

Improving Learning Quality of Thu Dau Mot University Students in the 4.0 Technology Period

Ngoan Nguyen Thi Kim

Thu Dau Mot University, Thu Dau Mot, Vietnam

ABSTRACT: The industrial revolution 4.0 is a combination of technologies that help to blur the boundaries between physical, digital, and biological fields. It affects all areas of economics, industry, and education. In the article, the writer uses several methods such as studying documents, analyzing, and summarizing the problem to introduce the revolution, its impact on Binh Duong, and the educational mission of Thu Dau Mot University. At the same time, the writer also raised several measures to improve the learning quality of Thu Dau Mot students in the 4.0 technology period.

Keywords: Quality of learning, students, industrial revolution 4.0

1 INTRODUCTION

Nowadays, the Fourth Industrial Revolution is taking place globally. It brings together technologies that blur the lines between physics, digital, and biology. The 4.0 technology revolution facilitates the creation of smart factories and the development of the Internet of things. It helps create a virtual copy of the physical world and allows people from all over the world to connect via internet service from mobile devices at any time and anywhere. The 4.0 technology revolution creates opportunities, as well as challenges for all fields, from economic, industry, and education. Thu Dau Mot University indeed is a multidiscipline public university in Binh Duong province that serves the society in general and Binh Duong province in particular. The university intends to train people who can fit into the working environment of digital technology and artificial intelligence as a critical economic region of the country. This article introduces the 4.0 revolution and its impact on Binh Duong and the educational mission of Thu Dau Mot University. The article also outlines some measures to improve the learning quality of Thu Dau Mot University students in the 4.0 technology period.

2 RESEARCH METHODS

Human resource training in the 4.0 revolution period is becoming a social concern. This issue is mentioned in the Party's resolution, scientific conference documents, and scientific research works such as:

- Resolution No.05- NQ/TW dated November 1, 2016, on several major guidelines and policies to continue renewing the growth model, improving growth quality, labor productivity, and competitiveness of the background. Economics based on the PH.D. research of Chu Thi Bich Ngoc National Economics University.
- Decree No.101/2017/ND-CP dated September 1, 2017, on training and retraining cadres, civil servants, and public employees.
- Decision No. 579/QĐ - TTG dated April 19/2011 approving the Vietnam Human resource development strategy for the period 2011 – 2020
- Conference paper 2018 about training high-quality human resources in the period of industrial revolution 4.0.

The resolutions, conference papers, and research projects on the subject are not many, but it is a valuable basis for the writer of this article. In the article, the writer uses methods such as studying documents, analyzing, and summarizing the problem to introduce the revolution, its impact on Binh Duong, and the educational mission of Thu Dau Mot University. At the same time, the writer also raises several

measures to improve the learning quality of Thu Dau Mot students in the 4.0 technology period.

3 RESULT AND DISCUSSION

3.1 *Concept of technology revolution 4.0*

The term “Fourth Industrial Revolution” has been applied to important technological developments and scholarly conferences. The Industry 4.0 concept or the smart factory was first launched at the Hannover Industrial Fair in the Federal Republic of Germany in 2011. Industry 4.0 helps to develop creative production processes and management processes in the manufacturing industry. The birth of industry 4.0 in Germany has motivated other developed countries such as the US, Japan, China, and India, to initiate similar programs to maintain their competitive advantage. In 2013, a new keyword, “Industry 4.0,” began to emerge from a German government report. The keyword refers to high tech strategy, computerization of manufacturing without the need for human involvement.

At present, industry 4.0 has moved out of the German project framework with the participation of many countries. It became an essential part of the fourth industrial revolution. The essence of technology 4.0 is based on digital technology and integrates all intelligent technologies to optimize production processes and methods. The technologies that have been studied with the most significant impact are 3D printing technology, new material technology, automation technology, robotics, and so on. This is the current trend of automation and data exchange in production technology. It includes physical networking, the Internet of things, and cloud computing. Technology 4.0 is not only about machines, intelligent systems, connected systems, but also a much more extensive range. Waves of further breakthroughs in different fields occurred, such as gene coding for nanotechnology, renewable energies, and quantum computation. The 4.0 technology revolution facilitates the creation of “smart factories” and “digital factories”. In these intelligent factories, physical space systems will monitor physical processes and create a virtual copy of the physical world. With the Internet connecting everything, these virtual physical physics systems interact with each other and with humans in real-time. Users will be involved in the value chain through the use of these services.

