

SCIENTIFIC RESEARCH OF UNIVERSITY LECTURERS IN VIETNAM UNDER THE CONTEXT OF INTERNATIONAL ECONOMIC INTEGRATION

Pham Anh Tuyet - East Asia University of Technology, Vietnam

ABSTRACT:

Currently, every university has two main and essential tasks: education and scientific research. These two activities are organically related, representing the fundamental strategic missions of universities. Among them, active participation in scientific research activities by university lecturers is one of the important, obligatory, and necessary measures to enhance the quality of education and better meet the increasingly stringent societal demands. Scientific research has become a driving force for a country's development and the backbone of the higher education system in the context of international economic integration. This necessitates university administrators to explore new models and management approaches to enhance the scientific research capacity of lecturers.

Keywords: university, lecturers, capacity, scientific research, international economic integration.

1. Introduction

In the context of the Fourth Industrial Revolution, which is progressing vigorously and has a significant impact on the higher education environment, universities are not only places for knowledge dissemination but also for the creation of new knowledge. They serve as centers for innovation and creativity (Do Anh Duc, 2019). Therefore, scientific research activities at universities have become more crucial than ever. Scientific research has become a driving force for a nation's development and is the backbone of the higher education system in the context of international economic integration. This necessitates university administrators to explore new models and management approaches for scientific research to adapt to the rapid changes in society. Due to the importance of scientific research at universities, research on the research capacity of university lecturers is attracting increasing attention from researchers and policymakers in both developed and developing countries (Jung, 2012; Hedjazi and Behravan, 2011). Many studies have focused on elucidating the factors influencing the research capacity of university lecturers, using various approaches, methods, models, and theories. However, the number of studies concentrating on the factors affecting the research capacity of lecturers in Vietnam using modern research methods remains limited.

2. Research Content

2.1. Opening up research directions on the research capacity of university lecturers in the context of international economic integration

The Fourth Industrial Revolution has highlighted the role of scientists in the production process to transform innovations and knowledge into production, creating a new wave of innovation. Besides scientists, it involves various other components such as engineers, technology companies, startups, etc. A review of foreign studies shows that there have been numerous research works worldwide on the factors influencing the research capacity and research outcomes of lecturers, as well as criteria for measuring and evaluating research results and research capacity. Some issues have been well-established, while others are still incomplete and require further research in the context of the Fourth Industrial Revolution. These issues include:

Research results abroad indicate that the research capacity of lecturers is influenced by a range of factors such as policy allocation of workload (teaching, research, service), reward systems, income, leadership style, democratic and shared management, strategies, vision, research resources, research support from organizations, the research environment within the department, the number of postgraduate programs, and the research culture of institutions. Although it seems that there is a lack of concentrated research on the factors affecting the research outcomes of lecturers, many specific factors have been addressed in related documents, serving as independent variables in various quantitative research models. These factors need to be inherited and used as measurement scales in research models focusing on the research capacity of university lecturers in the context of the Fourth Industrial Revolution.

Research results abroad demonstrate that many factors influencing research capacity have been integrated into research models that analyze the institutional factors affecting research capacity, research outcomes of lecturers, including research objectives, leadership, research support, policies for lecturers, research resources, and more. However, both globally and in Vietnam, there seems to be a lack of concentrated research on the factors affecting the research outcomes of university lecturers in the context of the Fourth Industrial Revolution. Most studies tend to classify institutional factors and/or individual factors. Therefore, new research needs new approaches and contributions, focusing on the factors influencing the research capacity of university lecturers, and combining modern quantitative methods with qualitative approaches.

2.2. The Current State of Scientific Research by Lecturers in the Context of International Economic Integration

The development of science and technology, especially information technology, has profoundly transformed the landscape and nature of higher education. Human history can be divided into four main eras: the era of agriculture and nomadism over thousands of years, the industrial era of the 18th century, the information era of the 20th century, and now, in the 21st century, we have entered the era of knowledge (Staron M et al., 2008).

Information technology has turned the world into a global village, where interdependence among economies, nations, and organizations has become increasingly apparent. At the same time, the knowledge economy has turned universities into direct producers. More than ever, universities play a vital role in promoting economic growth and societal progress in every country.

