APPLYING HO CHI MINH'S IDEOLOGY ON EDUCATIONAL INNOVATION

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ABSTRACT

Ho Chi Minh's educational philosophy is a system of educational perspectives drawn from the vibrant practical activities of the Vietnamese revolution.From 2013 up to now, applying the educational philosophy of Ho Chi Minh the Party and the State advocates a fundamental and comprehensive innovation of education, including innovating university teaching methods towards study goes as a pair with practice, theory associated with practice; building an open education system, promoting self-study; training and retraining of trainers; meeting the requirements of sustainable development of the country in the context of world integration.

Keywords: *Educational innovation, University, Teaching methods, Ho Chi Minh.*

Introduction

For Ho Chi Minh, in the process of finding ways to save the country, pursuing the path of national independence, bringing freedom and happiness to the people, he hardly has the opportunity to discuss deeply the teaching method innovation problem, especially the innovation of university teaching methods. However, scattered in his writings and talks, we will find that he mentioned many issues related to innovating teaching methods, such as study goes as a pair with practice, the theory associated with practice; building an open education system, promoting self-study; training and retraining of trainers...

The study of Ho Chi Minh's educational philosophy must be placed in the whole of his legacies, with the interference between economic, cultural, social, legal, and national aspirations. Just as he said, I only have one desire, good desires, all people have food to eat, have clothes to wear, and can go to school. According to Ho Chi Minh, independence and freedom must be associated with well-being, happiness and everyone can learn. During his revolutionary activities, he carried out specific activities such as educating humanistic and moral ideas; training and retraining teachers in the direction of theory associated with practice, promoting the self-study spirit... All of these problems have value and meaning in the application of innovative teaching methods today Vietnam.

Literature Review

Ho Chi Minh's educational philosophy and the application of innovative teaching methods have been interested in research by many domestic and foreign scholars.

X.Aphonin and E.Cobelep (Russia) in the book Comrade Ho Chi Minh - a political biography that reflects Ho Chi Minh as the embodiment of the harmonious combination of methodology with practice, theory associated with practice. Japanese professor SingoSibata in Ho Chi Minh, a thinker (BetomomutoShiromomodoj, Tokyo "AoreShoden", 1972) saw Ho Chi Minh as a "discoverer", looking for the way to true socialism, at the same time education is towards the integral human development.

The book Ho Chi Minh for national liberation and renewal (FurutaMotoo (1996) portrayed the great Ho Chi Minh portrait of the 20th century, his legacy applied to the renovation of the country in the construction of socialism, educational motto, educational philosophy in the process of building a new society .In addition, many studies of foreign scholars on Ho Chi Minh such as Jean Lacouture - Ho Chi Minh (Ed Seuil, Paris, 1967), CP.Ragiar - "Ho Chi Minh" (Ed. Presses universitaires, Paris, 1970), David Hamberstam - Ho (Randoom House, New York, 1971), Daniel Hémery - Ho Chi Minh de l 'Indochine au Vietnam (DecouvertesGallimard, Histoire, 1990), Hypersion, New York, 2000; Sophie Quinn - Judge - Ho Chi Minh, The Missing Years (Horizon Books, Singapore, 2003)...

Referring to innovative teaching methods, first of all, Programmer for Internatonal Student Assessment - PISA, 2000 is a program of survey, research, evaluation of teaching and

learning in Germany. Research has shown shortcomings of German education in general, and teaching humanities and social sciences in particular. And this study is likened to a "PISA shock", which has become a boost to German education reform since 2000; and put a heavy burden on the social sciences and humanities in the teaching orientation "capacity building".

Nationnal Curriculum Framework defines the purpose of teaching social science is to improve learners' understanding about society, providing social, cultural, analytical skills to adapt to a rapidly changed world, and interdependently to solve problems in political, economic and social practice. According to Nationnal Curriculum Framework, the teaching of Social Sciences includes three main content circuits: History, Geography, Political Life and Social (Social and Political Life).

Nationnal Curriculum Framework focuses on: 1/Encourage learners to think and help them develop problem solving skills - questioning high thinking skills (HOTs questions); 2/Life skills: critical thinking, effective communication, creativity, civic responsibility, self-awareness, emotional restraint, interpersonal relationships, empathy, observation ; 3/Problem solving skills; 4/Ask Value-based questions.

Besides, a number of other authors also proposed the renewal of teaching methods, in general, teaching the social sciences of humanities at university level, in particular, scattered in works: Charles C Bonwell and James A. Eison - 1991, in Active Learning project (Active Learning); David E. McNabb (2009), Research Methods for Political Science (Research Methods for Political Science); Knottnerus, J. David; Guan, Jian (1997) Analytical Strategies, Developments and Assumptions (Analytical Strategy, Development and Assumptions); Tobias Andersson (2016), Rationality in educational choice - A study on decision-making and risk-taking in academic settings - A study on decision-making and risk-taking in the environment academic); David R. Shans, Riachard J. Suney and John D. McCarthy (2002), A retest of Probability and reasonable choice, Journal of behavioral decision making; Donatella della Porta, Michael Keat (2008), Approaches and Methodologies in the Social Sciences (Methods, Methodology in Social Sciences).

Since the Central Committee of the Communist Party of Vietnam issued Resolution 29-NQ/TW dated November 4, 2013, on "Fundamental, comprehensive reform of education and training, to meet the demand for industrialization and modernization in the context of a socialist-oriented market economy and international integration" (Communist Party of Vietnam, 2013). According to this Resolution, for higher education, to focus on training highly qualified human resources, fostering talents, developing the quality and capacity of self-study, enriching knowledge, and creativity of learners. To perfect the network of higher education institutions, the professional structure and training qualifications suitable to the national human resource development planning; in which, there are several schools and specializations disciplines of regional and international level. Diversifying training institutions to suit the development needs of technologies, fields, and occupations; requirements for national construction, defense, and international integration. In the field of continuing education, ensuring opportunities for everyone, especially in rural and disadvantaged areas, policy beneficiaries can learn to improve their knowledge, qualifications, professional skills, and life quality; create favorable conditions for workers to change jobs; ensure sustainable literacy eradication; complete the network of continuing education institutions and diversified and flexible forms of learning and practice; attaching importance to self-study and distance education. The resolution also outlines a number of tasks and solutions in Vietnam's education reform: Basically renovate the exam forms and methods, ensure honesty and objectivity of testing and evaluating the results of education and training; complete the national education system towards an open education system, lifelong learning and building a learning society; fundamentally renew the education and training management, ensuring democracy and unity; increased autonomy and social responsibility of education and training institutions; attaching importance to quality management, developing the contingent of teachers and administrators, meeting the

requirements of education and training innovation, reforming policies, financial mechanisms, mobilizing the participation of the whole society; improve the efficiency of investment to develop education and training to improve the quality and effectiveness of science and technology research and application, especially educational science and management science, actively integrate and improve high efficiency of international cooperation in education and training.

Pham Cong Nhat. (2014). The innovation of higher education towards international integration in our country today, presented the inevitability and the content of the educational innovation method aimed at training human resources for comprehensive development for economic development, in the process of international integration. The author Nguyen Minh Tri has analyzed the motto, content and method in Ho Chi Minh's thought and its application in the current fundamental and comprehensive renovation of education in Vietnam.

Related to this topic, can be mentioned by the author: The work of Ho Chi Minh Thought the process of formation and development of Vo Nguyen Giap, The truth Publishing House, Hanoi, 1993; Basically the formation of Ho Chi Minh thought by Professor. Tran Van Giau, National Political Publishing House, Hanoi, 1997; The work Understanding Ho Chi Minh's thoughts on youth education by Van Tung, Youth Publishing House, Hanoi, 1999; Ho Chi Minh culture and innovation of Dinh Xuan Lam and Bui DinhPhong, Labor Publishing House, Hanoi, 2001 (second edition); Ho Chi Minh's thoughts on cultural and human development of the authors Professor . Dang Xuan Ky, Professor. Vu Khieu and Hoang Chi Bao, National Political Publishing House, Hanoi, 2005. Ho Chi Minh's thought on fostering a revolutionary generation for the next generation of Tran Qui Nhon, Education Publishing House, Hanoi, 2005; Ho Chi Minh's thought on youth education, author Doan Nam Dan, National Political Publishing House, Hanoi, 2008; Ho Chi Minh's ideology on education with the issue of fundamental and comprehensive renovation of Vietnam's education today is by Ly Viet Quang (editor), National Political Publishing House, Hanoi, 2017;...

Thus, the study of Ho Chi Minh's educational philosophy and the application of innovative university teaching methods in Vietnam is a problem of many scholars, and the Government of many countries is interested. Most of the researches and teaching innovation programs at the tertiary level of the countries are aimed at training capable and dynamic individuals to contributes an important step to the development of national and international educational philosophies.

Materials and Methods

Purpose: The article analyzesHo Chi Minh's philosophy on education with its application in the innovation of university teaching methods in order to fundamentally and comprehensively renovate education and training; “Strongly shifting the educational process from mainly equipping knowledge to developing comprehensively students' competencies and qualities, theory associated with practice; school education combined with family education and social education... Development of education and training must be associated with the needs of socio-economic development.

Methodology: This research basically uses document analysis method. Analytical documents are published documents related to Ho Chi Minh philosophy on education and the innovation of university teaching methods of countries around the world.

Main Findings: Applying the educational philosophy of Ho Chi Minh The Party and the State advocate a fundamental and comprehensive innovation of education, including innovating the university teaching method towards "learning" with "practice", essay attached to practice; building an open education system, promoting self-study; training and retraining of trainers; meeting the requirements of sustainable development of the country in the context of world integration.

Applications: Applying Ho Chi Minh's educational philosophy to university governance and innovating university teaching methods is to give universities autonomy and fair, democratic and creative participation of all stakeholders;; On the one hand, it must obey the laws of the state, on the other hand, have to

properly address the needs of the supply and demand market, mobilize the participation of lecturers, scientists, learners, employees and other sectors in order to improve the quality, and expand opportunities for higher education to meet the requirements of sustainable development of the country in the context of world integration.

Novelty/Originality: The study evaluated Ho Chi Minh's philosophy analysis of education and the innovative application of modern university teaching methods in Vietnam in order to meet the requirements of international integration in the coming time.

Results and Discussion

Ho Chi Minh's educational philosophy

Ho Chi Minh's educational philosophy stems from the selective inheritance of the nation's traditions, the quintessence of Eastern and Western culture, Marxism - Leninism, especially from the experience of rich in the process of finding ways to save the country; But the most important thing is that it stems from his independent, autonomous and creative thinking.

In the late 19th and early 20th century, most of the patriotic movements of the Vietnamese people against the oppression and exploitation of the French colonialists took place very actively, but all failed, such as Dong Du, Duy Tan, Dong KinhNghiaThuc movements... reflect the theoretical and ideological standoff of the anti-aggression movements. Ho Chi Minh realized that in order to save the country and to save the people, one of the measures is to improve the people's knowledge. With his independent, autonomous and creative mindset, Ho Chi Minh saw one of the causes of his dehydration as a poor Vietnamese nation, "an ignorant nation is a weak one" (Ho, 2011a: 7).

Ho Chi Minh's independent, autonomous and creative thinking is also reflected in his receptive to the light of the Russian October Revolution and his reception of Marxism - Leninism. He said: "I have found the truth of Marxism - Lenin has gone from a progressive patriot to a socialist soldier" (Ho, 2011e: 740). However, Ho Chi Minh absorbed Marxism - Leninism with an independent, autonomous and creative spirit; absorbing the soul, the revolutionary and scientific nature of that doctrine, not copying the dry words. He affirmed: "You don't have to learn to memorize each words, and apply the experience of your fellow countries mechanically. But we must learn Marxism - Leninism to analyze and solve the specific problems of our revolution, to suit our country's special conditions. When applying, supplement and enrich reasoning with new conclusions drawn from our revolutionary practice". (Ho, 2011d: 95-96). Obviously, this is an important philosophy in education and innovation of higher education methods in Vietnam. It is teaching and learning what is necessary for life, to meet social needs.

Ho Chi Minh always appreciate self-study, lifelong learning. "I am 71 years old this year, I have to study every day... if I don't study, I can't keep up, my work will leave me behind" (Ho, 2011f: 273). Society is always developing, according to Ho Chi Minh, in order to catch up with the trend of the times, everyone must learn by themselves. Teachers must know how to guide self-study for students, students and themselves, teachers only have a way of self-study to improve their qualifications and update their knowledge to constantly improve the quality of teaching and training. He himself is a great example of self-study and self-training. He affirmed: "In order to wash away the evil traces of the old society, to practice revolutionary morality, we must work hard to study, cultivate and self-reform to progress forever. If you do not try to improve, it means regression, is backward. But regression and backwardness will be fired by the progressive society. Not only at school, we can study, cultivate, train and self-renovate. In all revolutionary activities, we can study and self-reform" (Ho, 2011e: 602). According to Ho Chi Minh, learning is never enough, it is vital to learn and have the spirit of passion for learning, determination and right methods to study successfully.

In terms of teaching methods, Ho Chi Minh does not focus on the origins but follow the competencies and strengths of students and staff: "Must foster, choose and use staff correctly" (Ho, 2011b: 280). At the same time, after training and retraining will be completed "based on the training results, capabilities,

strengths and weaknesses of each person to arrange, use properly" (Duc, 2010: 538).

In June 1925, he founded a large mass organization to gather young patriotic youths at home and abroad, taking the name of the Vietnam Youth Revolution Association; opened political training class, conducted educational activities, fostered, trained, built a contingent of cadres to serve as the core for the Vietnamese revolutionary movement. He has successfully implemented philosophy that study goes as a pair with practice, theory associated with practice. Through the sterilization movement, the members - patriotic youth - are forged in practical activities to become more mature and more stable.

When the August Revolution (1945) was successful, the Democratic Republic of Vietnam was born, President Ho Chi Minh issued the Constitution, affirming the right to go to school. Article 15 of the 1946 Constitution states: "A compulsory elementary school background and no tuition fees. In local primary schools, ethnic minorities have the right to study in their own language. Poor students are supported by the Government. Private schools are open freely and must be taught according to the State program" (National Assembly, 2020). This means that all Vietnamese can learn "Elementary education" - primary education - and the State is responsible for building schools, programs, and arranging teachers. This is a very progressive policy. Ho Chi Minh proposed "the right to go to school" as a "product" with new value in accordance with the reality of Vietnam. At the same time, in order to serve education, he wrote a series of works such as New Life (1947), Modifying the way of working (1948), Revolutionary Ethics (1958)... expresses his educational philosophy vividly: "The young people's brains were as pure as white silk. Dye green, it will be green. If you dye red, it will be red. Therefore, learning at school has a great influence on the future of the youth and the future of the youth, ie the future of the country.His educational method: "The most important thing is to teach students to love their country and love the peoples. Must teach them to be independent, resilient, determined not to be inferior to anyone, determined not to be slaves" (Ho, 2011d: 274). In teaching must combine theory and practice. He wrote: "without reasoning, it is as embarrassing as closing your eyes" "Reasoning as a guideline, it shows the direction" (Ho, 2011e: 273) for people in practical work. He also determined: "In other regimes, education must be different... The purpose of education now is to serve the people, serve the country, train the class of people, the class of new cadres" (Ho, 2011d: 344); "Learn to serve whom? To serve the Fatherland, to serve the people, to make the people rich and to a strong country, that is to fulfill the role of the owner of the country" (Ho, 2011d: 179).

Ho Chi Minh identified educational development as the cause of the entire population: "Education is the cause of the masses. It is necessary to bring into full play socialist democracy, build good relationships, close solidarity between teachers and teachers, teachers and students, students together, among officials at all levels, betweenschools and the people to successfully complete that task" (Ho, 2011g:508).

He requested that the training and retraining of teachers always associate educational content with the Vietnamese revolutionary practice, learning must go hand in hand with practice, reasoning must go with reality, learning must combine with labor. The school is associated with the society. He points to an obvious truth: "The task of education is very important and glorious, for without teachers there is no education" (Ho, 2011d: 345). Therefore, according to him, the most important method in education is that teachers, and educators who work in education must be fostered and well trained to combine with all three educational environments - family, school, and society. Ho Chi Minh proposed: "Teachers must find ways to teach. What to teach, how to teach students to understand quickly, remember long and make rapid progress. Teaching and learning must follow the needs of the nation and the State" (Ho, 2011d: 290-291). Ho Chi Minh's educational philosophy reflects the comprehensiveness of the content of education and training. In teaching and learning activities, attention must be paid to all aspects: ethics, culture, technology, labor and production. He emphasized: "Knowledge must be easy to understand, easy to remember and learn

quickly. In addition to knowledge there must be revolutionary morality. The teacher must be the role model for the children. To do so is to fulfill the duty" (Ho, 2011d: 345).

In summary, Ho Chi Minh's educational philosophy is the philosophy of action and contains a noble, methodological spirit in innovating the current university teaching methods.

Applying Ho Chi Minh's educational philosophy to renovating the current university teaching methods

Applying Ho Chi Minh's educational philosophy to the innovation of university teaching methods, our Party clearly defined: "Education and training are the top national policies, the cause of the Party, the State and the entire people" and the policy of fundamental and comprehensive reform of education and training; "Strongly shifting the educational process from mainly equipping knowledge to developing comprehensively students' competencies and qualities. Learning with practice; theory associated with practice; school education combined with family education and social education ... Development of education and training must be associated with the needs of socio-economic development and national defense; Renovate the educational system in the direction of open, flexible, and interconnected education and training levels and modes. Standardize and modernize education and training" (Communist Party of Vietnam, 2013), . Regarding the innovation of teaching methods, our Party clearly states: "Focus on teaching ways of learning, thinking, encouraging self-study, creating a basis for learners to update themselves and renew their knowledge, skills, and capacity development" (Communist Party of Vietnam, 2013)... It is also the return to Ho Chi Minh's educational philosophy in order to successfully implement the strategy of planting people.

Study goes as a pair with practice, reasoning associated with practice

Ho Chi Minh's philosophy on education in particular is a philosophy of action, mainly expressed through actions and jobs. The philosophy of his method of action is speaking with doing, learning with practice, reasoning associated with practice. Ho Chi Minh's educational philosophy emphasizes practice, takes practice as standards, measures, and has decisive significance.

Implementing Ho Chi Minh's educational philosophy "learning" in parallel with "practice", theory associated with practice contributes to improving the creative capacity of students, breaking old and conservative "beliefs" , overcoming imposing one-way communication, memorizing machines, promoting the activeness, initiative and creativity of learners.

Innovating university teaching methods in the direction of "learning" in parallel with "practice", theory associated with practice requires teachers in teaching to find ways to teach; what to teach, teach how to quickly understand, remember, make rapid progress, in a student-centered spirit. When teaching, it is necessary to avoid indoctrination teaching, to stick reasoning with practice, according to the principles of voluntary self-discipline, explanation, discussion, persuasion, not constraint; shift from teacher reading, student copy to how students must take self-study as the essence, in the direction of attaching importance to the development of students' qualities and capabilities; focus on teaching methods, skills and self-study; teach how to associate theory with practice, teach to be human... so that learners can adapt quickly to the circumstances, responsibly with their family, society and the country.

Implementing an open education system, lifelong learning

The educational philosophy of building an open educational system, promoting self-study spirit and lifelong self-learning awareness of Ho Chi Minh is very meaningful in the context of innovation and integration with the need to train human resources for career boost industrialization and modernization of the country, for a country with wealthy people, strong country, democracy, justice and civilization.

Applying this viewpoint, our Party advocates building a learning society, allowing everyone to learn according to programs and content suitable to each subject, associated with the needs of socio-economic development to build and defend the Fatherland. Innovating the method of university teaching towards lifelong

learning to train young intellectuals with deep expertise so that they can "stand firm" in the changing labor market.

Implementing the *philosophy of lifelong learning* - in the philosophy of education in Ho Chi Minh City - will promote the students' creative spirit highly, compatible with the requirements of the life of the times - the era of information explosion, social knowledge is filled with many different dimensions, sometimes contradictory, chaotic, confused. Nowadays, fully equipping learners with knowledge is clearly impossible and unnecessary. With the philosophy of lifelong learning, university teaching will become more favorable in the responsibility of imparting to learners the method. On that basis, learners are independent in thinking, promoting the spirit of creativity, opening up the creative source of thinking, turning learning into a passion of discovery.

Training, retraining and using a team of trainers

The study of Ho Chi Minh's educational philosophy shows that the teaching staff must be trained, fostered and used. Because this is the decisive factor for the quality of higher education, it is the special production force that creates products as human resources, and at the same time is the subject oriented to create the sustainable development of society. Ho Chi Minh highly appreciated the duties of teachers and teachers. "Teacher deserves to be a teacher - is the most glorious person. Although their names were not published in newspapers or received medals, good teachers were unknown heroes. This is a very glorious thing" (Ho, 2011g: 402 – 403). "The ladies and gentlemen have a very important task: cultivating the generation of citizens, the next generation will do well, the next generation will have a very good influence. Failure to do well will have a negative effect on the next generation" (Ho, 2011d: 344). Ho Chi Minh is very interested in the task of training, retraining and using the team of trainers. He asked the teacher to constantly study: Study at school, study at books, learn from each other and learn from people.

Applying Ho Chi Minh's educational philosophy, our Party has directed branches, committees and authorities to pay more attention to the training and retraining of teachers, step by step building a comprehensive education. Today, the Party and State need to continue to improve regimes and policies to treat and honor teachers. The State needs to support funding, scientific and technical facilities conditions to support teachers and teachers to renovate teaching methods to adapt to the development of science and technology in the era of information and knowledge economy development; creating conditions for the contingent of teachers and teachers to exchange and exchange experiences and practice in educational development, teachers in developed countries to expand their horizons and thinking.

Innovating in accordance with technology revolution 4.0

President Ho Chi Minh – who made a new education comprehensively, with the expectation of "making the Vietnamese people a wise people", walking abreast to be well-matched with international friends. According to his viewpoint, "everyone can learn", "reform old intellectuals", "train new intellectuals" go hand in hand with the expansion of the school system to suit specific conditions; the program content includes culture, politics, science - technology, revolutionary ethics, etc ...; must renew teaching and learning styles to suit the needs of the country, and suit the national development trend and the times. "The university needs to combine scientific reasoning with practice, make an effort to study the theory and advanced science of your countries, combine with our country's practice, to practically help the construction of the country" (Ho, 2011h: 186).

Today, in the new context with the trend of globalization and international integration, his views and instructions on education have always accompanied the construction and defense of the Socialist Vietnam Fatherland. Implementing the great thought of President Ho Chi Minh, the Party, the State, the education sector has carried out fundamental and comprehensive innovation towards proactive and active international integration to develop education and training to meet the requirements of international integration for national development. One of these

requirements is to innovate training methods in accordance with the technology revolution 4.0. Technology revolution 4.0 with the foundation is the internet connecting everything; The combination of technology in the real world, the virtual world and the biological world allows information, knowledge and knowledge of humanity to be regularly put on the "cloud" for anyone to look up. Universities and students around the world are connected. Therefore, it is necessary to raise awareness and renew thinking about higher education development in the overall development strategy of the country; innovate teaching methods, train high-level human resources and participate in labor market restructuring. Training goals in the direction of creativity, personal capacity development with high interdisciplinary and transdisciplinary nature and many training programs associated with technology 4.0. There is a need to develop various programs to help personalize training; It is necessary to clearly define the strengths and weaknesses of each learner to come up with a suitable specific training program. Combining traditional methods (presentation, conversation, practice...) with new methods (problem solving, case teaching, action oriented teaching...); applying methods associated with modern technologies such as online teaching E-learning.

Thus, Ho Chi Minh's educational philosophies have methodological significance in innovating university teaching methods in line with the 4.0 technology revolution.

Conclusion

Ho Chi Minh's educational philosophy is a system of educational perspectives drawn from the vibrant practical activities of the Vietnamese revolution. Therefore, the innovation of university teaching methods and the renewal of the education system has a dialectic relationship.

Innovating university teaching methods will "touch" the depths of the nature of educational activities, altering the quality of the current education system. Because, the pre-reform Vietnamese university governance model with heavy "concentration, bureaucracy, subsidy" is operated under the mechanism of centralized management, administration, order, bureaucracy, subsidy and social life is very difficult. According to this governance model, the position and role of the university are very small and limited to the mandate of the person who executes the top-down state administrative decisions. This is a governance model based on the state, but it is not a combination of the three powers of the state, the market and the scientific community, which is a governance model based entirely on the state and the role of university governance, only focuses on the field of professional activity "according to regulations". Under this model, state management agencies directly perform the functions of allocating the state budget and resources, and planning and organizing, directing, operating and supervising all activities of higher education, while the universities become faculties, disciplines and units under the managing ministries.

From 2013 up to now, the radical and comprehensive reform of education in Vietnam has set out requirements and tasks for renewing teaching methods. This requirement becomes especially urgent with the guiding point of fundamental innovation, comprehensive education, which is to strongly shift the educational process from mainly equipping knowledge to developing comprehensively the capacity and quality of learners. . The overall goal of Vietnam's educational reform based on Ho Chi Minh's educational philosophy is to educate Vietnamese people to develop comprehensively and bring into full play the creative potentials and abilities of each individual; love family, love Fatherland, love people; live well and work effectively. This radical and comprehensive innovation of education requires a fundamental and comprehensive renovation of Vietnamese university teaching methods.

Applying Ho Chi Minh's educational philosophy to university governance and innovating university teaching methods is to give universities autonomy and fair, democratic and creative of stakeholders; On the one hand, it must obey the laws of the state, on the other hand, have to properly address the needs of the supply and demand market and mobilize the participation of lecturers, scientists, learners, employees and all other sectors to improve the

quality and expand opportunities for higher education to meet the requirements of sustainable development of the country in the context of world integration.

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SCIENCE AND TECHNOLOGY IN GROWTH MODEL INNOVATION IN VIETNAM (2010 -2020)

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ABSTRACT

Science and technology play an important role in transforming growth models, improving productivity, quality, efficiency and competitiveness of the economy. This is a matter of vital significance to the existence and development of the country and is an urgent requirement of the current industrialization, modernization and national integration in Vietnam. During more than 30 years of industrialization, modernization and international integration, science and technology in Vietnam, especially in the last 10 years (2010-2020) have made important progress in all aspects, making a practical contribution to economic development - society, improve the quality of people's life and consolidate national defense and security. However, science and technology in Vietnam today still has many shortcomings as the level of science and technology of social production remains low and backward compared to other countries in the region; low labor productivity; domestic businesses are still less interested in investing in research and development (R&D); investment in science and technology activities is low, the structure is not suitable, efficiency is low; the contingent of science and technology staff lacks quantity, is weak in quality and the structure is not suitable. These shortcomings have been affecting the demand for reform of an economic growth model to meet the requirements of rapid and sustainable development. Written focus on clarifying the role of science and technology in innovation of growth model, thereby assessing the status of promoting the role of science and technology in innovating economic growth model in Vietnam. Especially in the period 2010 - 2020. Thereby, the article proposes a number of solutions to implement to promote the role of science and technology in innovation growth model in Vietnam.

Keywords: *Science, Technology, Economic growth model, Vietnam.*

Introduction

In the early years of the twenty-first century, humanity witnessed and enjoyed many achievements due to the brilliant development of science and technology, especially the achievements of the industrial revolution 4.0 have changed all areas of social life. Science and technology have become the direct production force, a major driving force behind the socio-economic development of many countries around the world and more importantly, it opening up a new economy, a new civilization for all humanity: intellectual economy and intellectual civilization. Therefore, in today's era, any country that perceives the role of science and technology to the socio-economy knows to focus on adequate investment in science and technology development, that country will have conditions to quickly spurt in socio-economic development, soon join the ranks of countries with highly developed economies in the world.

Science and technology are the keys transforming economic growth models from breadth to depth. Over the years, a science and technology of Vietnam have shown this role quite well, but there are still many problems that need to be overcome. The paper analyzes the current situation and proposes many solutions to promote the role of science and technology in our country's economic growth model in the coming time.

Related Works

More than 180 years ago, Karl Marx said that science would become a direct production force. In the Ministry of Capital, Karl Marx asserted: "The development of fixed capital is an indicator that popular social knowledge has transformed to some degree into a direct productive force" (Karl & Friedrich, 2015). Karl Marx also forecasts that, following the development of the great industry, the creation of real wealth becomes less dependent on labor time and the amount of labor cost that they depend on the general level of science and technical progress, or depends on its application in production.

"*Tendances actually de la recherche Scientique"* has analyzed and evaluated the scientific organization, the scientific research organization, the analyzed works contain the economic potential of science and the impact of science on the aspects of social life (Pierre, 1961)

Alvin Toffler's conception of the role of science is the factor to diverge human history into

different periods according to successive waves of civilization created by scientific and technological achievements. Alvin Toffler asserted that knowledge is the power, the power of the future, the thing that is never-ending, uses never-ending and is the most democratic power. At the same time, he argues that the current world's rapid changes are not chaotic and accidental, but a process of transformation from civilization to civilization. Human history follows three waves of agricultural, industrial and post-industrial civilization whose coordinates are attributed to science and technology (Alvin, 1991)

Besides, it is possible to mention here that are some recent forecasts that have been forecasted by the future related to the impact of science and technology. Author Konrad Seitz, through "the race in the twenty-first century", he affirmed the role of science and technology as the power of countries to advance in the twentieth century. Author Claude Allgre affirmed that the advances of science in the twenty-first century will be even greater than before, with the development of science changing daily life, upsetting the understanding and belief of people (Claude, 2013).

Science and technology contributing to increased labor productivity, transforming economic growth models, people in many countries become rich, well-off, healthy and live longer. However, all of them have side effects, negative (Peter, 2013)

The role of science and technology is to exercise the function of perception and transformation of the world. The last part of the work focuses on analyzing the role as the foundation and driving force of science and technology for the industrialization and modernization in Vietnam as a decisive role for equipping modern equipment for production, having an important role in training and promoting human resources, perfecting mechanism, organizing production management, contributing important to realizing sustainable development goals (Pham, 2003).

Research Method

Renovating economic growth model is understood as changing the mode of economic growth towards modernization, applying technology to production. In Vietnam, the innovation of economic growth model is considered as an economic development strategy in the process of international integration, aiming at fast and sustainable development, reforming the growth model towards knowledge economy development and green growth, improving growth quality and competitiveness; science and technology, knowledge, high-quality human resources and information must be the driving force, creating added value of goods and services.

According to the Oxford dictionary: “Science is knowledge about the structure and behavior of the natural and physical world, based on facts that you can prove” and “Science is a system for organizing the knowledge about a particular subject, especially one concerned with aspects of human behavior or society”; *The Economic and Social Commission for Asia and the Pacific (ESCAP)* said: “Technology is systematic knowledge of processes and techniques used to process materials and process information. Technology includes the knowledge, skills, equipment, methods and systems used to create goods and deliver services.”

Today, science and technology have become a direct production force, spreading strongly to all areas of social life, a key factor in sustainable development like Karl Marx observed: “As the growth of a great industry, wealth creation becomes less dependent on labor time and the amount of labor that has been wasted rather than on the actors engaged in motion during the time of labor and the actors themselves, in turn (their enormous efficiencies), are incompatible with the direct labor time required to produce them, rather, they depend the general level of science and on the progress of technology” (Karl & Friedrich, 2015).

From the above point of view, science and technology is the keys to transform the economic growth model from mainly based on capital, labor and resources factors to mainly based on total factor productivity (TFP). The role of science and technology in innovating the economic growth model can be pointed out as follows:

Firstly, science and technology are decisive factors for economic growth in the long run. There have been many studies by economists

on the role of science and technology in economic growth. From the middle of the nineteenth century, K.Marx predicted: to the industrial age, the creation of wealth did not depend mainly on labor time, but on the technology of production. Robert Solow said that all growth per capita in the long run is due to technological progress. Kuznets asserted: technology is the red thread throughout the process of sustainable economic growth. Samuelson commented: About one-third of the increase in output in the US is due to the impact of capital and labor, the other two-thirds are a balance that can be attributed to education, innovation and economic efficiency by scale, scientific progress and other factors.

The reason that science and technology is the decisive factor for economic growth in the long run is that unlike inputs such as capital, labor and resources are limited, science and technology resources seem without limits. Because when giving capital, labor and resources to other individuals to use, the owner cannot continue to use those resources (limited). Whereas with science and technology resources, when given to others to use, the owner still does not lose the right to use that resource and the more people use it, the closer to zero the cost of creating that resource. Therefore, it can be understood that the resources of Science, Technology and innovation are limitless. Science and technology become the decisive factor for economic growth in the long run, is the key to overcome the state of rest, escape the middle-income trap (but should not be understood as absolute, because science and technology resources are products of human brain activity, in certain historical eras.

Secondly, science and technology are the keys to transforming the growth model from breadth to depth. Science and technology are means to improve the efficiency of using other resources. With natural resources: science and technology make discovering and exploiting easier, increasing efficiency, finding many new sources of energy to replace the traditional energy sources that are gradually being depleted. With labor resources: science and technology fundamentally changed the working method of humans, shifting from physical labor (manual, simple) to intellectual labor (skilled workers, labor complexity), helping to increase labor productivity many times. With capital resources: through the modernization of financial intermediaries, communication systems, especially the digital revolution, have made banking transactions fast, easy, convenient, safe, accurate, promote production and business activities. So science and technology are the keys to transforming a growth model of breadth to depth.

Therefore, in the socio-economic development strategy in the process of international integration, Vietnam has determined: "Strongly develop science and technology as a driving force to accelerate industrialization, modernization and development of knowledge economy, contributing to a rapid increase in productivity, quality, efficiency, competitiveness of the economy, rapid and sustainable development of the country; increasing the contribution rate of the factor of combined productivity and growth" (Tran, 2019).

On the basis of the theoretical issues about the role of science and technology in growth model innovation, the paper's approach is based on the views of international and domestic scholars to evaluate. The status of promoting the role of science and technology in growth models in Vietnam is assessed and described with the help of objective data from the main published Vietnamese statistical sources. At the same time, the article also uses a combination of specific research methods such as historical, logical, comparison, analysis, synthesis, inductive and interpretation, data synthesis... to serve in research and article presentation.

Results and Discussion

Achievements promoting the role of science and technology in reforming Vietnam's economic growth model

Over the past years, Vietnam has implemented many guidelines and policies to promote the development of science and technology, so it has made the significant progress in the ranking of the global innovation index. According to the World Intellectual Property Organization in 2019, Vietnam's global innovation index ranking continued to improve to 42/129 economy, up three places compared to 2018, 17 levels compared to 2016 and 34 levels compared to 2012. This result puts Vietnam

ranked first in the group of low middle-income countries, ranking 3rd in ASEAN (after Singapore and Malaysia). In particular, there are two indexes related to inputs and outputs of science and technology that have made great leaps, namely: the total expenditure on research and development (R&D) increased by five places and the Index of Production products based on knowledge and technology increased eight places compared to 2018 (Communist Party of Vietnam, 2011)

The survey results of the Ministry of Science and Technology in 2018, Vietnam showed that about 30% of enterprises have technology innovation activities and about 4,000 creative start-ups are operating (Vietnam Economic Times, 2019). Particularly in the industry and trade, the proportion of enterprises participating in technology innovation is increasingly high. In 2017, 49.8% of the technology was renewed compared to the enterprise's internal, 47.8% compared to the market and 2.4% compared to the world. In the field of technological innovation, more than 80% of large enterprises participate in product or process innovation, nearly 50% expand the field of production - business; for small and medium enterprises and the corresponding figures are about 50% and 17-18%. That proves that businesses are increasingly interested in R&D activities. A report by the World Bank in 2017 shows that Vietnamese businesses spend about 1.6% of their annual revenue on R&D. Many corporations have set up an S&T development fund to promote science and technology activities (Communist Party of Vietnam, 2011).

The number of international publications in Vietnam in the past five years has increased rapidly (about 2.5 times), from 4,484 articles in 2015 to 11,061 articles in 2019, with an increased rate of 25.5% per year. The number of international articles published annually by Scopus has also increased from 1,764 articles in 2009 to 8,243 articles in 2018.

The strong development of science and technology in Vietnam over the past years has had a positive impact on the innovation of economic growth model, as shown through:

Firstly, science and technology have contributed to improving the efficiency of using other resources: (i) Improve the efficiency of labor use. In the 2006-2010 period, the labor productivity growth rate of Vietnam is 3.45% / year; to the period 2011-2015 increasing to 4.35% / year and the period 2016-2019 to reach 5.75% / year. Generally, in the 10 years 2007-2016, labor productivity in terms of purchasing power equivalent in 2011 (PPP 2011) of Vietnam increased by an average of 4.2% / year, 1.5% higher than Singapore's average growth rate /year; Malaysia 1.9% / year; Thailand 2.5% / year; Indonesia 3.5% / year; Philippines 2.8% / year (Nguyen, 2018). (ii) Improve the efficiency of capital use. In the period 2006-2010, ICOR of the economy was 6.96 times; in the period 2011 – 2015, it decreased to 6.25 times and in the period 2016 – 2019, it was 6.17 times (Vietnam Economic Times, 2019). (iii) Improve the efficiency of natural resource exploitation. In the 2010-2018 period, the coal industry, thanks to research and investment in technological innovation, has increased the average output by 9.4% / year. The rate of mechanical exploitation increased dramatically, from 3.3% in 2010 to 13.1% in 2018. Especially through the State-level Science and Technology Project: "Research and manufacture equipment and technology for the construction of wells and vertical good loading shafts for Nui Beo coal mines", for the first time, Vietnam has approached and mastered the world's advanced technology, helping to increase proactivity, reduce consultancy and design costs by about 30% compared to foreign hiring costs; contribute to localization of 2/3 of the value, reduce 17-20% of equipment import costs.

Secondly, science and technology have promoted the transformation of the economic growth model towards increasing TFP based growth, decreasing based on increasing capital and labor. From 2011, the TFP growth rate of Vietnam is much higher than that of previous years. On the contrary, the growth rate of capital and labor decreased. Specifically: the TFP growth rate in the period 2011-2018 was 2.06%, nearly four times higher than that of the 2006-2010 period, 0.54%; the growth rate of capital decreased sharply from 13.3% in the 2006-2010 period to 7.97% in the 2011-2018 period and the labor growth rate decreased from 2.77% in the 2006-2010 period to 1.27% in the 2011-2018 period.

The rapid growth of TFP in the period 2011-

2018 prompted the growth model transformation of Vietnam, gradually reducing the dependence on capital and labor. In the 2001-2010 period, Vietnam's contribution of capital and labor growth to GDP growth was 73.6%; in the period 2011-2015, it will be reduced to 69.8%; the period 2016-2019 continued to decrease 59.7%. The contribution of the TFP increase factor to GDP growth is increasing. If in the period 2001-2010, this proportion was only 26.4%, in the period 2011-2015, it increased to 33.6% and in the period 2016-2019, it was 44.5%, is quite far from the set target of 30-35%.

These actions bring into full play the strength of promoting, improving economic quality and growth, maintaining national defense and securityimproving the quality of people's lives, creating a new position and force for Vietnam.

Limitations on the promotion of the role of science and technology in renewing Vietnam's economic growth model

Science and technology in Vietnam have made great progress in recent years, positively contributing to the innovation of economic growth model. However, in order to realize the 2021-2030 period target, which is shifting to a model of in-depth an economic growth, Vietnam's science and technology are facing many difficulties and challenges:

Firstly, the level of science and technology of social production has been raised, but in general, it is still low, even out of date and slowly being reformed. Currently, most Vietnamese enterprises, especially private enterprises, are using technology 2-3 generations behind the world average, of which 76% of equipment, machinery and technology lines imported from abroad in the years 1960-1970; 75% of the equipment is fully depreciated; 50% of equipment is refurbished (Nguyen, 2018). Knowledge Economic Index (KEI) of Vietnam is 3.51, of which the innovation index is 2.72, much lower than Singapore (8.44), Malaysia (6.07) and Thailand (5.52). According to the World Intellectual Property Organization (WIPO), by 2018, the rate of Vietnamese patents and applications has improved significantly (ranked 51), higher than the Philippines (ranked 55), Bangladesh (102nd place), but still much lower than Singapore (25th), Indonesia (35th), Malaysia (38th), Thailand (40). This shows that the role of science and technology, especially high technology, has not played a key role in improving investment efficiency.

Secondly, labor productivity in Vietnam is low. Comparing Vietnam's labor productivity with other countries in Southeast Asia, compared with the least developed countries in Southeast Asia (CLMV - a block of four countries Vietnam, Laos, Cambodia and Myanmar), with ASEAN + 6, ASEAN all see lagging. According to the Asian Productivity Organization, Vietnam's labor productivity is even lower than Laos, Myanmar and even lower than CLMV. In 2018, Vietnam's labor productivity was only equal to 96% Myanmar, 88.7% Laos, 54.5% Philippines, 41% Indonesia, 36% Thailand, 18% Malaysia, 35.4% ASEAN + 6, 43.6 % ASEAN and only equivalent to 7.7% of Singapore.

Analyzing the changing trend of labor productivity in the period 1970 - 2016, if the United States is taken as a standard, Vietnam's labor productivity has increased, but the growth rate is quite slow, at the same time, labor productivity of Singapore, Hong Kong, Malaysia, etc increased dramatically (the slope of these countries is larger than that of Vietnam), showing the absolute gap in average income between Vietnam and the number of countries in the region are being expanded.

Thirdly, domestic enterprises are still less interested in investing in research and development (R&D). The ratio of R&D spending to GDP in Vietnam (including the public and private sectors) is only about 0.44%, much lower than the world average of 2.23% of GDP. The linkage between enterprises and scientific research facilities to implement the process of technology transfer and innovation is still very limited. According to FIRST-NASA's recent research on enterprise innovation, only nearly 14% of businesses have coordinated with outside units to conduct product innovation research; Technology transfer activities from science and technology organizations to enterprises are very low (just under 1%). It can be said that the link between enterprises (the demand side in the science and technology market) with institutes, schools, scientists (the supply side) is still very limited. A survey by the Ministry of Science and

Technology in 2018 shows that only about 30% of businesses have innovative activities and about 4,000 creative startups are operating.

Fourthly, investment in science and technology is low, the structure is not suitable and the use efficiency is low. The rate of investment in science and technology from the state budget has gradually decreased from 2000 to the present. On average, the 2000-2010 period reached 1.85%/year of the total state budget expenditure. In the period 2011-2018, this rate was the only 1.4%/year. At the same time, the law requires that 2% of the state budget be spent on science and technology. The ratio of R&D spending to GDP in Vietnam is very low compared to the world average. Vietnam's total expenditure for both public and private sectors for science and technology since 2010 has reached only 0.44% of GDP, much lower than the world average of 2.23% of GDP (Thailand 0.78%; Singapore 2.2%; Malaysia 1.3%, China 2.1%) (Hai, 2020). The structure of investment capital in science and technology still has many shortcomings. In East Asian countries, the state budget capital for this activity only accounts for 20-30%, while that of the non-state sector is 70-80%; In OECD countries, this structure is close to 20% and above 80%. Meanwhile, the structure of Vietnam in the period 2001-2010 was 70%/30%, the period 2011-2015 was 60%/40% and the period 2016-2019 was 52%/48%. The efficiency in using funding for science and technology activities is not good. Some localities have not used these funds for the right purposes, such as spending on the operation of the non-business units under the Department of Information and Communications; project reciprocal spending; expenses for wastewater treatment; expenses for construction of underground medium-voltage lines, transformer stations...

