

# THE ROLE OF VIETNAMESE HIGHER EDUCATION IN HUMAN CAPITAL DEVELOPMENT IN THE INDUSTRY 4.0

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## ABSTRACT:

In the Industry 4.0, human capital is one of the vital components of the digital economy. The changing global environment calls for developing new capabilities for human resources. This empirical study uses a mixed research method to interview and survey students in different majors studying at different Vietnamese universities. The study's results show that the training needs have changed. In the study, some recommendations are made about the development of transformative education system based on the shared commitments between the government and businesses, and education as a premise for human capital development strategy in the digital economy.

**Keywords:** human capital development, Vietnamese higher education, learning motivation, transformative education system, digital economy.

## 1. Introduction

The core of the Fourth Industrial Revolution (Industry 4.0) is digital transformation. The digital economy operates based on vital components including hard and soft infrastructure, telecommunication networks, and human capital. In the digital economy, knowledge and creativity decide the competitive advantage and global connectivity of a country. The World Economic Forum (WEF) and the Organization for Economic Cooperation and Development (OECD) reported that future labor would require sustainable job skills and global competency in response to increasingly unpredictable environmental changes (Robertson, 2021; Whiting, 2020). The impact of Covid-19 has changed worldwide education. In Vietnam, from 2020 to 2022, The Ministry of Education and

Training (MOET) focused on ensuring safe learning in the Covid-19. The Minister of the MOET stated that "The development of human capital is a critical objective in any condition".

It is predicted that artificial intelligence replicating the human brain will arrive as soon as 2030. The digital transformation national strategy of Vietnam until 2025 towards 2030 promotes digitalizing all aspects of the economy including digital government, digital business operations, and digital education. The future of digital education in Vietnam depends on the information technology (IT) infrastructure, the collaboration between government and technology and telecommunication network enterprises as well as compatible skills of human resources. The present challenge for Vietnamese higher education is the disconnection

between economic growth and human capital development as well as higher education performance (Parajuli et al., 2021).

Much international and domestic research identified the learning motivation of students as a reflection of training quality, learning environment, and self-regulatory (Fajri et al., 2021; Luu Chi Danh et al., 2021; Schunk & DiBenedetto, 2020). As different cultures and contexts require different motivation tools and motivation of students is situated perspective (Pintrich, 2003), recognition of changing training needs for students will help Vietnamese higher education to develop the right human capital development strategy. Initially, the research aims to identify learning motivation and its determinants in Vietnamese students. Next, the research aims to identify changing training needs for the new generation of Vietnamese students. Consequently, the research expects to gain insight to give recommendations for Vietnamese higher education concerning human capital development strategy in the digital economy.

## **2. Literature review**

The literature review firstly defined the concepts of motivation and learning motivation; secondly identified the determinants of learning motivation and thirdly recognized changing training needs of the new generation of students. The results of the literature review identified the research gap in the topic of learning motivation and human capital development strategy in the digital age.

### ***2.1. The concepts of motivation and learning motivation***

Maslow's theory of human motivation defined human needs as a hierarchical model consisting of physiological needs, safety needs, love or belonging needs, esteem needs, and self-actualization needs. When people felt satisfied with basic needs, they looked for the satisfaction of advanced needs such as confidence, others' respect, others' admission to success, and self-fulfillment. The social-cognitive theory suggested motivation as a predictor of personal behaviors of choice, effort, persistence, and achievement (Schunk & DiBenedetto, 2020). Environmental surroundings including instruction, standards, feedback, and rewards affect motivation.

Learning motivation included intrinsic and

extrinsic motivation (Fajri et al., 2021). Intrinsic motivation included personal goals and consistent behavior to achieve goals. External environments such as teachers, school, and friends influenced extrinsic motivation. Objectives of learning motivation include awareness (understand and solve a problem), self-esteem (obtain social status) and affiliation needs (epistemology) (Fajri et al., 2021).