Therefore, it is not surprising that higher education has become a hot topic in discussions in every nation. Whether in Europe or Asia, among rich or poor countries, regardless of their level of development or political system, all emphasize the need to internationalize their higher education systems. For developed countries, internationalization helps enhance their understanding of various cultures, increases their influence on other countries, and maintains their competitive advantage. For developing countries, internationalization becomes a matter of survival, as failing to integrate into the global knowledge stream implies being excluded from the game and becoming a new type of servant to powerful nations.

In the field of scientific research, knowledge is growing exponentially. In all domains, no one can conduct serious research without building on the previous achievements of others, collaborating with others, and maintaining scientific communication within academic networks on a global scale.

Therefore, enhancing international integration in higher education and scientific research is an almost natural requirement of the times, and it is a trend that cannot be avoided. The question is not whether to do it or not, but how to do it. This question is particularly crucial for Vietnam due to two reasons. First, there are distinct cultural differences. The agricultural, feudal, and Confucian cultural traditions still strongly influence the way Vietnamese people think, perceive the world, and conduct themselves. Second, there are fundamental differences in political systems leading to different fundamental management mechanisms. Confronted with these stark differences, international integration becomes a challenging issue.

International cooperation in scientific research in Vietnam over the past two decades has taken various forms, but it has primarily relied on personal relationships or, to a great extent, on projects funded by international organizations and projects relying on loans. There are still very few genuine cooperation arrangements between institutions, initiated based on the practical needs of both parties and having sustainability, especially the lack of research collaborations with commercial potential and direct benefits.

Some quantitative studies of Vietnam's scientific research outcomes have shown that research papers involving international collaboration receive significantly more citations, and Vietnamese authors are often not the lead authors. This reflects the lower research capacity in Vietnam and the heavy dependence on international partners, both financially and in terms of expertise. The common model is that domestic researchers provide data or experiments, while international partners handle the research design, analysis, and scientific paper writing. This model may be suitable for building research capacity, but without appropriate incentivizing

policies, international research collaboration in scientific research in Vietnam may struggle to evolve beyond this model to achieve more equitable, sustainable, and impactful forms of cooperation.

2.3. Overview of Research on the Research Capacity of University Lecturers

Numerous studies have proposed various indicators to measure the research capacity of university lecturers, including:

Domestic scientific research publications; Research papers published in international conference proceedings/journals (Costa and Oliveira, 2012; Chang and Chiu, 2008); Research awards (Chang and Chiu, 2008); The number of books published nationally and internationally (Costa and Oliveira, 2012; Chang and Chiu, 2008); Publications or other research contributions that have an impact on government or society.

Kaya and Weber (2003) suggest that the research capacity of lecturers can be assessed based on their opportunities for professional development and recognition, such as presenting at conferences and scientific meetings, submitting research grant proposals, or receiving research grants. Wong and Tierney (2001) also emphasize that the research outcomes of scientists are often evaluated through publications, conference presentations, and academic networking. Similarly, Hedjazi and Behravan (2011) state that research capacity relates to innovative ideas that, after research, are published in journals, newspapers, patented, or become academic materials. In addition, some researchers have pointed out other factors for measurement, such as research funding (Altbach, 2015; Porter and Umbach, 2001), advising research students (Altbach, 2015), membership in a national academy of sciences (White et al., 2012), allocated research budgets (Iqbal and Mahmood, 2011).

Some authors emphasize that the research capacity of lecturers should be demonstrated through international publications. Costa and Oliveira (2012) rank international publication quality criteria from low to high, including scientific conference reports, research papers published in reputable international scientific journals, and papers listed in ISI/Scopus databases. Furthermore, lecturers should edit or co-edit a certain number of books published nationally or internationally.

Moreover, many researchers adopt a comprehensive approach to evaluating research capacity, considering factors like quantity, quality, impact, and research activities. Aydin (2017) provides a comprehensive list of research outcome measurement indicators, including the number of scientific journal articles, journal impact factor, the number of published books, the number of edited books, the number of book chapters, research citations, patents, research funding, participation in research projects, awards, conference presentations, invited conference presentations, the number of theses/dissertations supervised, involvement in journal editorial boards, membership in professional associations, and the development of professional relationships with foreign colleagues.

