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The role of education and training in knowledge economy development in Vietnam today

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Abstract

The role of education and training in the development of the knowledge-based economy in Vietnam is a big and complicated issue because in Vietnam, the development of the knowledge-based economy has only just begun in the last two decades. To develop the knowledge economy in Vietnam, one of the decisive issues is to properly perceive the position and role of education and training in comprehensive Vietnamese human development, improving the quality of human resources of the subjects developing the knowledge economy. With the above approach, the author analyzes and clarifies the nature of the role of education and training in the development of the knowledge economy in Vietnam, thereby proposing solutions to promote the role of education and training in the development of knowledge economy in Vietnam today.

Key words: Education and training, knowledge economy, knowledge economy development, Vietnam

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1. Introduction

Entering the 21st century, humanity witnessed the strong development of the modern scientific and technological revolution. In the new context, scientific and technological knowledge really becomes a direct productive force, the knowledge economy emerges and becomes an inevitable and objective development trend of mankind. That is why the development of the knowledge economy in Vietnam is an objective necessity, an opportunity for Vietnam to successfully implement the "shortening" development strategy, to soon turn Vietnam into an industrialized country in the direction of modernity for the purpose of rich people, strong country, democracy, justice and civilization. In order for this process to be conducted smoothly, with good quality and efficiency, the role of education and training is very important and decisive.

1. Knowledge economy and development of knowledge economy in Vietnam

1.1. Knowledge economy

The term knowledge economy appeared in the early 1990s of the twentieth century and has recently been widely used in the world as well as in Vietnam. The birth of the knowledge economy reflects the objective development trend of the productive forces in new conditions. Accordingly, the world economy is gradually shifting from an industrial economy to a knowledge economy, and factors such as knowledge, science and technology have become a leading important part of modern production.

In 1995, the Organization for Economic Co-operation and Development (OECD) defined: "*Knowledge economy is an economy in which the production, dissemination and use of knowledge by people play the most decisive role for the economy. economic development to create wealth and improve the quality of life* (Ngô Quý Tùng, (2001)"

According to the Asia-Pacific Economic Cooperation (APEC) forum: "*A knowledge economy is an economy in which the production, distribution and use of knowledge becomes the main driver of growth, for wealth creation and employment in all economic sectors*" (APEC, 2000).

The United Nations defines a *"knowledge economy as an economy in which the production, dissemination and use of knowledge plays the most decisive role in economic development, creating jobs and wealth, and improving the quality of life. quality of life* (Ngô Quý Tùn, (2001)".

On the basis of the above concepts, the author believes that the knowledge economy is a new step, a new step in the process of world economic development in which the driving force for growth is the use of knowledge, spreading and generating new knowledge; used in all industries, and the value generated by knowledge accounts for the majority of the total product value.

The development of each nation - nation in the current period is regulated by the basic causes of the ability to create, disseminate and apply scientific knowledge to the production process.

Firstly, in the knowledge economy, knowledge has surpassed traditional production factors: labor, resources, and capital to become an important production factor, contributing to economic and social development of each nation. The knowledge economy has a richer labor force, containing "*high scientific knowledge content*". The progress of science and technology has given mankind a richer source of resources, fuels and materials because science finds in things with many new properties and features. Therefore, the object of labor in the knowledge economy is richer and contains more scientific knowledge.

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In addition to new, perfect and smarter labor materials, the knowledge economy has more products (materials, means of production) that crystallize human intelligence. At that time, every type of machine has a qualitative change, a part of human intelligence is assigned to the machine to take over, making the thinking speed skyrocket, leading to the birth of intelligent machines. With the rapid changes of machine tools and equipment, the knowledge economy requires workers to have developed knowledge and occupy an important position in the production process, human labor capacity. There must be a qualitative change.

Secondly, the ability to create, distribute, and exploit knowledge and scientific and technological knowledge becomes a determining factor in the competitive strength of each country and each enterprise in the international market.

Economic globalization is the process of expanding the division of labor and specialization of production, through which markets and production in different countries become increasingly interdependent. Employees enjoy the fruits of their labor and earn a higher income. Wealth and knowledge can also be private, can also be shared, but the more knowledge one holds, the higher the opportunity for income. Thus, in the knowledge economy there are income differences due to differences in common standards such as experience, capital, and education.