### ***2.2. Determinants of learning motivation***

The engagement theory suggested that the use of technology and teaching methods (project-based learning, team collaboration) enhanced engagement and interactions (Kearsley & Schneiderman, 1999). The engagement theory suggested that computer attributes (usable, aesthetic and sensory, challenging, controllable, responsive) enhanced user engagement (O'Brien & Toms, 2008). The self-regulatory theory explained that students' belief in desirable behaviors adjust their will and actions to achieve goals (Kuyper, Van der Werf & Lubbers, 2000). Students made behaviors depending on their experience and observation of others on how they got rewards for certain behaviors (Chin & Mansori, 2018).

In a traditional classroom, curriculum and training objectives, pedagogy methods and students' background (personal problems, family, friends, and environment surroundings) affected learning motivation (Fajri et al., 2021). In online learning, the curriculum and lecturers were still key motivators, but there was a rising role of the IT system and students' self-efficacy (Krsmanovic, 2021; Luu Chi Danh et al., 2021). The IT system provided students with easy and convenient access to the learning environment, materials, and feedback. The combination of teaching methods, encouragement of social interaction, and suitable use of technology in class enhanced students' motivation and engagement in a mixed-method learning context (Shi, Tong & Long, 2021).

### ***2.3. Changing training needs of students and implications for human resources development strategy in the digital age***

Students wanted to study in a safe and comfortable learning environment (Pintrich, 2003) such as satisfactory facilities and adequate learning

resources. Students expected more assessment on personal improvement and progress than normal standards (Pintrich, 2003). Design of curriculum and syllabus focused on developing sustainable career skills and global competency for students (Robertson, 2021; Whiting, 2020). Skills such as critical thinking, emotional intelligence, intercultural communication, and lifelong learning differentiated human wisdom from AI. Lecturers applied teaching methods proven by research (project-based learning) (Krsmanovic, 2021) so students participated in the project with experts and developed project management skills (collaboration, conflict management, presentation). Group discussion on local and global topics increased global awareness (Robertson, 2021). New technology and Internet platforms added more choice and control over studies such as academic credit systems and recent trends of distant learning, online learning, and massive open online courses. The connection between academic and social results enhanced students' self-efficacy and training values (Krsmanovic, 2021; Pintrich, 2003).

In response to the changing environment, business and education share responsibilities in the development of a transformative education system to develop capable human resources in the digital age (OECD, 2021; Parajuli et al., 2021; Whiting, 2020). At the user level, curriculum design and pedagogy reflect the implementation of updated learning resources and teaching methods (Krsmanovic, 2021; Whiting, 2020). At the management level, universities align with the business to design, develop and evaluate the digital learning infrastructure periodically to accommodate learning needs (OECD, 2021). At the strategic management level, the government supports the education system with a legal and regulatory framework, orientation of the MOET, financial autonomy, national quality assurance framework, and funding (Parajuli et al., 2021).

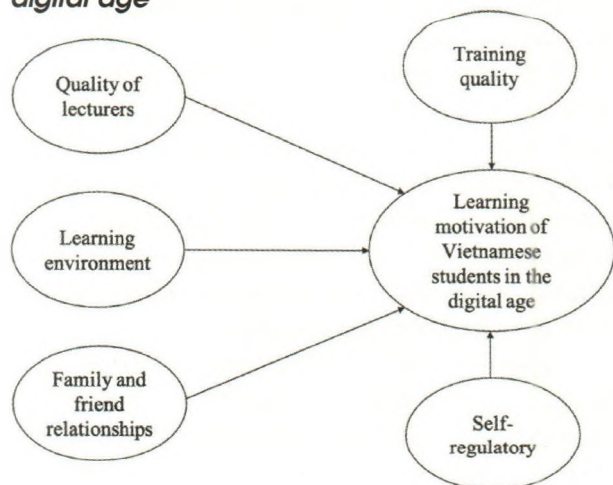
Previous studies explored the influence of personal motives (assessment on personal progress and improvement, attainment of academic and social results) and environment stimuli (training objectives of curriculum and syllabus, teaching methods, safe and comfortable learning

environment, convenient and attractive attributes of IT system) on learning motivation in both traditional and modern learning contexts. However, there is yet any empirical research on the recognition of changing training needs of students in Vietnamese higher education with a comparison between before and during the Covid-19 context and its recommendations for the development of a transformative education system in the digital age.