When assessing lecturers' research capacity, many researchers tend to focus more on

research outputs and achievements rather than impact indicators. Hoffmann et al. (2017) selected dependent variables for their study, including conference reports, peer-reviewed articles, non-peer-reviewed articles, book chapters/books, and edited books. Bland et al. (2005) proposed a model to promote effective scientific research in university departments and lecturers, which included variables such as journal articles, books, patents, research funding, awards, reputation, artistic achievements, high faculty satisfaction, and motivation. Ramli and Jusoh (2015) analyzed the impact of various factors on lecturers' research outcomes and introduced measurable indicators like scientific papers, book chapters, books, conference reports, patents and copyrights, commercialized products and processes. Nguyen (2015) used measurable indicators including research papers, research projects, and books. Jung (2012) also utilized only two indicators: research papers and published books.

2.4. Fundamental Benefits of University Lecturers Engaging in Scientific Research Activities

For university lecturers, teaching is highly valued and considered a necessary condition for their roles. However, teaching is only one aspect of their professional activities. Therefore, scientific research has always been emphasized by universities, seen as a compulsory and crucial task, regularly assessed as a top criterion for evaluating the comprehensive abilities of lecturers. Nevertheless, over time, the research activities of university lecturers have often been somewhat neglected, forgotten, and plagued by limitations and shortcomings, lacking the attention they deserve, and not aligning adequately with the academic duties of lecturers.

According to statistics from the Ministry of Education and Training, "there are currently 56,000 teaching staff in universities and colleges, but only about 1,100 lecturers (3%) are involved in scientific research, and very few lecturers participate in research." For example, at Ho Chi Minh City National University, one of the top universities in Vietnam, the situation is also less than promising. In the period from 2006 to 2010, the university had 2,300 scientific papers published, of which 720 were published in international scientific journals with an average impact factor of 1.8. The funding obtained from technology transfer activities was 344.5 billion VND, which only increased by 1.25 times compared to the previous 5 years. All of these facts signal a lack of enthusiasm and dedication among lecturers toward research activities.

In universities, improving the quality of teaching and learning is crucial and has a significant impact on the quality of education and the development of faculty and staff. To assess the professional competence, theoretical thinking, and practical awareness of university lecturers, it is essential to effectively integrate their research activities with teaching activities. It is well-known and widely recognized that scientific research is particularly important in education in general and higher education in particular. In the current landscape of higher education in Vietnam, scientific research is considered an indispensable "link" in enhancing the quality of education, providing the human resources needed to meet the increasingly demanding requirements of society. Scientific research provides lecturers with opportunities to find the most effective teaching methods.

To better adapt to the current period of integration and development, participating in scientific research activities offers several fundamental benefits:

(i) Scientific research allows lecturers to delve deeper into and gain a more solid grasp of the subject matter they teach. It enables them to make timely adjustments and supplements to their teaching materials, ensuring accuracy and relevance. Participating in scientific research not only reinforces lecturers' subject knowledge but also broadens their understanding by exposing them to knowledge from various fields.

(ii) Engagement in scientific research contributes to the development of critical thinking, creative abilities, independence, knowledge enrichment, and scientific cognitive skills of lecturers. It shapes them into researchers themselves. During research activities, lecturers may serve as team members or principal investigators of research projects. This process helps lecturers cultivate and enhance independent thinking, "critical thinking," and the ability to defend their scientific positions. It also develops essential skills needed for teaching and research.

(iii) Participation in scientific research is an excellent opportunity for lecturers to update their knowledge effectively. Furthermore, it helps them gain insights from various sources to evaluate and improve their own knowledge. Activities such as academic forums, debates on "open" issues, academic conferences for lecturers, expert reports, etc., provide opportunities for lecturers to explore and identify unresolved issues that they can seek advice from colleagues or experts in the field.

(iv) Through scientific research, lecturers gain a deeper understanding of their profession, fostering a sense of professional commitment. This is essential and crucial for lecturers in their teaching and professional activities. It helps lecturers integrate more effectively and proactively into their work.

(v) Scientific research activities provide a conducive environment and opportunities for lecturers to enhance their research capabilities. This is essential for renewing the content and teaching methods. It significantly contributes to improving the quality of education.

(vi) Participating in scientific research is also a way for lecturers to establish and affirm themselves. It is difficult to argue that a lecturer has good professional competence but fails to produce any scientific work each year. A lecturer's competence is primarily demonstrated through teaching and scientific research.

(vii) Scientific research activities play a crucial role in enhancing the reputation and credibility of both lecturers and the university in society. Each presentation at a conference, each research project at any level, each article published in a specialized journal with the lecturer's affiliation contributes to the reputation and credibility of the university. A university's good reputation is not something vague; it must be demonstrated through the contributions of each faculty member and student. Individual achievements contribute to the collective achievement.