Thirdly, in the knowledge economy, the problem is not only creating knowledge but also acquiring and spreading knowledge. Employees with scientific knowledge and creative ability account for an increasingly high percentage. In the development of the knowledge economy, workers become knowledge workers in industrial parks, scientific human resources directly involved in the production process, often called "*white-collar workers*", accounting for an increasingly large proportion, outperforming the number of "*blue shirt workers*" (the number of workers who only manipulate machines according to available processes, muscular labor) and create value many times greater.

1.2 Developing knowledge economy in Vietnam

For Vietnam, the development of the knowledge economy is the process of changing the economic, cultural, and social environment... to encourage and enhance the ability to absorb and use global knowledge resources, to build building and disseminating endogenous knowledge capacities for sustainable socio-economic development.

In the context of globalization, science and technology is developing like a storm, and the knowledge economy is forming and developing, if our country does not take advantage of opportunities and opportunities, and bring into play the strength of the entire nation, In order to "shorten" the process of industrialization and modernization, our country will be far behind and inevitably be threatened by other dangers. Therefore, in the process of international economic integration, developing the knowledge-based economy right in the process of industrialization and modernization is an indispensable and objective requirement in order to successfully realize the goal of a rich people and a strong country. democratic, just, civilized. This is a great opportunity for us to "shorten" the gap compared to developed countries, if we have enough endogenous capacity and know how to integrate into the international economy.

The development of the knowledge economy in Vietnam is associated with the process of accelerating industrialization and modernization of the country

The task of promoting industrialization and modernization of the country is defined by our Party: "…*is a fundamental and comprehensive transformation of production, business, service and economic management activities, society from using manual labor as the main one to universally using labor power along with advanced and*

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modern technology, means and methods, based on the development of industry and scientific progress. - technology, creating high social labor productivity (CPV, 2001"

Developing knowledge economy in Vietnam inherits modern scientific and technological achievements

For Vietnam, the transition to socialism, ignoring the capitalist regime, is the biggest dominant feature, with many difficulties and challenges for Vietnam in the period of accelerating industrialization, modernization and socialist construction. social meaning. Therefore, the most important task of Vietnam is to promote the development of the production force on the basis of firmly relying on the achievements of modern science and technology. To accomplish that task, there is no other way than to take advantage of the trend of globalization and the power of the times, take advantage of advanced scientific and technological achievements to build the country and defend the Fatherland.
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Developing the knowledge economy in Vietnam in the context of developing a socialist-oriented market economy

For Vietnam, choosing the path to socialism is an objective necessity, in line with the development trend of the times and the specific conditions of the country, especially in the past 30 years of implementing the road to socialism. the reform path initiated and led by our Party. The policy of developing a knowledge-based economy in our country is the basis to ensure the realization of the goals of the Vietnamese revolution. That is clearly shown the nature of the knowledge economy, creating the necessary factors, conditions and prerequisites for sustainable development. The socialist orientation in the development of the knowledge economy in Vietnam is, first of all, the Party's line: developing a socialist-oriented market economy. That way ensures the development of the knowledge economy in accordance with the specific conditions of Vietnam: both serving the economic growth objective and ensuring the development of social factors. The highest goal is to constantly improve the people's material and spiritual life, promote the people's mastery, and protect natural resources and the ecological environment. In particular, in the development process, people are always considered as both the subject, the main resource and the goal of sustainable development.

Knowledge economy contributes to promoting innovation and economic development in Vietnam

The knowledge economy not only adapts to high-quality human resources, but also helps Vietnam catch up with the modern scientific and technological revolution, the fourth industrial revolution, and meet development requirements. lasting. Therefore, the creativity and superiority of human resources helps Vietnam soon reach the pinnacle of knowledge-based economic development.

Innovation and creativity are the driving forces of development. Improve the efficiency of science and technology application and development and establish an innovative and creative system that organically links the system of research institutes, universities, enterprises, and supporting institutions of the State In order to accelerate the creation of knowledge, use of knowledge and turn knowledge into product value, is a decisive factor for the development of the knowledge economy. Mechanisms, policies, and management organizations compel all activities, fields and people to develop and apply modern scientific and technological achievements and new knowledge.