**3. Methodology**

The research applied a mixed method. For the qualitative method, a focus group was conducted on Microsoft Teams in September 2021 for convenience in the social distance period. Informants included 10 students currently studying in economics, social science, and natural science fields at different Vietnamese universities. An interview guide included questions such as "What is your learning motivation?", "What factors influence your learning motivation?", "Does the learning environment influence your learning motivation?", "How about training quality?", "How about teaching methods?", "Do you think self-efficacy influences learning motivation? Why?", "What is the difference in learning motivation before and during the Covid-19?", "Do you have any other ideas?". Results were recorded on Microsoft Teams software and analyzed by the researcher. The answers were grouped by themes (the university,

**Figure 1: The research model of learning motivation of Vietnamese students in the digital age**



Source: Proposed by the author

family and peers, personal factors), categories (training quality, quality of lecturers, learning environment; family and friend relationships; learning objectives and plans; effectiveness of teaching method, learning environment, and self-regulatory in online learning) and quotes. The research model was developed based on a literature review and qualitative results.

For the quantitative method, 250 students completed an online survey on Google Form from October to December 2021. After data cleaning, 200 valid responses were input to Excel software, and performed descriptive statistics for analysis. The survey questionnaire used a nominal scale for measuring personal factors (sex, major, academic year), an interval scale for comparing learning needs before and during the Covid-19 (Shi, Tong & Long, 2021), and a proportion scale (5-level Likert scale: 1 – Totally disagree, 2 – Disagree, 3 – No opinion, 4 – Agree, 5 – Totally agree) for measuring personal factors (learning objectives and plans) and students' perception about training quality (Krsmanovic, 2021), quality of lecturers (Shi, Tong & Long, 2021) and learning environment (Luu Chi Danh et al., 2021). Results were compared with literature review and qualitative results to explain the research results.

#### **4. Results and Discussion**

##### ***4.1. Learning motivations of Vietnamese students in the digital age***

Students defined motivation as the “desire to accomplish excellent achievement”, “display self-values”, “obtain scholarships or rewards”, “make the family proud” and “accumulate knowledge”. Students thought that positive motivation helped students to “have the will to overcome challenges”, while negative motives made students “fail when facing difficulties”. Students defined intrinsic motivation as “students' joy” to put the effort into achieving goals and academic awards, while extrinsic motivation was learning to “get rewards” or “follow lecturer's requirements”.

Students confirmed “personal”, “family and friends”, “teaching method of lecturers”, “curriculum”, “learning environment”, “facility”, “student support” and “tuition” as learning motivators. 86% of students agreed that learning

motivation consisted of pedagogy methods, curriculum, lecturers, learning environment, material condition, family and friends, and self-regulatory.

The research results aligned with previous studies' results, but there was a concern about tuition fees and student support. Because of the peak social distance period in Vietnam from July to September 2021, students developed stronger needs for social interactions and tuition support from the University. Universities had financial support (delay or reduce tuition fees) for students during the Covid-19 would enhance learning motivation, gain positive word-of-mouth and increase the reputation of the university. Universities implemented an online platform for prompt response to students' requests would support students better.