(viii) Besides the benefits mentioned above, participating in scientific research activities

allows lecturers to establish necessary social relationships during their professional journey. The process of carrying out research projects helps lecturers learn a lot from their colleagues and other project participants.

(ix) Scientific research activities provide a valuable opportunity for lecturers to affirm themselves. It is challenging to claim that a lecturer is professionally competent if they do not produce any scientific work. Lecturers' competence is primarily reflected through teaching and scientific research.

(x) Finally, engagement in scientific research activities is a critical factor for the university's recognition and reputation at the national level. Each conference presentation, each research project at different levels, and each article published in a specialized journal, with the university's affiliation, contributes to the institution's recognition and reputation. A university's good reputation should not be something abstract; it must be reflected through the achievements of each staff member and student. Individual achievements contribute to collective success.

2.5. Some drawbacks and limitations in the research activities of lecturers

Currently, research and technology transfer are among the tasks assigned to university lecturers. This has been clearly stated in the regulations regarding the work of lecturers (issued with Decision No. 64/2008/QĐ-BGDĐT, dated November 28, 2008, by the Minister of Education and Training). Most recently, the joint circular on standards, tasks, working conditions, and policies for lecturers at training institutions, colleges, government agencies, political schools at the provincial level, and centrally-affiliated cities was issued (Circular No. 06/2011/TTLT-BNV-BGDĐT, effective from August 1, 2011). In addition to their fundamental teaching function, research is also considered an important function of modern-day academics. Despite the achievements made, there are still several drawbacks and limitations in the research activities of lecturers:

Lack of awareness: Many lecturers have not fully grasped the importance of research, leading to a lack of initiative in proposing research topics. Some research topics are based on existing models or do not originate from the practical needs of the lecturers themselves or their fields of study.

Differences in curriculum: Some universities and colleges offer varying approaches to teaching research methodology. While some make research methodology a compulsory subject, others provide it as an elective. Unfortunately, some institutions do not include research methodology in their curriculum for lecturers, resulting in a knowledge gap.

Generalized research topics: Many lecturers opt for broad, general research topics instead of delving into specific, practical issues. This could be due to a preference for topics with readily available reference materials and an aversion to tasks that require extensive data collection, sociological surveys, statistical analysis, or complex modeling. Additionally, some lecturers may avoid presenting their personal viewpoints or may not fully explore their chosen research topics.

Income disparity: Lecturers primarily earn their income from teaching, which can be time-consuming. This heavy teaching load can lead to a lack of motivation for research, as it may not be as financially rewarding. Some lecturers take on an excessive number of teaching hours, even exceeding the regulated limit, to supplement their income, which leaves little time for research.

Language barriers: Lecturers with limited proficiency in foreign languages often rely heavily on the internet for research materials. The quality and practicality of these materials may suffer as a result. Many research documents used by lecturers are in Vietnamese, either authored by local researchers or translated from original English or French texts.

Limited research funding: Research projects initiated by lecturers often face budget constraints. This limitation can hinder the development of research activities among lecturers. Moreover, the expertise among research personnel within institutions is not uniform, and there is a shortage of leading experts in various fields who can undertake regional or international research projects.

Ineffective academic councils: While most universities have academic councils, they often focus on conducting assessments and evaluations rather than providing annual research directions for lecturers and staff. Policies to incentivize research also lack consistency and may not effectively motivate lecturers and staff to engage in research.

Budget allocation: A paradox exists where some research projects receive insufficient funding for implementation, while the national budget allocation for science and technology is decreasing. The law and related regulations stipulate that 2% of the budget should be allocated to science and technology, which is lower than in some other regional countries. However, in practice, the allocation has not met this target. The budget for scientific research in the field of education remains low, despite the increasing number of researchers in the field.

Complex administrative procedures: The management of scientific research, the organization of research activities, and administrative procedures at various levels are complex and sometimes cumbersome. The policy of providing financial support based on the products of scientific research, while reasonable in theory, may require excessively detailed itemization, creating additional administrative burdens for researchers.

These drawbacks and limitations in the research activities of lecturers pose challenges to fostering a culture of research and innovation among educators. Addressing these issues would help universities and colleges enhance the quality of research and promote a more balanced approach between teaching and research.