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2. The limitations of education and training have not met the requirements of the development of the knowledge economy in Vietnam today

Education and training of Vietnamese human resources, especially high-quality human resources, have not yet met the requirements of knowledge-based economic development. This is evident in all three aspects: quantity, quality, structure.

(1) In terms of quantity: The proportion of trained workers is only 50% of the total labor force in the country, so the labor factor currently contributes at least 20% to economic growth. According to statistics of the Ministry of Education and Training, the number of students per ten thousand people in Vietnam (as of November 2020) is 200 students per ten thousand people, much lower than in countries that have gone before economic development. knowledge in East Asia like Korea, or like Singapore. Studying the experiences of the countries mentioned above, we find that in order to develop the knowledge economy, human resources must be of high quality. Accordingly, the number of students must reach over 10,000 people from 300 to 400 (Le Thi Hong Diep, 2012) . Considering the current number of professors and associate professors in Vietnam, we find that only "According to the statistics of the Ministry of Education and Training for the academic year 2019 -2020 on the total number of university students, lecturers and lecturers in Vietnam. university members (including professors and associate professors) and our country's population is now over 96 million people, we see that there are only approximately 0.06 professors and nearly 0.4 PGSs per 10,000 people; 5.8 professors or associate professors over 100 university lecturers; 0.2 GS or PGS per 100 students (https://nld.com.vn)”

Currently, the whole country has nearly 168,000 people engaged in scientific research and development activities. Comparing the average rate of scientific research and development staff per ten thousand people of Vietnam with some countries in the ASEAN region and in the world shows that: “the average rate of research staff per ten thousand Although Vietnam's population has increased in recent years, compared with some countries in the region and the world, it shows that we are still at a low level (equivalent to 1/5 of the EU, 1/6 of the US). , 1/4,5 of Russia, 1/10 of Korea compared to ASEAN countries, this ratio of Vietnam is 2/3 of Thailand, 1/3 of Malaysia, 1/10 of Singapore (Ministry of Science and Technology, 2020).

Reality shows that, currently, in some pillar industries of Vietnam's knowledge economy such as the information technology industry, the number of trained people is still small compared to the demand. Meanwhile, “the number of jobs in the information technology industry increases by 47% per year, but the number of human resources in the industry grows only at 8%... every year the country needs 80,000 to 100,000 people working in the technology industry. information technology, but an average of only 30,000 students graduate in information technology every year. The reality of training at Vietnamese education and training institutions has not kept pace with the demand for IT human resources in enterprises.

Notably, a number of other pillars in the development of the knowledge economy in Vietnam, such as biotechnology, new material technology, and new capacity technology, also experienced the same situation. Currently, the KEI index in Vietnam is still very low, “compared to other countries in the region, our country's KEI index is not equal to half of the index achieved by the group of new industrial economies… much lower than that of Malaysia, Thailand, China, Philippines (CPV, 2015”

(2) In terms of quality, the education level of Vietnamese people is still low compared to the requirements for the development of the knowledge-based economy. Students aged 15-18 with lower secondary school diplomas only reached 89.46%, the

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percentage of trained workers with diplomas and certificates reached nearly 80% of workers aged 15 years and over. . Currently, 72% of information technology students have no practical experience, 42% lack teamwork skills. In fact, in Vietnam, employers are always "thirst" for high-quality human resources, even though they have many very good preferential policies. Although they have trained many bachelors and engineers, the unemployment rate among people with university degrees and above is still very high, as of the third quarter of 2017 “The number of unemployed people with university degree and higher is 237 thousand people , an increase of 53.9 thousand people compared to quarter 2/2017; the unemployment rate of this group is 4.51% (last quarter was 3.63%). There are 84.8 thousand people unemployed in the group of college level, increasing by 2.2 thousand people compared to quarter 2/2017; the unemployment rate of this group slightly discussed to 4.88% but it is the highest rate. The group of secondary level has 95.5 thousand unemployed people, increasing by 2.8 thousand people; its unemployment rate is 3.77%” (MOLISA, 2017).

