IMPROVE THE EFFECTIVENESS OF TRAINING VIETNAMESE HUMAN RESOURCES TO MEET THE REQUIREMENTS OF THE INDUSTRIAL **REVOLUTION 4.0**

MEJORAR LA EFICACIA DE LA FORMACIÓN DE RECURSOS HUMANOS VIETNAMITES PARA CUMPLIR CON LOS REQUISITOS DE LA REVOLUCIÓN INDUSTRIAL 4.0

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ABSTRACT

Currently, in the context of accelerating industrialization, modernization and international integration, especially when Vietnam is in the period of the industrial revolution 4.0 (Industry 4.0), the issue of human resources is considered a breakthrough stage, human resource development becomes the foundation for sustainable development and increases the national competitive advantage. With the advantage of being in the golden population period, Vietnam's human resources today will not only have their own advantages but also have significant challenges in the 4.0 industrial revolution. It should be frankly acknowledged that the training of human resources in recent years has made clear changes, but it has not been as expected and has not met the requirements of the economy. Therefore, the inevitable problem in the Industrial Revolution 4.0 is improving the quality of human resource training. The article focuses on analyzing the current situation and solutions to enhance the quality of human resource training in Vietnam to meet the requirements of Industrial Revolution 4.0

Keywords: Improve; training; human resources; Vietnam; Industrial Revolution 4.0.

Cómo citar:

The Anh, Phung; Nhu Thuy, Nguyen Thi; Quang Chung, Le; Thi Quyet, Nguyen. (2022). Improve the effectiveness of training vietnamese human resources to meet the requirements of the industrial revolution 4.0. Revista de Investigaciones Universidad del Quindio, 34(1), 274-282. https://doi.org/10.33975/riuq.vol34n1.885

> Información del artículo: Recibido: 25 septiembre 2021; Aceptado: 10 febrero 2022

Revista de Investigaciones Universidad del Quindío, 34(1), 274-282; 2022. ISSN: 1794-631X e-ISSN: 2500-5782

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RESUMEN

Actualmente, en el contexto de aceleración de la industrialización, la modernización y la integración internacional, especialmente cuando Vietnam se encuentra en el período de la revolución industrial 4.0 (Industria 4.0), el tema de los recursos humanos se considera una etapa revolucionaria, el desarrollo de los recursos humanos se convierte en la base para un desarrollo sostenible. desarrollo e incrementa la ventaja competitiva nacional. Con la ventaja de estar en el período de la población dorada, los recursos humanos de Vietnam de hoy no solo tendrán sus propias ventajas, sino que también enfrentarán desafíos importantes en la revolución industrial 4.0. Hay que reconocer con franqueza que la formación del recurso humano en los últimos años ha tenido cambios claros, pero no ha sido como se esperaba y no ha respondido a los requerimientos de la economía. Por tanto, el problema inevitable en la Revolución Industrial 4.0 es mejorar la calidad de la formación de los recursos humanos. El artículo se centra en analizar la situación actual y las soluciones para mejorar la calidad de la formación de recursos humanos en Vietnam para cumplir con los requisitos de la Revolución Industrial 4.0.

Palabras clave: Mejorar; capacitación; recursos humanos; Vietnam; Revolución Industrial 4.0.

INTRODUCTION

An economy that wants to develop rapidly and sustainably must be based on three basic factors, including: applying science and technology, developing infrastructure and developing human resources, in which, human resources play an important role (Lam, 2013; Khai, 2015). Inheriting and promoting the tradition of our forefathers in respecting talents, considering "Talents are the nation's core", in each stage of development, our Party and State always affirm the viewpoint that the People are the center of all development (Communist Party of Vietnam, 2021). The fourth industrial revolution (IR 4.0) affects many fields and industries, and profoundly changes the world. In the Industrial Revolution 4.0, the application of automated machines and robots to the traditional, cyclical jobs will lead to labor reductions (Hong & Dung, 2019; Tri & Nhe, 2021). To be able to compete and develop, employees must improve their skills and adapt to change (Nguyen et al., 2021). In recent years, the Party and State have paid great attention to developing human resources.