3.2 *Impact of the 4.0 revolution on Binh Duong and the educational mission of Thu Dau Mot University*

Binh Duong is a critical economic zone in the country. Technology 4.0 drives production through the integration of various systems and processes such as computer systems connected through supply and value chains. The industrial 4.0 is signaling a shift in the traditional manufacturing landscape, including three technological trends that drive this transition: connectivity, intelligence, and flexible automation. It directly affects investors in Binh Duong. The application of scientific progress in production helps to increase labor productivity, thereby improving the lives of people. For investors, the 4.0 technology will open up opportunities for huge profits. However, the labor force will be redundant due to machine replacement. Enterprises also have difficulties in recruiting human resources to meet the requirements of the job. This can lead to inequality, even disrupting the labor market. In addition, the 4.0 technology revolution requires businesses to change. They must invest in upgrading technology and kernel quality to survive and develop. As stated by Deputy Prime Minister Vu Duc Dam, “To build a smart city in Binh Duong, we need to make full use of the advantages of the Science Technology Revolution, thereby creating all resources in society to use effectively and sustainably. This time, the important resource is knowledge, the more the knowledge is shared, the more the value is multiplied; this is a valuable resource for the enterprise”. In 2018, Binh Duong hosted the WTA General Assembly Meeting. This event was an opportunity for Binh Duong to show off the implementation of the project “Smart City Binh Duong”, to build Binh Duong into a smart, modern, and sustainable city. Binh Duong Province has signed up to become the 106th official member of the World Science City Association of WTA. This is an essential event in life society, an opportunity, and a foundation for Binh Duong to develop in the future.

Thu Dau Mot University is a multi-industry public school in Binh Duong province. Over ten years of establishment, the school has always defined the mission, vision, and educational philosophy as follows:

Mission: To be a cultural, educational, and scientific center providing high - quality human resources, scientific and technological products for socio-economic development and international integration for Binh Duong province, a region Southeast and the whole country.

Education philosophy: Research – Experience – Serve the community.

The 4.0 revolution with its impacts on the development of Binh Duong is an opportunity and a challenge for Thu Dau Mot University. It is a competition of high-quality resources not only domestically but also globally. In the future, workers who want to get jobs must be creative and adaptive to the changing work requirements of the domestic, regional, and international labor markets. The only path of Thu Dau Mot University is towards education 4.0. This is an education that focuses on more personalized learning. With the advent of a wide range of digital learning content, students can choose the learning content to suit their goals. Digital learning systems also make assessments more adaptive, providing feedback on learning performance along with suggestions for further learning content. Artificial intelligence will help analyze and synthesize learning. Teachers will change their role from “preacher” to a supporting role for learning and coaching. Instructors will help students develop useful competencies for each person’s learning goals.

The Resolution of the 12th Party Congress affirmed: “Continuing to vigorously renew and synchronize the basic elements of education, training in the direction of attaching importance to developing learners’ qualities and capabilities. Innovating educational programs and contents towards streamlining, modern, practical, suitable for ages, qualifications, and industries. Diversify content, learning materials, meet the requirements of all levels, educational programs, training, and lifelong learning needs of everyone”. Innovating education, improving the learning quality of students of Thu Dau Mot University is an urgent requirement to train a human resource that can meet the labor market requirement in period 4.0.

3.3 Some measures to improve the learning quality of Thu Dau Mot University students Stage 4.0

3.3.1 The orientation of learning motivation in stage 4.0

Learning motivation is an important factor determining the quality of learner’s learning effectiveness. For students, the motivation for learning cannot be imposed but formed during the learning and training process. Establishing and developing and the right and healthy learning motives will be a strong motivation to help students achieve their goals and academic success. Especially in the development stage of technology 4.0, identifying learning motivation is an important factor to improve the learning quality for students. Being aware of the above problem, the school and the collective of lecturers at the Thu Dau

Mot University always focus on orienting learning motivation for students through many forms, such as: propagating students to access technology 4.0 through online knowledge, seminars on technology revolution, and integrated classroom. Through seminars, students understand the opportunities and challenges of the 4.0 revolution. Students predict professions that are at risk of being eliminated in the future. They will know the requirements to equip human resources to meet social needs in the 4.0 phase. When students are aware of the requirements that society places on human resources, they will have the right motivation to study to meet the above requirements.