Fifthly, the contingent of science and technology staff is insufficient in quantity, weak in quality and the structure is not suitable. The rate of R&D staff per capita in Vietnam is relatively low and has hardly increased since 2013; has barely increased, reaching about 7.02% (only equal to 20% of the EU average, 7.6% South Korea, 29, 8% Malaysia, 58% compared with Thailand). The proportion of people of university age (18-29 years) attending university is 28.3%, among the lowest in the world. Meanwhile, this rate is 43% for Thailand, 48% for Malaysia and even higher in developed countries (Tran, 2019)

Sixthly, there is a lack of mechanisms and policies to favor and stimulate creativity for scientists and scientific establishments, so it has not created a driving force for the creation and application of science and technology. Besides, awareness of all levels, sectors and localities about the role of science, technology and innovation is not comprehensive enough.

The above limitations and shortcomings show that science and technology have not done well the role of "really the leading national policy"; "Is the key and most important driving force to develop a modern production force, to industrialize and modernize the country". The main reason is: 1- All levels, sectors, businesses and science and technology organizations are not fully aware of the role and position of science and technology for the rapid development and sustainable country in the long term; 2- Vietnam develops in a broad-based growth model on the basis of low-skilled labor, low-cost, land and other resource-intensive, low technology, mainly manufacturing raw products, processing and assembling for a long time; failing to create a large "demand side" (firstly from enterprises) to encourage and promote the development and application of science and technology and innovation; 3- Institutions for development and application of science and technology and innovation still have many shortcomings and inconsistencies. Lack of mechanisms suitable to the specificity of intellectual activities to create a strong driving force for the development and application of science - technology and innovation; 4- The country's scientific and technological potential (the contingent of science and technology staff, intellectual property, financial resources, scientific and technological facilities) has been increased but still very humble. These are also important issues to be overcome in order to promote the role of science and technology in innovation of growth models in Vietnam in the new period.

Some measures to be implemented to promote the role of science and technology in growth model innovation in Vietnam

The above analysis shows that, to promote the

role of science and technology in growth model innovation in Vietnam in the coming time, the Government of Vietnam needs:

Firstly, to build a strong science and technology development strategy as a basis for improving productivity, quality, efficiency and competitiveness of industries, sectors and the whole economy, promote economic restructuring and economic growth model innovation, promote R&D innovative start-ups, application combined with technology development, especially in new fields and fields with potentials and strengths.

Secondly, to develop national science and technology in the direction of enterprise-centered, universities and research institutes as healthy research subjects. They are developing and implementing science and technology programs to support research institutes, universities and enterprises towards creating research results for intellectual property rights protection, which increasing the use of intellectual property tools to develop key industries and fields, products and services with competitive advantages, to create source technologies and core technologies. Continue to implement the process of transforming S&T public institutions into enterprise models.

Thirdly, to renew and perfect mechanisms and policies to effectively mobilize, allocate and use investment capital for science and technology activities. Continuing to improve the policy of State budget investment in science and technology activities in the direction of avoiding overlapping and overlapping allocation, avoiding scattered investment and ensuring efficient use; enhancing the roles and responsibilities of organizations in the management and use of state budget funds for science and technology, avoiding misuse, waste and loss; strengthen the inspection and supervision of scientific and technological research results; to soon build a system of indicators to evaluate the completion and quality of the assigned tasks of science and technology units; to encourage enterprises to establish and scale-up science and technology development funds, promote and encourage the private sector and enterprises to invest heavily in science and technology.

Fourthly, to strongly develop educated an intellectual workforce, improve people's knowledge and train talents. To concentrate on investment in education development. Accelerating training of scientific and technical staff and skilled workers, managers, people in business, etc. Education and training, science and technology should be considered the top national policy, a breakthrough to meet the demand for high-quality human resources for the knowledge economy. Create opportunities to improve skills, work learning opportunities and lifelong learning for employees. Encourage enterprises to participate more in national human resource development, especially state-owned enterprises and multinational corporations. To adopt policies to attract overseas Vietnamese and foreign experts to participate in scientific and technological activities in Vietnam.

Fifthly, promote international cooperation and integration, promote joint research cooperation to take advantage of resources and knowledge of advanced countries and step by step raise the level of domestic research capacity and level to be able to participate in equal cooperation and mutual benefit in the long term. We are strongly supporting regional and international scientific exchanges and academic exchanges. Develop and improve the operational efficiency of the network of Vietnamese science and technology representatives in foreign countries, especially in key areas. Attracting and exploiting the strengths of the contingent of talented Vietnamese scientists abroad.

Conclusions

In today's era, when humanity is entering the knowledge economy, science and technology become direct production forces. Science and technology with nature not only improve human knowledge, help people perceive and grasp the nature and laws of the world, but also help people transform knowledge into technical means, ways to improve the world, effectively serving the socio-economic development of each country in general, to economic growth model in particular.

In the process of international integration, science and technology in Vietnam play an important role in strongly developing production forces, reforming growth models, improving the quality of people's lives and consolidating national defense and security. However, the reality of scientific and

technological development, Vietnam's innovation still has many limitations and shortcomings, has not become the most important driving force in the development process as science and technology of social production remains low; the application of science and technology to agricultural production has not been conducted synchronously; the proportion of businesses with R&D in all industries is still very low; low investment in science and technology activities, inadequate the structure, low efficiency, etc have been harming a negative impact on the reform of growth models in Vietnam today, requiring Vietnam It is necessary to synchronously implement the above solutions to promote the role of science and technology in growth model innovation in Vietnam, contributing to rapidly increasing productivity, quality, efficiency and competitiveness of the economy. Economy, rapid and sustainable development of the country; increase the factor contribution to aggregate productivity and growth.

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LECTURES'S DEVELOPMENT AT PUBLIC UNIVERSITIES IN VIET NAM IN THE PERIOD 1986 - 2020

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ABSTRACT

Improving the quality of the contingent of lecturers at universities and colleges has always been concerned and focused by countries around the world, considering this human resource "laying the foundation" for the construction, training fostering and developing high-quality human resources to meet the international integration process in the context of the industrial revolution 4.0 which has a strong impact on all areas of social life.This article provides an insight into the current state of higher education development in Vietnam, especially the teaching staff of public universities. As one of the developing countries, Vietnam has recently seen many social and political tensions created to make universities more academically and financially autonomous to operate and compete equally with real private schools in the process of training human resources for socio-economic development. On the basis of analyzing and evaluating the current situation of the quantity, quality, proportion and structure of the teaching staff of public universities in Vietnam today, the author gives some basic solutions to continue to develop. To develop the contingent of lecturers at public universities in order to meet the current requirements of higher education reform in Vietnam. The methodology used in this study is qualitative comparative analysis.

Keywords: *Lecturer, Developing university lecturers, Higher education, Public schools*

Introduction

Lecturers are the subject and factor determining the quality of education, training and scientific research, service and the development of the school. Lecturers at university establishments are "the special production force that creates products as human resources", as well as the subjects that orient to create the sustainable development of society.

Improving the quality of teaching staff of universities has always been concerned and focused by countries around the world, considering this human resource to play a decisive role in building, fostering and developing high quality human resources to meet the international integration process. In the current context of Vietnam's education, teaching effectiveness in educational institutions, especially public schools, has contributed to the implementation of Vietnam's educational reform agenda to establish an advanced, responsible, modern education, meeting requirements of socio-economic development and international integration. The current mission of public higher education institutions is to train and foster human resources with professional qualifications, skills, foreign languages, and information technology to effectively adapt to the trend of globalization. To carry out the above mission, the development of a team of lecturers who are dynamic, exploring, innovating, creative, with good professional qualifications, with active teaching methods, well adapted to the tasks in the new age is really urgent requirement nowadays. This is also the content of the article

Literature Review

Developing teaching staff is a topic that educational scientists in countries around the world are interested in researching. Up to now, many works have been announced. According to the research results of OECD members (Organization for Economic Co-operation and Development), the quality of teachers includes the following contents: 1) Rich knowledge about the scope of the curriculum and the content of the subject they teach teach; 2) Pedagogical skills, including the acquisition of a "store of knowledge" about teaching methods, of the ability to use those methods; 3) Having a reflective mindset before each issue and having self-criticism capacity, very specific characteristics of teaching profession; 4) Be sympathetic and committed to respect the dignity of others; 5) Having managerial capacity, including management responsibility inside and outside the classroom.

According to Fielden J (1998), the development of lecturing staff is the requirement of universities facing the

challenges of the increasing learning needs of the population, due to the requirements of economic and social development in perfect new scene, change of technology, new requirements of the labor market. The World Conference on Higher Education with the theme "Higher Education in the twenty-first century - Vision and Action" was held in Paris in 0/1998. The conference noted: "A strong policy on team development is an important factor for universities. Clear policies related to university teaching staff should be developed that update and improve their skills, encourage improvement in curriculum, teaching and learning methods, and appropriate financial and professional status, to achieve high quality in research and teaching"(Tran, 2011).

As summarized by UNESCO, in modern education, the role of the teacher has changed in the following directions (UNESCO, 2005):

1) Take on more functions than before, have greater responsibility in selecting teaching and educational content.

2) Shift strongly from imparting knowledge to organizing student learning, use knowledge resources in society.

3) Attach importance to the individualization in learning, changing the nature in the relationship between teachers and students. 4) Require wider modern teaching facilities, thus requiru additional necessary knowledge and skills. 5) Require broader and closer cooperation with teachers at the same school, change the structure in the relationship between lecturers.

6) Require tightening relationships with students' parents and community, contributing to improve quality of life.

7) Require the instructor to participate in activities widely outside the school.

8) Reduce and change the traditional reputation in relationships with students, especially for older students and with their parents.

For university teachers, the International Conference on "Higher Education in the 21st century - Vision and Action" (1998) raised the necessary competencies of an exemplary teacher as follows:

1) Have knowledge and understanding of different scientific ways of the instructor.

2) Have the knowledge, competence, and attitude in terms of monitoring and evaluating teachers to help them progress.

3) Voluntarily improve yourself in your profession; know how to apply career criteria and always update the latest achievements.

4) Know the application of information technology knowledge to their subjects and disciplines.

5) Ability to perceive external "market" signals about the needs of employers for graduates.

6) Master new achievements in teaching and learning, from face-to-face teaching to distance learning.

7) Attention to the views and wishes of the "customers", it can be known as different partners and students' views and wishes.

8) Understand the effects of international and multicultural factors on training programs.

9) Ability to teach different types of students, belonging to different groups of age, socio-economic environment, ethnicity... and know how to work with more hours a day.

10) Capable of ensuring formal lectures, seminars and researchseminar or work in workshops with a larger number of students.

11) Ability to understand the individual's career "adaptive strategies". Teachers can base on these requirements to choose some fields that are most necessary for them to go deep.

21-point recommendation about the organization's modern educational development strategyUNESCO points out: "Teachers must be trained to be more educators than imparting experts" (point 18) and, in particular, the training program of teachers need to make full use of the equipment. new teaching methods and equipment "(point 16) (Tran, 2014).

Daniel R. Beerens - author of the book "Creating a culture of motivation and learning" said that: Proactivity and innovation are the central criteria of today's teachers. He advocated creating a culture of motivating and regularly learning of the teaching staff, considering it the primary, new value of teachers (Daniel, 2003).

Michael Fullan and Andy Hargreaves identified aspects of teaching staff development including psychological development; professional development; career cycle development. According to Blackwell R, Blackmore P, teaching staff development is part of university strategy and there are a variety of team development solutions such as building faculties into learning communities and

training teaching staff; encouraging research-based teaching; Incorporate information technology into staff training and facilitate teaching staff development (Blackwell & Blackmore 2003).

To improve the quality of teacher training, the Government of Malaysia introduced many reforms from the selection, recruitment, content of training programs, information technology, length, content and methods of training to the approach (Lee, 2004). Each Education Institute has from 800 - 1000 students. These students will take one year to obtain a Postgraduate Diploma and five and a half years to obtain a Bachelor of Education. Teachers who are working and wishing to improve their skills can attend 2 - 3 day courses taught by lecturers from many different disciplines. These courses last from a few days to weeks, months and serve as supplementary courses (Lee, 2004). Bernhard Muszynsky has stated the key features of the development of the overall quality system for the management of the university for teaching staff; At the same time, the author also analyzes policies and limitations as well as the duties of teachers in the new development period (Bemhard & Nguyen, 2002).

The author Le Duc Ngoc said: There are two main reasons to pay attention to the development of university teaching staff, which are:i) Qualifications of the contingent determine the quality and ability of a school in teaching, researching and serving society in the commodity economy; ii) Salary and allowance cost for this team is the biggest expense of each university, it is closely related to the quality, effectiveness and efficiency of training (Le, 2004).

The author Pham Thanh Nghi researched and assessed the current status of teaching staff through research investigations on education, human resource analysis, building solutions to foster teaching staff, including: programs and organizational plans. Forms of training include concentrated training, non-concentration training, on-site training, and distance training. The author focuses on self-training and self-training and sees it as a strategy for educational development (Pham, 1993).

Tran Ba Hoanh in the work "The Problem of Teachers, Theoretical and Practical Studies" has clearly analyzed the issues surrounding the development of the teaching staff from the role of teaching staff and position in society. Especially, the author studies in-depth on training, and the use and building of quality teaching staff (Tran, 2006).

According to author Pham Minh Hac: Success in teaching and educating students requires teachers to have an advanced worldview, noble moral qualities, high skill levels and professional skills. Knowledge, skills, and skills are materials to create capacity. He said that pedagogical competencies are general competencies, including basic components, which are individual competencies divided into groups: a) Personality competencies such as: Control capacity, self-control psychological control force; b) Teaching capacities: Scientific capacity, language capacity; c) The capacity to organize communication: pedagogical observation, pedagogical ingenuity, attention distribution capacity, organizational capacity, communication capacity. These competencies are common capacities of teachers, while specialized competencies are associated with teaching in different subjects (Pham, 2001).

In summary, since the end of the twentieth century, research on teaching staff development following professional standard trends has been conducted in many countries around the world. The researches all affirm that the teaching staff and the development of the teaching staff is one of the basic conditions for ensuring the quality and development of education; The teaching staff's viewpoints and perceptions of the position and role are more and more correct and comprehensive. At the same time, the studies also offer many different solutions to develop the teaching staff such as: building professional standards, criteria, requirements, testing methods, using technology, techniques. modern.

Materials and Methods

*Purpose:*It is worthwhile to develop teaching staff at public universities in Vietnam by analyzing the current situation (achievements and shortcomings) in recent years. On that basis, the article proposes a number of recommendations and solutions to improve the quality of lecturers at public universities in the coming time.

*Methodology:*The systematic approach is used to analyze the current development of the teaching staff of public universities in Vietnam through the quantity, quality, proportion and structure of the teaching staff of universities. The advantages and achieved results for the teaching staff development of public universities in Vietnam to meet the requirements of developing human resources for socio-economic of the country are assessed and qualitative description with the help of objective data from officially published and statistical sources. In addition, the article also uses methods of analysis - synthesis, interpretation, inductive.

*Main Findings:*The development of the contingent of lecturers at public universities in Vietnam in recent years has made an important contribution to the international integration process. In the process of international integration, Vietnam always considers the training and development of the teaching staff of public universities as the goal and driving force of the revolution, the decisive factor for the success or failure of the revolution, especially in the process of international integration with a new comprehensive and profound awareness of both theory and practice in all fields, awareness of the position and role of the teaching staff of public universities. more complete and deeper. At present, Vietnam has become a low-middle-income country and has achieved many achievements in the development of education and training in general, and in the development of teaching staff at public universities in particular. However, the reality has many limitations and weaknesses, requiring appropriate solutions and policies to continue to develop the contingent of lecturers at public universities in order to respond to the requirements of higher education innovation and international integration in the current industrial revolution 4.0 context in Vietnam.

Applications: The research results can be used to make policy recommendations to further develop the teaching staff of public universities in Vietnam in the coming time.

Results and Discussion

The current state of teaching staff at public universities in Vietnam today

In terms of quantity and quality of the teaching staff

On the basis of the implementation of Central Resolution 7 (term X) "On building a contingent of intellectuals in the period of accelerating national industrialization and modernization" and the Government's Resolution No. 44 / NQ-CP on "Fundamentally and comprehensively renovating education and training, meeting the requirements of industrialization and modernization in the conditions of a socialist-oriented market economy and international integration";The public universities have applied creatively, in accordance with their specific conditions, to develop and improve professional qualifications for the contingent of lecturers. The schools have focused on in-depth training, implementing many forms of joint training, academic exchange expertise for staff and lecturers. Therefore, the teaching staff of the university is constantly increasing in quantity and quality.

In the period 1986 - 1996, the number of public universities increased by 2, the number of lecturers increased 1.13 times, the number of students increased by 5.74 times. In the 1996 - 2006 period, the number of schools increased by 26 schools, and lecturers increased by 1.57 times; students increased 1.91 times. In the period 2006 - 2019, the number of public universities increased the most (144 universities), the number of teaching staff increased by 2.21 times, while the number of students increased only 1.5 times.

In the period 1986 - 2019, the number of public universities increased by 2.7 times, 62/63 provinces and cities of Vietnam had at least 1 university. The number of schools increased rapidly mainly due to upgrading from college to university (especially in the period 1996 - 2019). The number of students increased 23 times while the number of lecturers increased only 4.4 times, the highest student / teaching staff ratio was 32.72 / 1 (2001-2006 period) shows the number of university lecturers of the public schools has not met the actual training needs.

By 2019, public universities account for 72.60% of the number of schools, 87.53% of students and 72.01% of the teaching staff of the whole system. Specifically, there are 163

public universities, 69,591 teaching staff and 1,520,807 students. Compared to the 2006-2007 school year, the number of lecturers increased by 2.21 times, the number of students increased by 1.49 times, the number of schools increased by 1.49 times.

About scientific research. The teaching staff is always actively involved in research and scientific guidance. In order to develop the knowledge economy and actively integrate into the world, scientific research has always been concerned and focused on by public universities. Along with teaching activities, scientific research is considered as one of the two most important tasks of teaching staff. Over the past years, universities have gradually built up specific mechanisms for scientific research to renew teaching methods, combine theory with practice and meet the increasingly competitive requirements of human resources. Therefore, the scientific research topics and works of lecturers are increasingly going into depth, requiring products created from research to have practical value and meet the essential needs of the knowledge economy. The 2000-2018 period shows that the growth rate in quantity is quite good, especially in the period 2010-2018, the average growth rate is over 20% per year. Research capacity of Vietnamese scientists has also developed well, as shown through the data on the percentage of publications with Vietnamese authors over the number of publications with Vietnamese addresses (up from 35 % in 2000 to 50% in 2017 and 53% in 2018) (Nguyen 2020).

The reality shows that, the scientific research results of university teaching staff are always well appreciated, highly applicable in production and life, solving practical problems, creating breakthroughs about productive force, growth model renewal, economic development.

Regarding the informatics and foreign language skills of lecturers, especially young lecturers, initially met the requirements of international integration. The 21st century is considered to be the century of global citizens, so in order to train global citizens, the teacher understands and initially practices the requirements of global citizens. One of the basic requirements is to have knowledge in information technology and foreign languages for integration. Recognizing that importance, schools have created conditions in all aspects for teaching staff, especially young ones, to participate in short and long-term training courses on informatics and foreign language.

The product quality of lecturers of public universities are graduates who have jobs and can get jobs. However, the Ministry of Labor, War Invalids and Social Affairs said that the number of unemployed working age university-level workers in recent years was higher than the number of graduates and the number of jobs; The number of unemployed workers with university or higher degrees in 2014 increased 103% compared to 2010. In the first quarter of 2016, about 225,000 engineers, bachelor's degree or higher are not employed (Dan Tri Newspaper, 2016).

However, the quality of the teaching staff of public universities still has limitations:

- The quality of the current university teaching staff is not really commensurate with the requirements of the country's development and international integration. The number of lecturers who are masters of education has increased rapidly, the number of lecturers with doctorate degrees has increased until the period 2010 - 2015, the number of lecturers with university and college degrees tended to decrease gradually from the 2011-2012 school year.
- The proportion of lecturers who are professors and associate professors nationwide is only 5.17% in 2019, the doctorate rate is 12.06% (the corresponding figures at the average universities in the West are about 70 %), the percentage of masters accounts for 46.41%. Thus, the quality of Vietnamese university teaching staff is much lower than the educational development strategy's goal that by 2020 Vietnam will reach at least 25% of its lecturers as PhDs. The language and computer skills of the teaching staff of public universities are not high. There are not many schools offering advanced programs, mainly concentrated in Hanoi and Ho Chi Minh City. The number of lecturers who are capable of teaching in English is low. According to interview data, only 36.6% of public university lecturers are trained in foreign languages, and 39.5% are fostered in information technology.
- Regarding the scientific research of lecturers of public universities: According to the Ministry of Education and Training, currently

there are 91,183 staff involved in teaching, but very few lecturers participate in research (Ministry of Education and Training, 2020). The total number of scientific articles published by Vietnam is 3,456. On average, only 345 articles are published each year, and the number and number of articles cited are also very low (23.1% have not been cited at all, 44.5% are quoted from 1 - 5 times).

According to the Institute of Scientific Information (ISI), in the 15 years from 1996 - 2019, Vietnam had only 13,172 scientific publications published in peer-reviewed international journals, equal to about 1/5 of Thailand (69,637), 1/6 of Malaysia (75,530), and 1/10 of Singapore (126,881). Currently, our country has about 9,000 professors and associate professors, 24,000 doctors and more than 100 thousand masters, but the number of scientific publications of the whole country in 15 years is less than 1/5 of the published number of University of Tokyo (69,806 publications) and 1/2 of the National University of Singapore (28,070 publications) (Chau, 2019).

- In addition, the public universities do not really have a specific policy mechanism for high-qualified teaching staff, leading to human capital flight. In practice, many schools allow teaching staff to study to improve their expertise, but then they are willing to pay back the training support funds to switch to a working environment with income or to have a better academic environment. In addition, there are no mechanisms and remuneration policies to attract a contingent of highly qualified lecturers (titles and degrees) to work. Outdated thinking, lack of science in using human resources in training units still exist, so it has not brought into play the competency level of talented people in the unit.

- The model of building, training and linking training and retraining of teaching staff is very inadequate. The recruitment work in some units is still lack of transparency, and has not focused on retaining, training, and sending to training in a high academic environment in other countries for excellent and talented students. Therefore, qualifications accidents happen in the faculty of the staff. Many unscrupulous lecturers even graduated from in-service university, jointed and then studied for master's and doctoral degrees in order to comply with the State's regulations and then teach at undergraduate and postgraduate.

- The planning of teaching staff is not really reasonable in terms of structure, professional qualifications and scientific research capacity. At present, many schools appoint unskilled cadres, reducing the prestige of the unit, even the appointed person. Many qualified cadres have not been planned or appointed for some reason, leading to conflicts within the agency.

- The investment, association and cooperation in training faculty members with prestigious schools in the region and the world are still limited. The cooperation mechanism still has many shortcomings on our side, so the schools you do not want to associate, even are willing to break the contract, pay compensation for the unsatisfactory requirements of the schools on our side. In addition, the research and review of the construction and development of the contingent of lecturers at universities and colleges in Hanoi capital has not been done regularly and seriously, so it has not been achieved great results.

The structure and proportion of the teaching staff

The ratio of students / lecturers in the period 1986 - 1995 ranged from 4.4 / 1 to 6.5 / 1, in 1995 suddenly increased to 21.4 / 1 due to the increasing demand for university while teaching staff did not have significant increase (the number of students increased 3.4 times - faculty staff only increased 1.02 times).

In the period 1995 - 2013, the ratio of students / lecturers increased rapidly, reaching the highest rate of 32.7 / 1 in the period 2001 - 2006. Meanwhile, the top universities in the world such as Harvard University Students / teachers are 13/2 (student / professor ratio is 3.5 / 1), while countries with advanced higher education generally have a student / teacher ratio in the range from 15 to 20/1. In the period 2011 - 2016, the country has an average of 90,368 lecturers and 2,016,308 students. The average student / faculty ratio is 22.3, a decrease of half compared to the period 1985-1991 but still high.

The number, proportion and structure of university teaching staff have not met the immediate and long-term requirements; gaps and patchwork among lecturers generations are

still common; lack of an adjacent core team with high professional qualifications. According to the statistics for the period 2011 - 2016, the country has only 90,368 lecturers / 2,016,308 students. Thus, the average number of students / lecturers is 22.3 according to a 5-year cycle, this rate has decreased by half compared to the period 1985-1991 but has not met the requirements in terms of quantity, not taking into account the number of lecturers at public universities.

The above limitations and weaknesses have greatly affected the quality of higher education in our country. Therefore, completing policies to fill gaps, remove difficulties, encourage and motivate public university lecturers to develop in quantity, improve quality with a reasonable structure and ratio is a key and urgent requirement at present.

Some recommendations and solutions to improve the quality of lecturers at public universities in the coming time

To meet the requirements and tasks of renewing Vietnam's education in the face of the strong development of the industrial revolution 4.0, the following solutions should be taken to improve the quality of university lecturers at public schools:

Firstly, in order to ensure the success for the career of reviving education, contributing to promoting deeper and broader international integration, the building and development of a contingent of officials and employees in the university should be done on a solid legal foundation, which is the legal documents with high legal value such as:

+ Honor teachers and teaching profession, improve the social position of teachers.

+ Train a contingent of teachers and educational administrators, build pedagogical schools to ensure a sufficient number of teachers at all educational levels, training levels, and special subjects in society.

+ Foster the quality and competencies, standardize the contingent of teachers and educational administrators.

+ Take care of the material and spiritual life of teachers and educational administrators.

+ Manage and use of remuneration for the contingent of teachers and educational administrators.

+ Policies for teachers and educational administrators need to be legalized to ensure high legal value and enforcement, and to ensure fair adjustments for teaching staff and educational administrators in public and non-public schools; etc...

Secondly, foster and improve qualifications and professional capacity. University lecturers need to be fostered, improve their qualifications and professional capacities by means of training to improve their professional qualifications, using information technology for teaching, and applying advanced forms to the work of training teachers, promoting scientific research, fostering in the direction of research and improving foreign language proficiency. Specifically: fostering teachers to actively participate in advanced forms of training, online training, to both improve their qualifications and approach new teaching models, thereby helping them to supplement their knowledge. , diversify teaching forms. In the coming time, online teaching models will be applied in university training, such as E-learning; B-learning; TV seminar. At the same time, it is necessary to replicate the linkage model between schools - managers - entrepreneurs so that on the basis of that linkage teachers can participate directly in the process of practicing and working in enterprises. Enterprises can send highly skilled staff to participate in the training. Thus, new lecturers have the conditions to innovate, create, associate theory with practice. In addition, it is necessary to promote the fostering of scientific research capacities for university lecturers so that they can apply modern methods in teaching.

Thirdly, building plans and plans to continue to develop the faculty of faculty in terms of both quality and reasonable structure. Completing the higher education institution network planning and training of trainers on the basis of using state management tools such as: standards and regulations for higher education institutions; publicity and transparency of information on quality assurance conditions and outcomes, education quality accreditation and quality assurance standards to guide investment as well as organize and rearrange institutions in system to suit the human resource development needs of the country.

Fourthly, continue to train and foster a contingent of public university lecturers. Training and retraining play a particularly important role in the process of developing the capacity and qualifications of teachers. With the increasing requirement for knowledge, skills, attitudes, and the quality of lecturers, it should be raised accordingly. The quality of teaching staff depends greatly on the effectiveness of training and retraining. Therefore, it is necessary to have a plan to foster the training of lecturers to send abroad for doctoral training, gradually raise the standard of lecturers with doctoral degrees in the whole system according to projects using the state budget, scholarship programs and some bilateral scholarships

*Fifthly,*building faculty competency framework standards applicable to public universities and administrators. This is the basis for building effective training and retraining programs to meet the requirements of high-quality training and effective management of training institutions in terms of university autonomy and international integration.

Sixthly, reform the recruitment mechanism and evaluate the contingent of public university lecturers. Recruitment is the first step in the faculty management cycle that is decisive for the development of the subject, faculty and school. In the course of training activities, the recruitment of good lecturers, the university will operate with higher results. Lecturer is the decisive factor to the success of the university. Recruitment of faculty must really come from the needs of the job: the size, the training profession, the number of research topics ... because of finding people, instead of having people to arrange and arrange jobs. The State must complete the planning of faculty staff in each stage and build a set of "standard qualifications for lecturers", a system of job listings and structure of lecturers, from which there are bases to recruit the right people right job, right quantity, ensuring reasonable structure and ratio.

Seventhly, develop a remuneration policy to attract talents to work in universities on the basis of: Building and implementing: recruitment policies and regimes; working environment and conditions to ensure the quality and working efficiency of lecturers (especially for professors, associate professors, experts, teachers / senior / doctorate); salaries and scales, payroll of lecturers. At the same time, lecturers are guaranteed the right to study, scientific research, participate in economic and social activities; enjoy preferential policies on housing, vehicles, social insurance, health insurance in accordance with the law and other preferential regimes. In addition, the development of regulations on rewarding, handling violations, complaints and complaint settlement related to teachers and education administrators must ensure fairness and transparency.

Conclusion

Developing the faculty of public universities is an objective indispensable to meet the increasing demands on the quality of human resources. Over the past years, public universities in Vietnam have always considered the development of faculty as the most important task, and must be conducted regularly and continuously. Therefore, the public universities have trained a contingent of highly qualified lecturers, with ethics, healthy lifestyles and devoted to the profession. However, the international integration process requires schools and each teacher to constantly make efforts to gradually innovate and improve the quality of the teaching staff who are truly qualified, have knowledge of information technology and foreign languages is not backward compared to universities and colleges in the region and the world. From analyzing the situation of the development of university lecturers in public schools in the process of international integration, the article has given some basic solutions to continue developing university faculty. The public sector aims to meet the current requirements of higher education reform in Vietnam, contributing to improving the teaching quality of the national education in general.

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ECONOMIC GROWTH WITH POVERTY REDUCTION IN VIET NAM (1986-2020)

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ABSTRACT

Economic growth is a necessary condition, but not a sufficient condition to reduce poverty. In contrast, reducing poverty promotes economic growth, but it can also hinder economic growth. In recent years, Vietnam has achieved great achievements in the implementation of economic growth, which has contributed to reducing poverty and is highly appreciated by the international community. However, the implementation of economic growth with poverty reduction in Vietnam is still limited, such as: the economic growth model is outdated compared to other countries in the region and the world, and poverty reduction. Therefore, the Government of Vietnam needs to take specific and appropriate measures to ensure both economic growth and poverty reduction for development purposes. The article analyzes the current situation (achievements and limitations) of economic growth in poverty reduction and the formula for economic growth in poverty reduction in Vietnam in the period 1986 - 2020. Thereby, the article presents a a number of solutions to promote economic growth to reduce poverty in Vietnam in the coming time, contributing to the successful implementation of the sustainable development goal to 2030.

Keywords: *Economic growth, poverty reduction, sustainable development, Vietnam.*

Introduction

In the process of human development, economic growth with poverty reduction is one of the basic problems of every age, because it is posed with the existence of people, associated with dreams and aspirations for a happy life of humans. Therefore, the determination of the true value of development, and at the same time, gathering, using and promoting effectively resources to resolve harmoniously between economic growth and poverty reduction become urgent needs.

Over the years, Vietnam has achieved important achievements in realizing economic growth and poverty reduction. However, besides the achieved achievements, the implementation of economic growth with poverty reduction remains as the division of rich and poor, high unemployment, unsustainable poverty reduction, income inequality, increasing disparities in living standards... In this context, the continuation of economic growth research and poverty reduction in Vietnam in the process of international integration is one of the necessary works, both theoretically and practically.

The research questions in this study will be:

Question 1: What is the current situation of implementing economic growth with reduction in Vietnam?

Question 2: What should be done to promote economic growth with poverty reduction in Vietnam in the coming time?

Related Works

It is common knowledge that the poor are a society that needs help so that they can get out of

poverty. Therefore, the measure of poverty must be accurate to describe poverty. Thisis because it will provide a clear understanding related to poverty so that the policies that will be formed are believed to be able to solve the problems of poverty faced (Alkire & Foster, 2011). In 1997, the Human Development Report and the 2000/1 World Development Report stated that poverty was a multidimensional phenomenon. While the Millennium Declaration and the MDGs began discussing the issue of poverty in multidimensional since 2000.

One of the multidimensional poverty measurement methods is to use the Alkire and Foster

Method (AF Method). Poverty measurement using this AF Method contains the poverty dimension, the dimensional separating line to determine who is poor in that dimension, and the poverty separation line is used to determine who is suffering enough to be classified as multidimensionally poor. This method is believed to be able to identify who is poor and, in turn, will be able to solve the problem of poverty faced (Alkire & Foster, 2011). Santos and Ura have applied the AF Method in their

study on Bhutan. The study was conducted in rural and urban areas. Five dimensions have been used, namely income, education, number of available rooms, access to electricity, and drinking water. Two additional dimensions are only analyzed in rural areas, namely, access to roads and land ownership (Santos & Ure, 2008).

Mussard and Alperin introduced a new methodology to measure the imbalance in multidimensional poverty between population groups and dimensions. The study was conducted in Argentina in 1998 on 28,511 households. The variables studied were: type of occupation and location of household residence, type of household, household size, toilet characteristics, flowing characteristic, total household income, level of education, stable employment, social contribution, and the ratio of the number of households to total income. The findings of the study indicate that the main dimensions that contribute to poverty imbalance are toilet characteristics, household size, stable employment, and flowing characteristics (Mussard & Alperin, 2008).

Notten did a study in the Republic of Congo. This study attempts to identify the poverty patterns of the Congolese people and how they differ between women, men, and children (individual poverty). The study was conducted in 2005. The information collected included household expenses, living conditions, and individual characteristics. The eight indicators of

well-being studied are money or income (household level), education (individual level), nutrition (household level), health (individual level), employment (individual level), water and sanitation (household level), home/residence (household level) and integration (relationship) (household level). This Notten study found that the poorest dimensions of poverty were housing and water & sanitation, followed by poverty in terms of finance or income (Notten, 2008).

In addition to foreign documents, related to poor fields, there are also domestic documents such as: The author Luong Thi Hong presents the Party's new points on hunger eradication and poverty alleviation and basic concepts and formulas for the implementation of hunger eradication and poverty reduction in Vietnam. Looking back after 30 country renewal. The author said that, the innovation company in Vietnam has made great achievements which means history. In particular, Vietnam and the international community recognized as one of the 18 countries with the best achievements in hunger eradication and poverty reduction in the world and one of the few countries that achieved 5/8 millennium development goals century. With the right policy, the consensus and support of all walks of life and social strata, the work of hunger eradication and poverty reduction in Vietnam has been beneficial (Luong, 2016).

Tuan, D. C have analyzed an overview of Europe's poverty reduction policies as well as clarified the needs and challenges in policy reform. poverty reduction in Europe, at the same time, pointed out the successes, limitations, experiences in the implementation of poverty reduction the German "social market" model; social security system model of "democratic society" of Sweden. Since then, providing many scientific arguments for the formulation and implementation of poverty reduction policies consistent with the current conditions of Vietnam (Tuan, 2015).

"Economic growth with poverty reduction in Vietnam today" by Vinh, T.V analysis of theoretical and practical problems of economic growth with poverty reduction; assessing the implementation of linking the economic growth target with poverty reduction in Vietnam (the period 1986 - 2012), thereby proposing the main solution to combine economic growth with poverty reduction. The work affirms "Economic growth with poverty reduction has a close relationship with each other. High economic growth is a key factor in poverty reduction. Poverty reduction is a factor that ensures sustainable economic growth" (Vinh, 2017).

In general, publications and concepts of a number of scholars are mentioned in all emphasized that the implementation of multidimensional poverty reduction is the measure to create conditions for all people to integrate into society, ensure social equity and progress in the development process.

The Research Method

Economic growth is a category of economics,

one of the topics attracting the attention of many different sciences, but up to now, there are still many different perspectives. According to the *Dictionary of Economics*, which has argued that "Economic growth is an increase in the potential output over time of an economy" (Ngoc, 2018); According to Simon Kuznest, "Economic growth is the sustained increase in output per worker, or output per worker" (Simon, 1996). Along with this point of view, in *the World Development Report* (1992), the World Bank distinguished the difference between economic development and economic growth as follows: "Economic growth is a way fundamental to possible development, but in itself an incomplete representation of progress" (Nga, 2007).

Thus, economic growth is an increase in gross national product or an increase in gross national product per capita over a given period (usually a year). The connotation of growth is expressed in scale and speed. The scale of growth reflects the increase more or less, while the growth rate is used with relative comparative meaning and reflects the rapid or slow increase of the periods. Economic growth is often expressed as value, measured by value indicators such as: Gross domestic product (GDP); Gross national income (GNP); Per capita income (GDP/person/year)... If the scale and growth rate of the indicators reflect a high total income and per capita income, it is a positive sign of quantity of economic growth.

From the *World Bank's* point of view: Poverty is a shortage in many ways. Limited income or lack of opportunities to generate income, assets to ensure consumption in times of difficulty and vulnerability to adverse mutations, inability to communicate needs and difficulties to those people who are capable of dealing, feeling insulted, not being respected by others... that's the aspect of poverty. At the conference on hunger eradication and poverty reduction in Asia - Pacific region organized by ESCAP in Bangkok - Thailand in September 1993, the Asia - Pacific Economic and Social Committee introduced the conception: Poverty is the situation in which a population segment does not enjoy and satisfies basic human needs, but this need has been inherited by society depending on the level of socio-economic development, habits and customs of locality. From this it can be understood: Poverty reduction is to make a part of the poor population raise their living standards and gradually get out of poverty. In other words, poverty reduction is the process of moving a part of the poor population to a higher standard of living.

Economic growth with poverty reduction is considered for the sake of human development, the subject of the development process, in which economic growth is a condition for poverty reduction and poverty reduction is a measure of social progress; poverty reduction is a driving force for high and sustainable economic growth; poverty reduction is an indicator of economic growth; Implementing appropriate poverty reduction will become a driving force for high and sustainable economic growth, showing:

Firstly, it is necessary to affirm that economic growth is a necessary condition for poverty reduction. It must take economic growth, especially high, stable and long-term economic growth, for the State to have the physical strength to implement poverty reduction programs. In fact, in many countries, the high economic growth rate has had a positive impact on the poverty rate. For example, in the 1990s, East Asian countries experienced high growth rates (6.4%) and poverty reduction rates of 6.8%; while in South Asian countries, figures are 3.3% and 2.4%, respectively. Without economic growth, or slow economic growth, the State will not have many resources to implement poverty reduction policies.

However, economic growth is only a necessary condition, not a sufficient condition to reduce poverty. In fact, some countries have higher economic growth and per capita income, but the results of poverty reduction are less effective. In contrast, there are lower income per capita countries, but poverty reduction is better. For example, in 2018, Mexico's per capita income was $17,628 (calculated according to PPP 2011), but their national poverty rate reached 43.6%, the international poverty rate was 2.5%; the corresponding figures of Brazil are $ 14,068, 26.5% and 4.8%; of East Timor is $ 7,527, 41.8% and 30.7%. Meanwhile, Vietnam's per capita income reached only $ 6,220, but the national poverty rate is only 9.8% and the international poverty

rate is 2.0%, the corresponding figures of China. These are $ 16,127, 3.1% and 0.7% (UNDP, 2020).

Thus, in order to promote poverty reduction, in addition to what is needed for economic growth, there must be sufficient *conditions for the role of the State*, expressed in the following aspects: (i) Select an economic growth model. If the Government chooses a model of rapid economic growth, taking place in sectors and fields that require high level of technology and human resources, it will not attract the poor to participate. Therefore they do not benefit directly from the results of growth. Or the Government accelerated industrialization, modernization, and urbanization, leading to the situation of land acquisition of farmers' land, while not guaranteeing job change for them, pushing them into unemployment, which increases poverty; (ii) Distribute the results of growth. If the Government concentrates too much resources on the goal of economic growth, then it will reduce the resources for the goal of poverty reduction and possibly increase the poverty situation; or if the Government only concentrates its resources in key areas and key sectors to promote rapid economic growth, without paying adequate attention to disadvantaged and poor areas, it will lead to development of the imbalance, the richer region is richer, the poorer the poor area, the rich-poor gap will become more severe.

Secondly, poverty reduction promotes economic growth, but can also hinder economic growth. Poverty reduction has an impact on economic growth again. It can promote or hinder economic growth.

(i) Poverty reduction promotes economic growth. Policies to lend money to the poor at preferential interest rates, provide vocational training for the poor, develop infrastructure for poor areas, create opportunities for the poor to participate in economic activities... contributing increase production capacity (increase investment capital, increase human resources, increase infrastructure for production development...), increase employment opportunities for the poor and poor areas, thus promoting economic growth. Poverty reduction also helps to stabilize society, facilitating rapid and sustainable economic growth.

(ii) However, poor implementation of poverty can hinder economic growth. If the Government attaches too much importance to measures to support the poor and poor regions that do not go along with raising production capacity for the poor and poor regions, raising the self-esteem, self-reliance and the will to escape poverty... may increase the dependence of the poor on the Government, losing the driving force for economic growth.

This research basically uses document analysis method. The analysis is the published documents related to economic growth with poverty reduction in the vocational or vocational education sector, of the World Bank, the views of the Government of Vietnam to give a number of comments on recommendations. The proposal has, in the context of and suggestions for the Vietnamese Government to identify some directions for implementing economic growth with poverty reduction according to international standards in the process of international integration. Also described with the help of objective data from statistical and officially published sources.

At the same time, the article also uses synthesis of specific research methods such as history, logic, comparison, analysis, synthesis, induction and deduction, data synthesis... to serve the research. and present articles.

Scope of article results

The paper researches the current status of economic growth with poverty reduction to meet the requirements of international integration in Vietnam in the period 1986 - 2020. The research results can be used to make policy recommendations of the Government, as well as leaders of regions of the country. in developing plans and strategies to link economic growth with sustainable poverty reduction, meeting the requirements of international integration in the future.

The novelty of the article: From the theoretical research, analysis, evaluation of the achieved results, the limitation in the realization of economic growth with poverty reduction in Vietnam and propose solutions to promote economic growth with sustainable poverty reduction in the coming time.

Results and Discussion

The reality of economic growth and poverty

reduction in Vietnam

Achievement of economic growth with poverty reduction

First, Vietnam's economy, after 35 years of renovation, has made spectacular development steps and achieved many historical achievements. The economic growth rate has been quite high for many years, the scale of the economy has been much larger than before. Gross domestic product (GDP) grew at an average annual rate of 6.6% in the 1986 - 2017 period and reached 6% / year in the 2016-2020 period. Despite being greatly affected by the COVID-19 pandemic in 2020, with this growth rate, Vietnam belongs to the group of high-growth countries in the region and the world (Communist Party of Vietnam., 2021). Compared to some countries with fast economic growth in the world over the past 35 years, Vietnam's average GDP growth is only 9.4% behind China, and 5 above South Korea and Malaysia 9%, 5.2% in Thailand, 2.6% in the US, 1.7% in Japan and 1.8% in Germany. Vietnam's economic scale has increased from 90th place in the world in 1990 to 171.2 billion USD, ranked 57th in the world in 2013 (Government Vietnam, 2019). Vietnam from a country in the group of poorest countries in the world has become a country low-middle income countries in 2008.