Entering the innovation period, policies of human resource development in general, as well as labor resources for industries, professions and fields in particular have been focused. The 10-years socio-economic development strategy (2001-2010) identifies human resource development as one of the important conditions to bring our country out of underdevelopment to become a modern industrialized country (Tri et al., 2021;). At the 11th, 12th, and 13th Party Congresses, the 10-years socio-economic development strategy (2011-2020) also affirmed that people are the subject, the main resource and the goal of development. In the current context, high-quality human resources are an effective "key" for Vietnam to compete and integrate internationally (Phuc, 2020). However, it is also necessary to recognize the fact that our country's human resources are still quite limited in both scale and quality. That requires comprehensive and synchronous solutions from training, recruitment, use...in which, there should be concentrated solutions for training human resources to meet the requirements of the Industrial Revolution 4.0.

RESEARCH METHODS

Training and developing human resources in the context of the impact of the 4.0 revolution is an important and very complicated issue. This issue is attracting the attention of researchers in Vietnam and many countries around the world. With the qualitative research method, the author has referenced and inherited the research works related to the contents of the article.

The development of human resources is one of the decisive factors for the economic and social development of each country. Moreover, the economic and social development will have the opposite effect on human resources, creating new necessary conditions for human resource development. Therefore, in the research process, the author pays attention to using objective, comprehensive, developmental and specific historical methods to clearly see each dialectical relationship, the interaction between human resource development and economic and social development; thereby proposing solutions to develop human resources, mainly to improve the quality of training in association with specific socio-economic development conditions of Vietnam in the context of the strong impact of the 4.0 revolution.

In addition, the author also uses methods of analysis, synthesis, comparison and contrast to see the development process of Vietnam's human resources through different stages, thereby comparing and generalizing to draw conclusions in the research process.

RESEARCHRESULTSANDDISCUSSION

The 21st century is the century of the 4th Industrial Revolution (IR 4.0) based on the highly integrated foundation of the digital physical - biological connection system with the breakthrough of the Internet of things and artificial intelligence. Robots are gradually replacing humans, so the simple and lowskilled labor is affected. Industrial Revolution 4.0 takes place in three main areas, including: Biotechnology, Digital and Physics. The core elements of digital in Industrial Revolution 4.0 will be: Artificial Intelligence (AI); Internet of Things (IOT) and Big Data (Big Data) (Hong & Dung, 2019). Artificial intelligence (AI) is the artificial intelligence of machines created by humans. This intelligence can think, learn, etc. like human intelligence. It processes data at a broader, more scale, systematic, scientific and faster level than humans. The Internet of Things (IOT) is considered the foundation of the Industrial Revolution 4.0. IOT helps connect everything into a network for people to "communicate" with the things around them. The development of systems linking the real and virtual worlds, the network of connected things, makes people's lives convenient, and optimizes labor. Big Data is a term for processing a very large and complex set of data that cannot be handled by traditional data processing applications. Currently, Grab, Uber, Google, Facebook, Amazon... are typical examples of Big Data application (Phuc, 2020)

The role of training in developing Vietnamese human resources to meet the requirements of the industrial revolution 4.0

There is a very famous Vietnamese saying that "Virtue and talented people are the national resources". C. Marx said that human resource is the most important factor of the productive forces. The American futurist, Alvin Toffler emphasized the role of intellectual workers: "Money will be used up, power will be lost; only human intelligence, when being used, not only does it not lose but also grows" (Alvin, 1992).

There is a close relationship among human resources, capital, natural resources, infrastructure, science and technology, in which the first one is considered as the inner force that dominates the others and the socio-economic development of each country. Compared with other factors, human resources have the outstanding advantage of not being exhausted if they are fostered, exploited and used sensibly;

and for others, no matter how many, are only limited and can only be promoted when combined with human resources effectively. Human resources are the decisive factor in the exploitation, use, protection and regeneration of other resources; in which well-qualified human resources determines the socio-economic growth and the development of each country (Central Institute for Economic Management, 2004). In fact, a country may not be rich in resources with unfavorable natural conditions can still develops the economy quickly and sustainably if it knows how to set up appropriate economic policies and successfully implement those with a qualified staff of leaders, managers and intellectuals, a large number of highly skilled technical workers and talented entrepreneurs

In the modern world, when the economy gradually shifts to a knowledge-based and in the trend of globalization and international economic integration, human resources, especially highquality ones, are playing an increasingly decisive role. Recent economic growth theories indicate that an economy that wants to grow rapidly and at a high rate must be based on at least three basic pillars: the adoption of new technologies, the development of modern infrastructure, and the improvement of the human resource quality (Quyet, 2021). In particular, the most important driver of sustainable economic growth is human resources, especially high-quality ones, that is, those who are invested to develop their skills, knowledge, with their experiences and creative capacity they become "capital - human capital - human resource capital". In the context of the world with many fluctuations and fierce competitions, countries with high-quality human resources, a favorable legal environment for investment and a stable socio-political environment will be more successful (Richman, 2015).