Currently, the research environment at many universities has not seen significant improvements to motivate lecturers for research activities. Policies for managing, supporting, investing in, encouraging, rewarding, and developing the pool of scientists at some universities still have various shortcomings. Procurement, approval, budgeting, and project payment procedures for research topics and projects are inconvenient and time-consuming, hampering the

exploitation of scientific and technological potential. The organizational structure and scale of lecturer teams at Vietnamese universities are relatively small and lack interdisciplinary coordination, preventing the full utilization of scientific and technological advantages in research activities compared to the world's multi-disciplinary university models.

As a result, our universities face challenges in competing on the international university rankings. In practice, many Vietnamese universities have not effectively linked postgraduate education with the research activities of the institution. Graduate and postgraduate students are an underutilized human resource for scientific and technological research at universities. There is also a lack of connection between postgraduate education and practical applications of science and technology at the local and business levels. Research activities of postgraduate students primarily focus on core research activities within the curriculum, with limited extracurricular scientific research.

At the conference "Promoting Scientific and Technological Activities in Higher Education Institutions in the 2017-2025 Period," Minister of Education and Training Phung Xuan Nha stated that, "In reality, the majority of university lecturers devote most of their time and effort to teaching, while research activities are often relegated to a lower priority. Not only is this the case for individual lecturers, but in many universities, research activities are lackluster, with a significant portion of time devoted to discussing admission regulations and training."

Collaboration between domestic universities in scientific research is limited, and there are few strong research groups consisting of faculty members from multiple institutions cooperating to tap into each university's scientific and technological potential, share data, and research results to address interdisciplinary research challenges. There is also a lack of collaboration among domestic universities in the shared use of resources, research equipment, and facilities invested in by the state. International cooperation by universities in science and technology has been less effective, with limited contributions from international scientists. Some universities have almost no participation of international scientists in research projects. Collaboration between universities and businesses in science, technology, and the practical application of research results has not been as effective as desired.

Practical research indicates several existing issues and shortcomings in the research activities of university lecturers, including:

Lack of awareness: Some lecturers do not fully understand the role and benefits of research for themselves and their institutions, leading to a lack of commitment to research activities.

Limited dedication to research: Many university lecturers do not prioritize research activities, and their involvement in research may primarily be to fulfill the required research hours.

Research capacity limitations: Some lecturers lack the necessary research skills and have limited experience in publishing research papers in reputable domestic and international

journals.

Weak integration of research and teaching: There is a gap between the research topics pursued by some lecturers and the subjects they teach, leading to a limited integration of research into teaching activities.

Time constraints: Some lecturers, despite having good research potential, do not have sufficient time for research due to heavy teaching loads and other responsibilities.

To address these issues and improve the research environment, universities should prioritize the development of research culture, provide support for research activities, and encourage interdisciplinary collaboration among faculties. Additionally, there should be a greater emphasis on the quality and relevance of research output, as well as incentives to motivate lecturers to engage in research.

3 Solutions to Enhance the Research Capabilities of University Lecturers in the Context of International Economic Integration**

The operational strategy of institutions is often built on 5 or 10-year timeframes because our world is changing at an unprecedented pace. Social media and communication technology have caused many aspects of how universities operate to change significantly compared to just a few years ago. Therefore, it is difficult to plan for longer than 5 or 10 years. However, a strategic plan is not simply a draft of expectations or a list of tasks. It should be based on a long-term vision and the core values that the university sees as its DNA. A long-term vision doesn't just mean predicting the future context 10 or 20 years from now and imagining where the institution will be in that picture. It also means, instead of just focusing on superficial and immediate results, delving into the factors that contribute to success and nurturing those factors to flourish and develop.

The first and perhaps the most challenging solution is the need to invest more in infrastructure, especially research laboratories for universities. To accomplish this, the responsibility cannot be solely on the Ministry of Education and Training. It requires government involvement through increased state budget allocation for scientific research activities. However, the Ministry of Education and Training needs to set minimum infrastructure requirements for new university research activities, satisfying not just teaching needs but also research needs. The second issue is that the Ministry of Education and Training should implement measures to reduce the lecturer-to-student ratio to relieve the teaching burden on lecturers. To achieve this, in the short and medium term, it may be necessary to accept a lower student enrollment rate per capita, as increasing the lecturer-to-student ratio is much more challenging due to the time and effort required to train university lecturers. It is also necessary to consider reducing the mandatory annual teaching hours for university lecturers to give them more time for scientific research.