State-owned enterprise restructuring has been promoted, more substantive; Focusing on equitization, divestment and improving operational efficiency. The number of state-owned enterprises was reduced, focusing on key industries and fields. The non-state economic sector achieved a good growth rate, making an important contribution to mobilizing social resources, transforming the economic structure, creating jobs and increasing incomes for workers. The economic structure of the industry and intra-industry changed positively. The share of the agricultural sector in GDP will decrease from 18.9% in 2010 to 14.8% in 2020. To focus on agricultural development towards large, modern, high-value-added and sustainable commodity production; develop production linkages along the value chain and build brands of a number of key agricultural products. Many factories processing agricultural products and foodstuffs with modern technology have been put into operation. Forms of cooperative economy and agricultural enterprises have increased rapidly with about 15,000 effective agricultural cooperatives and nearly 12,000 enterprises directly engaged in agricultural production. Proportion of processing industry, manufacturing and application of high technology in branches and fields is increasing; The proportion of processed exports in the total export value of goods increased from 65% in 2011 to 85% in 2020. A number of industries and service sectors applying high technology were promoted and modernized step by step. such as information technology, communication, e-commerce, finance, banking, insurance, securities, healthcare, aviation. This shows that Vietnam's economy has had outstanding development, openness and high integration. That result has an important contribution to Vietnam's extensive international economic integration and opening up. International integration is an important factor promoting the development of Vietnam's economy.

Second, economic growth is constantly accompanied by a reduction in the proportion of poor households. With fast and stable economic growth, material resources have been created to reduce poverty for all Vietnamese people. Accordingly, the rate of poor households decreased rapidly from 28.9% in 2002 to 11.1% in 2012 and 5.8% in 2016. The proportion of multi-dimensional poor households also decreased rapidly from 9.2% in 2016, to 7.8% in 2017, 6.8% in 2018 and 2020 is estimated to be about 3%.

Year	**Per capita income (VND thousand, current price)**	**The rate of poor households (%)**
1986	235,1	30
2004	484,4	18,1
2006	636,0	15,5

2008	995,0	13,4
2010	1.378,0	14,2
2012	2,000,0	11,1
2014	2.637,0	8,4
2016	3.098,0	9,2
2020	6.389,0	3,0

Table. Vietnam's per capita income and poverty rate in the 2002-2020 period

Third, economic growth is more beneficial to the poor. By comparing the growth rate of per capita income and the rate of poverty reduction in the period of 2003 - 2018, it can be seen that in Vietnam, the impact of economic growth is more beneficial to the poor than with other population groups. On average during the period of 2002-2018, the rate of poverty reduction in Vietnam was 10.1% / year, greater than the growth rate of per capita income in the same period of 7, 8 years. This means that Vietnam's economic growth during this period "for the poor" is more beneficial to the poor. In other words, the consensus effect of economic growth on poverty reduction is strong and rapid poverty reduction. However, in 2009 and 2010 alone, the poverty rate did not decrease, but increased, meaning that economic growth in these two years was more beneficial to the rich than to the poor.

Limitations in realizing economic growth with poverty reduction

First, the positive impact of economic growth on poverty reduction is uneven among population groups and ethnic groups. Vietnam's economic growth in recent decades has had a positive impact on poverty reduction in general. However, this effect is not equal among the population groups, the rich groups benefit more from the fruits of economic growth than the poor. This is reflected in the growing income gap between the richest 20% of the population and the poorest 20% of the population, and the proportion of income of the poorest 40% of the total population is getting smaller and smaller.

During 1995 - 1999, the income gap between these two groups was lower than 8 times (ie inequality in low income distribution). In the period of 2002-2008, the gap was in the range of 8.1 - 8.9 times (i.e., is below the moderate inequality in income distribution). From 2010 to 2016, the gap increased to 9.2 - 9.8 times (ie, near upper moderate inequality in income distribution). In 2018, this gap increased by 10 times, which is a high level of inequality. Considering the World Bank's "standard 40", in the period 2002-2006, the income share of the poorest 40% of the total income accounted for > 17% (corresponding to low inequality), since in 2008, the ratio was between 12% -17% (i.e., moderate inequality) (Ha, 2019). This shows that the gap between rich and poor increased, the poor benefited less as a result of economic growth than the rich.

The positive impact of economic growth on poverty reduction is uneven among ethnic groups. In general, the positive impact of economic growth on poverty reduction for ethnic minorities is lower than for the Kinh people. In 2017, the proportion of poor ethnic minority households accounted for 52.66% of the total poor households nationwide and accounted for 27.55% of the total ethnic minority households. Some poor districts of 30a have a poverty rate of over 60%. In 2018, poor ethnic minority households accounted for 62.51% compared to the total poor households in 51 ethnic minority and mountainous provinces (Economy 2018-2019 Vietnam and the World, 2019). There are 10 ethnic minorities with high poverty rate from 45.7% to 83.9%, namely: La Hu (83.9%), Mang (79.5%), Chut (75.3%), O Du (66.3%), La Ha (47.7%), Co (65.7%), Kho Mu (59.4%), Xinh Mun (52.4%), Khang (46, 1%), Mong (45.7%) (Thao, 2020).

Second, the ability to access production factors of the poor is limited, many poor rely on the support of the State, reducing the motivation for economic growth. According to the 2016 Living Standards Survey, the proportion of

poor households receiving credit support in recent years has been declining. In 2010, this ratio was 9.9%, in 2012 it decreased to 9.1%, in 2014 it was only 3.4% and in 2016 it was 1.0%. The proportion of poor households supported with residential land and productive land has also decreased, from 1.2% (2010) to 0.8% in 2012, 0.5% (2014) and 0.3% (2016). The rate of ethnic minority households allocated land and forests is very low, accounting for 11.5% of ethnic minority households; In 2018, there were 303,578 households lacking productive land; 96,256 households lack capital and need to borrow capital to develop production (Thao, 2020).

In addition, many poor households rely on the support of the State, not consciously rising out of poverty is also an obstacle to economic growth. This situation occurs in many communes of 135 where the poverty rate is over 60%. In many La Hu villages, people mainly cultivate on upland fields and go to the forest to gather for the seasons. This is also the community that always maintains the poverty rate of more than 80% in Lai Chau province. Over the years, food, shelter, seedlings and livestock have been provided by the State, but many households have not been able to escape poverty (News Department, 2019).

Third, poverty reduction is not sustainable, and the risk of falling back into poverty is high. Despite impressive achievements, poverty reduction in Vietnam has not been truly sustainable. For example, in the two years of 2016 - 2017, the rate of households falling back into poverty accounted for an average of 5.17%/year of the total number of households escaping from poverty, particularly in the Northwest mountainous region, the rate of people falling back to poverty reached 26.86% (period about 12% per year in advance). Notably, the proportion of poor households arising is relatively large, equal to 22.98% of the total households escaping from poverty. In 2017, a high proportion of newly arising poor households (compared to households escaping from poverty) focused on ethnic minority and mountainous areas such as: the Northeast mountainous region (24.67%); Northwestern mountainous region (39.21%); Central Highlands (31.74%). Some provinces have a very high rate of arising new poor households every year, such as: Ha Giang (28.25%); Cao Bang (25.44%); Bac Kan (59%); Son La (52.31%); Dien Bien (41.5%); Dak Nong (44%); Kon Tum (41%) (Cao, 2019). By March 2018, although 8/64 districts 30a escaped from poverty; 14/30 districts enjoyed the 30a mechanism to escape the difficult situation but added 29 districts to the list of poor districts for the period of 2018-2020. In particular, 12 provinces have seen a significant increase in the rate of falling back into poverty, increasing by 0.03% or more, including some provinces with favorable socio-economic development conditions such as Vinh Phuc, Khanh Hoa and Kien Giang; the number of households falling back into poverty will be about 1/20 households escaping from poverty; the number of newly arising poor households is about one fourth of the households escaping from poverty; Many provinces in areas affected by natural disasters and severe floods have a very high rate of generating new poor households every year (Hoang, 2018).

A number of solution to better of economic growth with poverty reduction in Vietnam

The above analysis shows that, in order to both promote economic growth and sustainably reduce poverty in Vietnam, in the coming time, the Government should focus on the following solutions:

Firstly, to combine the economic growth model with width and depth, focusing on depth. This orientation not only ensures an increase in labor productivity, promotes sustainable economic growth, creates a solid foundation for increasing per capita income, increases capital for poverty reduction, but also creates opportunities for the poor and poor regions participate in the growth process and benefit directly from the economic growth process.

In order to do so, the Government needs to maintain a stable macroeconomic environment, promote restructuring of the economy associated with innovating an important and intensive economic growth model; promote the development of agriculture, rural, deep-lying, remote, poor and ethnic minority areas along the direction of diversifying agricultural production, developing rural economy, building new countryside, creating every opportunity associations for farmers, the poor and ethnic minorities to directly participate in economic

activities; At the same time, encourage the development of private enterprises, especially those that provide input, output, processing and consumption of agricultural products, and promote the development of rural economy, remote areas, poor areas.

Secondly, improve the policy for distributing the fruits of economic growth to human-related fields. This solution aims to use the fruits of economic growth to improve aspects related to human and social development. The process of economic growth must be controlled regularly and strictly by social development indicators, in which the focus is on hunger eradication, poverty reduction, social justice, job creation, inter-sectoral targets related to the comprehensive development of people (such as education, health, physical training and sports, culture and art). At the same time, the economic growth policies associated with creating conditions are increasingly fair for everyone about development opportunities. This is related to the need to implement policies that enable everyone to participate in the implementation of economic growth; implement policies to make full use of and ensure everyone has the opportunity to participate in economic processes to create growth. The results of economic growth are always associated with improving the living standards for the people, through the policy of income distribution and redistribution. The human-growth model requires the effective use of two methods of income distribution: income distribution by function, that is, each person's income is determined on the basis of the contribution of quantity and the quality of the resources they contribute to generating income for the economy; Income redistribution, in the form of direct (tax, subsidy) and indirect (through price policy access to public services) to contribute to the regulation of income among different strata of society.

Thirdly, increase production capacity for poor and poor areas. Increasing production capacity for the poor, poor areas are the root to ensure sustainable poverty reduction. For this purpose, the Government needs to grasp the importance of "giving fishing rods more". Specifically, it is necessary to: (i) Build synchronous socio-economic infrastructure for poor areas connecting with developed regions, in order to create a foundation to promote production development in poor areas; (ii) Supporting education, training, improving people's literacy and professional and technical qualifications for the poor, so that they have the opportunity to find jobs, participate in the process of economic growth and benefit directly from this process; (iii) Support productive resources for the poor and poor areas, especially support for capital, production techniques and product consumption, as these are weaknesses that the poor cannot overcome on their own.

Fourthly, fundamentally change the methods of poverty reduction, raise the sense of self-reliance, self-reliance, and proactively rise out of poverty. Poverty reduction cannot be successfully accomplished without the personal efforts of poor households, the poor and the poor. To this end, the Government needs to: (i) Reduce the policy of free support, increase the conditional assistance policy attached to beneficiaries, areas and beneficiary duration to increase access to policies for the poor; (ii) Promulgate groundbreaking policies to encourage the active, proactive participation and promotion of internal resources of the poor, (iii) Enhancing communication, changing perceptions of poor households, eliminating ideas rely on and rely on the support of the State, especially to bring the poor from the "passive" position to "proactively escape poverty"; (iv) Directing provinces and cities to formulate detailed plans of poverty reduction programs and policies according to specific roadmaps with practical solutions, close to the assistance needs of the poor under specific conditions of provinces, cities, avoiding burning phase; review and classify poor and near-poor households objectively and accurately to take appropriate support measures.

Conclusions

Over the past years, Vietnam's economic growth has contributed to reducing unemployment, bridging the gap between the richest and poorest quintile, improving material and cultural life, and status of the country. We are constantly improving in the international arena. However, the negative side of the market economy and international integration have

negatively impacted on the lives of workers, such as unemployment, rich and poor division, income inequality... Therefore, in order to well implement economic growth with poverty reduction in Vietnam, it is necessary to implement solutions such as: to combine the economic growth model with width and depth, focusing on depth; improve the policy for distributing the fruits of economic growth to human-related fields; increase production capacity for poor and poor areas. Increasing production capacity for the poor, poor areas are the root to ensure sustainable poverty reduction; fundamentally change the methods of poverty reduction, raise the sense of self-reliance, self-reliance, and proactively rise out of poverty. The synchronous implementation of these solutions contributes to promoting economic growth and poverty reduction in Vietnam, towards the successful implementation.

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FROM A POSITIVE TEACHING MINDSET TO A HARMONIOUS AND POSITIVE EDUCATIONAL PHILOSOPHY - THE REALITY AT THU DAU MOT UNIVERSITY

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ABSTRACT

In recent years, the higher education system has developed strongly in both quantity and quality. The competition between training institutions is becoming more and more fierce, reflected in enrollment, training and product quality through training. This fierce competition takes place not only between domestic training institutions, but also between domestic training institutions and foreign training institutions in Vietnam, which are already famous in the world gender. Thu Dau Mot University, Binh Duong province, Vietnam is a local university, but from the beginning, it has oriented to develop into a training and research center on a regional and international level. Therefore, in order to fulfill the above mission, it is inevitable to innovate teaching methods and build a separate educational philosophy. The article analyzes the transformation process in the innovation of medical methods at Thu Dau Mot University, Binh Duong province, from positive teaching thinking with many flexible methods to crystallization into an educational philosophy brand name of the school: harmonious and positive educational philosophy. Since 2017, Thu Dau Mot University has continuously improved its educational philosophy, considering it a breakthrough solution to improve training quality.

Keywords: *Active teaching, Active harmonious education philosophy, Thu Dau Mot University, Binh Duong Province, Vietnam.*

Introduction

In the process of training innovation, lecturers of Thu Dau Mot University have applied many active teaching methods, promoting the activeness and self-study of students (group discussion, student-centered learning, E-learning…). Each method has certain advantages and limitations. Summarizing the positive aspects from the above methods, since 2012, the University's leaders have advocated the implementation of the method "Teachers and students learn together" - learning is the center, enhancing interaction between learners and students. teacher. This method has brought about a positive effect, suitable and synchronized with the contents and programs that the university has been implementing such as: CDIO, critical thinking, creative thinking, social skills... During the IBM survey and policy consultation in April 2017, IBM experts discovered this "bright spot" and recommended that the school can develop into a new educational philosophy. On the basis of summarizing and evaluating the achieved results, combined with the recommendations of IBM, the university leaders decided to develop the current contents and methods into the educational philosophy of Thu Dau Mot University and named it "positive harmony education". The good implementation of this philosophy has an important meaning in effectively improving the quality of the school's training and meeting the needs of society.

Literature Review

There are no monographs on the study of positive and harmonious educational philosophy at Thu Dau Mot University. However, up to now, there have been quite a few works referring to active education methods in different aspects.

Obert J. Marzano, Debra J. Pickering & James E. Pollock assert: teaching is both science and art. Education researchers will never be able to identify teaching methods that work for every student and every classroom. The best that researchers can do is tell us which teaching methods are more likely to actually work with students. Each teacher must develop a specific teaching method for his students at the appropriate time. For that reason, an important part of effective teaching must be the art, and this book is also known as the Art and Science of Teaching.

Edward FC, Johan M., Sören Ö., and Doris R. B in the work: "Rethinking Engineering Education - The CDIO Approach" mentioned a modern educational assessment program as a

premise for the formation of The positive and harmonious educational philosophy of Thu Dau Mot University is the CDIO (Conceive - Design - Implement - Operate) program. In particular, the authors emphasize: the application and implementation of the CDIO approach in engineering and technology programs at universities requires continuous and synchronous change and interaction in 3 elements. factors: intended learning outcomes, teaching and learning activities, and assessment (Edward et al., 2007).

Some studies by Biggs in the work: "Teaching for Quality Learning At University" show that there is a close relationship between learners' activities and learning efficiency. The rate of learners' knowledge acquisition increases when multi-sensory is applied to learning activities, used in practice, and especially if it is re-taught (re-transmitted) to others. Active teaching is the organization of diverse and rich learning activities that increase the ability to acquire knowledge. This is also an important quality set forth in the Positive Harmonization philosophy of education.

"The IDEAL problem solver" Bransford and Stein refer to a project-based learning approach that focuses on learning activities of a long-term and interdisciplinary nature and often associated with emerging problems. born of the present life. In addition, project-based learning also provides opportunities to help learners pursue their interests, and make decisions on their own about answers or finding solutions to problems. presented in the project. This method can help to achieve the output standard according to the CDIO protocol such as: Making assumptions; Design - implementation skills; Written communication skills; Presentation skills.

In recent years, in the context of strong innovation in teaching methods in universities, many research works on active educational methods have been published in Vietnam.

Bernd Meier - Nguyen Van Cuong with the work: "Modern Teaching Theory - The basis of innovation in teaching objectives, content and methods" refers to the basic topics of general teaching theory. The specific content of each chapter is an expansion and deepening of the Bachelor's program, new approaches from international experience.

The book: "Active Teaching and Learning - Some Teaching Methods and Techniques" presents teaching methods and techniques such as: mind mapping, tablecloth technique, contract learning, project-based learning. projects, ... in order to maximize the ability and capacity formation of learners. Students learn through practice and experience, enhancing self-study, replacing "shallow" learning with "deep" learning. Students learn in really meaningful lessons instead of passively listening, taking notes, and transmitting one-way, imposing as before. Active teaching and learning, aiming to enhance the active participation of students, facilitate level differentiation, meet learning styles, and maximize learners' abilities. Ensure learners not only learn "deeply" but also learn "comfortably". Thereby forming skills of cooperation, communication, presentation, searching, gathering, information processing, problem solving, etc. At the same time, it encourages teachers to explore, be creative, and be flexible in their work. apply teaching methods and techniques suitable to students and local contexts.

In summary, the works have mentioned different aspects, different methods of active teaching and innovative teaching methods in universities. However, in general, there is no research on the educational philosophy of Positive Harmony of Thu Dau Mot University from the process of formation and development as well as the role of this philosophy in the process of method innovation. teaching of the School in particular as well as in Binh Duong province, Vietnam in general.

Methodology

The method used in this research is qualitative analysis, combined with synthesis and inductive methods,and explanatory research. The analysis process was carried out by using historical information and historical and dialectical materialism methods.

Research results

About active teaching methods

Document of the 12th National Delegation of Communist Party of Vietnam affirms: "Education is the leading national policy, developing education and training in order to

improve people's knowledge, train human resources and foster talents. To strongly shift the main educational process from equipping knowledge to comprehensively developing learners' capabilities and qualities; Learning goes hand in hand with practice, theory with practice. Education and training development must be associated with the needs of socio-economic development, national construction and defense, with scientific and technological progress, requirements for human resource development and the labor market (Communist Party of Vietnam, 2016, 214-215). Vietnam is in the transition to a knowledge-based economy, the role of universities in contributing to economic growth becomes more important than ever. One of the main challenges that universities face is how to train students to meet the evolving needs of society. To achieve the above goal, especially in the context of the industrial revolution 4.0, many universities are focusing all their efforts on building curricula, compiling textbooks and documents, and innovating teaching methods and means. education to meet the increasing demands of society. In which, the active teaching method is applied by most schools in order to strongly innovate educational methods, bringing high efficiency.

Active teaching methods (or active educational methods) are ways to refer to different methods, methods and techniques that make class hours lively, attractive, learners work, be creative. Applying this method means changing the model from teacher-centered teaching to learner-centered teaching. With this model, not only in Vietnam but also in many countries around the world, there is a bias towards one of two trends, although creating some advantages, most of them are limitations in the ability to promote positiveness of either the teacher or the learner (Bernd & Cuong, 2020, 132). Therefore, researching a new model to overcome this limitation is absolutely necessary.

The characteristics of the active method of education:

Firstly, learners are the center of educational activities. In the active teaching method, learners - the object of the "teaching" activity, and at the same time the subject of the "learning" activity - are attracted to learning activities organized and directed by the lecturer, through which to self-explore what they do not know, rather than passively absorbing the knowledge arranged by the lecturer. Being placed in real life situations, learners directly observe, discuss, do experiments, solve problems posed in their own way of thinking, thereby acquiring new knowledge, skills, and skills grasp the method of "making" that knowledge and skill, not following existing stereotypes, revealing and promoting creative potential (Edward, Johan, Sören & Doris, 2007). To teach in this way, the teacher not only imparts knowledge, but also guides action.

Secondly, focus on training self-study methods for students. The active teaching method considers the training of learning methods for students not only as a measure to improve teaching effectiveness but also as a teaching goal. In a rapidly changing modern society - with the explosion of information, science and technology developing at a rapid pace - teachers themselves cannot collect enough information and cannot cram it into their heads. The student brain has an increasing amount of knowledge. The teacher's role is no longer a "dispatcher of information". On the contrary, attention must be paid to teaching students self-study methods from the first subjects of the program. That said, it does not mean that the role of the teacher is no longer important, but now the teacher will be a guide for learners to find knowledge. Among the learning methods, the core is the self-study method. If training students to acquire methods, skills, habits, and the will to self-study, it will make them eager to learn, arouse the inherent internal force in each person, and the learning results will be multiplied. multiples (Biggs, 2003, 214).

Thirdly, combine individual learning with cooperative learning. In a class where the knowledge and thinking levels of students cannot be absolutely uniform, when applying the active method, it is forced to accept the difference in intensity and progress of completing the learning task, especially when applying the active method. is when the lesson is designed as an independent work sequence. The higher the level of the active approach is applied, the greater the disparity. However, in learning, not all knowledge, skills and attitudes

are formed by independent individual activities. The classroom is a communication environment between lecturers - students, students - students, creating a cooperative relationship between individuals on the way to acquiring knowledge. Through discussion and debate in the group, each individual's opinion is revealed, confirmed or denied, through which learners raise themselves to a new level. This is consistent with the real-life environment later when students graduate and go into work, forcing everyone to learn for life, combining individual learning and collaborative learning.

Fourthly, the role of lecturers in active teaching is to guide and organize activities. As mentioned above, in active teaching, teachers no longer simply play the role of a transmitter of knowledge, but become a guide for students on the path to knowledge. More specifically, the teacher also plays the role of designing, organizing, and guiding independent or small-group activities so that students can dominate learning content on their own, actively achieve knowledge goals, skills and attitudes required by the program. In class, students are the main activity, the teacher is just the guide. But before going to class, teachers have to invest a lot of time to design lessons so that they can achieve the output standards according to CDIO; select teaching methods and assessment methods suitable to the objectives and content of the lesson. During the teaching process, outside of class time, the teacher also has to monitor the students' self-study activities, help when necessary, exchange discussions and suggestions so that learners are on the right track. Thus, a teacher in active teaching and learning needs to invest a lot more effort and time than passive teaching and learning to be able to perform classwork as an initiator and catalyst, encouraging, advising, and refereeing in exciting research activities and lively debates of students (Campus Compact, 2007, p.87).

Fifthly, combine the teacher's assessment with the student's self-assessment In the past, teachers kept a monopoly on student assessment, but in the active approach, teachers must guide students to develop self-assessment skills to self-regulate learning. Related to this, teachers need to create favorable conditions for students to participate in mutual assessment. Correct self-assessment and timely adjustment of activities are competencies that are essential for success in life that schools must equip students with. One point to note in the assessment is that it must be formative assessment, avoid focusing on assessment at the end of the semester, and diversify assessment activities so that learners have the opportunity to show progress. their own work in the learning process (Bernd & Cuong, 2020, 98).

Educational philosophy of active harmony at Thu Dau Mot University

With Thu Dau Mot University, since the early years of its establishment, the University has made efforts to find and test many modern educational methods to improve training quality. In particular, since approaching the CDIO initiative and pursuing national and international accreditation standards, the University has become more and more determined to use the improvements in teaching methods as a lever to stimulate a positive teaching and learning spirit. of staff and students in the school. Through practical experience, models to improve teaching capacity of lecturers and students' learning capacity such as ISW, E-Learning, etc., as well as the collaboration of international experts have been determined by the University. The educational philosophy that the school pursues is a harmonious, positive education based on the principle of "taking learning as the center". This educational model is a reconciliation of two extremes from teacher-centered teaching to learner-centered teaching in order to overcome the limitation of the ability to promote the positivity of either object. teachers or learners as mentioned above, that is the new "learning-centered" educational method. Accordingly, "learning-centered" teaching requires both teachers and learners to increase their activities in the lesson, clearly demonstrating their role in order to create effective training time control the expected learning results, actively improve themselves to get the best teaching effect.

In order for the innovation of methods to be effective, it is required for lecturers and students to regularly learn and update new teaching and learning methods to perfect themselves to adapt to the times. 4.0. Educational philosophy Positive harmony

requires quick adaptation, sets high requirements for both teachers and students in educational activities.

Firstly, the innovation of teaching methods originates from the change of teachers' awareness. Teachers need to change their own perception, have an open mind and approach advanced teaching methods. The teacher is the key factor that determines the quality of high-quality human resource training. Innovating teaching methods in active harmony not only transforms the teacher from being a one-way knowledge transmitter in the traditional and imposing manner, but also the learner is a passive and one-way recipient of knowledge. instructors, orient, organize learning for learners in an active and active way, support them, answer questions and requirements set by learners when necessary, but this method also requires Ask the teacher to actively invest a lot, to have high determination for his lecture as well as to actively pay attention to listen, to learn, to make adjustments from the students' opinions.

Secondly, requires learners to be responsible for their own learning: learners must be aware of the importance and benefits of group learning. Because this is the foundation to help learners form teamwork skills when participating in a professional working environment.

Thirdly, debate in learning is also a requirement, a method of active, harmonious learning, the debate process forms learners' own stance. Debating creates opportunities for learners to participate in classroom activities and allows them to gain experience in expressing their own opinions, this is a very important soft skill that learners need to accumulate for later career.

From the process of implementing the educational philosophy: Active Harmony at Thu Dau Mot University, Binh Duong has raised problems that can be applied to the innovation of methods in universities.

Firstly, teaching and learning through the organization of student learning activities. In the active, integrated teaching method, learners - the object of the "teaching" activity, and at the same time the subject of the "learning" activity - are absorbed in the learning activities organized by the lecturer and directed to the teacher. teaching, through which to self-explore what they do not know, rather than passively absorbing the knowledge arranged by the lecturer. Being placed in real life situations, learners directly observe, discuss, do experiments, solve problems posed in their own way of thinking, thereby grasping new knowledge, skills, and skills grasp the method of "making" that knowledge and skill, not following the existing patterns, revealing and promoting creative potential. To teach in this way, the teacher not only imparts knowledge, but also guides action. The curriculum must help each student take action and actively participate in community action programs.

Secondly, teaching and learning focuses on training self-study methods. The active method considers the training of learning methods for students not only as a measure to improve teaching effectiveness but also as a teaching goal. In a rapidly changing modern society - with the explosion of information, science, technology, and technology developing like a storm - it is impossible to cram into the minds of students an increasing amount of knowledge. Attention must be paid to teaching students learning methods from the first year of study and more attention must be paid in the final year classes. Among the learning methods, the core is the self-study method. If training students to acquire methods, skills, habits, and the will to self-study, it will make them eager to learn, arouse the inherent internal force in each person, and the learning results will be multiplied. multiple. Therefore, nowadays, people emphasize the active side of learning in the teaching process, trying to create a transition from passive learning to active self-study, questioning the development of self-study right in high schools, not only self-study at home after class, but also self-study in class with the guidance of teachers.

Thirdly, strengthen individual learning, combined with cooperative learning. In a class where the knowledge and thinking levels of students cannot be absolutely uniform, when applying the positive method, it is forced to accept the difference in intensity and progress of completing the learning task, especially when applying the positive method. is when the lesson is designed as an independent work sequence. The higher the level of active method

applied, the greater this divergence. The use of information technology facilities in the school will meet the requirements of personalizing learning activities according to the needs and abilities of each student. However, in learning, not all knowledge, skills and attitudes are formed by independent individual activities. The classroom is a communication environment for teachers - students, students - students, creating a cooperative relationship between individuals on the way to dominate learning content. Through discussion and debate in the group, each individual's opinion is revealed, confirmed or denied, through which learners raise themselves to a new level. The lesson applies the knowledge and life experience of the teacher.

In schools, cooperative learning is organized at the group, group, class, or school level. Commonly used in teaching is a cooperative activity in small groups of 4 to 6 people. Collaborative learning increases learning effectiveness, especially when it comes to solving tough problems, when there is a real need for cooperation between individuals to accomplish common tasks. In small group activities, there will be no dependence phenomenon; The ability of each member is revealed, molded, developed friendship, sense of organization, spirit of mutual assistance. The model of cooperation in society introduced into school life will make members get used to the division of cooperation in social work. The trend of globalization has appeared the need for transnational and transnational cooperation; Collaborative competence must become an educational goal that schools must prepare for students.

Fourthly, create an environment of "Learning from each other" in schools. "Mutual learning" deserves to be studied to become a new educational rule. This is also the basic rule in the harmonious and active teaching method at Thu Dau Mot University. This rule may include the following main contents: the communication is not only top-down, but there is exchange, discussion, and question-and-answer; students' criticism of the content or methods presented by the teacher; teachers can learn from students both in terms of knowledge, ways of thinking, attitudes, etc. to improve their perception, thinking and outlook on life. Contact in class, after school is an important channel for both sides to learn from each other, but giving feedback is also another channel that is equally meaningful for teachers to draw lessons for themselves. thereby improving themselves, improving the quality of teaching better, having a better attitude towards students. Through giving feedback, students also express their thoughts and desires, making an important contribution to building a positive relationship between lecturers in particular and the school in general and students. Student feedback is a channel for schools and educational administrators to realize the "existences", "limitations", "defects" of each lecturer in particular, of the management and school teaching. Obviously with this approach, the teacher has to raise himself up a step, be more proactive but also dig deeper and constantly refresh his knowledge and lectures. The exchange makes the teacher-student relationship close and intimate, not as separate as before. Not only that, teachers and learners are both more responsible in their duties. Of course, the ultimate goal is still to help learners learn better, including improving students' thinking and critical thinking.

Fifthly, combine the teacher's assessment with the student's self-assessment. In teaching, the assessment of students is not only for the purpose of identifying the current situation and adjusting the student's learning activities, but also creating conditions for identifying the current situation and adjusting the teacher's teaching activities. In the past, faculty had the exclusive right to evaluate students. In the active integration approach, teachers must guide students to develop self-assessment skills to self-regulate learning. Related to this, teachers need to create favorable conditions for students to participate in mutual assessment. Correct self-evaluation and timely adjustment of activities are essential competencies for success in life that schools must equip students with. In the direction of development, the method of active integration trains dynamic people who soon adapt to social life, the examination and evaluation cannot stop at the requirement of repeating knowledge and repetition, re-learn skills that must encourage intelligence, creativity in solving real-life situations With the foregoing, it can be

affirmed that, from the active teaching and learning method to the active integrated learning method, the lecturer not only plays the role of the designer, organizer, and guide of independent activities. set up or in small groups so that students can dominate the learning content by themselves, actively achieve the knowledge, skills and attitude goals required by the program, while the lecturer also plays the role of an active learner actively adjust the teaching process according to the actual needs of students.That requires lecturers with extensive professional qualifications, skilled pedagogical qualifications to be able to organize and guide student activities, which sometimes happen beyond the lecturer's expectations.

Conclusion

Along with great strides in the era of the 4.0 revolution, countries are having opportunities and also facing many challenges brought by globalization. Therefore, human resources become the most important and decisive asset for the existence and development of all countries. As knowledge has become a major economic resource of competitive advantage, many countries consider the renovation of the education and training system as a vital strategy in the overall national development strategy especially the higher education system. Therefore, the renovation of higher education in Vietnam must also pay attention to the issue of international integration. In response to that common requirement, over the years, Thu Dau Mot University has made continuous efforts to develop many solutions to improve the quality of training, in which the focus is on implementing the philosophy of active education in harmony, effectively matched.

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THE LEGAL AWARENESS OF VIETNAMESE BASIC OFFICERS

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ABSTRACT

The grassroots cadres are the core force, effectively deciding the implementation of the policies of the Party and the State, the bridge between the Party and the people, which is the force contributing to economic development local society and society. The article mentions the legal consciousness of grassroots cadres, legal awareness characteristics of Vietnamese grassroots cadres to analyze the content of improving legal awareness of Vietnamese grassroots officials, including: Raising awareness and understanding of laws for grassroots officials; Strengthening the attitude and belief in law of grassroots officials; Improve the efficiency in applying legal knowledge to the work of grassroots cadres.

Keywords: *Legal awareness, grassroots officials, legal knowledge.*

Introduction

The grassroots cadres are the core force, effectively deciding the implementation of the policies of the Party and the State, being the bridge between the Party and the people, and the force contributing to socio-economic development locally. Currently, with the requirements of the innovation cause in the context of globalization and the industrial revolution 4.0, stemming from the requirement to build grassroots cadres in the State apparatus, it is necessary to raise the legal awareness of grassroots cadres are of great importance. Because, through raising legal awareness, grassroots officials are equipped with basic legal knowledge; regulatory role of the law; legal standards and the value of the law at work and in all areas of life. This is the basis for fostering legal trust for grassroots cadres who are aware of the law and apply law to have proper law compliance.

Research method

The article is done on the basis of the general legal method ofdialectical materialism and historical materialism, in which focus is on analytical and synthetic methods. This is a popular method in scientific research the use of analytical methods helps us to generalize the previously analyzed problems, thereby building conclusions of the research process. With the significance and importance of this scientific research method, when developing this article, we often use analytical and synthetic methods to analyze and acquire the research content in the article.

Research Results

Legal awareness, grassroots officials, legal consciousness of grassroots officials

Regarding the legal consciousness, there have been many different conceptions from the perspective of jurisprudence and philosophy, for example, according to Dao Duy Tan, "legal consciousness is all thoughts and views of a class about nature. and the role of law, rights and obligations of the state, social organizations and citizens, on the legality and illegality of human behavior in society" (Dao Duy Tan, 2008), this concept only nature, structure, content, origin, inevitable common relationship in social life. From there, it shows that the level of legal knowledge shows the level reflected in legal knowledge, the attitude towards the law, including feelings, beliefs and legal will, all exist in present people. In fact, this concept covers quite fully, comprehensively and deeply about the social expression of individuals. According to Le DinhKhien's viewpoint, "legal awareness is a light reflection of people's legal life; People perceive, evaluate and express their attitudes towards legal phenomena" (Le DinhKhien, 1996). According to this point of view, legal consciousness is the legal understanding and legal attitude of people before social life, including legal phenomena and the structure of legal consciousness showing characteristics and views about legal life; emotions, moods of reflected subjects such as individuals, parts or society.

From the above points of view, in our opinion: Consciousness of law is a form of social

consciousness, including all theories, opinions, ideas about the law, expressing the attitudes and feelings of the child people when evaluating the fairness or unfairness, correctness or improperness of current law, the legality in human behavior, activities of State agencies or communal organizations associations and other entities.

At present, the commune, ward and town authorities are at the grassroots level, the last stage of the management and administration of socio-economic activities, solving issues related to the interests of the State and the people based on the provisions of the law. According to Article 4 of the Law on Cadres and Civil Servants 2008, "The cadres of communes, wards and townships (hereinafter referred to as communes collectively) are Vietnamese citizens who are elected to hold positions by term in the Standing Council the people, the People's Committee, the Secretary, the Deputy Secretary of the Party Committee, the head of the socio-political organization; Commune-level civil servants who are Vietnamese citizens are recruited to hold a professional title of the People's Committee of the commune, be on the payroll and receive salary from the state budget" (National Assembly, 2008.

According to Article 3 of Decree No. 92/2009 / ND-CP dated October 22, 2009 on title, number, a number of regimes and policies for cadres and civil servants in communes, wards and towns clearly stated: communal positions include 07 titles: 1) Chief of Public Security; 2) Military Commander; 3) Office - Statistics; 4) Land Administration - Construction - Urban and Environment (for wards and towns) or Cadastral - Agriculture - Construction and Environment (for communes); 5) Finance - Accounting; 6) Justice - Civil status; 7) Culture – Society (Government, 2009).

- "Full-time officers: spend most of their time working on the job to perform assigned duties and responsibilities. Including elected officials: key officials of the Party Committee, People's Council, People's Committee, heads of the Fatherland Front Committee and socio-political organizations.

- Professional officers: chief of police, team leader, officer of office, cadastral, finance - accounting, justice, culture - society...

- Part-time officers are those who only participate in the work for a part of the working time. The grassroots-level leadership team includes the titles of Secretary, Deputy Secretary of the Party Committee, Chairman and Vice Chairman of the People's Council of communes, wards and townships. These are key leadership positions at the grassroots level, responsible for leading, managing, and general operating activities in the grassroots area.

The commune police chief has the function of advising Party committees and People's Committees of the same level on the work of ensuring social security, order and safety in the commune; perform the function of management of social security, order and safety, measures to prevent and fight crime and other violations of the law on social security, order and safety in the commune according to regulations the law (Standing Committee of the National Assembly, 2008).

Judicial officer - civil status of communes, wards and townships is the person who, on behalf of the government, handles affairs in the field of justice - civil status. Cadastral cadres of communes, wards and townships: Take responsibility before local authorities for the management of land, offices housing of agencies, organizations and residents in communes, wards and townships. Ward urban management staff. Are the people directly involved in solving tasks related to the construction and management of urban order in a ward. As such, grassroots cadres are physically mature and socially mature, they are recruited or appointed to hold a regular position in State offices, they are directly involved join the public bureaucracy of the national administration.

Thus, grassroots cadres are those who self-control their own behaviors and attitudes and must take responsibility before the law as a citizen, an administrative official. They matured in the social aspect also manifested in the value of their labor products recognized by the society and by their labor they were able to support themselves. Moreover, the social maturity also shows in their private lives, they are the people who have the full conditions to act before the law. They are people with social status, because civil servants are people holding certain positions or responsibilities

according to their training qualifications and are classified
into the corresponding ranks in the administrative system, therefore. The grassroots level has a certain social position to exercise the State's power to manage the whole society. Grassroots cadres have a lot of life responsibilities. Including elected officials: key officials of the Party Committee, People's Council, People's Committee, heads of the Fatherland Front Committee and socio-political organizations.

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into the corresponding ranks in the administrative system, therefore. The grassroots level has a certain social position to exercise the State's power to manage the whole society. Grassroots cadres have a lot of life experience accumulated depending on the field in which they operate. Because they are grassroots cadres, they must be trained at a certain level, along with their working position in the public office.

From the concept of legal consciousness and the concept ofgrassroots cadres, in our opinion, the legal consciousness of grassroots officials is: knowledge, beliefs, feelings, attitudes towards the law, legal prices, rights and obligations, legal or unlawful behavior of grassroots officials for the effective application of legal knowledge to work.

Content to raise legal awareness of Vietnamese grassroots cadres

Raising awareness and understanding of the Vietnamese grassroots laws

Our Party always considers officials to have a decisive role in the revolutionary cause. Resolution of Central Conference 3 (Session VII) affirms that in the process of national renewal: “Officers either promote or inhibit the renewal process. Cadres in general play a very important roles, grassroots cadres in particular have a grassroots position. The grassroots level is the direct level that organizes the implementation of all guidelines and policies of the Party and laws of the State. Law enforcement quality and effectiveness is in part

determined by grassroots implementation. The grassroots level is the level directly associated with the masses; creating mass revolutionary movement. Strong or weak commune, ward and town facilities partly depend on the quality of the contingent of cadres in communes, wards and towns". Commune-level government officials and employees play a very important role in grassroots management and operation.

Communelevel government officials and employees are the representatives of the State to perform the state management function in accordance with the assigned policies and authority. Commune-level government cadres and civil servants are those who daily directly contact the people, bring the Party's guidelines and policies, the State's legal policies to life and turn into revolutionary actions of the masses. Legal awareness reflects social existence from a legal perspective, with legal aspects such as the legal system, legal status, organization, implementation and application of the law, the attitude of people before the law. This reflection not only depends on the reality of social life but also on the reflecting subject such as the level of awareness and knowledge of legal knowledge.

When the sense of law is associated with grassroots cadres, the reflection brings the colors and typical professional appearance of grassroots cadres in communes, wards and towns. That reflection is reflected in their level of awareness, understanding of the law and law enforcement activities.

Therefore, it is required that grassroots officials have legal awareness and understanding to meet the requirements of law-related tasks that they have to deal with daily, so it is necessary to dig creating and fostering to equip grassroots officials with knowledge and understanding to raise legal awareness for this team. In fact, commune-level government officials and civil servants daily rubbing against very complex practices in many fields, so they need to have bravery, experience and knowledge. Raising awareness and understanding of the law for Vietnamese grassroots officials is a bridge to convey the law into life. Grassroots cadres must have legal knowledge because if they are not fully aware of the important role of the law in their work, no matter how well they do it, they will not achieve effective law application. The laws of the State are not always investigated and strictly implemented by grassroots officials. The process of Vietnamese grassroots officials raising awareness and understanding of the law and its application in practice is as follows:

Firstly, grassroots cadres must have a basic understanding of the law, legal issues in relation to current law, issues in the relationship of the application of legal imperatives and legal requirements in all spheres of social life. From here, Vietnamese grassroots officials develop knowledge of the law, including basic knowledge of the State and the law and knowledge of specific provisions of the real legal system. Comprehensively and systematically in legal normative documents.

Second, grassroots cadres in the course of work are inevitably required to apply knowledge and knowledge of the law to exercise their legal rights and obligations in legal situations, each event, and circumstances. Specifically, as well as the process of using laws, applying laws to protect the legitimate rights and interests of people. Therefore, this is the process of grassroots officials conveying legal knowledge and legal knowledge to apply them into specific legal acts to resolve social relationships and at work. This process has helped grassroots officials to be aware of legal or illegal behaviors, socially acceptable positive behavior or negative, social condemnation and criticism. On the other hand, legal situations help grassroots officials not only be aware of their own behavior, but also recognize that the behavior of other subjects is consistent with behavioral standards and regulations rules are regulated or not, from which to choose the most appropriate and positive behavior.

From this perception, grassroots cadres actively maintain and consolidate the general order, participate in State management, effective social management. Grassroots cadres have a full and profound understanding of the law, the more legal violations will be avoided.

Third, grassroots officials, when properly aware of the permeability of the law in social life and social behaviors, will form a behavioral habit in accordance with ethical standards and into legal feelings. This process helps grassroots officials to timely grasp the content

of newly enacted and enacted legal documents to gain understanding while applying it to solving public related issues work and life. Having awareness and understanding of the law, grassroots-level officials promote self-awareness, actively, participate in law-making and enforcement, express their opinions, opinions, behaviors and attitudes of with the law, forming a culture of obeying, obeying the law, taking the law as a standard of behavior for everyone to not only master the law, acquire knowledge and understanding of the law properly.