In Vietnam, our Party is also consistent with the affirmation: "Human resources are precious and play a decisive role, especially for our country, when financial resources and material resources are limited" (Hac, 2011).

Not only in the current conditions, but the classics of Marxism - Leninism at that time have also placed education and training in the central position in the cause of building socialism. In the work "Discuss on the cooperation regime", V.I. Lenin wrote: "The fundamental change is that: In the past, we have put and cannot help putting the focus of our work on the political struggle, on the revolution, on the seizure of power... the focus of our work today indeed focuses on educational activities" (Lam, 2013). He also clearly explained why education and training are of such special importance. This is because the only material basis of socialism can only be a large mechanical industry which has the ability to reform agriculture, and in order to have that basis. Russia has no choice but to move forward to national electrification. But the work of national electrification "cannot be done by illiterate people, but literacy alone is not enough. The work of nationwide electrification can only be done on the basis of a modern education. If lacking a modern education, communism is still an aspiration" (Khai, 2015). And to get that education, there is only one way to focus on developing the education and training.

From the instructions of the classics and the requirements of practice, our Party has considered education and training as the top national policy. Because, "Education and training has the mission of raising people's intellectual level, developing human resources, fostering talents, making an important contribution to the development of the country, building the culture and people of Vietnam" (Duc, 2020). At the same time, the Party identified three goals that the cause of education and training must be achieved: raising people's knowledge, developing human resources and fostering talents, in which human resource development is a more important and prioritized goal.

The reason, education and training plays an important role in the development of human resources, is because the object of education is people and its goal is to equip people with necessary competencies to enter the social life. Education affects people themselves as the subject of social activities in order to transform that subject into a person of personality, increase the person's physical and mental strength, increase the ability to participate in human social activities (Nguyen & Pham, 2021). Education and training contribute to improving the cultural level, educational level, scientific and technical level, handling technology, organization and management and practical operation capacity of employees, influencing to the physical, mental, and moral character of a person. Thus, education reproduces human activity capacity, promotes social development. Education and training are not only the main means of preserving, disseminating, exchanging and developing culture and science, but also creating human resources for the reproduction of labor force. Therefore, today, it is considered that education is not only a social welfare, improving spiritual life, a part of the cultural-ideological revolution, of superstructure, but also an element of infrastructure, holding a fundamental position, a decisive role for socio-economic development.

The reality of human resource training in Vietnam in the context of the Industrial **Revolution 4.0**

Education and training in our country in recent years has made an important contribution in improving the quality of human resources to supply the economic sectors and fields of the country (Sambrook, 2014). Vietnam is in the period of the golden population structure with more than 63 million people (accounting for 69.5% of the population) in working age, bringing many advantages in terms of human resources for socio-economic development. The population of working age is quite large. In addition, the labor productivity of Vietnamese people has continuously increased over the years. By period, Vietnam's labor productivity has improved significantly over the years, increasing

by 4.9%/year on average in the period 2010 -2020 (Phuc, 2020). Our efforts to increase labor productivity over the past time have contributed significantly to narrowing the relative gap in labor productivity in Vietnam compared with ASEAN countries. Human resource training in Vietnam is initially associated with the needs of enterprises and the labor market; the structure of training professions is gradually adjusted according to the structure of production-business fields; the State opened many new training professions that the labor market needs and especially professions serving the restructuring of the agricultural and rural economy and creating jobs for workers (Trung, 2016). Vietnam has developed a large number of scientific and technological staffs. Many Vietnamese economists and scientists have absorbed and accessed many modern scientific and technological advances of the world. Many Vietnamese workers and labors through the export of labor and foreign experts have had conditions to access more modern machinery and equipment and the industrial working style. Vietnamese workers are assessed to have many advantages, such as: intelligence, diligence, ingenuity, a high level of education compared to the national income level, ability to quickly absorb the world's scientific, technical and technological advances (Phuc, 2020).