Firstly, universities should pay more attention to the research activities of lecturers, seeing this as a crucial solution to improving the quality of education. Organizationally, there should be committees or boards dedicated to supervising lecturers' research activities at both the

university and department levels, aiming to help lecturers gain a deeper understanding of the importance of scientific research.

Secondly, establishing scientific research clubs within the university and organizing regular activities to support young lecturers in participating in research projects with experienced colleagues is important. Lecturers from different disciplines and departments can collaborate on research projects and related issues. Emphasis should be placed on integrating the results of lecturer's research activities with the institution's planning and utilizing staff resources. Specifically, there should be priority policies in planning and appointing staff for lecturers and staff who have achieved excellent results in scientific research. Appointment criteria should also include research projects.

Thirdly, education has become a decisive factor in the economic and social development, and the positive transformation of higher education in recent years has been recognized by society. To improve the quality of education and meet the increasing demands of society in the new era, it is necessary to continue innovating content and methods to adapt to global trends and development. Only through innovative teaching methods can we actively participate in the international arena in improving the quality of education and access to modern education methods. This will contribute to lecturers developing independent thinking skills and gradually acquiring self-learning and research skills.

Fourthly, research topics for lecturers must accurately identify goals and research objects that are suitable for the content of the training program. Close integration of theory and practice helps lecturers solidify their knowledge gained at the university and delve into specific fields. The scope of research should not be too broad. In addition, educational institutions need to innovate in managing scientific and technological activities and develop annual research plans for lecturers, allocating more funds for lecturers' research projects. In addition to funding for scientific and technological careers, the university should proactively collaborate with businesses, production and business units, and international organizations to attract funding for lecturers' scientific research activities and promote applied research.

Fifthly, to facilitate the scientific research work of lecturers, the university should have a project and allocate a significant budget to invest in the development of library information and expand internet access. In the current period, good infrastructure conditions that ensure a conducive learning and research environment are important for attracting talented lecturers. The high quality of lecturers who are admitted to the university will contribute to maintaining and developing the scientific research activities of the institution, achieving deep, wide, and good results. In addition, educational institutions should publicly announce research programs at all levels and create conditions for lecturers to access and choose research topics in these programs. There should be criteria for the appointment of research topics.

Sixthly, for some subjects with fewer teaching hours due to low student enrollment or changes in the curriculum, lecturers do not have enough teaching hours according to the

standard. In such cases, it should be allowed to convert lecturer's extra research hours into standard teaching hours. This conversion provides an opportunity for lecturers to be considered to have completed the teaching standards for the year when evaluating and ranking lecturers annually. This will be an important and necessary boost for lecturers to focus on research activities.

Seventh, utilizing human resources with expertise and research experience within the university to organize specialized training sessions for young lecturers who lack research experience can help raise the overall competence of all lecturers. Provide specific guidance on research application in management work, research application directly to the teaching process, including content, objectives, teaching methods, and teaching materials. Specifically, organize specialized training on Research Methods in the University for a minimum of 3 months, held once a year, to update knowledge of research methods for lecturers. Additionally, there should be an emphasis on proposing timely reward policies for lecturers participating in scientific research, especially for those who have achieved specific high-level results, such as commendations, financial rewards, and standards for commendation evaluations.

Enhancing awareness among university lecturers: The university and its affiliated units need to increase training and awareness among lecturers regarding the role and benefits of research activities for themselves and the university. It is important to help lecturers clearly understand that university lecturers are also researchers, and their primary responsibility is both teaching and scientific research, which are mutually supportive and organically linked. Therefore, lecturers should not focus solely on teaching or research tasks but should take responsibility for both tasks. Raising awareness among lecturers should be maintained regularly through various communication channels such as websites, social media, journals, yearbooks, and institutional magazines, integrating communication content into meetings, seminars, and specialized discussions to engage lecturers in discussions on relevant topics. In training sessions and workshops on research skills and methods for lecturers, the emphasis should be placed on lecturers' responsibilities, roles, and the benefits of scientific research for lecturers, learners, and the university. This will ensure that all lecturers, especially young lecturers, have a correct and comprehensive understanding of the roles, benefits, and responsibilities of university lecturers in scientific research. Effective communication and awareness-raising efforts should be implemented regularly to ensure that the information reaches young generations of lecturers. It is important to note that changing one's perception takes time, so these efforts should be sustained over several years to create attention and gradually change the mindset and perspective of each lecturer. Only when lecturers have a correct understanding of scientific research can they take the right actions and goals to strive for, learn, and voluntarily participate in scientific research activities actively and creatively.