In general, the quality of Vietnamese labor is currently "only 3.79 points (on a scale of 10), ranking 11th out of 12 surveyed countries in Asia. While Korea scored 6.91 points; India scored 5.76 points; Malaysia reached 5.59 points. Vietnam's human resources are weak in quality, lack of dynamism and creativity, industrial working style…”. It is this that makes "Vietnam's labor productivity is nearly 17 times lower than Singapore's, nearly 11 times lower than Japan's, 10 times lower than Korea's and = 1/5 of labor productivity of Malaysia, 2/5 of labor productivity of Thailand… while less developed economies have higher labor productivity growth rates than Vietnam such as labor productivity. Laos' action = 0.93 times that of Vietnam in 2008 but caught up with Vietnam in 2015; in 2008, Myanmar's labor productivity = 0.51 times Vietnam's labor productivity, increasing to 0.55 times in 2015 (Nguyen Đinh Duong, Nguyen Thanh Cong, 2020). That shows that Vietnam's competitiveness is still weak and the risk of falling further behind economically is quite obvious.

(3) The current structure of training according to professional and technical qualifications in Vietnam is also not reasonable. The actual survey shows that, out of 12.07 million trained workforce with degrees/certificates from elementary and equivalent or higher, university and higher 5.40 million people; College level has 1.80 million people, intermediate level has 2.82 million people; elementary level has 2.05 million people

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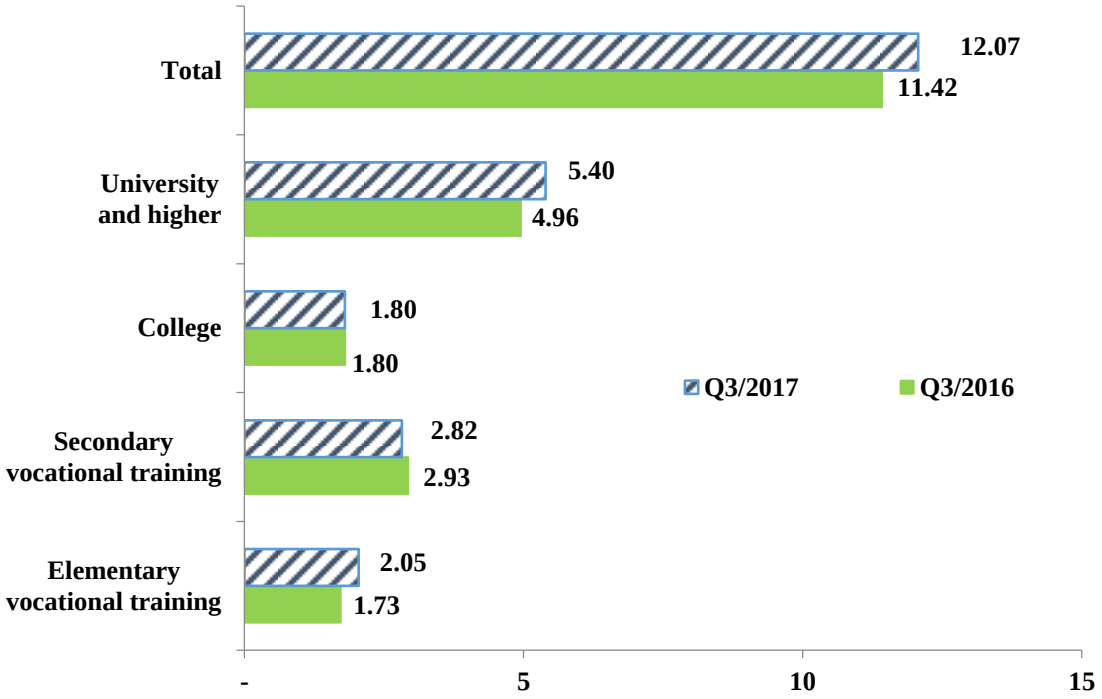

Figure 1. Number of workers by technical expertise, quarter 3/2016 and quarter 3/2020
Source: GSO (2019, 2020), Quarterly Labor Force Survey.