It is sound, systematic and comprehensive, but also knows how to apply the law correctly and fully in specific cases, circumstances and situations. The legal consciousness of grassroots officials in Vietnam is the product of the legal impact on the perception of grassroots officials, in addition, legal awareness is an important factor in forming awareness and understanding the law, the greater the awareness of the law will directly affect the regulatory mechanism through the awareness and positive behavior of grassroots officials in public service execution and Social life. Proper awareness and understanding of the system of legal regulations and legal documents will help grassroots officials have feelings, beliefs and apply the law effectively in the process of building and implementing. and legal protection.

Thus, awareness and understanding of the correct law help grassroots officials to bring the law to life, not only that, but also to form positive behaviors in accordance with the law, meeting the job needs of grassroots cadres. The legal knowledge and understanding of grassroots cadres is an important content that shows their legal awareness, shows their cognitive ability in the legal field and forms in them the correct opinion and thought about the law, thereby reinforcing the attitude and belief in the law to meet the requirements of the reality of legal life at grassroots level.

Strengthening the attitude and belief in the law of grassroots cadres in the northern mountainous region of Vietnam

In life, belief plays an important role to help people navigate the correct behavior, for the law, if there is faith in the role, effect and severity of the law, people will have Proper awareness of the law, on the other hand, belief in oneself will help subjects form a sense of self-fostering to improve legal understanding. People perform their actions depending on different states and degrees of belief, so it affects the choice and performance of each person's behavior, on the one hand, if people believe in the law as well as the activities of the authorities will carry out legal acts, on the other hand, if people lose confidence in the law and the activities of the authorities will give rise to the mentality of "carelessness", they will lose their confidence. Believe in the State and the law, they easily commit illegal acts.

When people have a firm belief in justice, absolutely believe in the solitude of the law, have proper awareness and understanding of legal acts, their attitudes and beliefs help the subject always have the sense of state protection and the law. Laws can only be strictly implemented by people and grassroots officials when they believe in the provisions of the law. The law is designed to protect the rights and interests of the people, to ensure the common interests of the community, to ensure social justice and democracy. Whenever Vietnamese grassroots officials are fully aware of this, the law does not need any coercive measures, but grassroots officials will still voluntarily implement them if they reinforce their attitudes and beliefs in the law grassroots officials. Strengthening attitudes and beliefs towards the sense of the law to help grassroots officials know to respect the law, not to tolerate and be determined in their acts of law violation, to have a sense of law enforcement and to act as an example model in applying the law to become an example for local people. In addition to understanding the law, grassroots officials need to have attitude and belief in the fairness of the law, thereby creating the ability to adjust their legal behavior. Without the attitude and belief in the law, all actions of grassroots cadres are easily deviated from the legal standards for individual purposes and motives. When grassroots officials have attitude and belief in the law, they will act according to the provisions of the law. Correct attitude and belief in the law will guide legal compliance at all times, condemn and criticize violations of the law,

manifestations of law disregard, and officials. The establishment actively actively participates in protecting the severity of the law.

Through strengthening the attitude and belief in the law of grassroots cadres, helping grassroots officials understand the law is necessary to maintain fairness and equality in society. The law is not only useful for the people in general and for grassroots cadres in particular, so it is necessary to have legal compliance attitude, and have acts that show legal compliance. Having an attitude of respect and compliance with the law is a "necessary" condition for grassroots officials to properly perform their duties. If grassroots officials have legal knowledge, they will respect

the law and believe in the fairness of the law, they will believe in the provisions of the law, all actions will not deviate from legal standards for personal motives and purposes. The attitude and belief in the law of grassroots officials are reflected in the obligations and responsibilities of citizens, and the uncompromising attitude towards law violations.

Building legal trust helps grassroots officials to execute the law voluntarily without the need for coercive force, so that grassroots officials have confidence in the social values of the law and trust in with the legal norm at work and in real everyday life. For each grassroots level official, there are different reactions to the legal system, in which attitude, belief - one of the factors of legal psychology, thus reinforcing the attitude of respect, Grassroots officers' compliance with the law through the law-abiding behavior of grassroots officials is the result of a process of legal awareness and understanding. In the cognitive process, there are many influencing factors (subjective and objective) to form behaviors and behaviors according to the law, raising legal awareness will provide legal knowledge to help them understand From there, there is an attitude and confidence to voluntarily implement the provisions of the law. That is an important factor in shaping motivation and legal behavior.

Conclusion

Conclude Raising the legal awareness of grassroots officials to raise awareness of the law, reinforcing the attitude and belief in the law of grassroots officials in order to effectively apply legal knowledge to their work. The contents of raising legal awareness must be complete, timely, accurate, and concretize legal documents so that these documents practically attach to the people's life, contribute to implementation and application, supplement and test the policies of the Party and the State, serve as a bridge between the Party and the people, which is the force contributing to the socio-economic development in the locality.

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PROMOTING FAMILY CULTURE IN THE PROCESS OF INTERNATIONAL INTEGRATION: A CASE STUDY FROM VIET NAM

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ABSTRACT

Family is an important environment to form, nurture and educate human personality, preserve and promote good family culture, and fight against social evils. Family is the first place and also the last place to perform emotional and moral education, lifestyle for people in particular, and family culture in general. In the process of international integration, along with the development of social life, the work of caring for and developing family culture has achieved great achievements, contributing to the success of the goal of building a family. Vietnam is prosperous, equal, progressive, civilized, and happy. However, in that context, it also puts family culture in front of changes and many difficulties and challenges. Therefore, building and developing a family culture in the process of international integration is a significant issue in building a healthy cultural environment, which is the mission to found, form personality, and good qualities for the Vietnamese today with the aspiration to build a prosperous and happy nation.

Keywords: *Family culture, international integration, people, sustainable development, Vietnam.*

Introduction

The family where people are born, grow up has a unique role and position for each individual, social community, and momentous element of social life. The growth, progress, civilization, prosperity, and happiness in the family are essential measures to evaluate the development of the nation and ethnicity. The family is a "school", a special "cultural institution", the first cradle that contributes to the upbringing and forms good virtues and qualities for each person; It is also starting place, cultivating values, beliefs, dreams, and aspirations; a place to protect, surround, give strength and faith to each person to overcome challenges, constantly grow and make many contributions to society. A family is also a place of hope and a dream of people far from home. We can also think that family is a homeland, where ancestors, grandparents, parents, brothers, relatives, and clans are. For every Vietnamese, the family has a special significance. It is imprinted deeply on the journey of a person's life.

In the process of international integration, the open-door exchange and integration have provided Vietnamese families with conditions for economic development, exchange, and integration with advanced cultures and civilizations of other countries. Positive aspects have arisen many problems affecting Vietnamese family culture, making generations of Vietnamese families face challenges, moreover Vietnamese family cultural values have some changes, and are posing challenges. Consequently, building and promoting family culture in the process of international integration is an important issue in building a sustainable cultural environment. From identifying the current situation of family culture, the article orients and proposes some solutions to build a family culture in stable development.

The research questions in this study will be:

-What are the results and limitations of implementing Vietnamese family culture in the process of international integration?

- What are some solutions to promote Vietnamese family culture in the process of international integration?

Literature Review

It is impossible to ignore the issue of family culture when studying the development of society. Therefore, globally, in Vietnam, the family culture's problem has been studied and investigated by researchers as an object of many scientific disciplines. Family culture has been approached from many different angles with typical works:

World Revolution and Family Patterns by William J. Goode has mentioned the change in a family model in China, Japan, India, Sub-Saharan, and Arab countries during half of the 20th century with changes in the political institutions of each country as well as changes

in the region. Accordingly, the author has surveyed and studied the process of industrialization and urbanization affecting all aspects of family life, making changes in the size, structure, problems of marriage, and relationships in the family… then, new family models are introduced that are suitable for each country and region (Goode, 1963).

Jessie Bernard's *The Future of Marriage* discussed marriage, gender, changes in marital behavior, attitudes, knowledge, and disparities between marriage between men and women. Jessie Bernard also predicts that today's couples are struggling to improve their married life by working together, sharing parenting, and harmoniously combining family bonding responsibilities with personal autonomy… (Bernard, 1982)

Elaine Leeder, The Family in Global Perspective - A Gendered Journe has used many different historical viewpoints, theoretics, and comparisons to expand the understanding of family intercultural understanding. The book surveys family cultural diversity in Western countries and contrasts them with family stories in Asia, Africa, and Latin America. After comparing family histories in many parts of the world, Elaine Leeder analyzed the impact of globalization on family culture, family structure, gender behavior, relationships between families generations in the family, ethnicity, religion, ethnicity, and issues of education, violence, social policies related to family life… (Leeder, 2003).

Tran Huu Tong, Truong Thin, Building a cultural family in the cause of innovation, analyzed the differences in family, building a family culture in the process of international integration in Vietnam (Tong & Thin, 1997). In the article The Vietnamese family in the context of a reformed country by Le Thi, the author pointed out that: Vietnamese families are strongly influenced by contemporary economic and social conditions, but they are stable and stable relatively independent in development. It has its laws of motion, in which, "economic relations do not play the role of the ultimate decisive factor but are blood relations, affection and responsibility" (Thi, 2002). We cannot simply take economic factors and social fluctuations to explain all phenomena occurring in spiritual and emotional life and changing relationships in the family. It is necessary to consider and study changes in structure, function, and family relationships from both sides: internal in each family and the impact of economic and social factors. Moreover, the author analyzed the impact of factors of science, technology, economy, society... that changed the family culture in both positive and negative directions. Therefore, building a family culture today is necessary to harmoniously combine traditional family culture with modern cultural values. Accepting the modern family's spiritual values, which does not contradict the preservation and promotion of the good and inherent moral values of the Vietnamese family.

Hoang Bich Nga, *To have a cultural family*. The book has analyzed relatively complete factors to have a cultural family such as love and marriage, the development stages of the family; the education of parents towards their children, family relationships such as husband, wife, grandfather, grandmother, child, grandchild, etc. and relations with neighbors, homeland and country. Pass on the book's content, readers can draw the answer "to have a cultural family", each member of the family must perform well their duties and responsibilities towards the family simple, does not engage in unhealthy pleasures, is not far from social evils… The book also clearly shows the important role of the movement to build cultural diversity in the formation and development of Vietnamese families in the new era. It was also synchronizes affirmed that it is necessary to continue to maintain the implementation of the "Movement to build a cultural family" not only in width but also in-depth to achieve the highest results and effectiveness (Nga, 2005).

Vu Ngoc Khanh, *Vietnamese family culture*. The content of his book has analyzed and covered the following aspects: Vietnamese family history from a spiritual basis to create culture; routines and customs; unique features, images imbued with cultural identity; family rituals... The author mentioned the issue of family culture and analyzed its influences from the trends of religion, philosophy, literature - art... through which to learn and preserve cultural Ethnic characteristics are hidden in families (Khanh, 2007).

In addition, there are articles such as Tran Thi Tuyet Mai, *Family culture and building a cultural family in the integration period*[8], which mentioned the role of family and family culture; point out the advantages and disadvantages of family and family culture in the face of challenges of the integration process; draw out the contents of cultural family values and build family cultural values in the new period (Mai, 2008).

Thus, it can be seen that, by collecting overview documents, the research has provided me with valuable materials to clarify the goals and duties of the article to promote Vietnamese family culture in the process of integration international.

Research Method

Family culture is a system of cultural values integrated from the traditional and modern cultural values of a nation, expressing the awareness, attitude, and behavior of members in the implementation of family functions and behavior in personal - family - social relationships to build a prosperous, equal, progressive, and happy family.

If Western society dignifies individual values, Eastern cultural traditions, including Vietnam, tend to promote community values, family tradition, and clans - an interacted space and the first connection of humans before entering society. Along with the historical ups and downs, generations of families have made massive contributions to the success of the revolution, resistance war, and the cause of national construction and defense in the current period. The cohesion of the model "House - Village - Homeland" has become a "cultural constant", which is a fine tradition, showing the strong attachment of each family to the countryside. Keep the homeland to keep the village, keep the home; and protecting villages is also protecting the country and homeland.

Pass through many ups and downs times, the good traditions of the family have crystallized into a sustainable value system, which is patriotism, the tradition of solidarity, and sticking together; is love, care, protection, fond of learning, honor, etc. Today, which are still conserved, promoted, spread, and simultaneously constantly creating. And adding values, new cultural standards, they are prosperous, happy, progressive, and civilized families. Those grateful values are cultivated over many generations, stages, and periods, creating a strong bond between members and generations, which makes the traditional family culture flow unbroken a segment that always has a regular, continuous continuity.

Aware of the importance of family culture for sustainable socio-economic development, Vietnam has affirmed: "Building a prosperous, progressive and happy family is a healthy cell strength of society, is an important environment, directly educating lifestyles, shaping personality... Vietnamese people and culture" (Communist Party of Vietnam, 2011, p.77). At the same time, "Focus on researching, identifying and implementing the building of a national value system, a cultural value system and human standards associated with preserving and developing the Vietnamese family value system in the new period. Implement Vietnamese family culture standards of prosperity, happiness, progress, and civilization. To dignify the role of the family in nurturing and educating the young generation" (Communist Party of Vietnam, 2021, p.143- 144).

On that basis, the Vietnamese government has issued policies, strategies, and projects to develop family culture such as Directive No. 49-CT/TW dated February 21, 2005, of the Central Committee on the development of family culture. building a family in the period of national industrialization and modernization; Resolution No. 21-NQ/TW dated October 25, 2017, of the Party Central Committee on population work in the new situation; Decision No. 629/QD-TTg dated May 29, 2012, of the Prime Minister approving the Strategy for Vietnam's Family Development to 2020, with a Vision to 2030; Laws directly related to family work such as Law on Marriage and Family (2000), Law on Gender Equality (2006), Law on Prevention and Control of Domestic Violence (2007, Law on Protection, Care and Children's education (2004), Youth Law (2005, revised in 2020), which emphasizes: "Family is the cell of society, an important environment for character formation, nurturing and education, preserving and promoting good traditional culture, fighting social evils, creating human resources to serve the cause of

national construction and defense", "Building a prosperous and progressive Vietnamese family". Happiness is everyone's nest, a healthy cell of society" (Communist Party of Vietnam, 2005).

The article is based on dialectical materialism, viewpoints, and policies of Vietnam on promoting Vietnamese family culture in the process of international integration. At the same time, the article also uses synthesis of specific research methods such as history, logic, comparison, analysis, synthesis, induction and deduction, data synthesis... to serve the research and present articles.

Results and Discussion

Results and limitations of implementing Vietnamese family culture in the process of international integration

Results

Vietnam's economy in the integration process has spectacular development steps, achieved many achievements of historical significance. The economic growth rate has been rather high for many years, the scale of the economy has been much larger than before. Gross domestic product (GDP) grew at an average annual rate of 6.6% in the period (1986 - 2017) and reached 6% per year in the period (2016-2020). Although heavily effects by the COVID-19 pandemic in 2020, with this growth rate, Vietnam belongs to the high-growth countries group in the region and the world. Compared with some countries with fast economic growth in the world over the past 35 years, the average GDP growth rate of Vietnam is only behind China at 9.4%, ahead of South Korea and Malaysia at 5. 9%, on Thailand is 5.2%, in the US it is 2.6%, Japan is 1.7% and Germany is 1.8%. Vietnam's economic scale has increased from 90th place in the world in 1990 to 171.2 billion USD, ranked 57th in the world in 2013. Vietnam from a country in the group of poorest countries in the world has become a country low-middle income countries in 2008.

High economic growth has contributed to improving the material and spiritual life of many households. If 2007 back before, Vietnam was a low-income country with a per capita income of less than $1,000/person/year, then from 2008, Vietnam became a low-middle-income country, with a low-middle-income country per capita is 1,154 USD/person/year and increase to 2,779 USD/person/year in 2020 (Communist Party of Vietnam, 2021, p.43). The increase in family income has facilitated access to all kinds of services in education, culture, entertainment, and tourism for each family member, which has also expanded, contributing to raising the standard of living awareness, understanding capacity, life mastery skills, and good handling of complex situations that arise. Also according to the General Statistics Office's assessment of the education quality nationwide: "The education level has improved, the proportion of the population aged 15 and over who can read and write has increased sharply; Most children of primary school age are attending school, and the proportion of out-of-school children has fallen sharply over the past decade. Nationally, about 91.7% of the population of high school age is currently attending school. The overall attendance rate of primary school is 101.0%, secondary school is 92.8%, high school is 72.3%. In the whole country, 95.8% of people aged 15 years and over can read and write, an increase of 1.8 percentage points compared to 2009" (General Statistics Office, 2020).

Up to now, most households are living in permanent or semi-permanent houses (93.1%); The system of cultural, educational, and medical institutions has been invested and built, (99.7%) of communes have primary schools and kindergartens; 99.5% of communes have health stations; 58.6% of communes have cultural houses, thereby contributing to increasing the average life expectancy of people, from 72.9 age in 2010 to 73.7 age in 2020. These are favorable conditions for each family member to develop comprehensively, have time to take care and attend to a happy and prosperous family.

Moreover, in the current global exchange and integration context, with the efficient support of information technology, the internet, the experiences, knowledge, and historical lessons of humanity are widely published; the beauties in the behavioral culture of family models belonging to the regional and international communities and ethnic groups were introduced and spread; along with that are new cultural values that are produced and created...

That is a rich and massive amount of knowledge that each member of a Vietnamese family can easily access to manipulate and reflect into Vietnamese family culture, thereby seeing similarities and differences, unique and typical values of family traditions that need to be preserved, preserved, and promoted; Old and outdated values need to be identified to eliminate and especially to be selective and adopt new, progressive and civilized values that families around the world are doing. According to statistics, there are currently about 68 million Vietnamese using the internet, tens of million people have Facebook accounts with a large amount of interaction time in cyberspace, and young people's foreign language ability has been improved (Government, 2020). These are favorable conditions in expanding exchanges, learning the quintessence of human culture, studying, applying, and absorbing values belonging to the family cultural life of countries in the region and the world.

On the other hand, with the attention and direction of the Vietnamese government, with many policies, resolutions, strategies, projects, and laws directly related to the Family culture has been diffused, widely propagated to families in all regions of the country, creating a great change in the awareness of the whole political system, government at all levels and public about the role and position of the construction and development of Vietnamese family culture in the new era with movements such as All people unite to build cultural life: All people unite to build new rural and urban areas civilized town; grandparents, exemplary parents, and good children; raise healthy children, teach good children; family, lineage studious; family culture; cultural villages... have created exciting competitions, attracting a large number of members and families to participate, contributing to building an increasingly prosperous, equal, and progressive family ministry, civilization; preserve, uphold and promote the beautiful culture of family traditions and clans.

Judging one of the outstanding achievements in family work over the past time, the 13th Party Congress emphasized: "In the context of isolation and social distancing due to the impact of the Covid-19 pandemic, it has emerged cultural values, social ethics, good family traditions; many examples of good people, good deeds are replicated and promoted" (Communist Party of Vietnam, 2011, vol 2, p.48).

Limitations and challenges

- While the people's material and spiritual life is getting higher and higher, family morality has gradually degraded expression, family cultural values are being turned upside down, traditional family life is in danger of dying down Meanwhile, the new cultural values of modern families are not strong enough to be affirmed in modern social life, so generations of family members are vulnerable and separated: some elderly people live alone lack of attentive care of children and relatives; there is a situation of homeless children making a living on their own, so they easily fall into social evils, domestic violence, divorce is increasing, creating strong conflicts in the morality of husband and wife making children after their parents' divorce did not receive a healthy moral education, children are more prone to causing disruptive behavior, depression, even crime, the tendency of juvenile commit crimes is coming high increases...

- With the opposite side of the industrial revolution 4.0 has been creating gaps between members and generations. The level of interaction, exchange, and sharing traditionally is increasingly limited because young people spend too much time on virtual interactions in cyberspace, pursuing personal passions and habits without neglecting them to forget connection with family members and in society. In the space of many urban families today, each person have a distinct and closed world that lead to a situation parents and children do not understand each other, parents lack attention, causing young people to fall into difficult situations traps, temptations, deviant actions that adults cannot anticipate to prevent.

- Besides the families who still maintain filial piety, overcome difficulties, live with ambition, there has appeared a pragmatic, liberal lifestyle, disregarding or ignoring filial piety, family etiquette, and irresponsibility responsibility to family and community, living coldly and alienating those who are facing a life of poverty. There is a situation of children

wandering to earn a living and plunge into social evils, some elderly people live alone without the care of their children and relatives. Social evils, domestic violence, drug prostitution are invading and disrupting family happiness.

- Previously, in the traditional family model, many generations lived under one roof, everyone behaved with rituals and rules according to the regulations on hierarchy, clear hierarchy, and roles; Individual behavior is adjusted by ethical standards, public opinion, and regulations in village conventions and rules. However, at present, along with the process of integration and urbanization, the fast pace of life of modern society and the influence of exchanges and contact with Western culture, the traditional family model of three, The four great streets are gradually narrowing, giving way to the presence of nuclear families (husband and wife - children), along with the architectural model of families' houses also changing. Mixed with positive signals, modern families also have to face many new and complicated problems such as single-parent family models, separation, same-sex families appearing more and more, a great influence on the maintenance of the race, bloodline and the education and cultural transmission to the younger generation.

- Vietnam is in the golden population period and is beginning to approach the aging population. Without good coping scenarios, the number of elderly people falling into a state of loneliness and helplessness will occur. A part of the elderly in some urban areas and cities is currently facing the situation of lack of care and upbringing of children in the family, lack of necessary cultural institutions outside the family to serve the needs of living, playing, entertaining, improving health, and spiritual life.

Some solutions to promote Vietnamese family culture in the process of international integration

- It is necessary to unify the awareness about "Building a prosperous, progressive and happy Vietnamese family, truly a home for each person, a healthy cell of society, an important resource for economic development socio-economic. “Family happiness” must be protected by the legal system and related documents under the law. Continue to implement the contents of the Vietnam Family Strategy for the period 2010-2020, with a vision to 2030. Implement and well implement the provisions in the system of mechanisms, policies, and laws on public affairs. The family partnership has been promulgated by the State, paying special attention to ensuring the rights, responsibilities, and obligations of each member towards the family, community, and society. At the same time, research, supplement and adjust the terms that have become inadequate. Forecasting new trends and scenarios that families will face, thereby building appropriate and timely mechanisms and policies. There are forms of handling, education, and deterrence against acts that violate social ethical standards and the law on family work.

It is necessary to soon identify and push back the ideas and concepts that have become inadequate and outdated, inhibiting the development of individuals and families, such as the idea of respecting men and disrespecting women, the imposition of the previous generation, patriarchy, local factionalism, the habit of relying on, covering... which is a necessary and meaningful job. At the same time, constantly absorbing and adding new and progressive values through the process of exchanging and learning with countries in the region and the world based on traditional cultural values, such as the spirit of democracy, freedom in creativity, respect for human rights, a civilized way of life according to the law, attaching personal responsibility to the community and society; well enforce discipline and discipline; have proactive spirit, have the knowledge, bravery, and experience to deal with new and complicated situations that arise.

- Continue to maintain and develop the movement of building a cultural family, upholding the building of family culture and criteria for a happy family. Maintain the reward and honor system on time, periodically organize the commendation and replication of outstanding typical examples on a large scale as the core for all places to follow. The movement to build a cultural family is the quintessence of the new culture; an effective educational environment in building new

people; a solid fortress against all kinds of social evils. Family and cultural values of the new era need to be honored, propagated, and promoted widely. There must be a plan to prevent the negative social encroachment into the family that reduces the value of Vietnamese family culture. Provide specific guidance, effectively prevent and fight powerful against the negatives, customs, and evils that are happening to Vietnamese families.

- Promoting the spirit of exemplary family of previous generations; building, forming and spreading the role model of ideal people with a good personality, quality, morals, intellectual talents, actions, and beautiful lifestyles in social life to spread messages Humanities. Promoting the role and mission of educational institutions in the transmission of knowledge and experiences with the family educational environment together, which contribute to form new people, who continue to build a better life.

Conclusion

Family is the place people were born, grow up, and there, they have had received the first lessons about family culture in particular and national culture in general. Through the ups and downs of history, generations of Vietnamese families have created and formed good cultural values, becoming a strength and spiritual fulcrum for each individual, then they constantly grow, develop, and contribute to society. Nowadays, those precious values need to be spread and promoted strongly to educate and shape the personality, qualities, and good virtues of each person - It means the most significant resource to ensure the process is fast-growing and sustainable in our country. However, in the process of international integration, some challenges require synchronous solutions to promote family culture, ensuring that there are prosperous, happy, and progressive families for each family's efforts, it is very necessary to have the maximum investment support and protection of the State and the law. In conclusion, Vietnamese families are enough conditions for sustainable development, Vietnamese family culture will be a core part of the national culture and serve as the foundation for a stable society.

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THE PEREPECTIVES ON POLITICAL CULTURE IN HISTORY: A STUDY FROM A PHILOSOPHICAL POINT OF VIEW

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ABSTRACT

Political culture is a mode of community orientation, formed and applied in political practice in the history of East - West. The prominent cultural and cultural ideas of Confucius, Han Fei, Plato, Aristole have had far-reaching influences throughout history and to a certain extent, are still valuable today. In the context of increasingly diversified, rich and complex development of human life, political culture is always researched, supplemented and perfected with the great ideas of Machiavelli, Locke, Montesquieu, Rousseau, Marx - Lenin, Almond andVerba and other political scholars around the world and in Vietnam. These historical studies aim to build a theoretical framework of traditional culture associated with the current context, as a basis for paving the way for the ethnic development process.

Keywords: *Political culture, traditional culture, philosophical.*

Introduction

Political culture is a particularly important issue that determines the flourishing culture of each country. Emphasizing the role of political culture, in 1988, at the Conference of the American Historical Association, Silbey stated that: That political culture studies had become "a major enterprise", "We seem to live" said Silbey, in a scholarly age when political culture is a dominant explanatory and descriptive theme. With that role, the research, discovery and identification of the theoretical framework of traditional culture in the current period is an urgent issue with theoretical and practical significance in the nation's construction and development.

Culture is a field perceived from many aspects, many different levels. On the scale, culture is often perceived from two levels, that is, individual culture and ethnic culture (community). Personal culture is the synthesis of values that guide human perception and behavior, manifest through ideals, standard consciousness and actions governing living activities, personal orientation to reach the nice models. Meanwhile, national culture is the synthesis of common values, expressed through national consciousness and typical customs, dynamically orientating the value system in all areas of social life, including the political field. In the name of public power, political activity organizes and operates the community in the pursuit of certain goals. Ethnic culture manifests itself in political activities; at the same time, political activities orient the community's operations on the cultural basis. The dialectical relationship between culture and political activities will form the traditional culture of a nation. The article studies the views on political culture in the history of philosophy.

Literature Review

Political culture is becoming a topical research topic. There have been many domestic and foreign studies directly or indirectly related to this topic such as: American politicians Almond, Verba and colleagues in the 50s of last century with the works such as: The Political System, An Inquiry into the State of Political Science by Almond (1953), Comparative Political System by Almond (1956), The Civic Culture by Almond and Verba (1963), Political Culture and Political Development by Pye and Verba (1965), *Comparative Politics - a Developmetal Approach* by Almond and Powell (1966). The authors have built a theoretical system of political culture to serve as the basis to identify the political culture of the country and explore the political culture of other countries. In the thoughts of these two authors, political culture is understood as the beliefs, attitudes and

behaviors of the people in their relationship with the authorities, from which they share their perceptions, values and feelings towards each other government as well as government activities. The process of sharing between them, those who live at the same time and between generations in the long term will form a habit and become a political culture of a country.

In 2006, Phuong Dong Publishing House published the work *The collective personality of the peoples* of Philippe Claret translated by Le Dien. In this work, Claret systematically presents the anglo-saxon theories and French conceptions about the collective personality of the peoples, from the perspective popular in Vietnamese studies, that is national identity. The author explains more clearly about the collective personality of the nation which is understood as the collective habit of the community or the behavior of the community, which manifests into behavioral trends in all fields, including the political field. This research is carried out on the basis of cultural anthropology and psychology.

In addition to the above studies, there are studies on political culture that specifically measure the collective characteristics of ethnic groups between different countries. For example, the research of two professors of Politics in the US in 2000, that is Brian D. Silver at the University of Michigan and Kathleen M. Dowley at the University of New York with his work on political culture measuring in a multiracial society: *Measuring Political Culture in Multi - Ethnic Socialties: Reaggregating the World Values Survey;* or *Stephen Welch's The Theory of Political Culture*, published in 2013 by Oxford University UK Press.

In 2016, The Knowledge Publishing House published the work of *Political Anthropology* of Georges Baladier translated by Vu Thang. This work proposes a new way of thinking about non-Western political societies. The focus of the book is on the relationship between power and the underlying underlying structures that give power the reason to form and exist. Along with the basic social structural system for the formation and existence of power is the social stratification that makes power necessary for an order. And, obviously the system of sacred rituals in establishing, reinforcing and programming in the community's thought is one of the basic and common practical activities.

The research on political culture in Vietnam is strongly influenced by two basic factors, that is the research trend of political culture of the Anglo Saxon school and the class theory of K. Marx. The application of Marxism-Leninism has brought about great achievements in the cause of national liberation and construction and development of the country of Vietnam. Therefore, Marxism - Leninism has become the background theory, a theory in the process of building our country today. Research to clarify the cultural culture - culture in political activities to have a kind of cultural politics - culture to light the way for the nation is an urgent issue. Meeting that requirement of reality, there have been many studies, researching and shaping the model of Vietnamese traditional culture such as: *Vietnamese political culture*, traditional and modern which was compiled by Nguyen Hong Phong and published by the Culture and Information Publishing House, Hanoi in 1998; *Vietnamese culture - traditional and modern compiled* by Le HuyHoa - Hoang DucNhuan, 2000; In 2009, Nguyen Van Huyen, Assoc. Nguyen Van Vinh and Nguyen Hoai Van compiled the work Initially learning about the traditional cultural and political values of Vietnam published by the National Political Publishing House, Hanoi, Modern State management models of David Held by Pham Nguyen Translation School, 2013,...

Research Methods

The paper's approach is based on the worldview and the methodology of Marxist philosophy, and at the same time uses specific research methods such as analysis and synthesis, logic and history, inductive and interpretation, abstraction, generalization, comparison, comparison and literary methods for research and presentation.

Research results

Perspectives on political culture in the history of philosophy

Political culture is perceived with three basic elements: The political goal as the core value of

the community, is the driving force of political activities. This goal is determined through the mainstream theory for the functioning of political activity, called doctrine; the organizational apparatus, is the tool for changing political goals. The organizational apparatus is formed on the basis of inheriting the existing weaknesses of the culture, at the same time perfecting and adding new progressive elements, in line with the trend of the times;the political person as the subject, is the central figure and also the ultimate goal of political activities. Political people are individuals who carry the characteristics of the current culture, at the same time must add new cultural elements to meet political tasks. So political people are the decisive factor for the prosperity of the cultural culture. Political person is the subject in selecting and planning political goals, organizing and operating the political system, implementing ideological work, education and training to form a team of human resources to meet political requirement.

With important properties, the ancient sages have always emphasized the role of political people, taking it as the main factor to build the doctrine of national rule. Typical are Confucius, Han Feiin the East and Plato, Aristotle in the West. Confucius highly appreciates the morality of political people, considering morality as the foundation for building a prosperous society, both the ruler and the people must cultivate and practice morality. The background of Confucius's life was when the Chinese society was chaotic, the erect was often insane, and the human mind was distracted. Therefore, Confucius advocates for social revival, building a new order based on the principle of "Faithfulness, righteousness, spirituality, family, national rule, peace of the world". The ruler and the people must practice in the relationship "The Five Wheel" (The Five Wheel: military god - human; father - meaning; wife - ceremony; brotherhood - wisdom; friends - faith) with the spirit of respect and exercise the "Righteousness" to build a peaceful society (Le, 2014, p. 350).

In contrast to Confucius' ideology, Han Fei focused more on the role of the rule of law, seeing the law as a practical and effective tool of rule. Revolving around Han Fei's sermon theory is the category "Law", "Position" and "Art". In order to execute the "Law", the ruler must have “position" as the dominant position and "Art" as the knowledge, the ruling art. Han Fei attaches great importance to art in politics (Le, 2014, p. 456).

At the same time with Eastern society, the West also existed in a state of turmoil because of constant wars of slaveowners, causing confusion among the people. Many ancient Western sages tried to guide the building of a peaceful society on the basis of establishing a political regime, an ideal state, ensuring a good, happy, peaceful life for the people. Typical is the great thought of philosopher Plato. He said that the state is a projection image of people with character in the community. There are many types of state, but according to him, the aristocratic state is the best because it guarantees a happy life for people. To build that state, the rulers must be well-educated genuine philosophers.

Unified with Plato's point of view, Aristotle also aims to build a society towards a good life, a society not only for people to exist, but above all, they must live happily and happily. The state must have the responsibility to build that ideal society, because the state is a community that covers all communities, a community that realizes the common good of society without performing that role then it has no reason to exist. In order to build such a state, the objects holding and exercising state power must be talented politicians whose political work is filled with artistic qualities. Aristotle also proposed the aristocratic state model in which politicians must be the elites of society, have good personality, high sense of responsibility, have the capacity to manage and devote themselves to serving the people (Le, 2014, p.700).

Thus, both Plato and Aristotle clearly orient the building of a peaceful, happy society for the people. Although focusing on building the state apparatus, both men emphasized the role of a politician as decisive. The political regime you are aiming for is a kind of progressive traditional culture aimed at serving the people.

During the medieval period lasted for thousands of years, the political thought of Confucius, Han Fei, became the model of political culture in Eastern society and the political thought of Plato and Aristotle became

the model of political culture. in Western society. Although there are also many additional points of view to supplement and develop those theories, but there is not really any revolutionary turning theoretical system. Until the late fifteenth and early sixteenth century, the history of human likeness, especially political thought, was marked by the person considered the father of today's political science, which is Niccolò Machiavelli (1469 - 1527). The dominant view in his political philosophy was republican thought. Machiavelli appreciated and really supported the republican government model. Even in "The Prince", we can easily see that Machiavelli is someone who emphasizes life in a republic rather than in a monarchy. In the monarchy, the people were not free, while in the republic, the people "used to live in freedom by their own law" (Machiavelli, 1979, p.91).

Machiavelli chose to slowly transition to peace by maintaining great power in the hands of an eminent talented person so that he could run everything like a king, including the establishment of more new institutions such as the Senate to advise the king, create the constitution, the law, the tribunes, the consuls, the magistrates... In that way, a monarchy gradually transforms itself into a mixed republic with elements of monarchy, elements of aristocratic government and elements of national government master. Machiavelli also provides the rule of law that ensures the republic operates in a good and sustainable way. The law is used to guarantee freedom, not to restrict the freedom of citizens.

Building a republic in the thought of Machiavelli is considered to be the orientation of the revolutionary cultural form in the context that the social still exists popular monarchic type with many different forms. This is considered as the theoretical system laying the foundation for the trend of republic building which is increasingly popular in modern society. Machiavelli's thought guided the development of the idea of the rule of law state by John Locke (1632 - 1704), Montesquieu (1689 - 1755) and Rousseau (1712 - 1778) later.

Although there are some differences, but in the thoughts of John Locke, Montesquieu and Rousseau agree on the basic content, that is the concept of building the rule of law, ensuring power belongs to the people, Both the people and the government must comply with the law to ensure the building of a democratic, equal and free society. Your thoughts represent the spirit of the times - the spirit of enlightenment, opening a new historical period in Europe and the world later. In their theoretical system, the authors all acknowledge the role of the state in ensuring the safety of the people, the state is a "social contract" established by the people and delegating power to on behalf of the people to ensure their rights. However, when empowered, states tend to abuse power, causing the people to lose their freedom and be enslaved, and government torn apart and vying for power or monopolistic status. Therefore, it is necessary to build the government operating according to the mechanism of dividing power and controlling each other.

In the minds of the Enlighteners, the state is the creative product of man, of the people, so political power must be an instrument to serve the people and take that as the ultimate goal. The will of equal individuals is the basis of power in society, most concentrated in state power. Therefore, state power is public power, conditioning and coordination to create stability and development of the whole society, creating an environment for individuals to have a free life and seek happiness. To fulfill that responsibility, the state must take the lead in compliance and law enforcement. Only strict and fair laws really maintain social order and ensure a happy life for the people. If in the ancient and middle ages, scholars stopped only in expecting the virtues of kings in ruling to bring a peaceful life to the people, the Enlightenment's thought had set a revolutionary turning point in the transformation of government from the hands of kings to the people. This ideology has designed for the society a form of revolutionary political culture - The political culture expresses the common will of the entire people, which is the type of orientation for the people to live and operate the legal system.

Inheriting the political ideology of the forebears, the issue of the people's government in the thought of the Marxist-Lenin classics is scientifically and revolutionary interpreted on the

proletariat standpoint. The contemporary social context clearly presents a new trend in the orientation that aims to be a government for the working class and a large working population. That orientation creates a new kind of traditional culture, that is, the people's democratic cultural culture. The thought and political action of the Marx-Lenin classics became the foundation of thought, orientation of class stance and the direction for later research on politics and political culture.

In each historical era, the development of human society with brilliant ideas of political philosophers has made up the traditional culture of that era. Political culture has also taken steps to develop and evolve through each stage in the direction of humanity for the happy life of people. Although humanity has now turned a new historical page with the orientation of operating according to national and international laws, in reality, that orientation is in different regions, the level of realization manifests in the different levels. People and the government are not everywhere, obey and act according to the law. In the present context, the impact of economic laws, the crisis in the direction of political actors, leads to social turmoil. Disordered lifestyle, excessive freedom is a basic manifestation, replacing an old order with outdated standards. Meanwhile, the society has not clearly formed new standards. This makes human life lose the standard political fulcrum, leading to disorientation in the life of political culture. Therefore, each community, nation, and ethnic group, besides integrating into the legalistic line of all humanity, should be proactive in shaping the political orientation of the people at the national level, on the basis of the political culture of the nation, in order to maintain political stability in the social development process.

Modern political culture theory

Reality is posing urgent requirements for each country about the study of traditional culture to meet the requirements of orientation for the development of their own people. The international and domestic researches on traditional culture cannot fail to mention the foundation theory of two American politicians, G. Almond and S. Verba. In the first half of the twentieth century, parliamentary democracy could not create stability in Western countries, not only that, but also in society arose extreme political movements, causing very serious instabilities. important. The question is why in the context of Western countries having made significant economic developments, human material life has been enhanced, the human values system has been clearly formed. But society is often aftershocked by deep political crises. During this period, it was the great political crisis that had afflicted Europe and the world, and the script author was Hittler - a figure from Germany, the country is considered the cradle of culture. current human intelligence. Is "national personality" the main reason? Although "national identity" has been an old problem in contemporary research circles, but in the current context, it is interested in research with a rather new perspective, which is the relationship between "National character" with the national political system, is the process of political research from a cultural perspective (Claret, 2006, p. 30 - 35). The authors have attempted to seek meaning in the direction of political systems that even, sometimes even more powerful than 'national identity', can distort the 'personality'. ethnic group "in many directions, thereby forming new personality traits. Almond and Verba are considered the pinnacle of research in this direction. The two authors have done an in-depth study to explore and explore the basic factors that ensure true stability for liberal democracy.

With famous works, especially The Civic Culture (1963), Almond and Verba have built the theoretical system to identify the cultural culture of the country and explore the traditional culture of other countries. The authors have researched and gave the concept of traditional culture, which are the subjective elements (subjective dimensions) of the domination system and the political process through which the political system and processes politics was accepted and agreed upon by the people. The subjective dimension includes three basic components: perception, values and emotions. This concept is the basis for the authors to give a definition of traditional culture. Political Attitudes and Democracy in Five Nations, G.Amond and S.Verba have defined: “The political culture of a people is its own sharing of

forms of caring orientation. Political culture of a nation is the particular distribution of patterns of orientation toward political objects among the members of nation (Almond & Sidney, 1963, p. 13).

This definition deals with two things: *The first* is the way in which the members of a people share patterns of orientation of interest. With this content, it is understandable that each member of an ethnic group, from birth to adulthood, has its orientations shared by other members (more mature) of the community. The orientation manifests in all aspects, in which in the political aspect, concentrating on three basic contents, that is cognitive orientation, emotional orientation and assessment orientation for the general object; *The second* is the political object, the object revolves around political activities. There are four types of subjects: One is the political system as the general object; the second is the input object are all channels, institutions provide input to the political process; *The third* is the output object that is the products of a political process such as policies, decisions, laws and institutions that guarantee the validity of those policies, decisions or laws and ultimately the role of citizens in the political system and in the political process.

In the process of discovering the traditional culture, the authors are well aware of the role of national culture in the political system's operation. However, prominent in studies is the emphasis on the role of the political system as a subjective dimension - a subjective factor that can change the national culture in many different directions. Germany in the time of the Hittle is a typical example. In the introduction of his 1988 Political Culture Definition, Stephen Chilton emphasized:... individuals were socialized into their own culture but they also produced and recreated it... an astonishing and unintended result of institutions, that is it can change the very culture that created them (…individuals were socialized into their culture, but they also produced and reproduced it… but the unintended consequences of institutions might alter the culture that created them) (Chilton, 2007, p. 419).

The theory of Almond and Verba lays the foundation for more extensive research on political culture of later scholars. In the 1970s, the issue of political culture was increasingly identified more clearly in the studies of C. Pateman, E.W. Lehman, L.Pye, C. Dittmer, Werner J. Patzelt, the Heidelberg school, AronWildavsky… With these studies, the political culture is seen on many diverse and richer aspects.Political culture is not only manifests in the perception, values and emotions of the people but also in the typical attitudes, beliefs, thoughts, knowledge, concepts and behaviors along with principles in the political process.

In summary, since G. Amond and S. Verba laid the foundation in the study of traditional culture with the viewpoint "Subjective dimensions" of the political system and the political process, many Western scholars have gradually enriched on the scale of object identification of traditional culture.

Inheriting the ideology of traditional culture of the eminent seniors, at the same time, from the requirements of practice, scholars in Vietnam have added and enriched the multi-faceted perspectives on political culture associated with specific contexts, they are the research works of Hoang Chi Bao, Song Thanh, PhanXuan Son, Pham Ngoc Quang, Nguyen Van Huyen,...

The researches of scholars, though approaching from many different angles, but focus on three basic contents: the traditional culture manifests by a system of values created in the main practice practice human values, that value system exists in the form of knowledge, in thought and manifests through people's emotions, attitudes and behavior towards the political system and political events; the political culture includes a system of organizations and institutions created and used by people in the political process to perform the function of adjusting citizens' behavior according to a certain pattern; the traditional culture is a subdivision of national culture, expressing the impact of national culture in political activities. At the same time, the traditional culture also reflects the progress of the times.

From the research achievements of traditional culture of a number of typical projects in the world and in Vietnam, in general: Traditional culture is understood as a model of the orientation of values, people's thoughts and

behaviors, and is truly organized by the political system, aiming to build a society according to a culture suitable for the nation's culture and the progressive trend of the era.