##### ***4.2. Determinants of learning motivation of Vietnamese students in the digital age***

For personal characteristics, 35.7% of students were male and 64.3% were female. Among the students, the sophomore had the highest number (60.7%), followed by freshmen (17.9%), juniors (10.7%), and seniors (10.7%). Among the majors, Business Administration had the highest (28.5%), followed by International Relations (16.3%), English (14.3%), and others (3% to 7%). For learning objectives plans, students knew about the training program through friends, followed by social media (10%) and career orientation activities (4%). Students cared about a good job (72%), followed by accumulation of knowledge and skills (64%), good and excellent degrees (40%), and scholarship (40%). 89% of students had short-term and long-term objectives and plans in addition to 72% of students chose a major based on their dream and hobby.

For training quality, students agreed with clear outcomes (65%), the reality (68%), and the ability to integrate internationally (63%) of the curriculum. For the quality of lecturers, students perceived the delivery of lectures is easy to understand (83%), the interaction between lecturers and students (88%), and the friendliness and sociability of lecturers (49%). 75% of students agreed that lecturers gave rewards in classes and students' participation during

reward time. Students thought that group discussion enhanced “competition with friends” and encouraged students to “prepare lessons” and “do advanced research”. 49% of students agreed with the frequency of technology application in lectures.

For relationships with family and friends, 90% of students thought that emotions with family influenced learning motivation and they wanted to study to change their personal and family situations (84%). Half of the students experienced negative friend relationships including isolation from friends (25%), school bullying (7%), and sexual abuse (7%). For the learning environment, students agreed with the impact of the modern facility for learning and living (90%) and student support (53%) on learning motivation. The dissatisfaction of students with the learning environment included “elevator jams”, “full parking” and “weak wifi”, which led to students’ “lack of knowledge” and “difficulty to find learning materials and practice”. There was declining care for university activities among a group of sophomores, juniors, and seniors. 84% of students agreed with the tuition support policy of the university during the Covid-19.

About the occurrence of Vietnamese students learning online during the Covid-19, 53% of students were attentive at the beginning of the lesson because of “fear of lecturer calling their name” or “feeling responsible”. During lessons, students wholly focused on studying (14%) and did private activities such as sleeping or using social media (48%). 28% of students felt sleepy, bored, and hard to understand lessons due to ineffective delivery of lecturers. Students had a private learning environment (83%) and were not disturbed in studying (79%). Students shared that “family support” of “both physical and mental conditions” ensured their focus on learning better.

The qualitative and quantitative results confirmed key motivators of learning motivation of Vietnamese students in the digital age including training quality, quality of lecturers, learning environment, and self-regulatory. Most of the students had the opportunity to study in a modern learning environment and received tuition support from the university during the Covid-19. Most of the students had clear learning objectives and plans.

Lecturers played a vital role in the delivery of lectures and encouragement in classes. However, the effectiveness of delivery of online lectures fell by 50%, which resulted in less than one-third of students’ concentration in online classes. The frequency of technology application did not adequately satisfy half of the students.

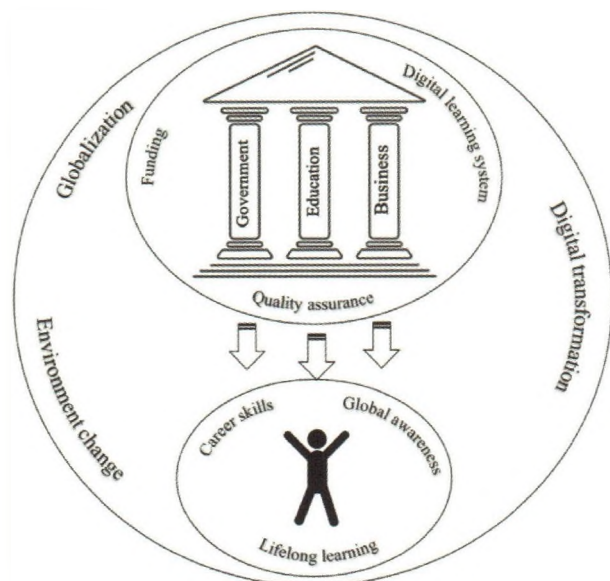
Although family and friends had special roles in learning motivation, students experienced a high rate of negative friend relationships, which presented an alarming call for the university administrators to take action for immediate resolution. Both training quality and student support were ineffective as older students cared less about the university’s activities. The clarity, international integration, and connection with careers of the curriculum were not persuasive for more than one-third of the students. The insights from the research ask for the consideration of Vietnamese higher education on the improvement of training quality, teaching method, technology application, and negative friend relationships. Vietnamese universities had strengths including a high degree of students’ self-regulatory, modern facilities, and social responsibility.