Besides the above achievements, it must be acknowledged that education and training in Vietnam has not met the requirements of human resource development both in the present and in the future. Our Party has recognized the weaknesses of the education sector, that are: "The quality of education and training has not yet met development requirements, especially the training of highly qualified human resources has still been limited, has not yet strongly shifted to training according to the needs of society (Trung & Thinh, 2018). It has not been well resolved the relationship between increasing the quantity, scale and improving the quality, between teaching literacy and teaching people. Programs, contents, teaching and learning methods are outdated and slow to innovate; the educational structure is not reasonable among the fields and professions of training" (Cap, 2012).

The limitations and weaknesses in education and training in Vietnam in recent years are reflected in the following main points:

Firstly, a number of current policies on education and training have revealed inadequacies. These policies only have given temporary solutions, have not met the requirements of forming a long-term strategy towards creating high-quality human resources as required and ensure the equality among regions across the country. In the policy "Building and developing a system of boarding schools for ethnic minority students, creating resources", the situation of uneven scale of schools in different regions has appeared. Construction projects are both wasteful and inadequate, and overlapping with the scale of students mobilization according to population density and economic capacity.

The coordination between the authorities at all levels and the Ministry of Education and Training is not tight. Consequently, structure of the training fields of sending-to-schools is not suitable to the local socio-economic development needs. Many localities make mistakes in sending students to schools, "dodge the law" to win training slots such as: change the place of residence, ethnic group in order to be considered for sending-toschools. There is now a situation, that is, a part of students, who are sent to schools for free, has broken their commitment to find jobs in the city. On the contrary, there are localities that send students to schools, but when returning, they do not accept to work for those localities. The number of trained staffs is not used up, leading to huge waste.

Secondly, the quality of education and training in general has not yet met the requirements of society, so the quality of human resources in our country is still low. Although the education sector in the years of innovation has made many development steps, we are still too focused on

increasing the quantity and scale of training without really paying attention to the quality (Hong & Dung, 2019). The curriculum, content and teaching methods are the most decisive factors for the quality of human resources. However, both the curriculum, content and teaching methods are still outdated. We pay too much attention to teaching knowledge but don't pay much attention to teaching skills, ethics... to employees. manners, culture, Teaching knowledge is mainly theoretical; very little practical teaching/teach very little practice, usually only in the last few months of the course. Although we also have many efforts to innovate teaching methods, encourage the use of active, learner-centered teaching methods, for many reasons, traditional methods still prevail. The new method has not yet made a difference. All those limitations of the education and training sector are clearly reflected in its products, that is, the quality of human resources is still low. Workers still lack industrial style and labor discipline, a part of workers are slow to adapt to the market mechanism, their compliance with organization and discipline are not good, and the level of application of science, engineering and technology is poor... In general, Vietnamese workers still lack many qualities and capabilities compared to the requirements of socio-economic development in the current global competition (Tri & Nhe, 2021).

Thirdly, the educational structure is not reasonable between sectors and fields, which leads to the unreasonable structure of our country's human resources. The current training structure is not suitable, which is often called "Too many teachers, not enough workers". The current training is not suitable in both quantity and quality. College and university training still accounts for a large proportion. According to the General Statistics Office, the number of college and university students in 2018 was 2,118.5 thousand students, of which, public students were 1847.1 thousand and non-public students were 271.4 thousand. Meanwhile, the intermediate professional students are only 314.8 thousand students, with 218.6 thousand public students and 96.2 thousand non-public students (Phuc, 2020). The structure of human resources by fields is also unbalanced. Occupations in the fields of science and high technology, and the fields are decisive to the modernization of the economy and improve competitiveness with the world, such as financial business, banking, auditing, information technology, electronics, telecommunications, mechanical engineering... are short of human resources, while some social and economic sectors have a surplus of labor.

It can be seen that, so far, we have still not had an overall strategy on the construction, development and use of national human resources, especially the overall details of the strategy for building and developing human resources for a number of industries and fields with competitive advantages of the economy. To have the comprehensive highquality Vietnamese human resources in terms of physical strength, intelligence, will, capacity and morality; to have Vietnamese human resources with high professional skills, ability to adapt quickly, be proactive in your living environment; and to ensure that Vietnamese human resources become the foundation and advantages for the country's sustainable development, international integration..., it is necessary to fundamentally comprehensively innovate education and training at all socio-economic levels and professions.