This definition covers the following three contents: (i) Traditional culture is a model (type) of values orientation, ideology and behavior of a nation; It is the process of accumulating, preserving, selecting and transmitting core values of the nation between generations in order to continue, maintain and supplement and develop those values. The directional paradigm manifests universally in personal behavior in relationships of daily life and in political relations. From observable behaviors, it is possible to explore the value system, core ideology of the community; (ii)The political system is an organized apparatus to carry out oriented activities. With comprehensive programs, the political system guides people to typical values, ideas and behaviors. In order to fulfill that role, the political system must acquire real power and use it to organize institutions that disseminate values, ideas and behavior, organizing specific action programs to achieve the national goals in the short and long term; (iii) The theory of national construction and development is the basic doctrine expressed in the form of a country's ideology, conception and point of view. The doctrine is formed first of all from the history of national development, the most quintessential value of national culture is the nucleus in the theory, but its role is to shape the construction and society development, so inevitably in the content of the doctrine will exist progressive values of the time.

In the world, each country's theories can be integrated from many different ideas, but in which ideas that are united with the traditional values of the nation must be gathered, and at the same time expressing the ideals, the needs and aspirations that that nation is aiming at are associated with the contemporary context. Theism determines the value-oriented paradigm, ideology and behavior; decide on the model of the political system; decide short-term and long-term goals in the process of building and developing the nation.

Conclusion

Theoretical framework of traditional culture is the product of political activities aimed at the goal of the era on the national cultural foundation. The traditional culture is manifested with three main elements, which is the theory with the role of building the value system; the organizational political system realizes specific goals towards the value system, political person is the subject, at the same time it is also the aim of the political culture. A full and profound awareness of the theoretical framework of traditional culture is the basic premise for the orientation of ethnic construction and development in all times.

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PROMOTING THE HUMAN IN HO CHI MINH'S IDEOLOGY

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ABSTRACT

Promoting the human factor plays a particularly important role, being the driving force in promoting the socio-economic development of each country in this era. Therefore, most countries in the world, including Vietnam, consider investment in human development as the goal of their development strategy. Ho Chi Minh's ideology on man and promoting the human factor is a comprehensive, various and profound system of views, occupying a central position in his entire thought. The noble purpose and the whole life of Ho Chi Minh's revolutionary activities are class liberation, national liberation and human liberation. This is the inheritance and creative development of ideas about people in the national and human cultural treasures in general and Marxism-Leninism in particular.

Keywords: Ho Chi Minh's ideology; human factors; Vietnamese people; independence, freedom; protect the country.

Introduction

Ho Chi Minh's ideology on man and promoting the human factor is a comprehensive, various and profound system of views, occupying a central position in his entire thought. Promoting the human factor is the goal and driving force for the socio-economic development of each country in today's era. Therefore, most countries in the world, including Vietnam, consider investment in human development as the goal of their development strategy. Ho Chi Minh left our Party and nation an invaluable theoretical legacy on particularly important and fundamental issues of the Vietnamese revolution, including profound philosophical thoughts on construction and innovate human, so far still have the same theoretical and practical value.

During his life of revolutionary activities, Ho Chi Minh always considered the human issue as the most sacred and noble goal. That goal has become an ideal, shining in his every thought, gesture, and action. Although there is no work specifically discussing the human being, the thought on promoting the human factor has been expressed in a diverse and rich manner, becoming a cross-cutting thought in the entire Ho Chi Minh system of thought. Implementing his thought, the revolutionary cause in our country in general, the process of fighting for and maintaining the independence and freedom of the Fatherland in particular have been bringing into full play the human factor, thereby, affirming the bravery, intelligence, soul and strength of Vietnamese people.

Research Methods

The paper's approach is based on the worldview and the methodology of Marxist philosophy, and at the same time uses specific research methods such as analysis and synthesis, logic and history, inductive and interpretation, abstraction, generalization, comparison, comparison and literary methods for research and presentation.

Research results

Ho Chi Minh's ideology on promoting the human factor in the nation's revolutionary cause

Inheriting the quintessence of national and human cultural ideology, absorbing, applying and developing creatively Marxist-Leninist doctrines, Ho Chi Minh raised his thoughts on man to a new height and formed Ho Chi Minh's humanism. His thought on promoting the human factor is reflected in many speeches and articles and is reflected in the practice of directing the Vietnamese revolution, in which, the following main contents emerge:

Firstly, people are the most precious capital, the great driving force, the decisive factor in the victory of the Vietnamese revolution.

Ho Chi Minh did not use the term "human factor", but often used phrases such as "people's power", "people's talents", and "people's force". However, in Ho Chi Minh's mind, he always had a high opinion of the role of the human factor in the Vietnamese

revolution. He mentioned the human factor at three levels: People in general; workers, farmers, intellectuals, soldiers, cadres and each specific person - that is, the working people (except reactionaries). He once affirmed: "The word "people", in a narrow sense, means family, brothers, relatives, companions. In a broad sense, it means compatriots in the whole country. In a broader sense, it means human" (Ho, 2011, Vol 6, p.130). The role of man is the role of the masses, the true creator of history, not "some heroic individuals". According to him, "there is nothing in the sky as precious as the people"; "power and force reside in the people" (Ho, 2011, Vol 6, p.130), the people are always placed in the highest position, the position of mastery in the most important issues of the revolution and society. The people are both masters, but the people are at the same time doing the work of mastering, being both the subject and the object, and the force, the driving force and the goal of the Vietnamese revolution.

The cause of the struggle for national liberation, national reunification, building a new life, and moving towards socialism must all start from people, from promoting the human factor. According to him, a very simple reason to understand is that everything is done by people, material wealth in society is made by workers and farmers; thanks to the labor of workers and farmers, society is constantly developing. He explained the scientific basis for that role comes from the following: "With the population, no matter how big or difficult the job, it can be done. Nothing can not be done. People know how to solve many problems in a simple, quick and complete way, which talented people and large organizations can't think of" (Ho, 2011, Vol 5, p. 335).

People are the great and decisive driving force for all victories of the Vietnamese revolution. In his mind, "the people are the most precious capital, having the people means having everything. Even though the problem is 10 times easier, without the help of the people, that problem is still difficult to solve" (Ho, 2011, Vol15, p. 280), the human factor is the most important resource, the resource of all resources. At the same time, President Ho Chi Minh always considered people as the goal of the revolutionary cause. However, he always pays attention to the goal achieved in each specific condition and situation. Before taking power, the highest goal of the revolutionary cause was national independence and national liberation. After taking power, on January 10, 1946, at a meeting of the Committee for Research on the National Construction Plan, Ho Chi Minh asked to immediately implement: "Make the people have food. Make people have clothes to wear. Make people have a place to live. Make the people educated" (Ho, 2011, Vol 4, p. 175). When the North went into economic recovery and completed land reform, Ho Chi Minh insisted on "gradually raising the people's living standards... while reducing the contribution of farmers". In the context of focusing on armed struggle to liberate the South, at the Conference of the Politburo, on July 30, 1962, Ho Chi Minh asked the question: What should we do, if necessary, we can reduce a part of construction, in order to better solve the problem of food and clothing of the masses, do not let people's lives become too stressful. The human issue is very important. The factory also needs more than people, the excitement of the masses. Do everything for people, make the masses understand socialism better. When the resistance war against the US entered a drastic phase, the goal of "nothing is more precious than independence and freedom" was at the high level of the national value ladder. Human goals are closely linked to national sovereignty. At the third session of the National Assembly, on April 10, 1965, Ho Chi Minh called upon the people: At this time, fighting the US and saving the country is the most sacred task of all Vietnamese patriots. In December 1965, speaking at the closing session of the 12th Conference, the third term of the Party Central Committee, he asked to take great care of the people's lives, especially the lives of the children, families of war invalids and martyrs, people's lives in heavily bombarded areas, and low-income families with many children. And if in number 1 of the newspaper People in Need, he stated that his goal was to liberate people, then in the Testament, he also mentioned that the first job was for people. Thus, he took the "immutability" which is all for the sake of man to respond to the "multi-

unexpected changes" of historical conditions. The common goal is to liberate people from oppression and exploitation, to live happily and freely, but it must depend on specific conditions to progress step by step.

Secondly, promoting the human factor as a unity between qualities and capabilities.

According to Ho Chi Minh, in order to successfully carry out the great revolutionary cause but full of hardships and difficulties, so the promoting the qualities (virtue) and capacity (talent) of each person played a decisive role. Appreciating the role of virtue and talent, however, he did not separate these two factors but put them in a dialectical relationship, in which morality was considered the root and foundation of the revolutionary and the people in general. However, he did not absolutize the role of morality or debase, separate from talent, but "virtue" is always associated with "talent". It's better to have both virtue and talent; the greater the talent, the higher the virtue; "virtue – talent" are intertwined in the personality of the revolutionary. However, morality is the basis and condition for promoting and developing the revolutionary's talents. He pointed out, "having talent without virtue... not only can't do anything useful for society, but it's also harmful to society. If there is virtue but no talent, it is like the Buddha who does no harm, but also does no good to mankind" (Ho, 2011, Vol 11, p.399). Therefore, Ho Chi Minh demanded that each cadre and party member, along with noble revolutionary qualities, also have to be capable, because it is only when they have the ability to fulfill their assigned tasks. To build socialism, first of all, there must be socialist people, who are passionately patriotic, ethically pure and excellent in talent, and have both political integrity and professional competence.

Thirdly, in order to promote the human factor, and must know how to use people.

During his entire active life, as the head of the Party and State, Ho Chi Minh established the basic views on using people, using and promoting the human factor with a truly revolutionary spirit science. Even in the extremely difficult early years of the revolutionary government, he wrote a series of articles on this issue such as: "About the reception of representatives of the unions"; "Letter to comrades in the province"; "Lack of organization - a major defect in People's Committees"; "Talent and national construction"; "Correcting the way we work". In the article "Finding talented people" dated November 20, 1946, with very sincere and respectful words, he wrote: "Construction requires talented people. Among the 20 million compatriots, there is certainly no shortage of talented people. I'm afraid because the Government can't hear it, see it everywhere, so that talented people can't come from... Now I want to correct that, and honor the talented people" (Ho, 2011, Vol 4, p.504). According to him, using people is essentially promoting all the potentials of the human factor in order to create synergy for the great national unity bloc to solve revolutionary tasks. The goal of using people is to achieve "Human Peace". Therefore, the use of people is not limited to certain classes and groups, but to all people: men, women, old people, young people, girls, boys, regardless of religion, party, ethnicity. Not only people in the Viet Minh's Party, but also many talented people outside, even those who left for enemy-occupied zones, we did not despise them, but had to help them make progress, let them work with us" (Ho, 2011, Vol 9, p. 47).

Ho Chi Minh advocated and promoted the human factor on the basis of using talented people. Talented people or talents are understood in the broadest sense: "big talent, small talent"; "reputable people", "people with justice, loyalty, zeal for the interests of the Fatherland and people", "talented people", "sage", "good people" but have in common purpose "for the interests of the Fatherland, the interests of the compatriots". Especially, according to him, honoring people must be right and skillfully; there is a close relationship between right and skillfully, right and wrong, the results will be limited, being clever but not right, it will definitely fail, sometimes even damage "people". It is true that the first basic requirement, because if it is correct, it will be shown well, choosing the right person is the essence of using people, is a science. Cleverness must ensure to lead to the right, the objective, skillful is an art. He also emphasized the use of talents outside the Party, skillfully

combining young cadres with old cadres, fair rewards and punishments, and must know how to use a team of capable people to work for the common good, not must side, gather around themselves the flatterers, the opportunists.

Fourthly, measures to promote the human factor

To promote the human factor requires the Party, the Government and each individual to have a correct awareness of the position and role of the human factor; must have infinite love, sympathy, absolute trust in people, the will to fight for human liberation. President Ho Chi Minh emphasized: "Understanding Marxism - Leninism is to live with meaningful love" (Ho, 2011, Vol 15, p. 668). According to him, people in the world are not the Gods, no one is immune from defects, so they must be skillful in enhancing their good and correcting their bad. Sympathy, forgiveness, generosity, tolerance... have formed Ho Chi Minh's tolerance, but the greatest tolerance can be listening, respecting the opinions and ideas of others, not taking own opinions and thoughts to impose, refute or exclude other people's opinions and ideas. At the same time, each cadre and party member "must first believe that the people's strength and wisdom are infinite" (Ho, 2011, Vol 12, p. 283), from deeds, words to the way of living, how to make the people believe, the people obey, the people love. Infinite love, sympathy, absolute trust in people, determination to strive for human liberation become the first premise to be able to promote and mobilize the human factor.

In order to promote the human factor, Ho Chi Minh, together with the Party and Government, planned and established a relatively complete system of policies, in line with reality, serving the interests of the nation, freedom, comfortable lives and happiness of the people, covering all areas of social life, especially social security issues. In economics, Ho Chi Minh emphasized the policy of production development and reasonable wages. In terms of society, it is necessary to implement a system of social policies towards people, harmoniously resolving the relationship between individual and collective interests, between private interests and common interests.

To form the right motives and purposes for people in activities, it is necessary to promote policies for advocacy, propaganda and education. Ho Chi Minh affirmed: In order for the people to believe, follow, and support, in order for the human factor to be promoted, attention must be paid to the people's material and spiritual life, and human rights must be protected. The most important premise for these rights to be protected is recognized in the Constitution and laws. There is a constitution and a law, but the basic thing according to Ho Chi Minh is to realize it through campaigns and revolutionary movements to ensure democratic rights, because "practicing democracy is the universal key which can solve all difficulties" (Ho, 2011, Vol 15, p. 325), only by promoting democracy to a high degree can all forces of the people be mobilized to move the revolution forward. Ho Chi Minh reminded: The Party needs to take care of educating them in revolutionary morality, training them to become heirs to build socialism with both "political integrity and professional competence". Ho Chi Minh considered building a contingent of cadres and party members to be concerned first of all with the cause of growing people because "cadres are the root of work". In addition, he was constantly interested in the education and training of the young generation, the future owner of the country.

Thus, the issue of promoting the human factor was mentioned by Ho Chi Minh with profound, comprehensive and scientific content. He affirmed, the human factor is the most precious capital, the great driving force, the decisive factor for the victory of the Vietnamese revolution; People are the most precious capital, having people is having everything, so we have to start from the human factor, for people, for people and came back to people. At the same time, he also pointed out a system of comprehensive solutions, considering the correct implementation of those solutions as a key step, determining success in the problem of promoting the human factor in the revolutionary cause of the country.

The application of Ho Chi Minh's ideology on promoting the human factor in the struggle for and keeping the independence and freedom of the Fatherland

Creatively applying the thought of President Ho Chi Minh, in the process of leading the revolution, our Party always considers human resources as "the main resource of all resources", the most important endogenous resource that determines the success of the national construction and defense. Not only affirming the role of people and the strength of the great national unity bloc in the struggle for independence and freedom, our Party has implemented many undertakings and policies to arouse and promote the strength of the country in reality Thanks to that, in the two resistance wars against the French colonialists and the American imperialists, despite their poor and backward economic and military potential, they aroused the will and energy of the Vietnamese people; "the entire Vietnamese people are determined to put all their spirit and force, life and wealth to uphold that freedom and independence" as one million people stood up to defeat the invasion of the French colonial empire and the American empire, completely liberated the country, unified the country, and moved up to socialism. As President Ho Chi Minh summed up: "Our history teaches us this lesson: When our people unite as one, our country is independent and free. On the contrary, whenever our people are not united, they are invaded by foreign countries" (Ho, 2011, Vol 3, p.256).

Entering the period of national construction and defense, in order to maintain the independence and freedom of the Fatherland, our Party has focused on "promoting the creativity of all strata of the people, directing that creativity to the cause of building a new society" (Communist Party of Vietnam, 1987, p. 9). All undertakings and policies of the Party focus on fostering and promoting the human factor on the basis of ensuring fairness and equality in the rights and obligations of citizens; bring into play all the potentials and strengths of people in order to both focus highly on economic development and strengthen national defense and security, creating a solid foundation to protect the achievements of independence and freedom in the new conditions. At the 4th Plenum of the Central Committee, emphasized: "Human beings are the most precious capital, taking care of people's happiness is the highest goal of our regime... We need to deeply understand the issues of human rights. The great value and decisive significance of the human factor, the subject of all creation, all sources of material and cultural wealth, all civilizations of nations, must come from the human spirit profoundly aimed at comprehensive human development, building a just and compassionate society, establishing really good and progressive relations between people and people in production and in life" (Communist Party of Vietnam, 1993, p.5). The Ninth Congress of the Party affirmed: Our society is a society for people and people always hold the central position of economic and social development, "development of education and training is one of the important driving force for the cause of industrialization and modernization of the country, a condition for promoting human resources, a fundamental factor for social development and rapid and sustainable economic growth"(Vietnamese Communist Party, 2001, p. 108 - 109).

Consistent with the strategic thought on human development in the renovation period, the Resolution of the 11th Party Congress continues to affirm that people are the center of the development strategy and at the same time the development subject. Developing and improving the quality of human resources, especially high-quality human resources, is a strategic breakthrough, a decisive factor in accelerating the development and application of science and technology, and restructuring the economy, transforming the growth model and the most important competitive advantage to ensure fast, effective and sustainable development (Communist Party of Vietnam, 2011, p. 130). At the 12th National Congress, the issue of "comprehensive human development" was identified by our Party as one of the general tasks of national development in the five years from 2016 to 2020 and "developing the Vietnamese people comprehensively must become an objective of the development strategy" (Communist Party of Vietnam, 2016, p. 126). This is a step forward in the Party's awareness after 30 years of renovation, affirming and emphasizing the particularly important role of promoting the human factor, developing comprehensively, meeting the requirements of the national

construction and defense in the period of international integration.

Realizing the views and policies of our Party and State, after more than 35 years of renovation, Vietnam has achieved important human development achievements that are highly appreciated by the international community. The renovation process always comes from the interests of the people, relies on the people, and promotes the active and creative role of the people, so it has won great achievements of historical significance. From a poor and backward agricultural country, Vietnam has now escaped from underdevelopment and become a middle-income country; socio-economic development has progressed; people's life in all aspects has been significantly improved; Society and politics are stabilized; national defense and security are strengthened, national sovereignty is maintained; The position and power of the country is increasingly enhanced;... These achievements have both demonstrated the great strength of the Vietnamese people and affirmed the value of independence and freedom; at the same time, creating the most solid foundation for maintaining the independence and freedom of the Fatherland.

Currently, besides the advantages, the cause of national defense is facing many difficulties and challenges. The situation in the world and the region continues to be complicated and unpredictable, with many potential destabilizing factors. The modern scientific and technological revolution and the globalization trend have had a strong impact on all areas of life, posing many new problems that need to be resolved in the protection of independence and sovereignty. In the country, besides the great achievements achieved in the renovation years, there are also many shortcomings and limitations. In particular, deterioration in political thought, morality and lifestyle of a large number of cadres and party members has not yet been pushed back, and some parts are more sophisticated and complicated; corruption, wastefulness and negativity are still serious, focusing on the number of party members holding positions in the state apparatus. Many party organizations and members are still limited in awareness, neglectful, lethargic, confused in identifying and fighting, preventing "self-evolution", "self-transformation" (Communist Party of Vietnam, 2016, pp. 22 - 23). Enemy and reactionary forces have strengthened the implementation of the strategy of "peaceful evolution" against sabotaging our country's revolution by sophisticated and dangerous tricks, especially by thoroughly using the media on the internet to prevent; Disputes at Sea.

Faced with these difficulties and challenges, it is necessary to continue to creatively apply Ho Chi Minh's thought on promoting the human factor, awakening and promoting all resources and creative potentials of the people, creating strength for the people general strength to maintain and promote the values of independence and freedom. To do that, it is necessary to focus on implementing the following key solutions:

Firstly, comprehensively develop Vietnamese people to meet the requirements of the cause of national construction and defense in the period of international integration. It is necessary to build a standard value system of Vietnamese people, "... summarizing... the standard value system of Vietnamese people in the period of industrialization, modernization and international integration" on the core issues: "... personality, morality, intelligence, creative capacity, physical body, soul, social responsibility, civic duty, sense of law observance" (Communist Party Vietnam, 2016, p. 127), creating an environment and conditions for each person to self-practice and strive for maturity. Focus on developing Vietnamese people with basic characteristics: patriotism, compassion, love, honesty, solidarity, industriousness, creativity. Promote fundamental and comprehensive reform of education and training, improve the quality of human resources, improve intellectual capacity and foster knowledge for Vietnamese people to meet the requirements of innovation and international integration of the Vietnamese knowledge economy and learning society. Improving the physical strength and stature of the Vietnamese person, linking physical education with education on knowledge, morality and life skills, meeting the requirements of national construction and defense. Building and promoting the lifestyle "One for all and all for one"; forming a

lifestyle with a sense of self-respect and self-control, living and working in accordance with the Constitution and laws, and protecting the environment; harmonious combination of personal positivity and social positivity; promote personal responsibility towards self, family and society. In particular, it is necessary to associate cultural development with perfecting the Vietnamese people; strengthen art education, improve people's aesthetic perception capacity, especially youth; promote the role of literature - art in fostering people's souls and emotions; ensure the right to enjoy and create culture of each citizen and community. Criticism fight repels evils, backwardness; fights against wrong and negative views and behaviors that adversely affect the construction of Vietnamese culture and people.

Secondly, take care of building an environment that honors traditional and historical cultural values. It is necessary to focus on educating the nation's history of nation building and defense, our people's tradition of resilient and indomitable struggle, spreading the word about heroes, martyrs, and typical patriotic examples, make each person, especially each young person, proud of the nation's traditions and history, look into the typical examples in society, realize their responsibilities to the Fatherland, family and society. In order to do that, first of all, it is necessary to actively promote the process of teaching history, vividly reproducing important historical events; combine many information channels providing historical knowledge, especially books, newspapers, pictures, documents, movies, music, etc. Widely use various forms such as: seminars, thematic activities, forums, research contests, propaganda, praising good people and good deeds to foster patriotism, self-reliance, self-reliance, arousing dreams and great ambitions for young people.

It is necessary to arouse and promote the value of historical vestiges. The war has receded, but in all parts of the country, there are still resounding heart-wrenching stories about "Legendary" lands and people. Still there Dien Bien Phu, Con Dao, PhuQuoc, Truong Son, Quang Tri Ancient Citadel, thousands of cemeteries and memorials for heroes and martyrs or millions of wounded and sick soldiers, Heroic Mothers, families with meritorious services to the revolution, etc. Across all regions of the country and in each life contains fierce memories, soaked in blood and tears, but shining with revolutionary heroism. Therefore, it is necessary to increase activities to visit historical monuments and museums; organize traditional exchanges and talks for the younger generation to learn about stories, lives, real people, and real things.

Moreover, traditional and historical education needs to take place right in the life of the family, school and society. Each force, each organization needs to have specific jobs and actions to express pride in the nation's history, honor those who have sacrificed their lives for the country. Closely combine standard building moral standards, a typical example with "anti" all expressions and behaviors contrary to national morality and traditions; attach importance to education and training through practical activities and patriotic emulation movements, making each person capable of self-resistance and actively fighting against the plots of "peaceful evolution" of hostile forces.

Thirdly, promote socio-economic development, improve people's life in all aspects; consolidate and strengthen the great national unity bloc. Socio-economic development, taking care of building a great national unity block will create conditions to promote the human factor, creating a solid foundation to protect the independence and freedom of the Fatherland. Therefore, it is necessary to promote economic development on the basis of effectively exploiting the potential and strengths of each region, along with protecting the ecological environment. Mobilize all resources to create breakthroughs in hunger eradication and poverty reduction, production development, care for spiritual life, preservation and promotion of cultural identities of ethnic groups, improvement of people's intellectual level, training and attracting high-quality human resources, step by step solving social problems. Prioritize resources to create changes in socio-economic development in remote and isolated areas, ethnic minority areas and strategic areas. Regularly take care of building and strengthening the great national unity bloc, thoroughly grasping and implementing the viewpoint of maintaining independence,

freedom, and reunification of the Fatherland, realizing the Wealthy people, strong country, just and civilized society as a common ground for national unity. Regularly settle harmoniously the relationship of interests between classes and social forces; well implement grassroots democracy, respect the people, resolutely fight against bureaucracy, corruption, violations of the people's mastery, and activities that divide and sabotage the great national unity bloc.

Fourthly, firmly consolidate the all-people defense and people's security, build a strong and comprehensive people's armed forces with high combat power. Strengthening the national defense - security potential, attaching importance to building political potential, the posture of the people's hearts; closely combine the all-people defense posture with the people's security posture. Increase investment resources in building material foundations, equipment and weapons for national defense - security... Continue to adjust the strategic layout; perfecting plans to protect national security and territorial sovereignty, proactively having plans to respond, prevent and repel from afar, and actively prepare forces to ensure victory when bad situations happen. Formulate and effectively implement plans to prevent riots, disturbances and terrorism; plans to ensure political security, ideological - cultural security, economic security, information security, especially network security. Timely detecting and disabling the bases of reactionary organizations, definitively solving complex cases at the bases, not letting them spread to become hotspots of security and order. Continue to build the people's army, the revolutionary, regular and elite people's police force to step by step modernize, in which, there are a number of forces going straight to modernity; must build a political army first, focusing on improving political bravery, quality and capacity of cadres and soldiers; actively fight to defeat all conspiracies and tricks in the war.

Fifthly, building our Party is really clean and strong. The leadership of the Party is a decisive factor for the process of promoting the potential and strength of the Vietnamese people. Faced with new requirements, it is required that the Party constantly improve its leadership capacity and combat strength, regularly renew itself, self-correct, self-criticize, strengthen solidarity, unify and resolutely fight the opportunistic elements. Especially, focus on implementing the Resolution of the 4th Party Central Committee, term XII on strengthening Party building and rectification; prevent and reverse the deterioration of political ideology, morality, lifestyle, internal "self-evolution" and "self-transformation" manifestations, associated with effective implementation of Directive 05-Program/TW of the 12th Politburo on promoting study and following Ho Chi Minh's thought, morality. Well implement the principles in the organization and operation of the Party, especially the principle of democratic centralism; to build a really strong political, ideological, organizational and ethical level of committees and branches, serving as a basis for training, fostering and closely and comprehensively managing cadres and party members. Closely combine self-criticism and criticism within the Party with the public's criticism of the party organization, cadres and party members; always listen to suggestions and seriously absorb and correct limitations and shortcomings.

Conclusion

More than any other nation in the world, the Vietnamese people understand the pricelessness of independence and freedom. Because, in order to have peace, independence and freedom like today, our nation had to trade with the lives, blood and tears of generations of Vietnamese people. It is a voluntary sacrifice for a true goal, a noble ideal, a patriotic act of a heroic nation, a shining symbol of revolutionary heroism. It is the aspiration, will, bravery and wisdom that have created the great strength of Vietnamese people in the cause of fighting for and maintaining the independence and freedom of the Fatherland. During the process of leading the revolutionary cause, our Party and President Ho Chi Minh have highly promoted the human factor, creating great power, which is decisive for all victories of the Vietnamese revolution. Currently, in the new conditions, it is necessary to continue to deeply grasp and creatively apply Ho Chi Minh's thought on promoting the human factor to

make the tradition, bravery, mettle and intelligence of the Vietnamese people become a great power to firmly defend the independence and freedom of the Fatherland.

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REVIEW SYSTEM'S ARCHITECTURE DESIGN OF SOLAR PHOTOVOLTAIC PANEL MONITORING: ANALYSIS AND PROPOSED CONCEPTUAL DESIGN

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ABSTRACT

The solar energy systems exponential growth has exploited the requirement to integrate a solar health monitoring system into developed solar power systems, especially monitoring the solar photovoltaic panels performance. The solar health monitoring system that has been integrated into solar power systems usually sense, measures and records the essential parameters such as current-voltage-temperature of the solar power systems. Also, the literature review shows that the solar health monitoring system is famously integrated at the solar photovoltaic panels, which is seen as most essential part of a solar power system. Therefore, this paper provides a review of solar health monitoring systems that has been developed and integrated into monitoring the solar photovoltaic panel's health. The review conducted briefly presents the developed systems architecture, operation, and functionality. With the briefly presented developed systems architecture, operation, and functionality, this paper proposes its conceptual design of solar health monitoring system for solar photovoltaic panel. The proposed conceptual design of solar health monitoring system has been improved in terms of architecture, operation, and functionality.

Keywords: *IoT Solar Photovoltaic Panel, Real-Time Monitoring; Solar Health Monitoring System, Solar Data Acquisition System, Solar Photovoltaic Panel Monitoring.*

Introduction

Electronic technology has tremendously advanced with various mechanism that can be integrated as a system to perform the essentiality. Internet of Things (IoT) is one of the latest electronic technology applications that is being widely integrated in mostly all the electronic system applications. And one of the areas that benefited with IoT is the renewable energy systems. Embedded system such as solar health monitoring system with IoT technology is fast growing development to improve the solar power systems performances as well as provides the ability to remotely monitor the solar power systems. The advances in the electronics technology have enable various devices monitoring capability, such as IoT application implementation into the devices for wireless or cloud-based monitoring applicationsOne of the areas that has or would be benefited is the renewable energy, with the IoT application being embedded or integrated into the renewable energy-based power system, the monitoring of the installed system can be eased. Renewable energy power systems, especially solar photovoltaic power systems are seen as one of the systems that has the potentiality of being integrated with IoT-based application, such as to monitor the system's performances as well as monitoring the system remotely via the developed platforms.

With that, this paper conducts a study to understand the available solar photovoltaic power system health monitoring in terms of the system's architecture, functionality, and operation-ability. The study also investigates the used components to develop the available system and evaluate the suitable components for the conceptual design of the hardware design platform for IoT based photovoltaic monitoring and analysis system.

Thus, after carefully conducting the study on the previously developed work, this paper has been presented as in the following:

i. Section 2 – Review Available Monitoring Solar Photovoltaic Power Systems
ii. Discussion of Proposed System
iii. Conclusions

Review of Available Monitoring Solar Photovoltaic Power Systems

As solar power systems implementation is rapidly growing, various solar health monitoring systems are developed to analyse the solar photovoltaic system performances. Therefore, monitoring the system's performances is seen as crucial aspect to ensure the solar photovoltaic system continuous stability. With that, many systems have been introduced to monitor the solar photovoltaic system's performances. In the recent developments, the system's monitoring is integrated with the wireless medium communication method to monitor the solar photovoltaic system's performance. In this section, previously developed solar health monitoring system for solar photovoltaic system is discussed. This section emphasizes on the developed system architecture and functionality as well as briefly on the system's operation-ability. The architecture of the developed solar photovoltaic system is studied to understand the hardware development concept, whereas the functionality of the developed system is studied to understand the operational capability of the developed solar photovoltaic system.

Figure 1 shows the design architecture of the energy and power monitoring system. The system design is divided into three (3) sections, namely (1) Wireless Nodes, (2) Server and (3) User Application. The wireless nodes as shown in Figure 1 are consists of DC voltage sensor and current sensor (ACS712) integrated with Arduino Nano which acts as the Central Client Controller (CCC). Each wireless node sense, measure and record the voltage and current data into the Arduino Nano from the individual solar panel module. At the same time, each wireless node can perform the process of sending the recorded current and voltage data into Raspberry Pi 2B+ SD Card Storage System, and as well as synchronously to the cloud storage.

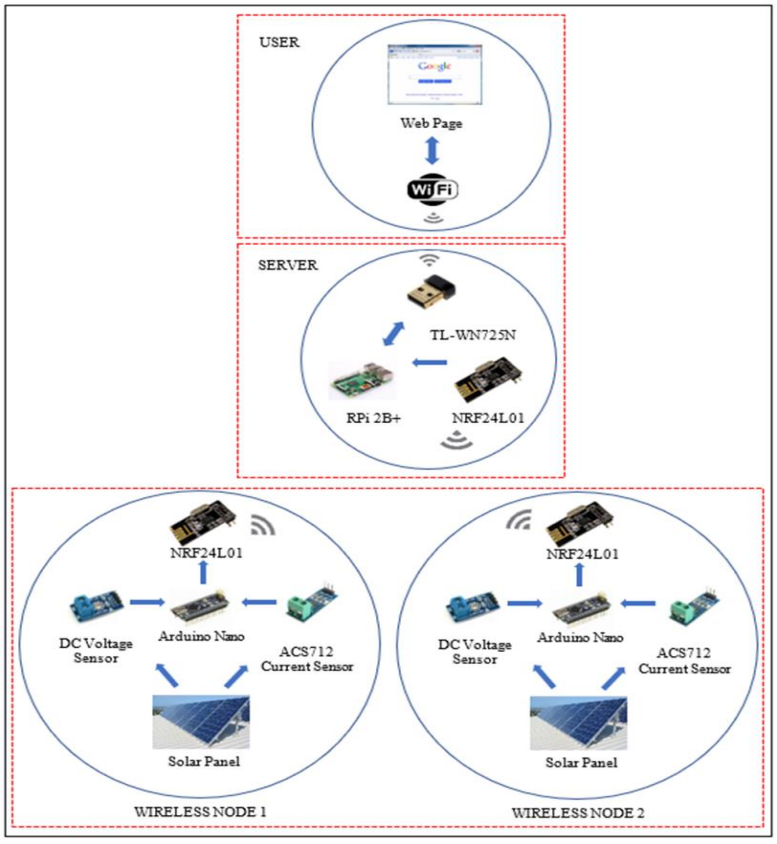

Fig. 1. Architecture designing energy and power monitoring system.

The NRF24L01 is a wireless device used to connect the wireless nodes with the server wirelessly. Hence, the voltage and current information stored in the wireless node 1 and wireless node 2 are transferred wirelessly into the Raspberry Pi 2B+ SD Card Storage System as shown in Figure 1. The Raspberry Pi 2B+ acts as the Master Controller or Main Server which is wirelessly connected with the wireless nodes as shown in Figure 1. As shown in Figure 1, the stored information at the Raspberry Pi 2B+ is transferred onto the cloud

storage via the TP-Link TL-WN725N wireless dongle. The TP-Link TL-WN725N wireless dongle is connected into the Raspberry Pi 2B+ to capture the local wireless network connectivity. Once the Raspberry Pi 2B+ is connected to the local wireless network, the embedded operational program in the Raspberry Pi 2B+ transfers the current and voltage information of the individual wireless node (solar panel module) onto the cloud storage. The connectivity from the Server (TL-WN725N) to the user application system (Web-Base) is developed using the Apache2, MySQL and phyMyAdmin. The Server (TL-WN725N) Raspberry PI 2B+ contains the IP address of the cloud storage system to allow the stored voltage and current information to be transferred onto the cloud storage [1]. Then, the current and voltage information stored at the cloud storage system is accessed by the end user via the user application system as shown in Figure 1. The user application system contains a systematic database to store the current and voltage information transferred from the Raspberry Pi 2B+ SD Card Storage System. Then, the voltage and current information is viewed by the end user via the user application system (Web-Based) [2].

Figure 2 illustrates the block diagram of the photovoltaic panel monitoring system. The developed system monitors the current – voltage – temperature for a photovoltaic panel. Figure 2 shows the voltage sensor (DC voltage sensor), current sensor (ACS712) and temperature sensor (LM35) is connected to the photovoltaic panel and measures the voltage, current and temperature of the photovoltaic panel. Then, the analog signal such as voltage, current and temperature from the connected sensors are converted into the digital signal using the MCP3008 before being recorded into the Raspberry Pi 3B SD Card Storage System.

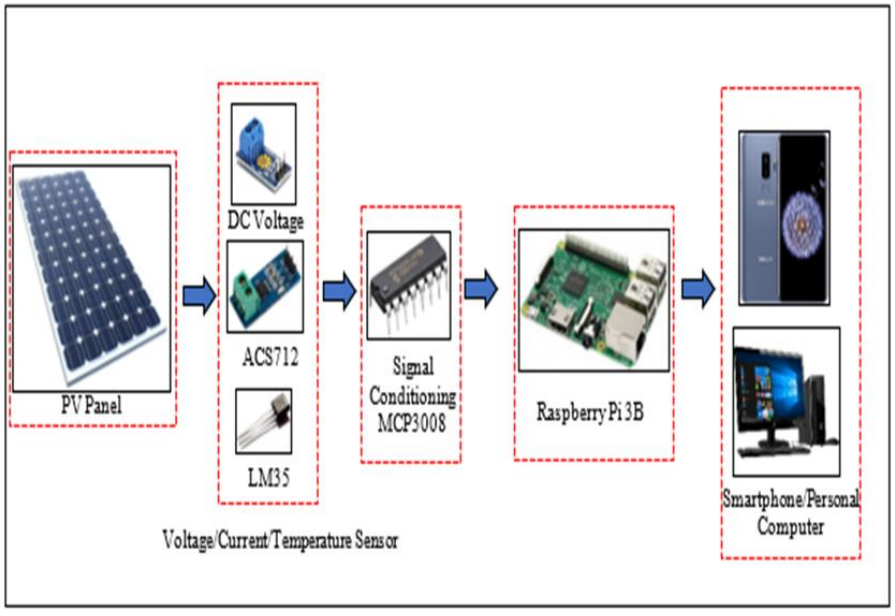

Fig. 2. Photovoltaic panel monitoring system.

As shown in Figure 3, the MCP3008 have 8 analog input channels, CH0 is connected to the voltage sensor (DC Voltage Sensor), CH1 is connected to the current sensor (ACS712) and CH2 is connected to the temperature sensor (LM35). The output digital signals of the voltage-current-temperature at the MCP3008 is transferred through the DIGITAL OUT (D_OUT) to the GPIO23 and DIGITAL IN (D_IN) to the GPIO24 at the Raspberry Pi 3B pins as shown in Figure 3. The voltage-current-temperature read from the photovoltaic panel monitoring system is synchronously transferred into the Raspberry Pi 3B SD Card Storage System.

Similarly, to the previous research project, this research also integrates the Graphical User Interface (GUI) to allow the end-users or consumers to monitors the recorded voltage, current and temperature of the photovoltaic panel. The GUI allow the end-users or consumers to monitor, analyse and evaluate the recorded voltage, current and temperature data

of the photovoltaic panel using personal computer or smartphone devices [3].

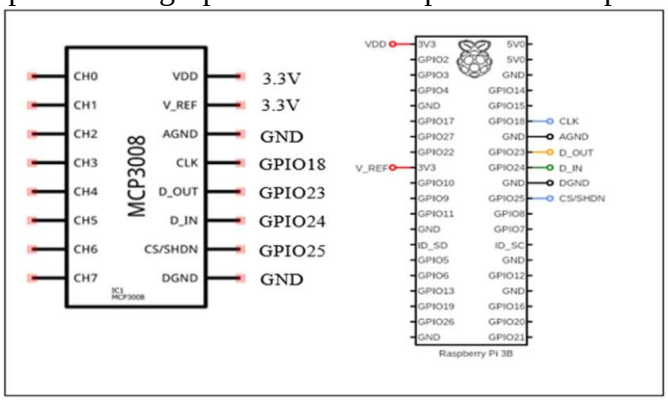

Fig. 3. MCP3008 and Raspberry Pi 3B connectivity.

Figure 4 illustrate the architecture of solar measurement device, which comprises of microcontroller Arduino Uno (ATmega328P), voltage sensor (DC Voltage Sensor × 2), current sensor (ACS712 × 2), temperature sensor (DS18B20 × 2), anemometer, two unit of solar panels, light sensor, and humidity sensor (DHT11).

Figure 4 shows the voltage sensor (DC Voltage Sensor × 2) and current sensor (ACS712 × 2) is connected to an individual photovoltaic panel to measure, sense and record data of voltage-current-temperature. The voltage sensors and current sensors are connected to the analog ports are as shown in Table 1. As shown in Figure 4, the voltage sensor is connected in parallel to the photovoltaic panel as well as the current sensor is connected in series to the voltage sensor. Therefore, this allows the Arduino Uno to sense and measure the voltage-current data synchronously into the internal storage system. Next, temperature sensor 1 (DS18B20) and temperature sensor 2 (DS18B20) are arranged in parallel and both sensors are connected to port D6 Arduino Uno as shown in Figure 4. The temperature data from each sensor is captured synchronously based on the assigned indexes. Figure 5 also shows the placement of the temperature sensor (DS18B20) to measure the actual weather condition.

Integrated humidity sensor (DHT11) as shown in Figure 4 measures the humidity of the environment and records the environment humidity which is used to compare the solar panel's efficiency especially when solar panel output decreases, and the humidity of environment increases. This is important to understand the solar panel efficiency as well as the important to analyse the solar panel performances. The anemometer sensor is also integrated to record the wind speed to analyse the solar panel performances. For instances, to analyse the solar panel efficiency, when the wind speed increases. Light sensor is integrated to record the density of solar radiation that falls onto the solar panel. The light sensor operates when it gets the sun light hitting exactly onto the light sensor, the captured fall light onto the light sensor is converted into magnitude information which is known as flux of light.

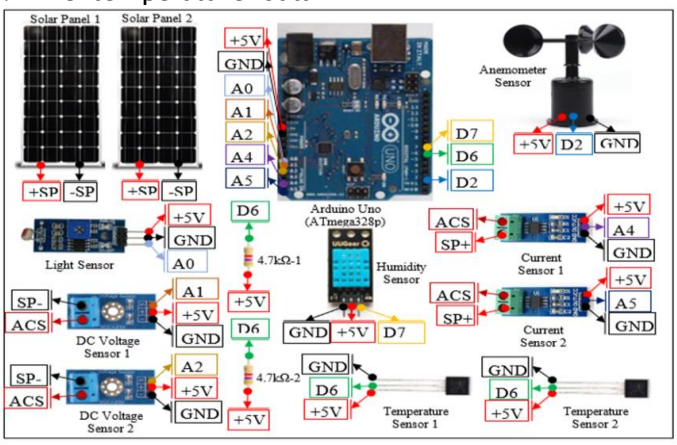

Fig. 4. Architecture of solar measurement device.

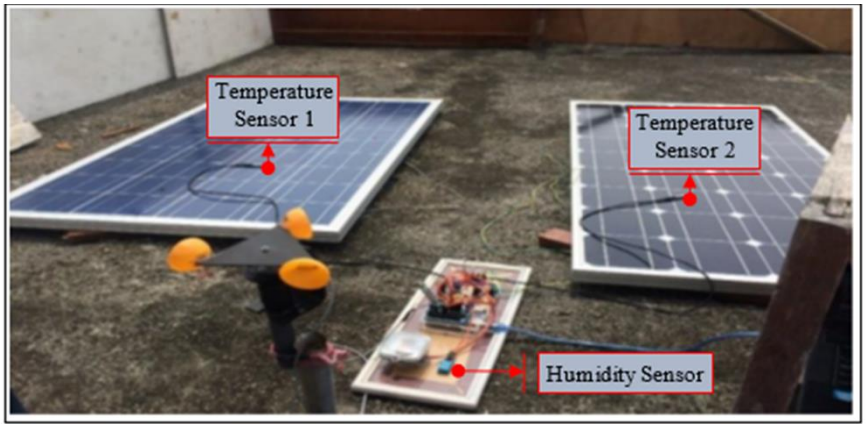

Fig. 5. Temperature sensor is attached at above the solar panel.

All component sensors shown in Table 1 and Table 2 connects to the analog ports and digital ports of the Arduino Uno (ATmega328P) microcontroller. Table 1 shows the light sensor is connected to port A0, voltage sensors 1 and 2 are connected to analog ports A1 and A2 respectively, current sensors 1 and 2 are connected to ports A4 and A5, respectively.

Table 1. Connectivity solar measurement device - component sensors for analog ports.