3.3.2 Practicing hard skills in 4.0 Phase

Students of Thu Dau Mot University need to prepare hard skills to open the door to a globalized playground. That is knowledge of information technology and good foreign language skills. Students need to be able to apply scientific and technological advances in practice. Today both the world and Vietnam are entering the industrial revolution 4.0. Countries that intend to enter this industrial revolution require high-quality human resources, which are capable of applying the scientific and technological advances of the revolution into production practices to meet the development requirements. As such, students must actively accumulate knowledge about information technology, update, and apply the latest scientific and technical advances of the world to live. In addition, foreign language proficiency is a requirement. The ability to use foreign languages will create opportunities for students to access foreign news, books, and documents. Students can communicate with international friends to exchange, learn the culture, and acquire human knowledge. Amid the trend globalization of companies, the ability to speak at least one foreign language will make it easier for students to get a job that suits them. Besides learning language proficiency, the culture of another country in order to have appropriate expressions also needs to be learned. Learning a foreign language also needs to have a certain purpose, like for health communication, work, communication, and recreation.

3.3.3 Practicing soft skills in 4.0 Stage

Soft skills are important skills in human life that are not related to professional knowledge, but it makes a highly effective decision at work. Studies have shown that 75% of students’ success in a real-world environment. This is the key to true success when students know how to combine these two skills. Therefore, besides specialized knowledge, the

school also focuses on integrating soft skills into teaching and learning activities such as teamwork, presentation, problem-solving, and time management skills. Besides, the school also organizes social work activities to help students expand relationships. Students who participate in social activities of clubs or groups with deep social relationships, rich practical experiences will have many opportunities to succeed in modern life.

3.3.4 *Creating a connection between students, schools, and businesses*

In order to develop a connection among students, school is a quick way to improve the learning quality of students. The meetings between businesses and schools are an opportunity for businesses to contribute to the development of training programs. The meetings between the school and alumni will help the school determine the human resources that they are trained to be recruited and the actual job compared to the appropriately trained knowledge. The combined information from these meetings will help the school improve its curriculum to suit the needs of society. Currently, the whole of society is changing to adapt to the 4.0 technology revolution. Society requirements for human resources are also constantly changing. Therefore, the connection with businesses is a favorable condition for the school to make timely adjustments to the training program. A regularly updated training program to improve the quality of students is essential. At the same time, through meetings with businesses and practical field trips at businesses, students will be able to identify the knowledge and skills that need to be trained to meet the actual needs of society.

3.3.5 *Creating an enabling environment for students to do scientific research*

The 4.0 technology revolution will bring various great changes in the whole society. Machines will replace some repetitive occupations and those exposed to polluted environments that need muscle strength. However, society also needs a new human resource with intelligence and creativity. Therefore, training high-quality human resources with creativity, research, and improvement in the fields of scientific research is the school's mission. The school always creates a favorable environment for students to conduct scientific researches. Every year, the school launches a scientific research movement among students and organizes a reward for students with outstanding research projects. The school also organizes meetings with entrepreneurs, enabling students' research to be applied in practice. Afterward, the

school faculty members are factors that directly affect students during scientific research. The lecturers are the ones who inspire students with a passion for creativity, guidance and provide suggestions for students to develop the topic. Studying science from an early age will give students a strong foundation for graduate and postgraduate research.

3.3.6 *Creating a favorable learning environment for students in period 4.0*

Education 4.0 will focus on more personalized learning. With the advent of a wide range of digital learning content, students can choose the learning content that suits their goals. Instructors will shift the role, from the primary instructor to primary support for learning and coaching, helping learners develop useful competencies for each person's learning goals. Thu Dau Mot University is gradually forming online teaching programs, e-learning teaching, and virtual reality technologies that will help learners to experience and train skills better than before.

4 CONCLUSIONS

Being aware of the impact of the 4.0 technology revolution on society will help students have the exact motivation to study. Besides, the school also needs to facilitate students in learning and scientific research activities such as connecting students with businesses and creating favorable conditions for student's research to come to the business and be applied in reality. The school also needs to update the education program to suit the social requirement and apply advanced technology in teaching. Improving the quality of students, training human resources for the province to implement the construction project of "Smart Binh Duong City" is the mission of Thu Dau Mot University in the period 4.0 technology revolution

REFERENCES

- Prime Minister. 2011. *Decision No. 579/QĐ - TTG dated April 19/2011 approving the Vietnam Human resource development strategy for the period 2011 – 2020*
- Scientific conference document. 2018. *Training high quality human resources in the period of industrial revolution 4.0*