Solutions to improve the effectiveness of training Vietnamese human resources to meet the requirements of the industrial revolution 4.0

The big task that needs to be thoroughly implemented so that education and training play its full role in human resource development in our country today is fundamental and comprehensive innovation in education and training according to the development needs of society (Hong & Dung, 2919). The goals and methods of using the society's labor resources will determine the goals and methods of training. Society is the

orderer, and education - training is the provider. What social human resources need, education and training must aim to meet that goal. We must associate training with use, appointment... to overcome the inadequacy between training and the labor market, leading to the phenomenon that training products are both redundant and insufficient. This inadequacy not only fails to meet the requirements of quantity and quality of labor, reduces the effectiveness of education and training, but also causes regretful waste, especially investment capital for education and training in our country is currently not much. To accomplish the above task, it is necessary to focus on implementing the following basic solutions:

drastically innovate the contents, programs, and methods of teaching and learning at all levels. The reality of socio-economic development shows that only when Vietnam's human resources develop in terms of both intellectual and physical strength, labor skills, socio-political positivity, morality, and pure feelings, it becomes the most important source of development. To ensure that educational content meets the needs of social reality, the training program must be comprehensive including literacy, vocational training, and human training, not only including knowledge of science, engineering, technology, expertise, skills, but also knowledge about the cultural, human values of Vietnamese people (Thuy & Quyet, 2021). In the contents of education and training, attention should be paid to the education of industrial labor culture, the virtue of thrift, working spirit, civic responsibility and professional conscience, national identity. Innovating the educational methods in the direction of turning the training process into a self-training process...helps to stimulate and promote the initiative and positivity, promote intellectual development and exploit the creativity of learners, thus helping them to form the scientific thinking capacity and methods. Now, the effectiveness of education is not only measured by the amount of knowledge imparted, but also by the development of creative abilities,

scientific thinking methods, adaptability and the ability to transform knowledge into workers' skills. This is an important foundation and means to help them achieve high effectiveness not only in practical activities, but also in the process of continuing to self-educate and regularly update knowledge to adapt to rapid changes of social reality.

Secondly, training the human resources to meet the diverse and multi-layer requirements of technology and development level of fields and professions. The cause of industrialization and modernization that Vietnam is carrying out has both a sequential step and a leap. Vietnam simultaneously uses different levels of technology, develops a variety of fields, including: both labor-intensive and spearhead industries, with comparative advantages and strategic significance for rapid growth, have the ability to deeply participate in the global production and distribution network. Therefore, to meet the requirements of human resources for the cause of industrialization, modernization, the education and training must be diversified in both qualifications and professions. In which, focusing on implementing programs and projects on training high-quality human resources for key and spearhead industries and fields.

Thirdly, implement close links between enterprises, employers, training institutions and the State to develop human resources according to the needs of society. To do so, we must have appropriate mechanisms and policies to establish a link between training institutions and businesses in terms of resources, content development, training programs and the effective use of educational products. At the same time, we need to create conditions and have strong mechanisms and policies to encourage enterprises of all economic sectors to invest funds to build and develop the training systems at the enterprises.

Fourthly, well perform the work of building the development plans. The State develops human resource strategies according to fields and training levels in association with the strategy of socio-economic development, industrialization modernization of the country, and international integration. In order to develop an accurate human resource development strategy, the State needs to conduct well forecasting the demand and labor market in both the short and long term. On the basis of the overall strategy on human resource development, it is necessary to "Review, perfect the planning and implement the planning on the network of universities, colleges and vocational schools throughout the country appropriately (Hong & Dung, 2019; Luong, 2015).

CONCLUSION

Education and training are the cause of the entire Party, entire people and this cause cannot be implemented in a short time. However, in the context of our country's current backwardness, compared to the regions and world, if we want our human resources to have a high development, meet the requirements of the industrialization, modernization and international integration, we must quickly innovate education and training, and we must be determined to choose methodical implementation, to follow a certain route. The correct and adequate awareness of the role of education and training in the development of human resources to meet the requirements of the industrial revolution 4.0 will make an important contribution to the successful implementation of the cause of industrialization, modernization of the country and international integration of Vietnam.

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