Component sensors	Analog Ports
Light Sensor	A0
Voltage Sensor 1	A1
Voltage Sensor 2	A2
Current Sensor 1	A4
Current Sensor 2	A5

Table 2. Connectivity solar measurement device - component sensors for digital ports.

Component sensors	Digital Ports
Anemometer Sensor	D2
Temperature Sensor 1	D6
Temperature Sensor 2	D6
Humidity Sensor	D7

Table 2 shows the humidity sensor (DHT11) is connected to digital port D7, temperature sensors 1 and 2 are connected to ports A1 and A2, current sensors 1 and 2 are connected in parallel to ports D6 respectively, and anemometer sensor is connected to port D2 respectively. The light sensor, voltage, current, temperature, humidity and anemometer synchronously read inputs from the solar measurement device system as well as transfers the sensed and measured information into the Arduino Uno (ATmega328P) [4].

Figure 6 shows the photovoltaic system monitoring system using IoT. The system acquires to monitor the voltage, current and temperature of photovoltaic panel and capture the sunlight information intensity through the photovoltaic panel. The diagram in Figure 6 shows the developed system consists of voltage sensor (DC Voltage Sensor), current sensor (ACS712), temperature sensor (LM35).

The voltage, current and temperature sensors are connected to analog ports as shown in Table 3. As shown in Figure 6, the voltage sensor is connected in parallel to the photovoltaic panel as well as the current sensor is connected in series to the voltage sensor. Therefore, this allows the Arduino Mega (ATmega2560) to sense and measure the voltage-current data synchronously into the internal storage system of the Arduino Mega. Next, temperature sensor (LM35) is connected to port A4 as shown in Figure 6. The temperature data from each sensor is captured synchronously based on the allocated indications. The light intensity sensor (GY-49 MAX44009) is integrated to measure and analyse the produced energy information with the captured energy on the photovoltaic panel. Besides that, light intensity sensor is operated to record the density of radiation from the sun light. All the sensors are connected to the Arduino Mega 2560 (ATmega2560), and each

sensor's information transferred by using Wi-Fi Module (NodeMCU ESP8266) is stored into the ThingSpeak Cloud Platform as shown in Figure 6. Wi-Fi Module (NodeMCU ESP8266) are connected to digital port D18 stand for TX and digital port D19 stand for RX. This information can be accessed by the user wirelessly via IoT cloud platform application named ThinkSpeak as shown in Figure 6 [5]. For the user to access the information stored into the cloud, MIT Application Inventor is used to develop visual graphical application, which presents all the photovoltaic panels' output information. Hence, this eases the user to continuously monitor the photovoltaic system performances.

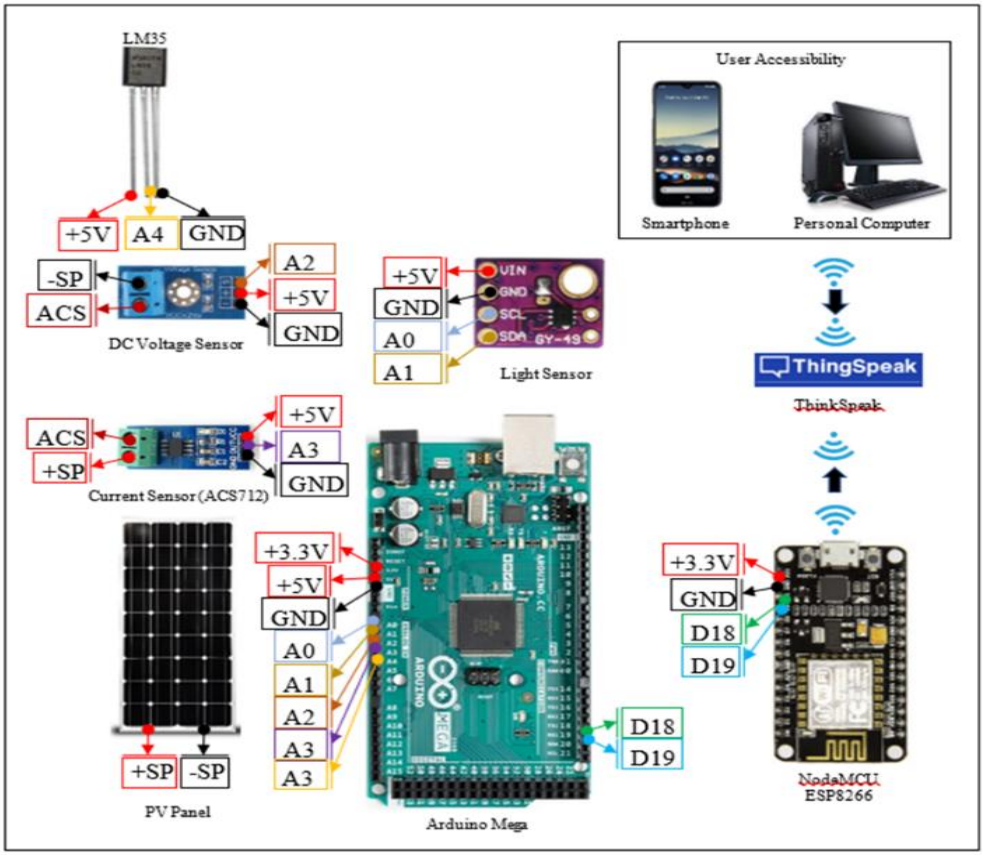

Fig. 6. IoT based photovoltaic monitoring system.

Table 3. Connectivity solar measurement device - component sensors for analog ports.

Component sensors	Analog Ports
Light Sensor	A0 A1
Voltage Sensor	A2
Current Sensor	A3

All component sensors shown in Table 3 and Table 4 connects to the analog ports and digital ports of Arduino Mega (ATmega2560) microcontroller shown in Figure 6. Table 3 shows the light intensity sensor are connected to port A0 stand for serial data (SDA) and A1 stand for serial clock (SCL), voltage sensors is connected to port A2, current sensors is connected to port A3, and the temperature sensor (LM35) is connected to port A4 respectively. Table 4 shows the Wi-Fi Module (NodeMCU ESP8266) is connected to ports D7 and D19. The light intensity sensor, voltage, current and temperature synchronously read inputs from the solar measurement device system as well as transfers the sensed and measured information into the Arduino Uno (ATmega328P).

Table 4. Connectivity solar measurement device - module for digital ports.

Module	Transmit (Tx)/ Received (Rx)	Digital Ports
NodeMCU ESP8266	Tx Rx	D18 D19

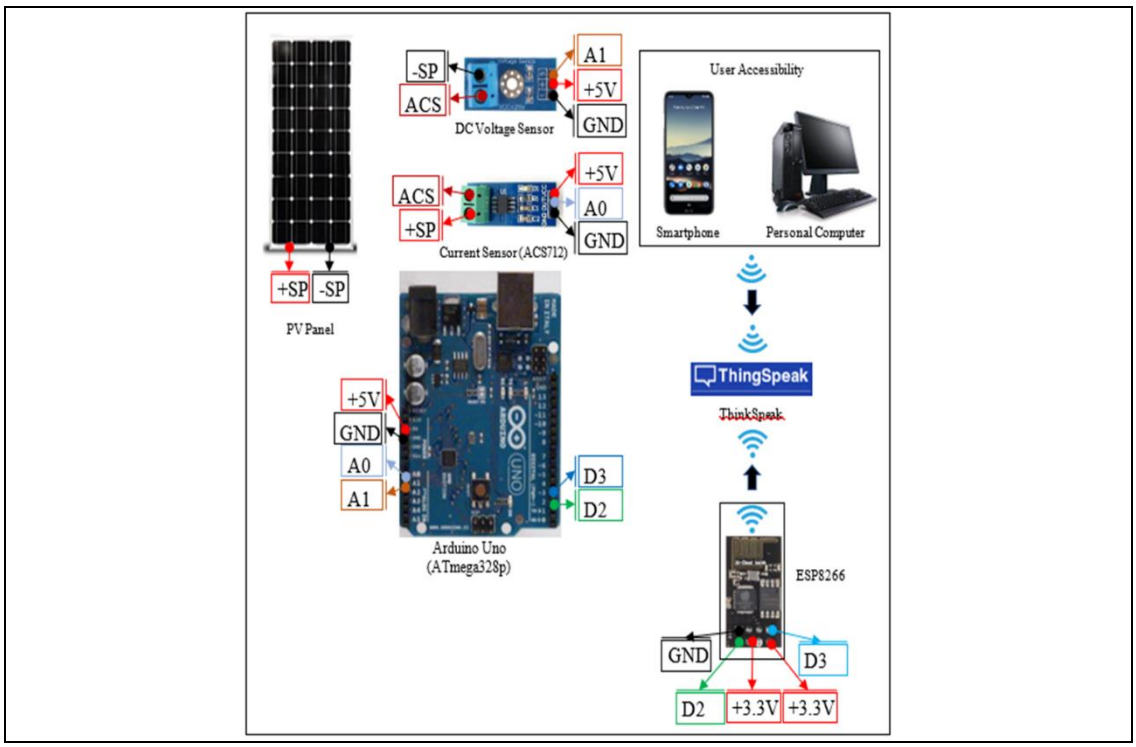

Fig. 7. IoT enabled real-time energy monitoring for photovoltaic systems.

Figure 7 shows the architecture of IoT enabled real-time energy monitoring for photovoltaic systems. This system consists of voltage sensor (DC Voltage Sensor) and current sensor (ACS712) to measure, sense and record the information of voltage and current. All the sensors are connected to Arduino Mega 2560 (ATmega2560) as shown in Figure 7. The voltage and current information are used to analyse and compare the energy produced by the photovoltaic panel. The voltage and current sensors are connected to analog ports as shown in Table 5

.

Table 5. Connectivity solar measurement device - component sensors for analog ports.

Component sensors	Analog Ports
Current Sensor	A0
Voltage Sensor	A1

As shown in Figure 7, the voltage sensor is connected in parallel to the photovoltaic panel as well as the current sensor is connected in series to the voltage sensor. Therefore, this allows the Arduino Uno (ATmega328p) to sense and measure the voltage-current information synchronously into the internal storage system via ports A0 and A1.

The Arduino Mega 2560 (ATmega2560) device is integrated with ESP8266 Wi-Fi module which allows the user to wirelessly access to their mobile and personal computer (PC) for monitoring of ThingSpeak website by using HTTP protocol over the Internet. All the sensors shown in Figure 7 and Table 6 are connected to the Arduino Mega 2560 (ATmega328p), and each sensor's information transferred by using Wi-Fi Module (ESP8266) is stored into the ThingSpeak Cloud Platform as shown in Figure 7. Wi-Fi Module (ESP8266) are connected to digital port D2 to transmit (TX) and digital port D3 to receive (RX). The voltage-current information is accessed by the user via the IoT ThinkSpeak cloud platform application using the mobile phone and personal computer [6].

Figure 8 illustrates the architecture of an intelligent low-cost IoT solution for energy monitoring of photovoltaic stations, which comprises a microcontroller ESP32 (ESP32 DEVKIT V1) built-in Wi-Fi, current-voltage sensor (INA219), luminosity sensor (BH1750), charge regulator, three unit of photovoltaic panels, humidity sensor (DHT11) and lithium-ion battery as energy.

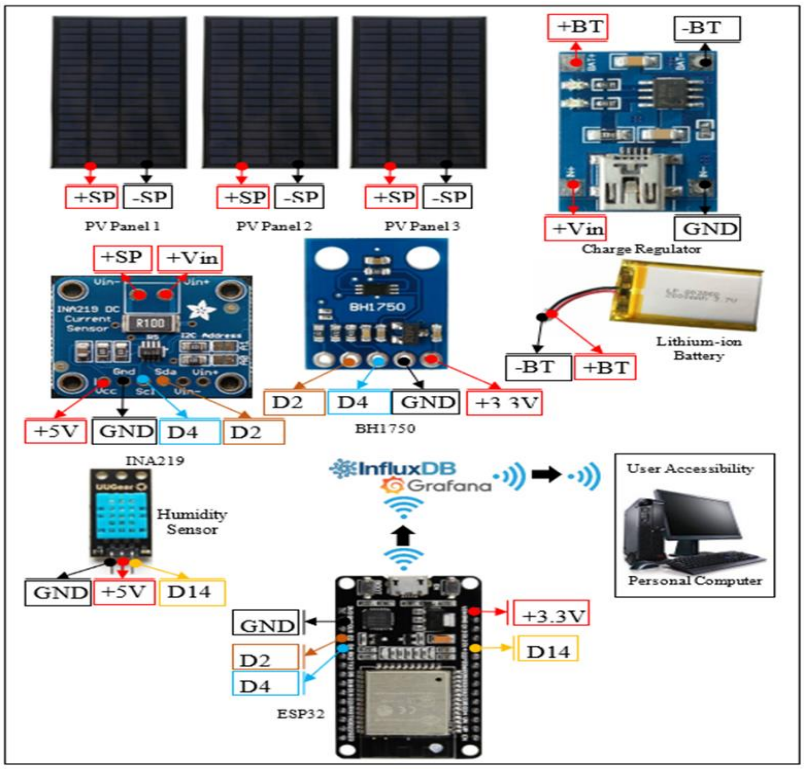

Fig. 8. Intelligent low-cost IoT solution for energy monitoring of photovoltaic stations.

Figure 8 shows three units of photovoltaic panel are connected in parallel to the current-voltage sensor (INA219). The current-voltage sensor (INA219) sense and record the current and voltage data of the photovoltaic panel. The current-voltage sensors (INA219) are connected to the digital port D2 as serial data (SDA) and port D4 serial clock (SCL) as shown in Table 7. Therefore, this allow the sensed and measured current-voltage data being synchronously stored into the internal storage system of the ESP32 microcontroller. Next, luminosity sensor (BH1750) is integrated to record the density of solar radiation that falls onto the photovoltaic panel.

Also, the integrated humidity sensor (DHT11) shown in Figure 8 measures the humidity of the environment and records the environment humidity which is used to compare the photovoltaic panel's efficiency especially when photovoltaic panel output decreases, and the humidity of environment increases. The ESP32 board is built-in with Wi-Fi module, which is connected to the local Wi-Fi connectivity to record the data from the ESP32 microcontroller internal storage system into the Grafana Website Application for users to monitor the photovoltaic system performances. Hence, the user could access to the Grafana Website Application using the wireless connectivity via their mobile phones or personal computers to analyse the voltage, current and humidity information of the photovoltaic system [7].

Table 6. Connectivity solar measurement device – component sensors for digital ports.

Component sensors	Digital Ports
Current-Voltage Sensor	D2 D4
Luminosity Sensor	D2 D4
Humidity Sensor	D14
Humidity Sensor	D7

All component sensors shown in Table 6 connects to the digital ports of ESP32 board (ESP32 DEVKIT V1) microcontroller. Table 6 shows the current-voltage sensor are connected to ports D2 as well as serial data (SDA) and D3 as well as serial clock (SCL), Luminosity sensor is connected to ports D2 as well as serial data (SDA) and D3 as well as serial clock (SCL). Next, current-voltage sensor (INA219) and luminosity sensor (BH1750) are arranged in parallel and both sensors are connected to

port D2 and port D3 respectively as shown in Figure 8 .

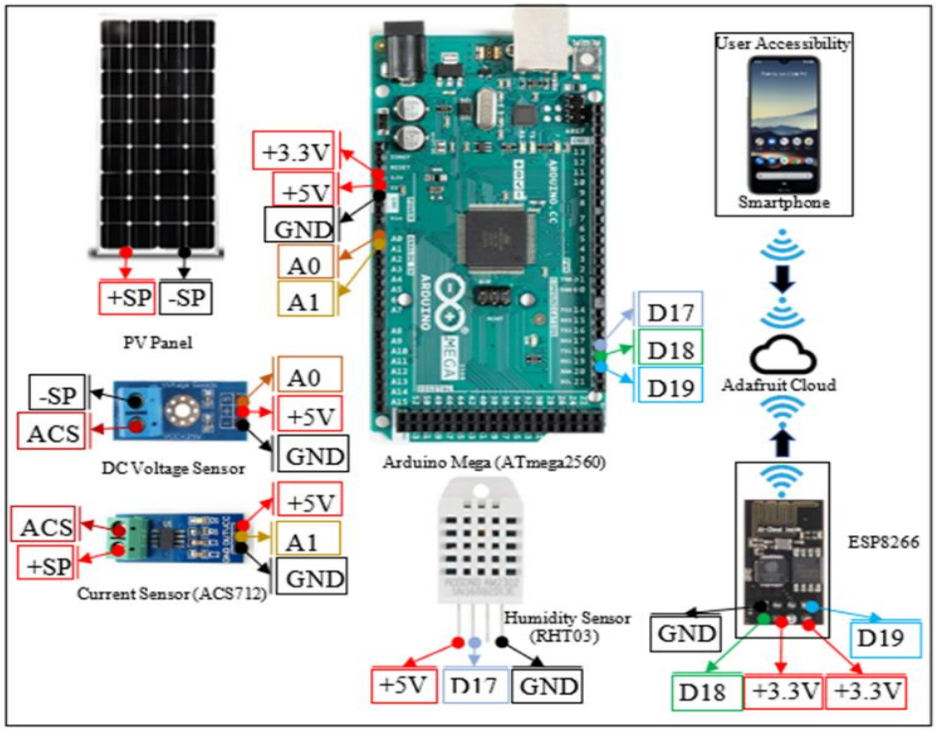

Fig. 9. IoT based approach for monitoring solar power consumption.

Figure 9 shows the IoT based approach for monitoring solar power consumption with Adafruit Cloud. The system is developed to monitor the voltage, current, temperature and humidity of the photovoltaic panel. The diagram in Figure 9 shows the developed system consists of voltage sensor (DC Voltage Sensor), current sensor (ACS712), humidity sensor (RHT03). The voltage and current sensors are connected to the analog ports, A0 and A1 as shown in Table 7. As shown in Figure 9, the voltage sensor is connected in parallel to the photovoltaic panel and the current sensor is connected in series to the voltage sensor. Therefore, this allows the Arduino Mega (ATmega2560) to sense and measure the voltage-current data synchronously into the internal storage system.

Table 7. Connectivity solar measurement device - component sensors for analog ports.

Component sensors	Analog Ports
Current Sensor	A0
Voltage Sensor	A1

Next, the humidity sensor (RHT03) as shown in Figure 9 is connected to measure the humidity of the environment and records the environment humidity which is used to compare the photovoltaic panel's efficiency especially when photovoltaic panel output decreases, and the environment humidity increases. This is important to understand the photovoltaic panel efficiency as well as the important to analyse the solar panel performances. Table 9 shows the humidity sensor is connected to port D17, respectively.

Table 8. Connectivity solar measurement device - component sensors for digital ports.

Component sensors	Digital Port
Humidity Sensor	D17

The Arduino Mega 2560 (ATmega2560) device is integrated with ESP8266 Wi-Fi module which allows the user to wirelessly access to their mobile phone for monitoring for transferring the information to the Adafruit Cloud website. All the sensors shown in Figure 9 and Table 9 are connected to the Arduino Uno 2560 (ATmega2560), and each sensor's information transferred by using Wi-Fi Module (ESP8266) is stored into the Adafruit Cloud Platform as shown in Figure 9. Wi-Fi Module (ESP8266) are connected to digital port D18 to transmit (TX) and digital port D19 to receive (RX). The voltage, current and humidity

information can be accessed by the user via the Adafruit Cloud platform application using the mobile phone and personal computer [8].

Table 9Connectivity solar measurement device - module for digital ports.

Module	Transmit (Tx)/ Received (Rx)	Digital Ports
NodeMCU ESP8266	Tx Rx	D18 D19

The project architecture developed to real-time sense and monitor solar PV panel. The shown system consists of Arduino Uno (ATmega32) microcontroller, voltage and current sensor (Yokogawa GS510 SMU), ambient temperature (LM35DT), solar irradiance (SP110) sensor, humidity (HSM-20G) sensor, dust (GP2Y1010AU0F) sensor, anemometer (wind speed sensor with analog voltage output) sensor and PV surface temperature (PT100) sensor.

Next, all the sensors are installed and connected to the microcontroller Arduino Uno (ATmega32) to plot the power versus voltage (P-V), current versus voltage (I-V) curves as well as collecting different parameters such as ambient and PV panel's surface temperatures, solar irradiance, relative humidity, dust levels, and wind speed. Next, a wireless system is developed to support for monitoring of voltage, current, ambient temperature, solar irradiance (SP110), humidity, dust, wind speed and PV surface temperature using the LabVIEW program. These parameters are sent into the LabVIEW based system to converts into the actual sensed values for various sensors. The XBee Pro Wireless modules are integrated to transfer and receive the recorded sensed information in the Arduino Uno (ATmega32) microcontroller storage into the ThinkSpeak database storage [9].

The architecture of the real-time solar powered monitoring system developed by [10] for sensing and monitoring multiple environment parameters. The developed system focuses to sense, monitor, and record the data from the integrated Allegro ACS712 current sensor and LM24 voltage sensor. The current and voltage into the webserver which is built using the MySQL database and XAMPP server. The phpMyAdmin database is created to record the transferred current and voltage as well as the current and voltage information is arranged thoroughly before this information is accessed via the Apache HTTP Server.

The smart monitoring system designed by [11] which is based on DC to DC converter is introduced for solar PV application. The proposed system is designed to monitor the input-output of the voltage and current of the DC to DC converter via the Arduino Nano microcontroller. The voltage and current sensor are used to measure the voltage-current value. Then, the collected voltage-current is sent via the Bluetooth (HC-05) into the monitoring system which is developed using the open source AppyBuilder software. The AppyBuilder software is an open software which is an easy application building for Android based smartphone. The advantage of the developed system is it able to monitor the step-up and step-down of the voltage, low cost as well as high efficiency performance.

For example, [12] described that an effective implementation of an intelligent remote monitoring system into PCU of PV panel is used to solve the management related problems. The proposed system also assists in terms of quicker maintenance and shorten response time in terms to conduct repair. The system is designed using the IoT application to monitor the PCU unit as well as can be monitored remotely via the host connection through the internet, GPRS network, embedded system gateway and other communication components as well. The output is being recorded into a PC where all the data from the solar PV PCU is being manipulated. Therefore, this helps to realize the remote real-time monitoring for the solar PV PCU.

The developed system architecture of that integrated with flexible functions as a monitoring system for the solar PV system [13]. The flexible functions are smart monitoring, fault detection, automated solar tracking, and PV device control functionality. To develop the proposed system uses the Arduino microcontroller which is known as an open-source system, this also reduces the developed maintenance costing as well as

reduces the circuit complexity and able to make a customization capacity. The temperature sensor, irradiance sensor and humidity sensor has been integrated into the Arduino microcontroller which gives the ability to monitor the solar PV system performances. The Arduino microcontroller has been used as main controller as a processing and storage unit which stores all the related information on the environment and PV system that are sensed and measured via the integrated sensors. The stored and recorded information can also be accessed via the web hosting that has been developed. As shown in Figure 9, the Arduino microcontroller connected to the Arduino Ethernet module which is used to connect to the local internet connectivity. The Arduino microcontroller also senses the temperature, irradiance, and humidity, then transfer this information into PC via the established internet connectivity through the Arduino Ethernet module. Besides that, if the internet connectivity is not available, then the temperature, irradiance and humidity information is transferred via the GSM shield module which this information can also be assessed via the mobile phone application. The transferred information is stored into the personal computer local storage for user's accessibility.

A monitoring system developed for an energy conversion system which is based on the sun and known as PVT [14]. The developed system consists of two Arduino Leonardo embedded microcontrollers and Arduino Yun. The Arduino Leonardo embedded microcontroller is used as storage and sender system. Whereas the Arduino Yun is used as receiver which then connected to the google cloud.

Discussion of Proposed System

Section II presents the review about the developed and available systems that are used for measuring the photovoltaic panel performance as well as the overall system performances. Based on the conducted review, generally developed systems are without the capacity of internal storages and two separate current and voltage sensors modules are used to measure the current and voltage individually. Looking at the unavailability of internal storage capacity of the developed systems seems to be the disadvantage of the developed system. The unavailability of internal storage to store the measured parameters information prone to limitation to information reference. For an instance, even though the developed systems are integrated with web application for information monitoring but, inability of the hardware system to store the information for reference or back up expose higher risk to information corrupt, where inaccurate information will be provided into the web application if the stored information in the web database is corrupted. Besides that, most of the developed systems also uses the separate current and voltage sensors. Due to the individual current and voltage sensors integrated into measuring the current and voltage, the sensing and measuring circuitry required to be configured accurately to record the reading of current and voltage. This is seen as system complexity because if the circuitry connection is wrongly connected, then the designed system is unavailable to measure the current and voltage reading. Also, due to the wrong connectivity of the current and voltage sensors, required reading such as current and voltage information will not be available and developed system would show error in the reading. Next, developed systems are integrated with Wi-Fi module such as ESP8266, which again required an effective system integration from the perspective of pins connectivity and programming language.

Looking at the limitation of the developed systems, Hardware Design Platform for IoT Based Photovoltaic Panel Monitoring and Analysis System has been proposed. The proposed system has been improvised in terms of integration of current and voltage sensor, where only one current-voltage sensor module is integrated to sense the current and measure the available current and voltage from the photovoltaic panel. This eliminates the requirement to develop a complex circuitry to connect the individual current and voltage sensors. Also, Raspberry Pi Zero Wireless has been used as the control system because of the ability to also store sensed current and voltage information in the SD Card Storage System before the stored information is transferred into the web application for monitoring and user

access. The capability to store the current and voltage information into the Raspberry Pi Zero Wireless SD Card Storage System helps to create another level of secure information if the information in neither storage is corrupted. With that also, the captured current and voltage as well as other parameters information can also be referred for the viability and a regular cross checking would help to validate the overall system's performances.

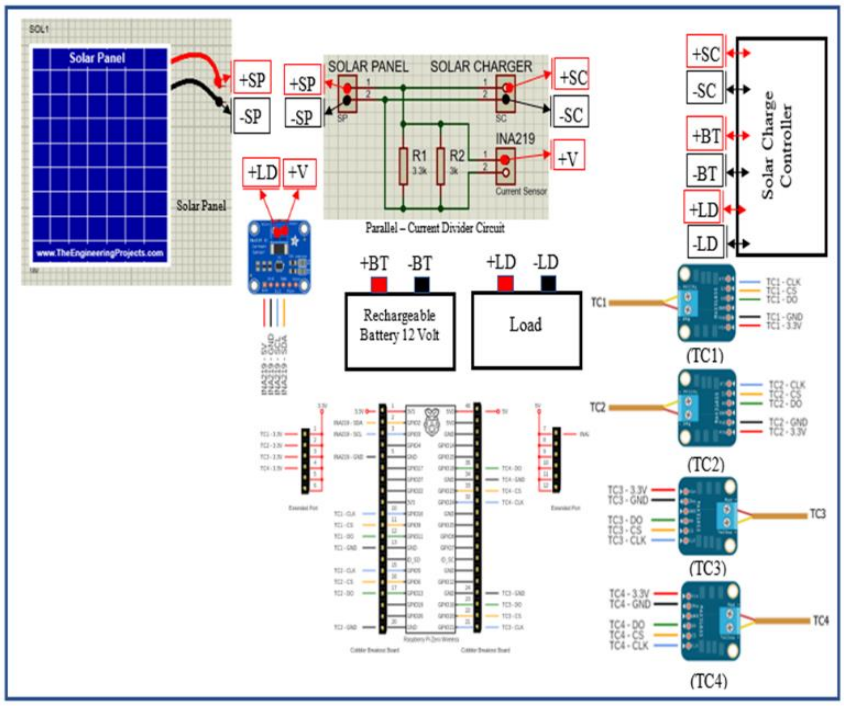

Fig. 10. Conceptual hardware system design – solar health monitoring system.

With that, in the next section the Hardware Design Platform for IoT Based Photovoltaic Panel Monitoring and Analysis System conceptual idea is presented as well as the system functionality and operation are explained. Figure 10 shows the conceptual design that has been proposed for the Hardware Design Platform for IoT Based Photovoltaic Panel Monitoring and Analysis System. The proposed system comprises of INA 219 DC Current/Voltage Sensor for current-voltage sensing, Thermocouple – MAX31855 Amplifier Sensor for photovoltaic panel temperature sensing, a parallel current-voltage divider, 12 Volt Rechargeable Battery as storage system, Raspberry Pi Zero Wireless with SD-Card Storage System and Charge Controller to regulate the output from photovoltaic panel. The Raspberry Pi Zero Wireless SD-Card Storage System will be used to record all the current, voltage and temperature which later will be sent into the localhost storage system which acts as cloud storage system. The implementation of cloud storage system is to allow user's accessibility to the system performances, especially the photovoltaic panel's performances.

Table 10 INA 219 dc current/voltage sensor connectivity to raspberry Pi zero wireless.

INA 219 DC Current/Voltage Sensor - Ports	Raspberry Pi Zero Wireless - Ports	Extended Cobbler Port
INA219 - SDA	INA219 - SDA	2
INA219 - SCL	INA219 - SCL	3
INA219 – GND	INA219 – GND	5
INA219 – 5V	INA219 – 5V	7

Table 11INA 219 DC current/voltage sensor connectivity to raspberry Pi zero wireless.

Thermocouple – MAX31855 Amplifier Sensor	Connectivity Ports	
	Raspberry Pi Zero Wireless - Cobbler Breakout Board	Extended Cobbler
TC1 – 3.3V		1
TC1 - CLK	10	
TC1 - CS	11	
TC1 - DO	12	
TC1 - GND	13	
TC2 – 3.3V		2
TC2 - CLK	15	
TC2 - CS	16	
TC12 - DO	17	
TC2 - GND	20	
TC3 – 3.3V		3
TC3 - CLK	21	
TC3 - CS	22	
TC3 - DO	23	
TC3 - GND	24	
TC4 – 3.3V		4
TC4 - CLK	32	
TC4 - CS	33	
TC4 - DO	34	
TC4 - GND	35	

As shown in Figure 10, the +SP and -SP output ports from the photovoltaic panel are connected to the +SP and -SP ports input at the parallel-current divider circuit. Then, the current that flows out via the +SC and -SC output ports at the parallel-current divider circuit goes into the +SC and -SC input ports of solar charge controller. The parallel-current divider circuit is developed to reduce the output current that flowing into the charge controller to avoid damage to the charge controller. The regulated current and voltage from the solar charge controller is then can be used to charge the battery energy storage system, which is connected at ports +BT and -BT. The +V output port at the parallel-current divider circuit is also connected as +V input port at INA219 DC Current/Voltage Sensor as shown in Figure 10. The +LD output port at the INA219 DC Current/Voltage Sensor is connected to the +LD port at the connected LOAD as shown in Figure 10. While the -LD port at the connected LOAD is connected to the -LD port at the solar charge controller as shown in Figure 10. In the following paragraph, the Raspberry Pi Zero Wireless ports connectivity to the other components such as INA 219 DC Current/Voltage Sensor and Thermocouple MAX31855 Amplifier Sensor is as shown Figure 10. The Table 10 shows the INA 219 DC Current/Voltage Sensor ports connectivity with the Raspberry Pi Zero Wireless through the cobbler breakout board. The 5 Volt at the INA219 DC Current/Voltage Sensor is connected to the port 7 of the extended port as shown in Figure 10 and Table 10. The INA219 – SDA, INA219 – SCL and INA219 – GND ports at INA 219 DC Current/Voltage Sensor are connected straight to the INA219 – SDA port 2, INA219 – SCL port 3 and INA219 – GND port 5 as shown in Figure 10 and Table 10. Table 12 shows the ports connectivity of the four units of Thermocouple – MAX31855 Amplifier Sensor with the Raspberry Pi Zero Wireless through the cobbler breakout board.

Conclusion

This paper presents a study on the previously developed solar health monitoring system for solar photovoltaic power systems. The study focuses to understand the developed system's architecture, functionality as well as the system's operation. Based on the study conducted and presented some similarity was observed and some differences were noticed. These findings were used to analyze the advantages and disadvantages of the developed system which is discussed in the section 3.

Based on the discussion also, the conceptual design of Hardware Design Platform for IoT Based Photovoltaic Panel Monitoring and Analysis System as shown in Figure 10 is proposed to perform the solar health photovoltaic monitoring for the solar photovoltaic power systems. Some improvement such as integrating the INA219 DC Current-Voltage sensor instead of having individual sensors integrated helps to improve the system efficiency, also having on board Wi-Fi enable the wireless connectivity as well as reduces the program complexity. The conceptual system design also has been improved with the Raspberry Pi Zero Wireless SD-Card Storage System which improve the stored information security as well as provides reliable reference information.

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AN INVESTIGATION OF BUILDING INFORMATION MODELING (BIM) IMPLEMENTATION IN THE PALESTINIAN AEC

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ABSTRACT

The effectiveness of implementing Building Information Modeling (BIM) in the Architecture, Engineering and Construction (AEC) industry is steadily increasing in the recent years. This study examined the role of BIM implementation in one of the Middle East countries, particularly in Palestine. It explores the extent of BIM implementation benefits against obstacles and the main design aspects where the Palestinian AEC industry used to implement BIM to enhance its performance. The study adopted the qualitative strategies where a semi-structured interview technique with a sample of Palestinian Engineering Firms was carried out. The findings show that BIM implementation in Palestine has some shortage in the MEP aspects which affects the completion of the BIM lifecycle. Therefore the sequence line of BIM lifecycle in the Palestinian firms is still incomplete. Also, the findings indicate that the extent of the optimal use of BIM is associated with the extent of implementing BIM at the different design aspects, as well as the size and complexity of the project. Therefore, the need for BIM model is becoming more essential to attain its impact as an engineering solution for the complex systems with various aspects.

Keywords: Building Information Modeling, Palestinian AEC industry, Design Aspects, BIM life-cycle.

Introduction

The construction industry is considered one of the effective factors that affect the economic sector, and it is considered one of the best ways of stimulating economic activities. However, the construction industry has a lot of criticisms according to problems related to poor performance in project delivery, inefficient collaborations and low innovation level. In this regard, the efficiency, quality, sustainability, life cycle, cost and the satisfaction of all stakeholders need to be improved. For this reason, building information modeling (BIM) is considered as a key solution to raise the value of the construction industry production and revive the industry to the zenith of growth (Alizadehsalehi et al., 2020; Sodangi et al., 2018). There have been different ways within the architecture, engineering and construction (AEC) industry to define BIM, but all of them complete each other and lead to the same meaning. International standards define BIM as "shared digital representation of physical and functional characteristics of any built object which forms a reliable basis for decisions" (ISO, 2010).

The desire to achieve the projects with minimum cost, best quality, and reduce project delivery time plus the everlasting quest to exceed owners' expectations create the need for BIM, BIM offers the potential to achieve these objectives (Azhar et al., 2008; Salman, 2011). In addition, the data in these 3D drawings are graphical entities only, such as lines, arcs and circles (Azhar et al., 2008), in contrast to the intelligent contextual semantic of BIM models, where objects are defined in terms of building elements and systems such as spaces, walls, beams and columns (Azhar et al., 2008; Kamardeen, 2010). The main output for BIM implementation is a 3D model consist of smart parametric objects, where users could extract all information related to the building. BIM is not just a software to make three-dimensional model, BIM support 8D design. It describes the geometry, spatial relationships, geographic information, cost estimation, time management (Arshad et al., 2019; Azhar et al., 2008), sustainable design, life cycle management, and accident prevention (Kamardeen, 2010), which means it supports integrated design. Moreover, the client can live with the virtual model, and change any undesired design until the client's demands were met (Georgiadou, 2016; Nadeem et al., 2015), which improve client satisfaction and improve customer–client relationships (Azhar, 2011; Georgiadou, 2016; Saleh, 2018). BIM software have built-in cost estimating features, material quantities are automatically extracted and changed when any changes are made in the model (Abanda et al., 2017). Clash detection is one of the main benefits for BIM since BIM models are created

with accurate and to-scale information. In contrast, despite the great benefits of BIM, it has some risks, which makes engineers and other stakeholders skeptical about its implementation. One of the risks that might face the designers is the protection of copyright and the ownership of the BIM data. Since the owner assumes that the property of the model belongs to him, hence all the data has become his property which may contain private data for the company (Arshad et al., 2019). Another risk the designers may face is the data entry control. The responsibility of updating BIM data and ensuring its accuracy entails a great deal of risk.

This study examines BIM implementation in one of the Middle East countries, particularly in Palestine, in terms of three main issues. The first issue is about what are the main design aspects (Architectural, Structural, as well as Mechanical, Electrical and Plumbing "MEP") where the firms in Palestine used to implement BIM model in their design process. The second point that have been examined is the extent of BIM implementation benefits against obstacles in the Palestinian AEC industry. Finally, the study examined the relationship between the effectiveness of BIM implementation and the size of the project. Abuhamra and Enshassi (AbUHamra & Enshassi, 2017) pointed out a number of obstacles that facing BIM implementation in the Palestinian AEC industry. These obstacles are: lack of awareness of the benefits that BIM can bring to stakeholders and engineering offices, lack of engineers skilled in the use of BIM programs, lack of education or training on the use of BIM whether in the universities or any governmental or private training centers, lack of demand and disinterest from clients regarding using BIM technology, and lack of governmental regulations to fully support BIM implementation.

Methodology

It was observed that the literature about BIM implementation in Palestine is almost nonexistent and not exhaustive. In contrast the literature about BIM implementation in the word is extensive. A qualitative evaluation for the current state of BIM implementation and its benefits in Palestine is adopted. Qualitative strategies are used because qualitative approach is very effective to explore issues about which little is known (Corbin & Strauss, 2015). Also, the qualitative research provides stronger basis for analysis and interpretation because it is grounded in the natural environment of the phenomenon in the business environment (Srivastava & Thomson, 2009). Interviews have been chosen as a qualitative method since there is few companies are available. Moreover, interviews as a qualitative method are believed to provide a 'deeper' understanding of social phenomena than would be obtained from purely quantitative methods, such as questionnaires. The purpose of the interviews is to explore the perspective, experiences, beliefs, motivation and/or disadvantages (Gill et al., 2008). Semi structured interviews were adopted since it is the most suitable type to get more detailed data and to allow the interviewee to diverge in order to pursue an idea or response in more detail (Gill et al., 2008). Interviews with seven different firms have been done. These firms cover consulting engineers and contractors. Four of the seven companies implement BIM for projects to be implemented in Palestine only, and the other three firms use BIM for projects in Palestine and other countries in the Middle East. For collecting data, the researchers contacted Engineering Association-Jerusalem which represent all registered engineering firms in Palestine to obtain a name list of practicing firms. An invitation letter to participate in the research was emailed for these firms. The targeted population was restricted to those firms that use BIM in their projects. Out of 165 invitations, 25 replied and only 7 firms participated in the research**.**

Results

BIM Implementation at the Different Design Aspects: In terms of the number of the aspects that have been conducted using the BIM approach, the interviewee firms were ranged in their BIM implementation from one aspect to the five main engineering aspects; architectural, structural, and MEP. Firm number (6) used the BIM software for the architectural aspects only. Another two firms (number 2 and 7) used the BIM tools for two aspect; architectural and structural. Firms

(number 2) revealed that they were firstly using BIM for more than two aspects but later they found that the use of 2D CAD for mechanical and electrical aspects is more efficient in their projects since it consumes less time compared with the use of BIM software. The interviewee at this firm pointed that "BIM implementation for electrical and mechanical aspects is time consuming, and the 2-D CAD is easier and faster for those two aspects". However, the other interviewees (1, 3, 4, and 5) preferred to use BIM approach in their design process at the main five engineering aspects; architectural, structural and MEP. For example, an interviewee at firm 5 said: "I prefer to use BIM model from the first stage of my project to the construction stage passing through all the fields". As well, interviewee No 3 said that "BIM software is an efficient and useful for quantity surveying. It facilitates the quantity surveying operation since the quantities result from the model and the accuracy of the quantities depends on the accuracy of the model". Figure 1 represents the BIM usage percentage for each aspect for the seven firms.

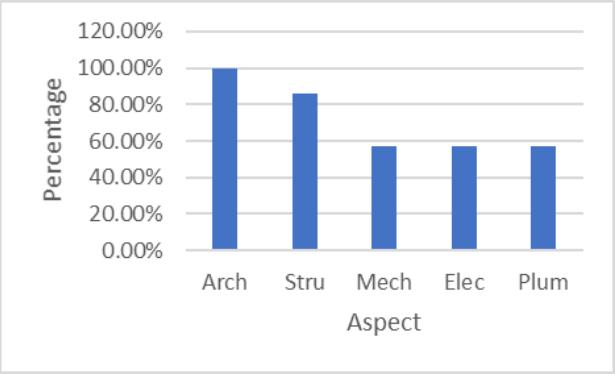

Fig. 1. BIM implementation percentage at different design aspects.

Extent of BIM Implementation Benefits: In this study, the interviewees affirmed a number of the benefits of BIM implementation in their design process at their firms. They pointed that there are several reasons why their firms are cheered for putting BIM under applications at their design process. Saving time and money was one of the main benefits of using BIM that have been highlighted by the interviewees. It was founded that all of the seven firms were used BIM software to save time and money. By using model-based process by using one of BIM software, less time is needed for editing; where any editing in any view, all views will be updated automatically. Firm No. 2 give a good example for time saving in the editing process. Architect said "once I want to change the floor height by using 2D drawings it may need many hours to edit the drawings according to the new height, while by using Revit model it can be changed in a few seconds". Moreover, Firm No 4 pointed that "by using BIM model, number and time of meetings between parties to solve any problem or to discuss any issue related to project and doing changes will be less".

The second benefit of BIM implementation is clash detection. The first five firms pointed that they have been used BIM for detecting the clashes between the different design aspects, and two of them focused on electromechanical clashes (firms No 3 and 4). Firm No 4 give a good example for clash detection between structural and MEP aspects as well as between the different MEP aspects during the construction stage. The supervising engineer said that "during the construction stage of one of our projects there was a clash between structural and mechanical aspects, this clash lead to double pipes quantity and changing the HVAC system. Then the construction stage has been stopped until a BIM model had been built for all the aspects in the project. This model helps to avoid all other clashes and to solve the existing problems and avoid further delay". The following figures related to one of the interviewee firms. It is representing real examples for clash detection have been detected between different aspects using BIM model, each of these problems has been handled on its own. Figure 2 represents one of the cases for structural and mechanical clashes. It shows the clash between the sewage pipes and the drop beam. While Figure 3 expresses the clash between the mechanical and electrical aspects, where it shows the clash between the electrical line and the mechanical pipes. Likewise, Figure 4 represent clash detection between structural and electrical. One of the firms clarify why the BIM model could help to detect the clashes. This is marked in the statement of firm No 3 where he gives two main points make the BIM software's user able to identify the clashes. He pointed out that "the

software could check and explore the clashes and highlight the location of the clashes and then data is being sent to the user with some instructions to solve the problem".

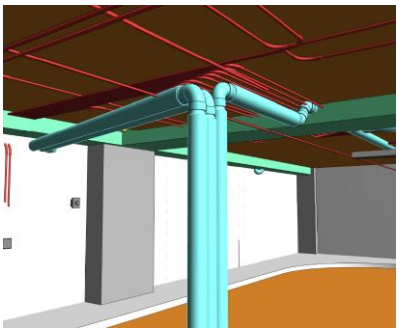

Fig. 2. Mechanical structural clashes.