That clearly reflects the serious imbalance in the structure of trained labor between higher education and vocational education in Vietnam today. In order to develop the market economy, it is necessary not only to develop the number of human resources with university degrees or higher, but also to ensure a reasonable training structure according to professional and technical qualifications. Through surveying the experience of developed countries, it is shown that the reasonable structure of professional and technical labor for the development of the knowledge economy is: for every 1 worker with college or university qualifications, there should be 5 qualified workers. professional high school and 10 technical workers. To reach this rate, Vietnam's education and training sector must innovate more strongly in higher education and vocational education, who directly apply scientific progress to production and life. In fact, the number of groups of business and management majors in Vietnam is being opened the most, about 403 majors, followed by teacher training with 363 majors, bachelor's degree training in social sciences and humanities with 280 majors, industry technology 232 industries, computer and information technology 150 industries... while agriculture, forestry and fishery have only 116 industries, production and processing only 47, social services 16, services transportation service 12 sectors (Tran Khanh Đuc, 2010). This structure is not suitable for the development of knowledge economy in Vietnam.

Therefore, in order to promote the advantages of an agricultural country, Vietnam must focus on developing high-quality agriculture with high requirements for human resources in this field. manpower it needs. This is a huge difficulty preventing Vietnam from developing the manufacturing sector with advantages and disadvantages compared to other countries in the ASEAN region and around the world.

Until 2020, the country has 460 universities and colleges, including 224 universities and 236 colleges, intermediate schools and vocational training centers managed by the Ministry of Labor, War Invalids and Social Affairs (not including the

system of armed forces education institutions), the scale of training in Vietnam today is very large. However, such a large training system and scale cannot meet the requirements for the quality of human resources for the development of the knowledge-based economy. The advantage of young and abundant labor is not properly trained and exploited, so "labour is currently contributing the least to economic growth, less than 20%, while in ASEAN countries, it contributes less than 20% to economic growth. The contribution of total factors of productivity is 35 - 40%, in developed countries it is 60 - 70%" (https://www.vnu.edu.vn).

The fact is that the quality of education and training in Vietnam is still low compared to the requirements of human resources for the development of the knowledge-based economy; training and workforce planning in all sectors are still overlooked. The school currently only trains what the school has, has not caught up with the development trend of education - training is developing creative capacity, personalizing the program and applying new learning technology in teaching. learning: Machine learning - deep learning along with artificial intelligence (AI) to access new knowledge.

That is the bottleneck hindering the development of the knowledge economy in Vietnam now and in the future, the weakness in the quality of education - training human resources, especially high-quality human resources, is still a problem. "Hot" always poses a great urgency to the development of the knowledge economy in Vietnam.

2. The role of education and training in the development of the knowledge economy in Vietnam

Education and training in the development of the knowledge-based economy in Vietnam is a system of viewpoints, organizations and pedagogical and scientific research activities aimed at comprehensively developing quality, capacity and perfecting personality. Vietnamese people, improve the quality of human resources to become the subject of creative application of modern scientific and technological knowledge in production, business, socio-economic development for the sake of: rich people, strong, democratic, fair and civilized country.

Firstly, over the years, Vietnamese education and training has made an important contribution to creating high-quality human resources, initially meeting the needs of developing a knowledge-based economy in Vietnam. This human resource has continuously increased in quantity and quality, diversified in industry structure. From 2016 to now, the proportion of trained workers at all levels has been increasing "from 40% in 2010 to 51.6% in 2015; Vocational training for rural laborers is interested, in the period 2010 - 2015, there were over 4.1 million rural workers trained under the Project 1956 (CPV, 2016).

Higher education and vocational education are promoted both in terms of scale and quality. The number of trained workers with diplomas and certificates continues to increase, "*the labor force aged 15 years and over, having technical expertise, degrees and certificates from three months or more is 11.3 million, accounting for 21.52% of the labor force, of which there was a sharp increase in the middle school group (6.53%), the college group (4.24%), the primary vocational group (3.11%), the university group study and graduate (2.98%)*" (CPV, 2016.

It is noteworthy that graduate education and training developed strongly "in 2012, nearly 4000 doctoral students and 50,000 masters were trained. By 2014, the education sector still increased the scale of graduate training, training targets. PhD students increase by 7%, masters by 5%" (Ngo Thi Nu, 2016). Along with that, overseas doctoral training programs and doctoral training programs under Projects 322 and 911 of the Ministry of Education and Training have been drastically implemented. As of "the

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beginning of 2014, the whole country had 130 doctoral training institutions and more than 150 master's training institutions, the education sector trained about 20,000 to 25,000 masters and thousands of doctoral students (Ngo Thi Nu, 2016)".

