). This demand was also taken into consideration when students selected the companies for their limited participation in the internship programs.

To ensure that students can effectively develop their digital skills during their internships, Selected University established various criteria and regulations for multiple stakeholders involved in the internships. Students were strictly instructed to acquire knowledge and adopt appropriate workplace attitudes to adhere to the regulations of the intern companies, including workplace rules, communication etiquette, and effective task performance strategies (Simelane et al., 2021). Similar to other reputable universities like RMIT University, Selected University assigned instructors to interns to enhance the quality of the internships (Bilsland & Nagy, 2015). These intern instructors collaborated with industry partner staff to discuss tasks for each intern and also served as consultants or mentors to students facing challenges during their internships (Marsono et al., 2017). While this study's findings had limitations in assessing the

continuous skill and knowledge updates of Selected University's intern instructors to effectively assist students in their internship development (Stephens, 2011), it is expected that Selected University's intern instructors possess sufficient skills and knowledge based on the evaluation of internship data. Recognizing the role of a basic wage in motivating students' performance during internships, Selected University's departments required industry partners to provide intern students with fundamental benefits, as the internships organized and designed by Selected University were not unpaid (Rothschild & Rothschild, 2020). For paid internships, the basic required benefits were similar to those provided to regular employees. These included providing clear instructions for assigned tasks to intern students, assisting students with accommodation, ensuring intern students work standard hours per day, and providing a basic salary and holidays to intern students (Marsono et al., 2017).

To address the weaknesses of the internships more effectively, the departments of the Selected university conducted yearly evaluations of the internship programs. The evaluation data were obtained through reports from multiple stakeholders, including the intern students, intern supervisors, and the companies. The departments of selected agricultural universities provided proper guidance for the reports, including a specific format to ensure clear information from both students and companies. Various agenda items were included in the evaluation process to drive improvements based on the evaluation results. However, the primary concerns in evaluating the development of digital competency at selected departments focused on enhancing curriculum design, improving the quality of intern instructors, and enhancing the quality of the internship environment (Amer & Ismail, 2014).

Conclusions and Recommendations

With a qualitative approach and utilizing documents related to internship design, this study conducted semi-structured interviews to gather perspectives from six policymakers representing two departments, Aquaculture-Seafood Science and Agronomy, at selected universities. The objective was to understand their strategies in developing internships and enhancing students' digital skills. The study's findings demonstrate that digital skills are a major focus in the curriculum designs of higher institutions in Vietnam. Various digital skills, such as informatics, communication, and proficiency in operating digital tools and machines. The purpose of internships was to practically enhance these digital skills and other competencies of students. To effectively improve students' digital skills during internships, recommended strategies include designing curricula that allow practical development in a working environment and evaluating the digital equipment and tasks offered by industry partners before collaboration. Additionally, intern supervisors play a crucial role in monitoring and supporting students' progress in developing their digital skills.

Based on the findings, this study offers practical applications for multiple stakeholders. Firstly, other higher institutions in Vietnam or developing countries can use the findings as guidance to enhance their curriculum and internship designs, facilitating students' development of digital skills to prepare them for the job market. Secondly, students worldwide can utilize this study to enhance their readiness, focusing on increasing their motivation and implementing work-based strategies during internships. The study provides valuable information for companies interested in collaborating with higher institutions, emphasizing the importance of supporting students' digital skill development and preparing their digital infrastructure for successful partnerships.

However, it's important to note that this study relied on a qualitative approach with specific research objectives, and as such, it did not test the effectiveness of the strategies discussed. Therefore, further evaluation of the quality of internship designs in higher institutions is recommended, including assessing the probability of skill development among students

during internships. The study also acknowledges the vital role of intern supervisors in students' success in skill development during internships, but it does not provide detailed information on their specific duties. Thus, further discussions on the roles of intern supervisors in effectively enhancing students' skills during internships are suggested.

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