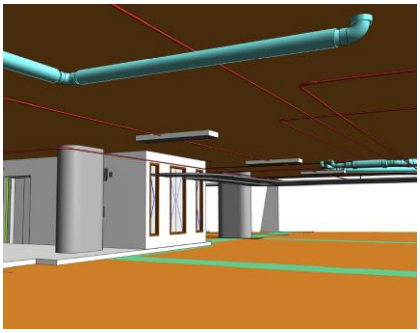

Fig. 3. Mechanical Electrical clashes.

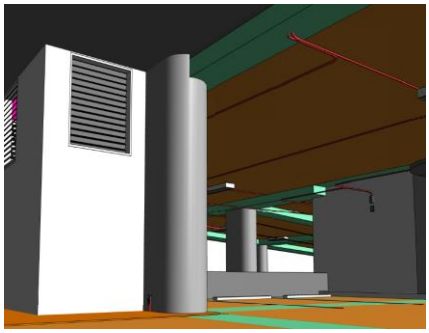

Fig. 1. Structural electrical clashes.

Moreover, the accurate drawings produced by BIM model is one of the strongest motivations in many firms to use one of 3D BIM software. A proof of this is that all the seven firms use the drawing extracted from BIM model, four of them convert these drawings to CAD for license issues, and three of them- who work for project in other countries than Palestine- use the drawing extracted from BIM software without converting them to any other format. Apart of this, getting an accurate updated quantity from BIM model is a significant advantage for using BIM. Five out of the seven firms use BIM model to get accurate quantities since it is time consuming to make accurate quantity surveying manually specially for mega projects. Two other points are worthy of mention were highlighted by interviewee No 3; firstly, by using one of the BIM software, designer could acquire the cost estimation either for all the elements of the project or for a specific element or material. The other worthy point of the cost estimation using BIM model is that the built-in feature of cost estimating could give an updated quantities and cost with any change in the model element. Firm No 4 pointed out that "the accurate quantities is the main advantage since the accuracy of quantities affects the accuracy of cost and time. In another meaning if the quantities is not accurate, then the cost and time schedule for the project will be inaccurate". Firms No 2 and No 3 pointed out that the documentation issue is another significant point for using BIM model. They emphasize that since all data about the project will be in one file, then it is easy to reach and extract any information about any element in the whole project. Firm No 3 added that "the model usually contains hyperlinks lead to any needed data outside the model and any information about any element in the model can be easily obtained from the model". Another point was raised by the interviewees is using the 3D BIM model for operation and maintenance. It was founded that four firms (2, 3, 4, and 5), provide the client with the model to use it for operation and maintenance as requested by the client.

Although several benefits have been pointed out at the discussion with the firms, but still there are some sceptics of the interviewees who highlighted some concerns about the BIM implementation in Palestine or in the region. One of these concerns is BIM model ownership. Many Firms provide the client with the model against additional money even some of them expressed his concerns about possession the ownership to another person. Only one firm (firm No 1) does not give the model for the client never. The designer thought that the ownership of the model is for the company only since it contains a lot of information, components and elements designed and built by the company. Similarly, firm No 3 added that "the client can take the

model, but sometimes there are some elements or systems of the BIM model were built by the firm for the first time. If these elements or systems were built especially for the firm, then the ownership of them should be for the firm only". Another risk that have been discussed with the firms is the data entry control. All of the interviewees firms, except the sixth firm, agreed that there should be a BIM execution plan to be followed. Each engineer enters his data, then there should be a supervisor to ensure that the data is correct. Finally, the BIM manager check the whole data, this series allow double check for the entered data. Moreover, the study found that there are a lot of problems in terms of misunderstanding of the concept of BIM implementation. For example, some engineers think that BIM means just using BIM tool regardless whether this tool is used only for one aspect or for all aspects in an integrated manner. In other cases, some people don't differentiate between the software such as Revit and the BIM process. The researchers realize this point when they contact some firms asking them to arrange for an interview if they are using BIM in their design process. When the meeting was held, the researchers found that they just use the Revit software as a 3D modelling software. Of course, these firms were not listed in the above seven firms.

Furthermore, even in the firms who have some implementation for BIM approach, the number of electrical and mechanical engineers who implement BIM there is still few. Firm No 4 explained that the reason for not using BIM for mechanical and electrical aspects is the lack of the interaction of the mechanical and electrical engineers with the site. He added "from my experience, mechanical and electrical designers usually work from the office and rarely visit the site, thus the 2D mechanical and electrical design that submitted for licensing are just lines and usually cannot be executed in the site. Execution is carried out away from the drawings and depending on the technical staff experience since the technical staff have experience suffice to achieve small projects with simple basic systems due to repetition". Furthermore, the lifecycle of BIM implementation is incomplete as, mostly, the contractor doesn't use BIM model. A part of this, firm No 2 pointed out that according to practice in Palestine for the private small and medium project, the equipment of the mechanical and electrical design in terms of its specifications are chosen by the contractor at the construction stage which make building a BIM model at the design stage is a complicated and useless process. Conversely, in rare cases, the designer does not implement BIM but the contractor does. The engineer at the firm No 3 explained his experience in this situation as he was the contractor for a similar case. He said "one of the problems which we face is that the data required for building a BIM model is not available or be delayed.

Relationship between the Size of the Project and BIM Implementation: It is noticed, through the interviews, that some of the firms linked between the size of the project and the necessity of using BIM process at their project. Firms No 1 and 2 agreed that using BIM software is essential for large projects since high level of management and control for time and cost are needed. Moreover, Firm No 3 added that "large projects usually have complex systems and it is difficult to make coordination between all aspects and systems using 2D drawings". The reason beyond that is that the size of the project, the complexity of the used systems, and the number of these systems make the coordination very difficult. However, there are many firms such as Firm No 1 added that the BIM implementation (especially architectural and structural aspect) has always added value regardless of the size of the project.

Discussion

This study examined BIM implementation in Palestine in terms of three main issues. The first issue was about what are the main design aspects (architecture, structure, and MEP) where the firms in Palestine used to implement BIM model in their design process. The study revealed that not all the firms who use BIM model in the design process are using it in all main design aspects. Chart in Figure 1 shows that architectural and structural aspects are the most areas where firms used to implement BIM model. Also, the results show that MEP aspects are the less fields where firms use the BIM model. Even one of the firms think that the 2D CAD is more efficient for MEP in terms of

consuming time, but actually this was not the main reason for this less of use. The real reasons why BIM implementation is inconsiderable at the MEP aspect are illustrated below.

One of the firms refers this slight usage of BIM at the MEP aspect to the lack of MEP engineers' interaction with the site especially for small and medium projects. The interviewee there reveal that the MEP design is mostly submitted for licensing purpose and therefore 2D drawing is sufficient and it is mostly away from the execution. This led to less motivation and less technical experience for those engineers to implement the BIM techniques in their design process. Another interviewee considers that the reason for the insufficient level of BIM implementation at MEP aspects is the poor coordination between the MEP system designers and the contractors who carries out these systems. However, to solve this problem the level of coordination between the designer and the contractor must be improved to a higher level than the current situation. As the contractor is mostly unknown at the design stage, then the best way to enhance this coordination is to build an initial BIM model by the designer. This initial model of these disciplines will be modified later by the contractor as the amendment is easier and faster. By this way, the contractors are pushed to become a part of the BIM process indirectly, which encourages them to adopt this pattern of thinking.

As aforementioned, one of the main benefits of BIM implementation is clash detection between the different aspects and different systems of the design, therefore now that there is a low level of BIM implantations at the MEP aspects, then the efficiency of using BIM is very low and not in the required extents. In this case the clash detections will be limited to architectural and structural only which is considered less complex than at the MEP aspects due to crowd systems there. However, the use of 2D drawings is mostly does not enough to make the details of the project clear for the electrical and mechanical engineers and this means that every specialized engineer/s will make a design without taking into consideration the other aspects and the clashes will be explored during construction. As a result, the extent of take benefits of BIM implementation is associated with the extent of implementing BIM at different design aspects; the more aspects where the BIM is used, the more benefits of BIM theme.

The second point that have been examined in this study is the extent of take benefits of BIM implementation against the obstacles in the Palestinian AEC industry. A number of benefits has been sought by the BIM users in the AEC firms in Palestine. These benefits were range in terms of its extent from one firm to another. The findings show that time saving was the most beneficial point for using BIM model. That because time saving can be achieved at any stage or any aspect of using any tools of BIM process. In other words, even the designer didn't implement the BIM concept at all the aspects, he/she still can take benefits of using it for a certain aspect. However, other benefits are related in some way with the number of the aspects where BIM is implemented as aforementioned in the clash detection point. The benefit of clash detection was the second heist beneficial point. Even though not all the interviewees use BIM at all main design aspects, but either they still detect the clashes between architectural and structural or they still realize its effect at the MEP aspects by their experience, they still didn't use it for the above-mentioned reasons. Continuous updating and high accuracy are two keywords for motivating engineers to implement BIM concept at their design process. The software such as Revit that support BIM concept can be considered as a parametric software. That means any change in any element of the project in terms of its properties like dimension, price, material, or any other attributes will be reflected automatically in all outputs of the model either drawings or quantities which lead to accurate output in case of the model is accurate. Also, two firms benefit from BIM implementation in documentation issue. BIM implementation creates archiving system that facilitate the documentation and reduce the required time to access the related files. BIM process convert the building mass to a mass of data. This mass of data contains different elements with a full information and description.

On the other hand, deficiencies of BIM implementation in the Palestinian AEC industry are still there and in a crucial situation. One of the most important deficiencies is that the firms who adopt the use of BIM concept in their design process is still very rare. One more point is the sequence line of BIM implementation in the Palestinian firms is still incomplete. The imperfection of the sequence line of BIM implementation become more evident as the lifecycle of the design process getting close to the end. Figure 5 shows the general sequence line of BIM implementation of the Palestinian firms, where the lifecycle of BIM implementation starts `with the highest level at the design stage especially architectural and structural model and finish with almost no use at the operation stage.

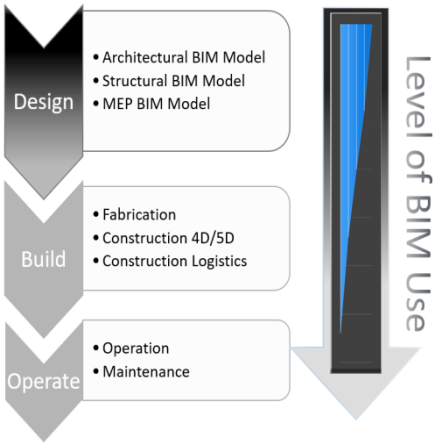

Fig. 5. Sequence of BIM implementation for Palestinian firms.

The third point is the relationship between the effectiveness of BIM implementation and the size of the project. According to this study, it is found that most of the firms link between the size of the project and the necessity of BIM implementation and agreed that BIM implementation is essential for large projects to facilitate project management and coordination between different aspects. Also, some firms believe that BIM implementation is associated with the number and complexity of the systems which are used in the project. As the size of the project increases, the number of parties involved in the project and the number of systems, and its diversity is increased. That make the traditional pattern of problem-solving and interpret data unable to provide optimal solutions. Therefore, the need for BIM model with the above-mentioned benefits is becoming more essential to attain its impact as an engineering solution in architectural, structural and MEP context. However, BIM implementation still add value regardless of the size of the project. That because in the small project the firms mostly tend to use BIM model at the architectural and structural aspects where they can achieve a minimal level of benefits in terms of coordination between the two aspects, updating cost estimation, saving time, and some other gains. All the parties however are agreed that the influence of BIM implementation in the small project is not effective as in the large project. As a result, the study substantiates that there is a direct relation between the effectiveness of BIM implementation and the size of the project.

Conclusion

In summary, BIM is not a software; BIM is a thought, a concept, and a methodology. The main BIM product is a virtual intelligent 3D Model based process loaded with construction and engineering useful information that can be utilized in all different design aspects through the whole project lifecycle. This study concludes that even a number of benefits of BIM implementation have been highlighted, but the concept as well as the benefits of BIM implementation are still uncommon and not in its desired potential in Palestine. It is appeared that there is a misconception of BIM implementation and few firms have the right approach of using BIM with its peak efficiency. Furthermore, according to most of these few companies; BIM implementation level is still beyond the hoped practices.

The main concept of BIM is the integration; the optimum benefits will be obtained if BIM implemented in a complete cycle and in a sequence line. The results show that BIM implementation in Palestine has some shortage in the MEP aspects within the design stage which affects the completion of the BIM lifecycle. Therefore, the extent of the optimal use of BIM is associated with the extent of implementing BIM at the different design aspects; the more aspects where the BIM is used, the more benefits of BIM theme. Moreover, the study affirm that there is a direct

relation between the effectiveness of BIM implementation and the size of the project. The need to use BIM concept grows as the size of the project and the number of the systems within the design process is increased. Therefore, the need for BIM model is becoming more essential to attain its impact of engineering solution for the complex systems and aspects. To improve BIM implementation in Palestine, first of all, the right concept of BIM should be illustrated and make it clear for all engineers and stakeholders. Also, a specific definition for BIM should be identified and in a later stages a code to identify BIM implementation conditions and stages could be issued to facilitate BIM implementation and reduce misunderstandings. Also, it is advisable for the official bodies to make BIM implementation as a recommended or compulsory process to submit designs. For example, if the Engineering Association relies on electronic scrutiny instead of the current traditional scrutiny and all design companies connect to one server in the engineering association then the data will be automatically filled and checked. This will strengthen the BIM concept and leads to finding uniform code for the drawings and reducing the number of engineers required for scrutiny.

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DEVELOPMENT OF SMART LOAD BOARD CHECKER TO INVESTIGATE THE LIFESPAN OF RELAY

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ABSTRACT

For the last decade, the semiconductor industry is growing rapidly. Thus the demand of the product is increasing and the manufacturer is seeking a way to maximize the production while minimize the downtime. It is very crucial to make every machine work in optimum. Semiconductor testing is the last gate before the product reaches the client. It is necessary to screen out all the reject while maintaining the performance to be able to meet the client requirement. Thus, by having preventive maintenance, it will prevent the unscheduled breakdown that will affect the downtime and consequently affect the productivity. This project is to develop the smart loadbaord. It will check the relay operation life and alert the engineer when the operational life almost reached. The current test program will be utilized to track the number of operation for each relay and loadboard and stored in a server. Graphical User Interface(GUI) will be developed for an easy access from an engineer or technician to monitor the current number of operation of each relay for each loadboard. It the end of the project, it is expected to be able to monitor the number of operational relays and able to prevent the setup breakdown during the testing in the production line. Hence, it will reduce the downtime and will increase productivity and consequently will increase the revenue of the company.

Keywords: *Lifespan relay, contact relay, electromechanical relay, semiconductor industries.*

Introduction

Semiconductor is a complex creation of human. The manufacturing process is divided into a two major part – front end and back end. The front end is the process of wafer fabrication which is process from single silicon to become a wafer. In the back end, it is an assembly process, it is a precise process from a single die into a semiconductor unit, and it will follow with final testing. Final testing is a process to test every single unit to verify all the functionality of the unit. In a semiconductor company, the testing will be done by the Automatic Testing Equipment (ATE). ATE is an equipment consist of a handler, Load-board, and Tester. Load-board is a few layers of Printed Circuit Board (PCB) that interface between Device Under Test (DUT) and Tester. The main component on a Load-board is a mechanical relay. There are few types of relays such as SPST, SPDT and DPDT. All the relays have an operational lifetime. After the relays have exceeded operational lifetime (defined as a number of contact operations) as specified by the manufacturer, the mechanical relays will cease to operate properly or even stop working completely. This will affect the testing of the semiconductor IC and may inadvertently cause a quality issue.

There are no preventive measures to counter check whether the relay has reached its operational lifetime. They are only changed when the load-board encounters failures during testing and the technician checked that it is caused by a faulty relay. Furthermore, now there is no way to automatically track how many times the relay has been operated (a single test run can operate the relay many times).

Having an automated system to track the relay's operation life will help prevent faulty relays causing issues by creating a preventive maintenance for each load board.

A previous reserch on loadboard is to have a automated calibration board [1], however this reserch only calibrate to make sure the device such as capacitor, resistor to be in good condition. It is never checking the lifetime of a relay. The next reserch is on designing an interfacing for loadboard and device under test (DUT) [2], this reserch is focusing on NMOS device only which is a device with slow switching. [3] is done a reserch on the process to produce the highspeed loadboard, it is important to speed up the process testing with the implementation of high speed loadboard.

There is also research on how to minimize the production loss due to down time as done by [4], in this paper, two method is suggested which is activeredundancy and cold standby. It is a different method from preventive maintenance. It can be a applied to reduce the production loss due to unscheduled maintenance. Other research on productivity is done by [5]. This research is to predict the handler performance for various parameters on handler. Handlers act as a transportation mechanism over the DUT. Handler will sort the good DUT and bad DUT based on binning set by engineers. Handler also will set the temperature of the DUT before its ready for testing. [6] is done research on a scheduling of semiconductor testing, by having a mathematical model of testing environment, the optimizeschedule is gain. [7] also have done research on test scheduling by using factory planning software. This research is improvement from [6] where it includes a constrain in the planning process. Thus, the final version is based on real shop floor data.

Beside the final testing, before the dice undergo the assembly process, it will go through a Electrical Wafer Sort (EWS). In EWS the same ATE were used, however with different load bard which is called probe card. [7] has done research to keep track of a location of each of the probe card by tagging a RFID tag for each of the probe card. By having this, the EWS throughput is improve

There is also a study on semiconductor assembly process as was done by [8]. This study is to study the cost saving versus the production yields of the product when its change the wire bonding from gold wire to copper wire. The study able to show that by using the copper wire, the yield is improved from 98% to 99%. The production is decreased due to the copper is cheaper than gold, hence the cost saving achieve is almost USD 1.16 million.

Methodology

Arduino UNO Microcontroller is a component off the shelves used as a brain in this project. Relay lifetimes investigate by turning it on and off rapidly until it burn-off. The number on and off relay is counted as relay lifetime. The relay testing kit consist of Arduino UNO, LCD display to display the number of cycles, LED indicator to indicate the failure relay and this kit also connected to LAB View for data monitoring and data storing.The counted relay cycle will be saved in EEPROM memory provided in Arduino. Hence, the data will be kept when the system switched off.

FIGURE 1shows a schematic diagram for a system. The schematic diagram design using a Proetus before developing and actual circuit and in **FIGURE 2**. An Arduino UNO microcontroller is connected to SPDT relay trough a transistor as input into Pin 12. LED indicator was connected directly with SPDT relay. LCD display was connected as an output from an ARDUINO UNO.

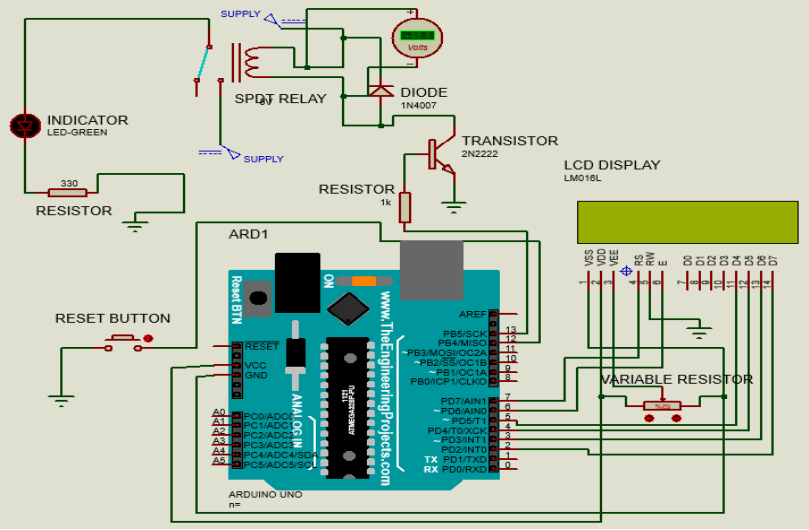

FIGURE 1: The schematic diagram for the checker lifespan of relay

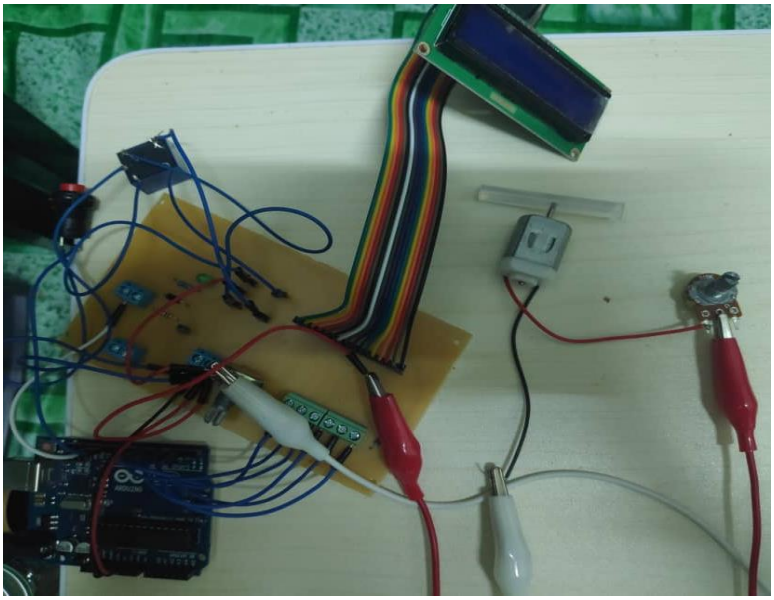

FIGURE 2: Circuit for test relay with load

To investigate the relay lifetime verses the theoretical value, two experiment was setup. The first experiment is to compare a Songle SRD relay with load and without load. The load used in this experiment is a 5Volt DC motor with 70mA current. Second experiment is to compare different types of relay which is Songle SRD and HKE relay. In the second experiment, both relay was connected directly without load. The percentage different was calculated using equation (1).

$$Percentage\ different = \frac{Theoretical\ value - Measurement\ value}{Theoretical\ value} x100\% \quad (1)$$

Results and Discussion

Gelay lifespan with load and without load

In first experiment, Songley SRD relay was used and test with load and without load, TABLE 1shows the experiment value for Songley SRD relay verses theoretical value from the datasheet for both with load and without load.

TABLE1: Relay Lifespan for Songley SRD without load and with load

	Songley SRD without load	**Songley SRD with load**
Theoretical Value	10 000 000 cycle	5 000 000cycle
Experimental Value	17 052 500 cycle	7 466 770cycle

FIGURE3showthebarchartofdifferencevaluebetweentheoreticalandexperimental cycle value for Sonley SRD relay without loadandwith DC motor as a load.

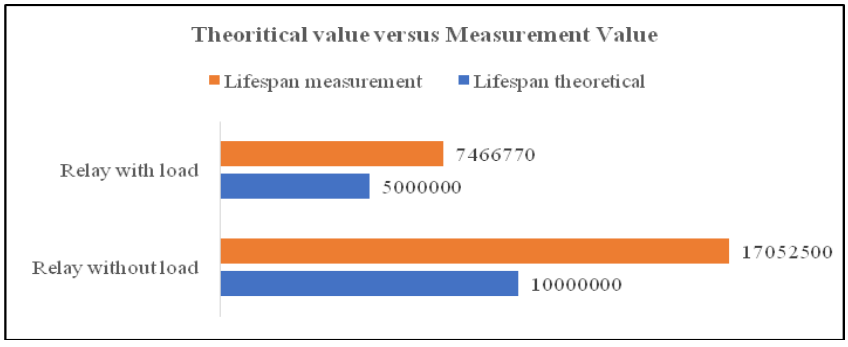

FIGURE 3: Differencevaluebetweentheoreticalandmeasurementwithloadandwithoutload.

In both experiment relay lifespan for both with load and without load shows that the measurement value exceeds theoretical value by 70.5 % for relay without load and 49.33 % for relay with load. This data is crucial in developing a smart loadboard with a self-diagnostic.

Relay lifespan of different relay type

In second experiment, two differentrelaytypeswhichisHKErelayand Songlerelaywereusedforthistest.Silver tin oxide (AgSnO2) is a contact material for Sonley Relay while HKErelaysusesilveralloy(AgAlloy)fortheco ntactmaterial. Each connection is without load. In this experiment, Songley relay differ by 70.5% from theoretical value while HKE relay have a 58% different between experimental value and theoretical value from datasheet. TABLE2showthevalueoflifespanfortheSong lerelayandHKErelay.

TABLE2:Lifespan of Songle relay and HKE relay

	Songle relay	**HKE relay**
Theoretical Value	10 000 000 cycles	10 000 000 cycle
Experimental Value	17 052 500 cycle	15 800 362 cycle

FIGURE4**shown the barchar of difference value between the oreticalande xperimental value** for Songle relay and HKE relay. The Songlerelayhavehigherlifespancomparedto HKErelay.Both type of relays show that experimental value is highly exceed the theoretical value.

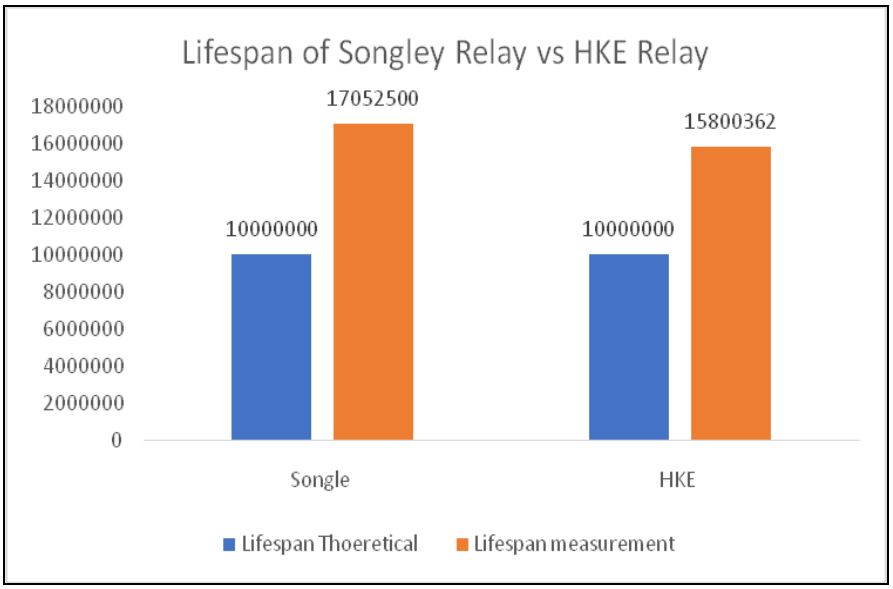

FIGURE 4. Different of measurement value and theoretical value of Songle relay and HKE relay.

Conclusions

This paper has presented the experimental setup to investigate the relay lifespan. In general, the experimental value for first shows that it exceeds the theoretical value by almost 70% for no load relay and in experiment two, the different for Songley relay is 70% and HKE relay show different by 50%. This result has confirmed that, the experimental value exceeds way higher than theoretical value. This project will help in developing a next project which the smart Loadboard with self-diagnose to be used in semiconductor industries where the exact number of contact operation in crucial.

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DRYING KINETICS OF OSMOTICALLY DEHYDRATED LIME SLICES

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ABSTRACT

Drying food products can prolong their shelf life and increase profits. Optimizing the drying process is important for realizing attractive and economically viable products. The drying kinetics ofosmotically dehydratedlime slicesthat were subsequently dried using a hot-air technique was investigated. The effects of thedrying temperature (50–80 °C) on the drying characteristics, color, texture, and water activity(a_w) of the samples were considered. The initial moisture contentof the osmotically dehydrated lime slices was 150–156%, and the lime slices were then dried in an oven until they reachedafinal moisture content of 31–33%. The experimental data were fitted to various drying models,andthe correlation coefficient and root mean square error values showed thatthe Approximation Diffusion model was most suitable.Theeffective moisture diffusivity increased with the drying temperature, and the highest convective mass transfer coefficients and moisture extraction rates were observed at 80°C. Drying at 60°C resulted inthe best quality in terms of colorand texture. The dried lime slices had a water activity of less than 0.6.

Keywords: *Hot-air drying, Osmotic dehydration, Lime slices, Mathematical model.*

Introduction

Limes are citrus fruits with various species and hybrids mostly originating within tropical Southeast Asia and South Asia. In Thailand, the Phichit Agricultural Research and Development Center developed a new hybrid lime called "Phichit 1" by crossbreeding the Pan and Nam Hom varieties in 1996–2000 [1]. Limes are a rich source of vitamin C; they have a sour taste, and they are often used to accentuate the flavors of foods and beverages. However, the Phichit 1 cultivar has a thick skin and many seeds, which have reduced its commercial viability. Osmotic dehydration is a preservation technique that involves the partial removal of moisture content from plant tissue by immersion in an osmotic solution and can be used to extend the shelf life of limes. It has been found to improve the final product quality, which has led to the development of snack products and increased profits for lime farmers. Food dehydration is a complex thermal process that includes simultaneous heat and mass transfers. Its advantages include enzyme and microbial inactivation, shelf-life prolongation, and enhanced digestibility, and bioavailability of nutrients and antioxidants. However, it also includes negative effects such as loss of desirable nutrients. The most important factors for high-quality dried food products are the drying method and time. This study investigated the drying kinetics of osmotically dehydrated lime slices. The experimental values were used to determine the best-fitting mathematical model, and the effects of the drying temperature on various quality attributes (color, texture, and water activity(aw)) were considered

Materials and Methods

Experimental procedure

Fresh limes (Citrus × aurantiifolia Swingle cv. Pan Phichit) were purchased from a local wholesale market. They were washed, zested, and cut into 2–3 mm thick slices, which were manually measured using a digital caliper. As a pretreatment, the lime slices were immersed in a 27% (w/v) NaCl solution for 24 h in a glass bottle at ambient temperature. After pretreatment, the lime slices were then subjected to osmotic dehydration [2], which took place over a 3-day period. On day 1, the lime slices were transferred to a 45° Brix osmotic solution comprising invert syrup at a fruit-to-solution ratio of 2:3 for 24 h (70 °C). On day 2, the samples were transferred to a 50° Brix osmotic solution comprising invert syrup

at a fruit-to-solution ratio of 2:2 for 24 h (70 °C). Finally, on day 3, the samples were transferred to a 55° Brix osmotic solution comprising invert syrup at a fruit-to-solution ratio of 1:2 for 24 h (70 °C). The initial moisture content of the lime slices was 150%–156%.

Hot-air drying was performed using a cabinet-type laboratory dryer. The temperature and relative humidity in the dryer were measured by temperature and relative humidity sensors (Digicon HT-770, Japan). Drying was performed at temperatures of 50 °C, 60 °C, 70 °C, and 80 °C. After the steady state was reached, samples were placed on a grill for drying. In accordance with previous reports, samples were removed at intervals and weighed before they were returned to the dryer. The samples were weighed at 15-min intervals for 1 h, 30-min intervals for the next 1 h, and 2-h intervals thereafter. The moisture loss was determined by weighing the plate using a digital balance (AMPUT Electronic Scale, China) with a measurement accuracy of 0.01 g. Thereafter, the slices were dried in an oven until the moisture content was 31%–35%. The experiment was performed in triplicate. The moisture content was measured by placing a 2–5-g sample in a pre-dried aluminum dish and then drying it in an oven (Bander, Germany) at 103 °C for 72 h. The dry weight was recorded and used to calculate the moisture content:

$$Moisture\ content(\%) = \frac{Weight - Final\ weight\ after\ oven\ dry\ solid}{Final\ weight\ after\ oven\ dry\ solid} \times 100 \quad (1)$$

Mathematic modeling of the drying curve

Five mathematical drying models were evaluated for their fit to the experimental drying curve of the osmotically dehydrated lime slices: (1) Lewis MR = exp(−kt) [3], (2) Page MR = exp(−ktn) [4], (3) Handerson and Pabis MR = a exp(−kt) [5], (4) Logarithmic MR = a exp(−kt) + c [6], and (5) Approximation Diffusion = aexp(−kt) + (1 − a)exp(−kbt) [7]. The moisture ratio (MR) and drying rate of the lime slices were calculated as follows:

$$MR = \frac{M_t - M_{eq}}{M_0 - M_{eq}} \quad (2)$$

where Mt is the moisture content at any time (g water/g dry base), Mo is the initial moisture content (g water/g dry base), and Meq is the equilibrium moisture content (g water/g dry base). MR can be simplified to Mt/Mo because Meq is very small compared with Mt and Mo [8]. This results in;

$$DR = \frac{M_{t+dt} - M_t}{dt} \quad (3)$$

where Mt and Mt + dt are the moisture contents at t and t + dt (g water/g dry base), respectively, and dt is the drying time (min).

The root mean square error (RMSE) was used to determine the deviation between the experimental results and the values estimated by the models. The model with the highest correlation coefficient (R2) and lowest RMSE was determined to have the best fit.

Physicochemical analysis

Color: The colors of the fresh and dried samples were measured using a colorimeter (MiniScan EZ 4500L; HunterLab, Inc.,USA). The Commission International de l'Eclairage color system was used. Color measurements were performed on ten dried samples at three different positions. Three measurements were taken at each position, and the average of 30 measurements was taken for each color parameter (L*, a*, b*). The total color change (ΔE) was calculated as follows:

$$\Delta E = \sqrt{(L_0^* - L^*)^2 + (a_0^* - a^*)^2 + (b_0^* - b^*)^2} \quad (4)$$

where L_o^*, a_o^*, and b_o^* are the color values of the osmotically dehydrated lime slices, and L^*, a^*, and b^* are the color values of the dried samples.

Texture: The texture was evaluated using a texture analyzer (CT3 Texture Analyzer; BROOKFIELD, USA) on fresh, osmotically dehydrated, and air-dried lime slices. The pre-test and test speeds were 1 mm/s, the post-speed was 10 mm/s, and the trigger force was 0.1 N. Five samples were measured and the average of the forces was used for data analysis. The quality attributes measured were

the hardness, cohesiveness, springiness, and chewiness [9].

Water activity: The water activity (aw) of the samples was determined using a water activity meter (LabTouch-AW "BASIC"; Novasina, Switzerland) equipped with a thermoconstanter. The water activity was determined by measuring 2 g of samples held at 25 ± 0.1 °C until equilibrium was reached. Measurements were performed in triplicate. The water activity of the osmotically dehydrated lime slices was determined from the partial vapor pressure of water in a substance divided by the standard partial vapor pressure of water. Water migrates from areas of high-water activity to those of low water activity.

Results and Discussion

Conventional drying kinetics

Figure 1 shows the drying curve for the MR of osmotically dehydrated lime slices over time when dried at 50 °C, 60 °C, 70 °C, and 80 °C. Samples were dried until their weight did not change with time, which corresponded to a final moisture content of about 31%–35%. The hot-air drying times for the above temperatures were 660, 570, 390, and 240 min, respectively. The MR decreased considerably with the drying time, as expected. The drying technique significantly affected the drying time until the final moisture content was obtained. The drying rates of the samples were calculated using Eq. (3).

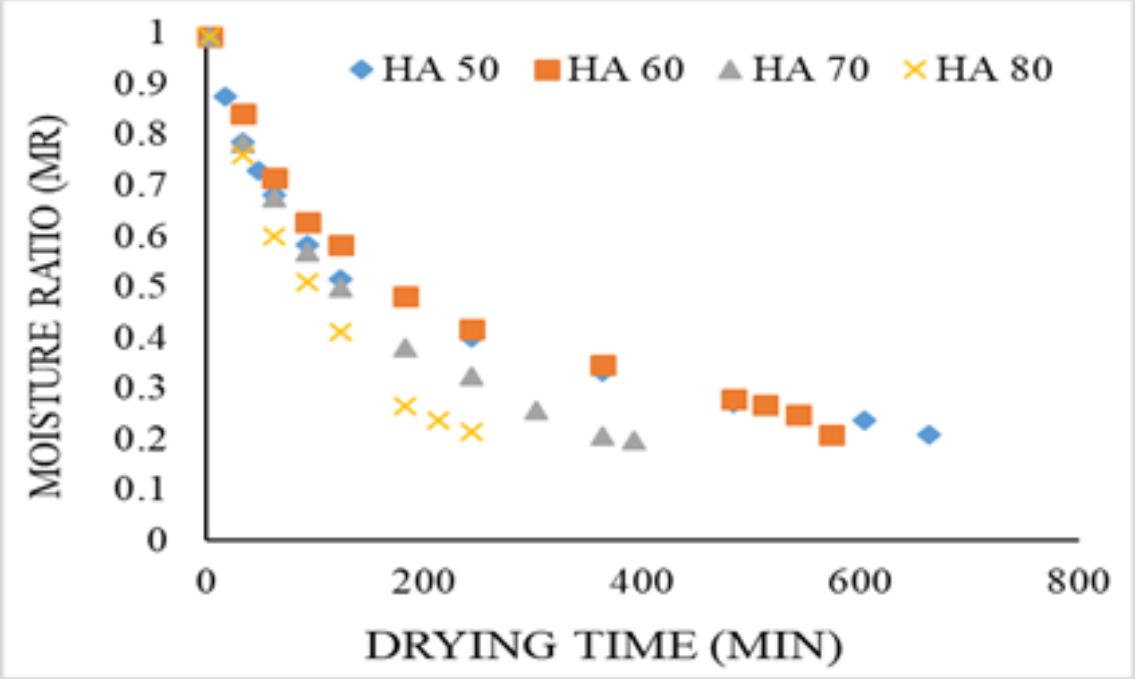

Fig. 1. Drying curves of osmotically dehydrated lime slices during hot-air drying.

Thus, substances with higher water activity tend to support more microorganisms. The Thai Industrial Standards Institute requires dried fruits and vegetables to have a water activity of less than 0.6 [10].

Statistical analysis: Analysis of variance was performed on the experimental data for the color, water activity, and sensory evaluation using software IBM SPSS Statistics Version 2. Duncan's test was used to establish multiple comparisons of mean values, which were considered to have a 95% confidence level of significance ($p < 0.05$).

The experimental drying rates were 0.079, 0.128, 0.245, and 0.354 (g water/g dry matter [min]) at 50 °C, 60 °C, 70 °C, and 80 °C, respectively. The drying rate of the osmotically dehydrated lime slices increased with the temperature of the hot-air drying. Similar results have been reported for vegetables and fruits. [11-12]

Table 1 presents the mathematical models applied to the experimental MR data and the results. The Approximation Diffusion model had the highest R2 and lowest RMSE values. Hence, the Approximation Diffusion model

was selected as the most suitable for describing the thin-layer drying characteristics of osmotically dehydrated lime slices. Figure 2 shows the statistical results for the drying of the samples. The experimental and calculated MR distributions are presented for different drying conditions. The values predicted by the Approximation Diffusion model showed good agreement with the experimental values [13].

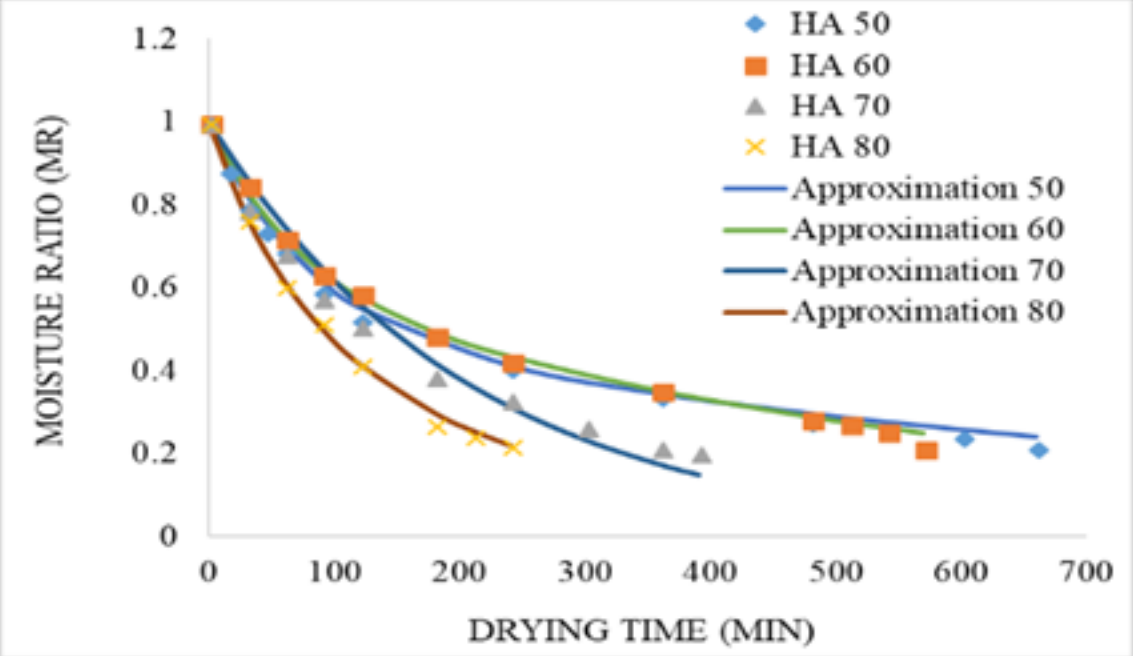

Fig. 2. Experimental and predicted average moisture ratios over drying time for lime slices.

Color, water activity, and texture: The color is one of the most important criteria when selecting a suitable drying technique [10]. Table 2 presents the average values of the color parameters for fresh, osmotically dehydrated, and dried samples as follows: L* (brightness), a* (redness), b* (yellowness), and color change. The fresh lime slices had L*, a*, and b* values of 48.48, −1.79, and 15.30, respectively. The osmotically dehydrated lime slices had a light yellow color with decreased L* (20.73) but increased a* (−1.07) and b* (23.17). The air-dried lime slices had L*, a*, and b* values of 24.70–48.77, 0.18–3.02, and 18.85–28.61, respectively. Increasing the drying temperature from 50 °C to 80 °C increased the values of L*, a*, and b*. Hence, increasing the air temperature led to an increase in the rate of color degradation because of the high level of energy transfer to the slices [14]. This may be attributed to the degradation of red pigments and/or their conversion into dark ones as a result of the Maillard reaction [15]. The total color change (ΔE), which is given by Eq. (4), is a colorimetric parameter extensively used to characterize the variation in color of foods during processing. ΔE had a minimum value of 11.97 for samples dried at 60 °C.

The osmotically dehydrated lime slices that were subsequently dried at 60 °C resulted in a lighter and less green final product with L*, a*, and b* values of 24.74, 2.18, and 22.47, respectively.

Water activity (aw) can be influenced in at least three ways during the preparation of dried, intermediate-moisture, and high-moisture foods. The results of this study showed that the moisture content of osmotically dehydrated and then dried lime slices was 31%–33%. Table 2 indicates that the water activity was 0.47–0.52, which complies with the Thai Community Product Standard [10]. The moisture content and water activity of the product in this study also met the requirements for intermediate-moisture foods, which should have a water activity of 0.7–0.9 and moisture content of 20%–50% [16].

Table 1. Statistical analysis results for drying models.