Secondly, Vietnamese education and training initially showed its role in improving the quality of high-quality human resources with professional capacity, professional practice capacity, adaptive capacity, research capacity and career growth potential. Many training professions in Vietnam reach regional and international levels. At the 11th ASEAN Skills Competition in 2016, the Vietnamese delegation had 44 candidates participating in 22 official occupations, with very positive results, ranking 3rd out of 8 participating countries. In the competition groups, the Vietnamese delegation won 10 individual gold medals, including: high-tech machine maintenance, mechatronics, electronics, design, mechanical engineering, and brick-building. In addition, the Vietnamese delegation also won 5 silver medals, 4 bronze medals and 15 excellent vocational certificates.

Thirdly, science and technology with the role of education and training meet the requirements of knowledge-based economy development in Vietnam.

Education and training not only play an important role in the development of the knowledge economy, from the perspective of raising people's knowledge, training human resources, and fostering talents, but also plays an important role in the development of science and technology. science and technology on the basis of creativity, transferring modern scientific and technological knowledge into all areas of social life in order to, together with education and training, fulfill the role of "the leading national policy". Therefore, the development of education and training always goes hand in hand with the development of science and technology, which is the key to accelerating the industrialization and modernization of the country, developing the knowledge economy, helping Vietnam to reach the end of the world. to the advanced level of the region and the world.

Along with education and training, scientific research and technology transfer have been increasingly focused, especially in higher education and vocational education institutions in Vietnam in recent years. This is the function and mission of educational and training institutions as stipulated in the Law on Education (supplemented and amended in 2009), the Law on Higher Education (2012), and the Law on Vocational Education (2013). Currently in Vietnam, education and training institutions have built many research and development institutions, “out of a total of 1055 science and technology organizations in the country, higher education institutions are including academies, universities and colleges) accounted for 32.0% of organizations, group of research and development organizations accounted for 47.9% and science and technology service organizations accounted for 20.1 % organization [24, p. seventy three]. Regarding scientific research human resources, the above-mentioned establishments have “research and development personnel of 74,217 people, accounting for 45% of the total number of research and development human resources in the country [24, p. eighty six]. This is a favorable condition for education and training institutions to promote scientific research, technology transfer, and application of scientific and technological knowledge to production and business, and to promote the development of the knowledge economy. consciousness in Vietnam.

Research and application of science and technology in industry, agriculture and services are making important contributions to socio-economic development. Notably, a number of key technology industries of the knowledge economy such as biotechnology, information technology, new material technology, and high technology have been focused

on developing to reach the ASEAN and international level. These contributions contribute to the promotion of industrialization, modernization and the development of the knowledge economy. It can be affirmed that the role of education and training is very large for the development of science and technology, the development of the knowledge economy. It becomes the starting place to create new values, new products, new ways of doing things. As a result, education and training become an important production sector in the development of the knowledge economy in Vietnam.

In summary, it can be said that the role of education and training has not been fully realized in the development of the knowledge economy in Vietnam. This is a big barrier that forces Vietnamese leaders and the education and training sector to make the right decisions to fundamentally and comprehensively renew the education system in Vietnam. It is a prerequisite for the development of the knowledge economy in Vietnam today.

2. Conclusion and Discussion

Education and training in the development of the knowledge-based economy in Vietnam has a noble role and mission to improve people's knowledge, train human resources, foster talents, build and develop Vietnamese people in order to not not only receive and use modern science and technology but also create new scientific and technological knowledge to develop the knowledge economy. Therefore, the fundamental and comprehensive reform of education and training is identified as a fundamental breakthrough and a key factor in the development of the knowledge economy in Vietnam today.

To promote the role of education and training in the development of the knowledge-based economy in Vietnam today, education and training must improve the quality of human resources, foster talents for the country, and create knowledge. new scientific and technological knowledge to fulfill its mission: to apply the achievements of the industrial revolution 4.0 to the development of the knowledge economy in Vietnam. That is the best way to realize the goal of rich people, strong country, democracy, justice and civilization.

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