### 5. Conclusions

The research on the learning motivation of Vietnamese students in the digital age contributed to the theories of social-cognitive, engagement, and self-regulatory. The research results expanded world knowledge about practices of Vietnamese higher education. The recognition of changing training needs of Vietnamese students before and during the Covid-19 presented strengths (facility, pedagogy methods, self-regulatory, family support, social responsibility) and challenges (teaching methods, the application of teaching methods, university activities, curriculum objectives, and negative friendship experience) for Vietnamese higher education. Therefore, government, education, and business collaborate to develop a transformative education system as a foundation for an effective human capital development strategy (OECD, 2021; Parajuli et al., 2020; Whiting, 2020).

The government provides a legal and regulatory framework, national quality assurance assessment, and national economic development strategy

**Figure 2: Transformative Vietnamese higher education system**



Source: Proposed by the author

focused on human capital development in the digital economy as “Talent is the national resource” (Parajuli et al., 2020). Government and business provide essential funding for potential

projects such as the digital learning system (a collaboration between university and business to design and develop a digital provision of learning resources for all students and conjoin for evaluation) (OECD, 2021). Businesses are increasingly involved in career orientation through mentorship and scholarships (Kuyper, Van der Werf & Lubbers, 2000). The university pioneers redesigning the curriculum and syllabus focused on developing career skills and global awareness for students (Krsmanovic, 2021). Lecturers are equipped with IT skills to effectively apply technology in class (Shi, Tong & Long, 2021). The university pays more attention to sex education and mental health care for students (Chin & Mansori, 2018). The university increasingly organizes career orientation workshops and academic competitions for local, nationwide and international students (Pintrich, 2003). Consequently, the shared commitment between government, education, and business in effective human capital development expects to boost strengths and embrace the challenges of Vietnamese higher education in the digital economy ■

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**Received date: May 5, 2022**

**Reviewed date: May 10, 2022**

**Accepted date: May 17, 2022**

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## VAI TRÒ CỦA GIÁO DỤC ĐẠI HỌC VIỆT NAM ĐỐI VỚI PHÁT TRIỂN NGUỒN NHÂN LỰC TRONG NỀN CÔNG NGHIỆP 4.0

● ThS. **TRƯƠNG HỒNG CHUYÊN**

Khoa Kinh tế - Quản trị

Trường Đại học Quốc tế Hồng Bàng

### **TÓM TẮT:**

Trong nền Công nghiệp 4.0, vốn con người là một trong những thành phần quan trọng của nền kinh tế số. Môi trường toàn cầu đang thay đổi đòi hỏi phải phát triển các khả năng mới cho nguồn nhân lực. Nghiên cứu thực nghiệm này áp dụng phương pháp nghiên cứu hỗn hợp để phỏng vấn và khảo sát nhiều sinh viên thuộc các chuyên ngành khác nhau tại các trường đại học Việt Nam. Kết quả nghiên cứu cho thấy nhu cầu đào tạo đang thay đổi. Nghiên cứu đưa ra một số khuyến nghị để xuất một hệ thống giáo dục chuyển đổi dựa trên cam kết chung giữa chính phủ, doanh nghiệp và giáo dục làm tiền đề cho chiến lược phát triển nguồn nhân lực trong nền kinh tế kỹ thuật số.

**Từ khóa:** phát triển vốn con người, giáo dục đại học Việt Nam, động lực học tập, hệ thống giáo dục chuyển đổi, kinh tế số.