Model	Condition	Constant	R^2	RMSE
Semi-empirical MR = exp(−kt)	Hot Air (50 °C)	k = 0.200618	0.8702949	0.0054405
	Hot Air (60 °C)	k = 0.179768	0.91429972	0.00326873
	Hot Air (70 °C)	k = 0.270391	0.92938405	0.00189553
	Hot Air (80 °C)	k = 0.270391	0.98560984	0.00033133
Page MR = exp(−kt^m)	Hot Air (50 °C)	k = 0.345482, m = 0.622089	0.988411	0.00048054
	Hot Air (60 °C)	k = 0.337168, m = 0.632945	0.996913	0.00009414
	Hot Air (70 °C)	k = 0.397257, m = 0.693354	0.985386	0.00039086
	Hot Air (80 °C)	k = 0.480372, m = 0.836945	0.99693	0.00007506
Henderson and Pabis	Hot Air (50 °C)	k = 0.882763, a = 0.157454	0.932324	0.002806
	Hot Air (60 °C)	k = 0.870076, a = 0.146777	0.948032	0.001585
	Hot Air (70 °C)	k = 0.903711, a = 0.233709	0.957225	0.001144
	Hot Air (80 °C)	k = 0.965702, a = 0.404502	0.989089	0.000251
Logarithmic MR = aexp(-kt)	Hot Air (50 °C)	k = 0.70424, a = 0.461249, c = 0.274468	0.992386	0.0003156
	Hot Air (60 °C)	k = 0.733949, a = 0.348536, c = 0.228308	0.991687	0.0002536
	Hot Air (70 °C)	k = 0.767716, a = 0.427626, c = 0.194774	0.977973	0.0005891
	Hot Air (80 °C)	k = 0.851427, a = 0.57466, c = 0.142369	0.996887	0.0000717
Approximation Diffusion MR = aexp(−kt) + (1 − a)exp(−kbt)	Hot Air (50 °C)	a = 0.487488, k = 0.760984, k_b = 0.0692292	0.992059	0.0001009
	Hot Air (60 °C)	a = 0.377415, k = 0.875113, k_b = 0.0961965	0.99753	0.0000259
	Hot Air (70 °C)	a = −1.56193, k = 0.346987, k_b = 0.323459	0.923358	0.0020503
	Hot Air (80 °C)	a = 0.629861, k = 0.26922, k_b = 0.999618	0.997103	0.0000667

greatly with the drying temperature, which corresponded with the variation observed previously for the hardness.

Table 3. Textural attributes of dried limes.

Sample	Hardness (N)	Cohesiveness	Springiness (%)	Chewiness (N)
Fresh limes	22.43 ± 11.23^{c}	0.34 ± 0.06^{b}	1.62 ± 0.28^{b}	13.20 ± 9.25^{b}
Osmotically dehydrated limes	7.46 ± 1.89^{a}	0.32 ± 0.07^{b}	1.43 ± 0.09^{b}	3.29 ± 0.71^{a}
HA 50 °C	5.70 ± 2.26^{a}	−0.07 ± 0.48^{a}	0.77 ± 0.25^{a}	0.13 ± 1.42^{a}
HA 60 °C	9.23 ± 3.55^{a,b}	0.5 ± 0.09^{b,c}	2.31 ± 027^{c}	11.57 ± 4.98^{b}
HA 70 °C	10.20 ± 5.73^{a,b}	0.52 ± 0.41^{b,c}	2.51 ± 0.32^{c,d}	28.04 ± 12.37^{c}
HA 80 °C	13.72 ± 2.43^{b}	0.73 ± 0.14^{c}	2.63 ± 0.29^{d}	25.42 ± 5.32^{c}

^{a,b,c} Means at the same row without the same superscript are significantly different ($p<0.05$).

Table 2. Color and water activity of dried limes.

Sample	Color				Water activity
	L^{*}	a^{*}	b^{*}	ΔE	
Fresh limes	48.48 ± 5.00^{c}	−1.79 + 0.58 ^{a}	15.30 + 2.52 ^{a}	-	0.89 + 0.00^{d}
Osmotically dehydrated limes	20.73 ± 4.27^{a}	−1.07 ± 0.44^{b}	23.17 ± 4.56^{c}	-	0.80 ± 0.01^{c}
HA 50 °C	48.77 ± 3.01^{c}	0.18 ± 0.38^{c}	18.85 ± 1.38^{a,b}	28.63	0.52 ± 0.03^{b}
HA 60 °C	24.74 ± 8.50^{a}	2.18 ± 0.60^{d}	22.47 ± 6.90^{b,c}	11.97	0.47 ± 0.03^{a}
HA 70 °C	27.55 ± 15.70^{a,b}	2.50 ± 0.84^{d,e}	23.36 ± 6.63^{c}	17.63	0.48 ± 0.03^{a}
HA 80 °C	35.93 ± 9.74^{b}	3.02 ± 1.19^{e}	28.61 ± 6.12^{d}	15.26	0.48 ± 0.02^{a}

^{a,b,c}Means at the same row without the same superscript are significantly different ($p<0.05$).

Table 3 presents the estimated values of the textural attributes based on measurements made with a texturometer. The hardness is related to the force required for mastication. The fresh lime slices had a greater hardness (22.43 N) than the osmotically dehydrated lime slices (7.46 N). The hardness of the air-dried samples increased with the drying temperature as follows: 5.70, 9.23, 10.20, and 13.72 N at 50 °C, 60 °C, 70 °C, and 80 °C, respectively. The results showed that the texture of the dried samples was more sensitive to the air drying, particularly at the highest temperature. The fresh and osmotically dehydrated lime slices showed little difference in the cohesiveness and springiness. The cohesiveness of the dried slices increased with the air-drying temperature. The springiness, which measures the recovery in height after compression during mastication, was higher for samples dried at higher temperatures. Chewiness increased

Conclusions

Osmotically dehydrated lime slices were air-dried at 50 °C, 60 °C, 70 °C, and 80 °C, and the effects on the color, texture, and water activity were evaluated. The Approximation Diffusion model fitted the drying kinetics the best at all temperatures considered. The thermal processes caused important changes to the color, water activity, and texture. Based on the results, increasing the drying temperature significantly increases the color values of the dried lime slices. The water activity was less than 0.6 at all drying temperatures. Increasing the drying temperature increased the hardness, cohesiveness, springiness, and chewiness of the dried product. A drying temperature of 60 °C was concluded to be most suitable for drying osmotically dehydrated lime slices. In the future work, results on the effect of various

drying process on drying characteristics and quality of products will be reported.

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MULTIPLICATION UNIT BASED ON FLOATING POINT USING SD NUMBER SYSTEMS

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ABSTRACT

To provide better digital signal processing (DSP) processing in light of increasing demands, it is required to design multiplier units that operate with less power. The bigger radix Booth multiplier suffers from reduced computing capacity, but the multiplier unit's generation unit, which creates multiples, provides a considerable design challenge to the multiplier unit's implementation. This research provides a radix 16 Booth multiplier design that utilizes little energy when working with 128-bit floating point integers (FPs) which contain both signed and unsigned numbers. an optimal partial product producing unit was researched, and it was designed to (n, r) (n 1). This cuts down on expenses and efforts. In designs with 16-bit signed, unsigned, and mixed radix-16 integers, the proposed 128-bit non-pipelined multiplier raised energy 36.02 percent, 5.39 percent, and 37.88 percent, while the suggested 128-bit pipelined multiplier only raised energy 45.14 percent, 53.30 percent, and 18.21 percent.

Keywords: *Digital Signal Processing (DSP) processors, Floating Point, SD Number Systems, Pipelining flip-flops, R adix booth multiplier.*

Introduction

Binary digits are employed to denote quantities. Floating point formats are categorized into two primary types: binary and decimal exchange. For all applications dealing with DSP, a floating-point multiplier is absolutely necessary. Binary formats contain different number precisions as well as binary representations. These different representations are also defined by the IEEE-754 standard. For S, E, and M, we need 1 bit, 8 bits, and 15 bits respectively, with S getting 11 bits and M getting 12 or 15 bits. A number must have the digit ‘one' in the most significant digit position to be deemed normalized. Microprocessor arithmetic units, multimedia, and optical signal processors all use digital multipliers. There are many ways to build faster and low-power computing products. A significant wait is required after every step of multiplication because of the multiplication's time-consuming single step, as depicted in Figure 1. First, some components are put together, and then they are placed in two rows using a partial product reduction tree in the second stage. To bring the two partial product rows together, a rapid carry propagation adder was used in the third stage. They used two approaches to decrease the number of components in the partial product reduction. The two techniques involved a 4-2 compressor technology, as well as an extra bit design. The reduction of partial product in the partial product reduction tree is made feasible by the use of both procedures. A binary number that can be represented in multiple ways is called the RB number, which is specially developed for signed digit arithmetic. In microprocessor and embedded system architecture, binary multipliers are key components; designers have over time improved their design, starting with optimization in the 1980s[3–6]. [7] reports that today's binary multiplication routines are as follows: The final results can be obtained with support from multi-operand addition techniques (such as carry-propagate addition). This method starts like this: 1) Multiplying each digit in the multiplicand by each digit in the multiplier, which produces a given number of partial products; 2) using only two operands from the array of partial products and adding them together to achieve the final result. In order to determine the amount of unfinished goods, it is important to comprehend the recoding process. Minimally redundant digit sets are typically used to code binary operands. The digits can be translated from 0, 1, ..., r/2 to r/2, ..., 1, 0, 1, ..., r/2 in order to cut down on radix-r multiplication complexity. Unsigned representation generates (n + 1)/m partial products, while utilizing n-bit operands with two's complement representation will provide n/m partial products. Radix-4 is now based on a new algorithm. Radix-8 coding yielded lesser

throughput with higher latency than Radix-4 recoding [4]. Also, the radix-16 multiplier requires even-numbered multiples, is more complicated to wire, and is regarded as the most viable solution for low power in a modern microprocessor architecture, even if it is more complicated than Radix-4 two's complement multipliers (seen in [1] and [2]) demonstrate progress. In n-bit operands, there are two partial products, hence if the partial product array needs to include only two items with extra room for future growth, there needs to be an upper bound of two elements (in just one of the columns). To calculate the two's complement of the most relevant partial product, the height of the single-bit row is gained by adding an extra bit (when the recoded most significant digit of the multiplier is negative). In this paper radix-16 modified floating point multiplier is proposed for 128 bit signed numbers to reduce the latency of multiplication process for large numbers and also reduce the area. These improvements will be helpful in making "optimal" architecture possible. Let's discuss the layout of the paper. Section II will cover the Radix-N Booth Recoded Multiplier, which is simple and utilizes standard arithmetic. Section III has more information about radix-n encoding. Sections IV, V, and VI successively discuss our methodology, evaluations, and findings.

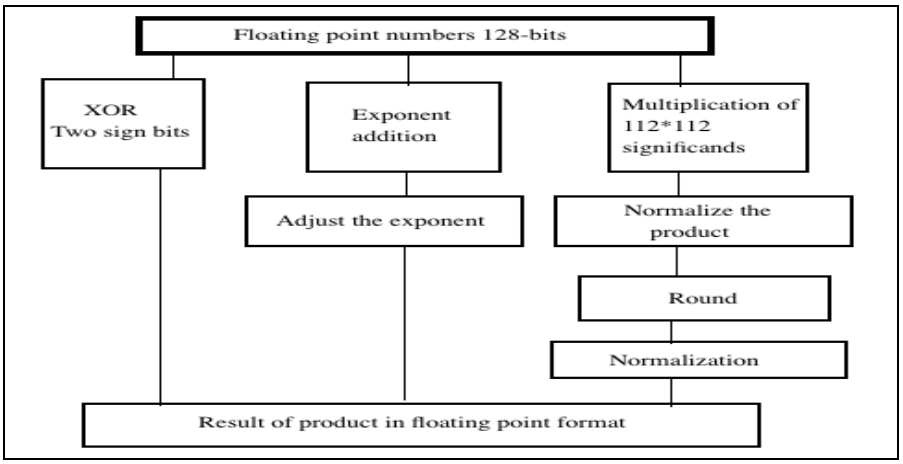

FIGURE1. Standard floating-point multiplier.

Related work

Most research into the matter has been conducted to find ways to shorten the generation device's critical path and reduce the amount of energy absorbed by the reduction unit. For more efficient design, [3] combined the rapid properties of Radix-4 with the low-power properties of Radix-8 using Radix-4 and Radix-8 encoding techniques. The design uses both pipelined and independent signed number multiplication [4]. a radix-8 multiplication of multiples of 3x with higher accuracy The decreased adder delay makes this design generate three times faster and 20% smaller. Based on the design for the 8-bit radix multiplier mentioned above, the authors of [5] designed the Floating-Point Unit (FPU) generator. Despite being more energy efficient, the new CSA-tree reduction unit's ill-conceived design wastes power and produces an overall efficiency drop of 17.8 percent. [6] proposed a multiplier unit that does signed and unsigned multiplication, sometimes known as a MAC (Multiplier Accumulator). The implementation incorporates an external control signal, which implements the capacity to execute Radix-4 Booth encoding, a 4-bit Booth encoding technique. [7] included a 16-bit Booth code system, which cut the number of partial product arrays in half (from n + 1/4 to n/4). Because it contains fewer error correcting bits, it will consume less data. Because of Pipelining, the power consumption of the multiplier decreased, but the generation unit's size increased. The use of Nannarelli [8] (which was derived from radix-16 implementation) for floating-point multiplication is noted here. The multiplier unit's energy consumption was significantly decreased due to the design. One option for decreasing combinational circuit worst slack is to boost throughput with pipelining. Therefore,

the energy consumption of the design unit will be impacted. Though higher radices with pipelining appear in some implementations of microprocessors, they aren't as common as the Booth2 [9–15]. [3] describes the creation of a radix-16 based booth multiplier unit, which is capable of doing both signed and unsigned multiplication operations depending on the signal's sign. This unit is able to perform such operations because of the method described here. The aim of this paper is to make this technology better for saving energy.

Background

The following are the different encoding mechanisms of the adapted Booth encoding technique described as: The Radix-4 Modified Booth Encoding (MBE) is the best choice for limiting partial results. It inspects three bits of an n-bit input, allowing it to split the array in half, thereby allowing for ease in the construction of the multiplicand. The three values can be interpreted as 0, +1, or +2. In the example when X equals zero, the outcome is an empty vector. The result of the computation will be influenced by input parameters. Everything was created utilizing straightforward, easy-to-do shifts and operations. As the range increases, the algorithm will become less energy-intensive.And the Radix-8 MBE scans four bits of the multiplier input at a time in order to minimize the length of the partial product array by one-third. Almost any digit set may be created by shifting and then complementing. The only exception is the pre-computed multiple of 3x, which requires shifting and then adding. Then the Radix 16 Modified Booth Multiplier just use a different table than the other radix multiples. Each of the organizations was assigned a unique number ranging from zero to the maximum of what was supported by the server. In the multiplication process, smaller partial products are formed by combining multiplier bits. The partial product array was created using a multiplicand multiplication corresponding to the encoding digit collection {0,±1A,±2A,±3A,±4A,±5A,±6A,±7A,±8A}. To make A's quantities relevant, the multiplicand is moved by 1, 2, and 3 bit spaces, respectively. RCA (Ripple Carry Adder) adders (as seen in [7]) are used to encode multiples of 3A, 5A, and 7A. Simply shift the 3A multiple to the left to achieve 6A. In order to reverse negative numbers, first negate their code values. To avoid using a lot of processing time, run through a pre-calculation on the variables during the encoding and generation of these multiples. In order to have each partial product be (n + 4) bits long (for 16-bit input, the partial product bit length should be of 20 bits). To increase the number of decimal digits in which it may multiply numbers, the processor requires one bit to represent the value of the number and three extra bits for the multiplication. To make two output vectors, the reduction unit has to compress all of the partial products. The weights are reapplied in log2n stages, once the tree has been shortened. The application of partial products is carried out in parallel by employing the same weights. The Booth Encoder's Radix-16 functionality is well known for doing 16-bit signed multiplication, producing four partial products. The two partial products involved can be combined using one of two 3:2 adder trees, either one of which has only two stages (each with partial products) and an identical overall size (making it equal to a 4:2 adder tree that uses partial products).

Proposed RADIX -16 floating point-based booth multiplier

The multiplier structure consists of exponent addition, significand multiplication, and sign calculation, as seen in Figure 1. A result must have a 1 in the MSB to be expressed in normalized numbers (leading one). In order to double a float, do the following**:**1- (E1 + E2 – Bias) the outputs, can help the pattern classification process by having the average of each sample prior to each decimation stage**.** 2- Obtaining the mark of XOR. 3- Getting the highest-order of the significant to equal 1. 4-To meet the demand for significant digits, rounding up to an amount equal to the number of available bits. The graphic displays a block diagram of the floating-point multipliers, double, single and quadruple. The image includes a signed 128-bit value and Booth algorithm, both of which are found in the algorithm reference. The multiplier accepts two values in the form of floating-point numbers with 128 bits each. To begin, we have to split up

the numbers into three sections: the base symbol, the mantissa, and the exponent. The XOR logic can be finished with nothing else but for the XOR. The bias is eliminated after adding and subtracting the exponents. The Mantissa multiplier block multiplies numbers. If the MSB of the normalized Mantissa is missing, it will be added in the process. An item's position in the exponent will affect its location, and corresponding changes are required if this is to be altered. This approach is faster and more efficient, because it uses a method of signifying integers called 2's complement encoding.

TABLE1. Radix-16 partial product generation.

A_{i+3}	A_{i+2}	A_{i+1}	A_i	A_{i-1}	PP	Using Shift & Add
0	0	0	0	0	0B	0
0	0	0	0	1	1B	Multiplicand
0	0	0	1	0	1B	Multiplicand
0	0	0	1	1	2B	Shift left Multiplicand
0	0	1	0	0	2B	Shift left Multiplicand
0	0	1	0	1	3B	Shift left Multiplicand+ Multiplicand
0	0	1	1	0	3B	Shift left Multiplicand+ Multiplicand
0	0	1	1	1	4B	Shift left 2Multiplicand
0	1	0	0	0	4B	Shift left 2Multiplicand
0	1	0	0	1	5B	Shift left 2Multiplicand+ Multiplicand
0	1	0	1	0	5B	Shift left 2Multiplicand+ Multiplicand
0	1	0	1	1	6B	Shift left 2Multiplicand+ Shift left 1 Multiplicand
0	1	1	0	0	6B	Shift left 2Multiplicand+ Shift left 1 Multiplicand
0	1	1	0	1	7B	Shift left 2Multiplicand+ Shift left 1 Multiplicand+ Multiplicand
0	1	1	1	0	7B	Shift left 2Multiplicand+ Shift left 1 Multiplicand+ Multiplicand
0	1	1	1	1	8B	Shift left 3
1	0	0	0	0	-8B	Shift left 3 with 2'complement Multiplicand
1	0	0	0	1	-7B	7*(2'complement Multiplicand)
1	0	0	1	0	-7B	7*(2'complement Multiplicand)
1	0	0	1	1	-6B	6*(2'complement Multiplicand)
1	0	1	0	0	-6B	6*(2'complement Multiplicand)
1	0	1	0	1	-5B	5*(2'complement Multiplicand)
1	0	1	1	0	-5B	5*(2'complement Multiplicand)
1	0	1	1	1	-4B	3*(2'complement Multiplicand)
1	1	0	0	0	-4B	2*(2'complement Multiplicand)
1	1	0	0	1	-3B	2*(2'complement Multiplicand)
1	1	0	1	0	-3B	1*(2'complement Multiplicand)
1	1	0	1	1	-2B	4*(2'complement Multiplicand)
1	1	1	0	0	-2B	4*(2'complement Multiplicand)
1	1	1	0	1	-1B	3*(2'complement Multiplicand)
1	1	1	1	0	-1B	1(2'complement Multiplicand)
1	1	1	1	1	0B	0

Shortening the number of partial products by half cuts down on the lengthy multiplication methods. Sixteenth amendment Booth's procedure subtracts the outcomes of the binary numbers' one's complements to provide results for multiplications. Signed integers are encoded into 2's complement because of the Modified Booth algorithm, which eliminates the multiplication product generation resulting from partial products. Hard multiples computed in the generation unit become a problem due to excessive area and latency that follows. We have already discussed this matter. The final level of the proposed multiplier architecture uses a parallel prefix adder, which allows carry propagation delays to be shortened. This added versatility is granted by lower latency, as well as additional adder designs. The 16-bit multiplier had five partial products in it. In order to finish up, two partial products need to be joined together to generate the output vector sum and carry. Standard layouts can be created from partial items by adding them with the help of a carry-save adder tree, which makes use of a 4:2 adder tree when only partial products are available. The first four half pieces have a 4:2 CSA tree in the design. We examine the MSB bit in the reduction unit to determine the final partial product. The elimination of the third and second adder stages of the reduction unit (which causes a minor delay and power loss). The value is always 0001 for an unsigned operation, but is 0000 or 1111 for a signed operation. The results of the next four procedures will be either one or

zero. Even if unsigned multiplication is implemented, the unusual case where the partial product is considered to be true is not optimal. The MSB (Most Significant Bit) component of the output 32-bit vector is affected only by this 16-bit multiplicand fragment. The final total of the proposed multiplier is obtained using a 128-bit CLA adder with an adder. The intermediate product result will either return (with a zero value in the signal) or it will be altered (with a nonzero value). In this way, when the signal is zero, nothing happens; when it is nonzero, it instructs the result to apply the multiplicand to the MSB section of the intermediate product result [16]. These advancements in efficiency have delivered better Radix-16 multipliers than the usual kinds**.Pipelined Style:** Figure 1 shows that the multiplier unit has been split into three sections to increase throughput. A new pipelined stage was inserted at the partial product generation unit, as well as one midway between the product reduction stage and the final summation**.**

Evaluation

To model the Booth encoding multiplier designs and the Radix-16 multiplier design, we used Cadence's Verilog compiler. The generation units of signed, unsigned, and mixed signed/unsigned partial product series were utilized to create the creation of the generation units. This was accomplished by implementing the generation units utilizing the radix-16 Booth encoders. To minimize incomplete product arrays, early CSA uses a CSA tree structure, while the final addition is done using a CLA. Table 1 shows that, in unsigned and combinational signed/unsigned radix-16 multiplication operations, traditional multiplier design units suffer longer critical paths and higher energy consumption because of added adders, carry generators, CSA stages, and ALUs. Multi-operator calculation is much more expensive for larger roots. A simple example of a part with this problem is a 16-bit multiplier with three adders which results in a delay in the partial product generation unit, leading to the maximal delay of the multiplier, and so creating the multiplier's worst slack. Table 1 demonstrates the delay and area used for different floating-point multiplier types given an input word size of 128 bits. The Kogge stone adder is renowned for having a long delay and lower power capacity despite having a short critical path. The suggested architecture includes the FP multiplier to reduce latency and energy consumption. The following information, listed in Table 2, reveals that Ladner Fischer's multiplier unit design will be superior to competitors in the field, power, and delay categories. This research effort focuses on reducing the importance of the producing unit in the power station. See the number of adders required to make each partial element of the generating unit's hard multiple generators, as illustrated in Figure 1. We talked about this previously**.**The suggested generator unit uses a radix-16 encoder to attempt to eliminate the multiplier block's worst slack, which is the generator unit's multiplication unit having an adder delay. Figure 2 shows a 13%, 13% , and 18% improvement in latency for signed, unsigned, and combination signed/unsigned multiplier units over the previous unit which sacrificed speed for power savings and size. The design for the 128-bit multiplier unit has made a huge leap above previous methods of doing calculations because of the 27.78% improvement over previous approaches in many different areas, such as critical path, energy, and overall speed**.** A pipeline that has several stages This and all other radix-16 systems suffer from the fact that the initial step of the multiplier is so crucial to the overall pipeline. The conventional radix-16 multiplier results are shown in Table 2, compared to the standard multiplier arrangement. Because the second stage changes less, there is a large power savings: 25.74%, 21.30%, and 28.42% higher energy efficiency.

Conclusion

Although the system's constraints limit pipeline length multipliers to a nominal voltage system, the problem is that pipeline width is difficult to increase in digital multipliers due to constraints. To do this, we need to perform optimizations at the code level. This study introduces a one-bit shortening strategy that can double the speed of multipliers while keeping 128-bit floating point calculations. A pipeline multiplier may be better designed to take advantage of flexibility in the reduction tree. In cell-based architectures, a

delay-free compression ratio of n = 128 is possible. A tempting option for low-power systems due to its decreased complexity and depth, Radix-16 Booth recoded multipliers may become ubiquitous for power-constrained designs that have wire overheads that are rising.

TABLE 2. Summary of the latencies for the implementations of floating-point multiplier

Latency in FPM scheme	FP multiplication operation	
	t_{nd2}	ns
Radix-4	84	8.4
Radix-8	611	6.11
Radix-16	432	4.32

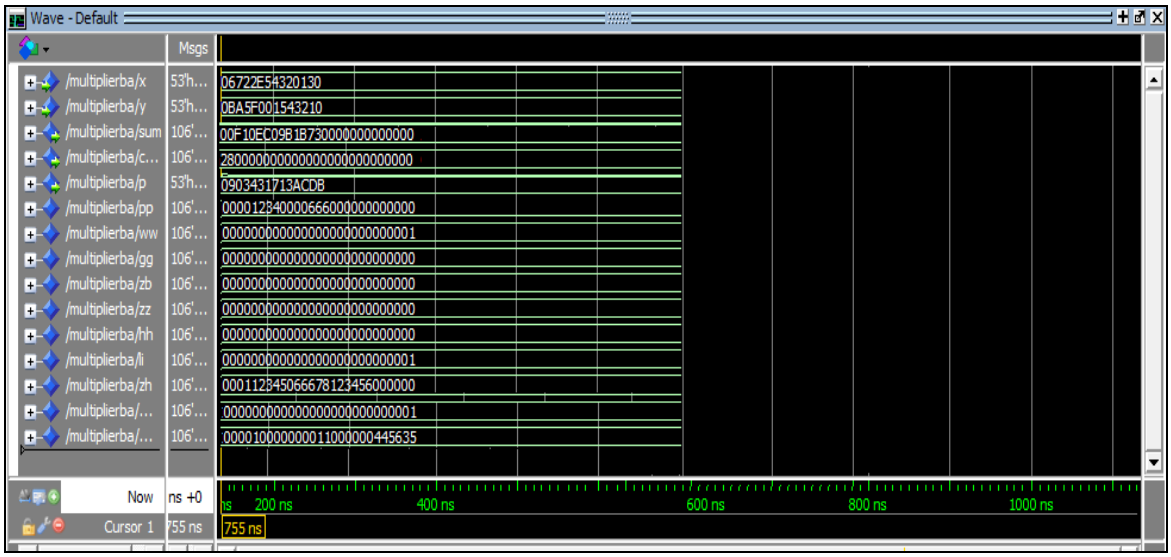

FIGURE2. Radix-16 floating point multiplier results.

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SOFTWARE PRODUCT MAP REVIEW MRIPNAS DESCRIPTION DESIGNED FOR MAPPING RELIGIOUS COMMUNITIES OF THE NORTH AZOV

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ABSTRACT

The article reveals the problem of monitoring religious institutions and practices in the development of civil society. Religious identity, religious knowledge, values and behaviour of a believer can act as a means of preserving and reproducing spirituality and morality, religious identity of human existence. The authors emphasize that the most important task of the dialogue, in particular of religious identities, must be its goal – understanding. This requires its functional definition not as just communication, but as explication of contradictions, uncertainties, and the unacceptability of any positions of the representatives of religious cultures. The article is devoted to the description of the software product implementation, which allows to organize the following functionality: 1) general map review; 2) creation of regions on a general map, transition to designed regions; 3) overview of the map of the selected region; 4) filling in and displaying user information about the region; 5) binding information on the map of the region; 6) editing information; 7) multilingual interface of the program. This program will provide the opportunity for further researches to visualize in detail the locations of religious communities in the region for monitoring their activities, to identify trends in the spread, decreasing or disappearing of a particular religion, to substantiate the dialogic culture development dependence of increase religious maturity level of society. The authors emphasize that modern scientific discourse is focused in interreligious dialogue on the rational organization of communication and its social effectiveness, on the disclosure of ideological contradictions.

Keywords: *Interreligious dialogue, informational support of dialogue interaction, communication, monitoring.*

Introduction

Describing the modern life, we note that the problem of the spiritual formation of an individual today is extremely important. This state of spiritual and moral degradation of society was caused by the alienation of individual from his own inner world and spiritual needs, the crisis of the former ideals and norms of behaviour. It is known that a person is going through crisis because of stop of spiritual growth, because of loss of spiritual values, in particular the religious, which form the basis of human existence. Negatively affecting all without distinction, spiritual crisis is aggravated by situations of misunderstanding, conflict, danger.

It becomes evident that under present conditions all the various external manifestations of religiousness and spiritual essence of a person are complicated by the lack of development of target facilities, principles, and potential of cultural, educational and pedagogical means. They allow optimally promoting the subjects' dialogical life style involved in the cultural and educational sphere, in which the religious system parameter occupies a prominent place.

In all formations of the past, there were social factors of the existence of religion: the low level of industry, accompanied in one way or another by the human weakness before nature, the human exploitation, etc. These social factors not only gave rise to religion, but also shaped its form, giving it a concrete, well-defined look. As long as societal roots of religion exist in society, it will not disappear. However, along with the changes in social circumstances, religion also changes: new roots nourish new religious ideas. At the same time, in some countries religion continues to be denied, and the capital of

religious identity is significantly reduced. Until today, it is unclear what kind of religious communities lives in different countries of the world.

Taking into account that social changes lead to the movement of religious consciousness, cause its reorganization, one form of religion is replaced by another, the question of monitoring religious identities, which is closely connected with social conditions, arises. The state of social relations in the socio-economic formations of the past did not only dictate the formation and development of a system of religious beliefs, but also determined the possibility of its spread in breadth, the subordination of new territories. But if there aren't any social conditions for perception of a religion, its implementation, no matter how intensive it is, does not give the expected results.

If society is not in accordance with the religious system, it builds boundaries for its dissemination. And it has never been as actual as now. Any stage of the religious development of society is not an arbitrary invention, but a product of its era. Religion is directly dependents on the society: it is either produced and stimulated, or, conversely, limited by it. At the level of culture, humanity can't be uninterested in finding an agreement in resolving controversial issues, preventing the escalation of violence in resolving controversial issues, which can lead to conflicts and other threatening phenomena.

It should also be noted that the problem of monitoring religious relations, which is reflected both in theory and in practice, should be decided internationally. Through monitoring it is possible to measure the axiological component of human existence that is presented in the recognition of God and the production of value priorities, moral guidelines, constructive imperatives, etc.

At the international level in the field of spiritual and moral education of young people, raising the cultural level of the population the most significant and important documents are: Universal Declaration of Human Rights, Declaration on the Elimination of All Forms of Intolerance and of Discrimination Based on Religion or Belief, Convention on the Rights of the Child, Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities, Declaration of Principles on Tolerance, Declaration and Programme of Action on a Culture of Peace, Memorandum of Understanding for establishing a dialogue on Regional Policy and development of regional cooperation between the European Commission and the Ministry of Regional Development and Construction of Ukraine.

Applied developments, in which scientists would offer the mechanisms and algorithms of management or implementation of communication and dialogue and in the concrete context of religious practices, are not sufficient. It is worth mentioning the works of the authors who explicitly and substantively explored the essence of communication and dialogue as ways of consolidating communities of different levels in concrete forms, in particular in the socio-cultural sphere and in different management situations (Ball, 2006; Habermas, 1985; Ipgrave, 2001; Proleiev, 2014; Schmidt, 1998; Shveytser, 1992 and others). The religious map of the world is a complex structure due to ethnic and multicultural features. Therefore, there is a difficulty in developing appropriate software that could visualize this structure, in particular, for example, using vision-based technology. Vision-based technology automates tasks that can be performed by the human visual system (Catbas, et al, 2018; Kerdvibulvech. 2020; Rungruanganukul, Siriborvornratanakul, 2020; Siriborvornratanakul, 2018). Due to the heterogeneous nature of social, historical, psychological factors of national and spiritual development of society for the visualization of religious communities it is necessary to use only software with the addition of a database created on the basis of preliminary surveys and descriptions of the population. However, the prospects for further development for Mapping Religious Communities include integration with deep learning systems.

Presenting the main subject matter

Established by God for compulsory implementation religious values, as ideals and standards of behaviour, are not only components of culture, but also a certain "science of life", since they form a development methodology, regulate relations with society, nature, form the

process of meeting needs and personal interests. In this sense, everyday life of a believer can fully be considered religious practice, although practice as a way of life is compared, as a rule, with a scientific outlook based on scientific principles.

According to the numerous studies of religious relations, people who build together common life for centuries (we mean the Northern Azov Sea) can call their land "the land of a peace treaty". Such territories should be studied and their experience of peaceful coexistence should be spread to other countries.

The repeated mention of the fact that the main task of dialogue, in particular of religious identities, must be its goal - understanding - requires its functional definition not as simple communication, but to explicate the contradictions, uncertainties, and the unpredictability of those or those of the representatives of religious cultures. This requires its functional definition not as just communication, but as explication of contradictions, uncertainties, and the unacceptability of any positions of the representatives of religious cultures.

In order to provide a detailed visualization of the locations of religious communities in the region for monitoring their activities, we have developed a special computer program MapReview_MRIPNAS. Due to this tool it is possible not only to visualize dialogical cooperation as humanitarian technology but also to understand and use different terms ("multicultural dialogue", "intercultural dialogue", "dialogue education", "multicultural education" and others) that function in academic communication sphere.

Means of realization: Development environment – Microsoft Visual Studio 2013 Ultimate, programming language – C#.

RESULTS AND DISCUSSION

Description of Methods for the Tasks Implementation.

There must be two directories in the Program Directory: "MapReviewData" (information is processed for the task, which allows to organize: operation of general map review; creation of regions on a general map, transition to designed regions; overview of the map of the selected region; filling in and displaying user information about the region; binding information on the map of the selected region; editing information) and "Language" – user interface language files are processed (multilingual interface of the program).

For General Map Review in the first directory you need to save the image file with the required map of the general region; to the desired filename – "region.bmp". The saved image will be displayed in the main window of the program. Created regions will be mapped.

For Creation of Regions on a General Map, Transition to Designed Regions you must press the Alt and Control keys on the keyboard, and then left-click on the map in the place where you want to create a new locality.

A window for naming the new region will open. Additionally, in the same window, the additional possibility of displaying the name of the region on the general map is realized.

After entering and confirming the name in the first directory, a subdirectory with the specified region name will be created; if a region with this name already exists – creation of the region will be interrupted. After the region is created, a triangle will be displayed on the general map (with the name of the region if the option was enabled).

To jump to the created region, you need to click on the triangle of the desired region. A window containing user information about the region (to the left) and a map of the settlement (to the right) will be opened.

To display the map of the selected region in the Region Directory, you must save the image file with the map of the desired settlement. The filename is "subregion.bmp".

If available, this file will not appear in the list of region information.

The program has the ability to download a map-image for the desired region. Map review is required to complete task binding information on the map of the selected region.

In the region overview window, downloading files to the catalog of the selected region is implemented. It is possible to download any files up to 2 gigabytes (technical limit); if necessary, download larger files – you need to put your files in the directory of the target region yourself. After download, file names will

be displayed as a list.

There are three ways to start-up downloaded files: double-click on the list of files; right-click on the list of files, and in the menu click on the button to start items; in the information menu, click on the button to start items. All three methods run programs installed in the system by default, which process the selected files.

In the region overview window it is possible to bind the selected data to the map of the open region. To bind items on a map, a map of the region must be loaded.

You can perform binding in three ways: right-click on the list, and click on the button to bind the item on the map; in the information menu, click on the button to bind the item on the map; right-click on the map where there is no binding, and click on the button to bind the item on the map.

When using the first and the second binding methods, it is additionally necessary to click on the map where the element must be bound.

One item can be bound in several places in the region's map.

If you right-click on the map in the place where the item is bound, the context menu with the option to startup the selected item will be displayed as well as the removal of the selected bind.

The following opportunities are included in this task implementation: changing the names of information files – useful in cases when it is necessary to change the name of the file that has already been bound to the map; delete files; change the name of a region; remove the region.

In the second directory (Language) it is necessary to store the interface language files (Multilingual Interface of the Program MapReview_MRIPNAS) as well as the file with the reserved name "_select.txt", which should specify which language file should be used in program.

The program implements the function of selecting the interface language from the existing in language parameter directory. To open the interface language selection window, while viewing the general map (Section 1.1.) You must press the Control+L key on the keyboard. After selecting and applying a new interface language, the program will be restarted with the saved interface language parameter.

Example of Program Work MapReview_MRIPNAS. Operations for Running of a Program MapReview_MRIPNAS

When starting a program, the availability of the initial required data is checked: availability and correctness of language parameters; if data error, the files are restored by default and the message "Error processing language settings" is displayed; availability of the data directory of the program; the presence and correctness of the file of the general map-image;

After successful completion of all checks, the ***main window*** opens with the downloaded map. The main window is shown in **FIGURE 1**.

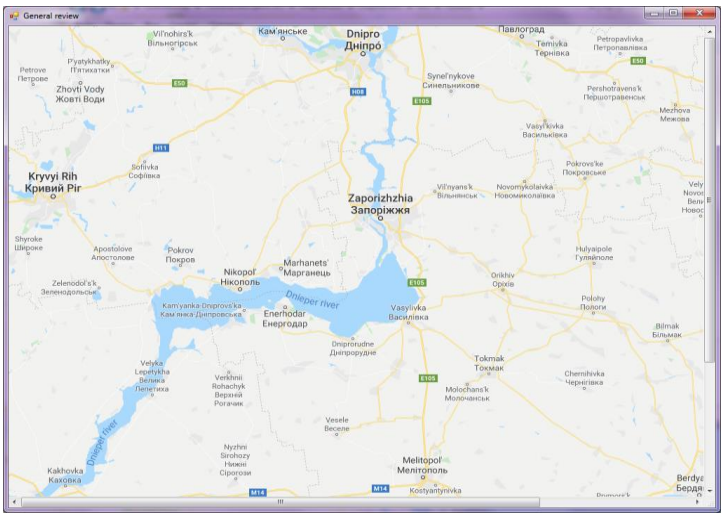

FIGURE 1. The main window of the program

To create a new region on the general map you must press the Alt and Control keys on the

keyboard, and then left-click on the map in the place where you want to create a new locality.
The name field is initially empty, the map name parameter on the map is off by default, and the application button is inactive. After application, the catalog with the given name will be created in the data directory of the program; a triangle (with the name of the region if the option is on) appears on the general map, which indicates the region created. An example is shown in **FIGURE 2**.
Note: if the region with the specified name already exists. The region with the existing name will not be re-created.

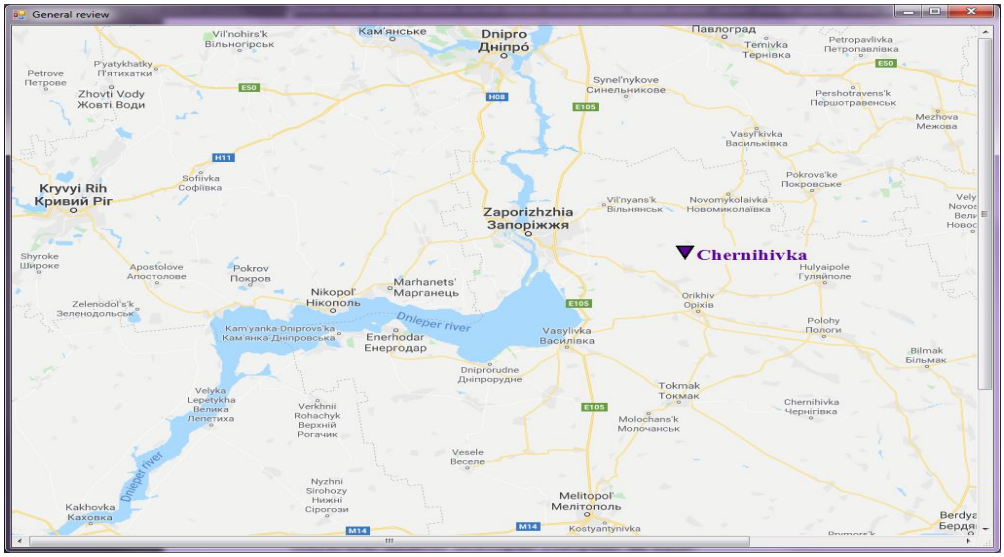

FIGURE 2. Example of region created

Region Review Window. To jump to the created region, you need to click on the triangle of the target region. A window with an example of filling in the region information is shown in **FIGURE 3**.

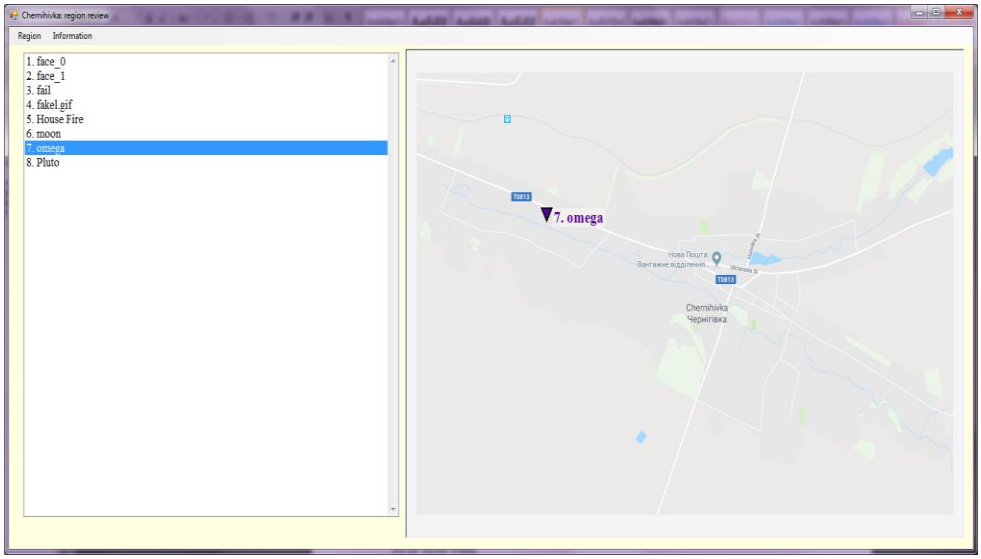

FIGURE 3. Example of filling in the region information

For binding an element on a region map you must do the following: select one element to be bound; right-click on the map in the place where you want to bind the selected element; there should be no binding in this place on the map; Click on binding button.

If you delete an open region map, all information bindings will remain in the service file and will be displayed on other downloaded map.
In case of failure, the region will be deleted from the utility file, but all data will remain and

will be displayed after creating a region with the same name.

Conclusions

The study of works on inter-religious dialogue proves that the scientific discourse focuses in inter-religious dialogue on the rational organization of communication and its social effectiveness, on the disclosure of ideological contradictions.

We transfer the problem of discourse into cultural and educational sphere in which the educational discourse prevails, the essence of which, in turn, is determined not as a formalized system of transmission of scientific knowledge, but as a problem field of knowledge deepening for subjects of the discourse, which testifies to them temporary status as agents of cognitive dialogue or information exchange knowledge process.

The interaction of certain principles becomes clear by computer program MapReview_MRIPNAS visualization. In prospect, we plan to add expeditionary materials.

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