Impact and Nourishment of Factors Contributing to Success in Scientific Research for Lecturers

There are many factors that contribute to success in scientific research, including both objective and subjective factors of the scientists. There are three main factors that contribute to success in scientific research: research capacity, research motivation, and a conducive research environment. Consequently, we can formulate a formula for achieving success in scientific research as follows: Research Capacity + Research Motivation + Favorable Research Environment = Success in Scientific Research [9]. Therefore, the government and educational institutions should invest and influence these three factors adequately to create favorable conditions for scientists in general and lecturers in particular to achieve more success in scientific research. Each lecturer should also proactively invest in material resources, effort, and time for these factors and cultivate a passion for scientific research, enhance their experience, and continuously improve their research capabilities and self-motivation for more success in scientific research.

Specifically, three integrated solutions need to be implemented:

Enhancing research capacity for lecturers: Research capacity is a combination of knowledge, thinking skills, experience, and research skills, reflecting the ability to integrate knowledge, thinking, experience, and research skills into research activities. To achieve success in scientific research, lecturers must first possess research capacity. This is the most important prerequisite for researchers to achieve success in scientific research. Therefore, educational institutions need to develop a science and technology development strategy, including a strategy to enhance the scientific and technological potential of the institution. This should involve a focus on improving the research capacity of lecturers. Regular attention and policies for enhancing research capacity should be in place, along with opportunities for lecturers to engage in scientific research activities. Policies for assigning experienced lecturers to mentor and train young lecturers should also be implemented, along with opportunities for young lecturers to participate in research groups.

Creating research motivation for lecturers: Research capacity alone is a necessary condition, but research motivation is the sufficient condition. Without research motivation, research capacity remains dormant and unrealized. Therefore, research motivation must generate energy, enthusiasm, and a passion for research, driving lecturers to voluntarily engage in scientific research activities, enabling them to overcome challenges and sacrifices, and allocate time and effort for scientific research. The stronger the research motivation of lecturers, the more their research capacity can be maximized. Therefore, the Ministry of Science and Technology, along with relevant ministries and universities, should establish policies and mechanisms to enhance administrative reform, allocate a budget, and have absolute trust in scientists. They should also improve the research environment and have policies that allocate significant resources for scientific research. Educational institutions and department managers should encourage, motivate, and address the needs of each lecturer to create research motivation, encouraging active participation and dedication to scientific research. Depending on the conditions and preferences of each lecturer, their needs may include economic benefits, pursuing

higher academic degrees, satisfying their passion for scientific research, seeking new knowledge, self-affirmation, receiving timely praise and recognition from superiors, achieving research excellence, receiving rewards and honors, improving their professional qualifications, and providing time and facilities for research activities.

Improving and maintaining a conducive research environment, enhancing the scientific research potential of universities: Educational institutions should invest in physical facilities to support scientific research, reform organizational and cultural structures to foster learning, improve the research environment, and build resources to enhance scientific research potential. The research environment can be divided into hardware (physical infrastructure) and software (organizational structures, research culture, and university culture). The hardware of the research environment includes laboratories, experimental facilities, research equipment, research databases, and library systems that need to be comprehensive and convenient for scientific research. Lack of support from physical facilities, data, and necessary equipment can hinder researchers from achieving good research results. Upgrading laboratories, physical infrastructure, and research equipment requires significant funding. Therefore, it needs to be done step by step, depending on the financial resources of each university and investment from the state budget. Some investment items can be funded through socialization or by inviting businesses to invest, or seeking sponsorship from organizations and individuals both domestically and internationally. Universities can enhance research collaboration and establish regulations for shared use of research facilities and equipment, resource sharing, and faculty sharing to utilize available resources more efficiently. However, the most significant difference in the research environment between domestic universities and internationally prestigious universities lies in the research organization mechanism and the culture of the institution. Internationally prestigious universities commonly employ team-based research as a highly effective method. In Vietnamese universities, research groups have been formed, but in essence, they still follow the method of individual work, with each member pursuing their individual research topics and limited exchange, collaboration, guidance, and sharing among members. The team-based research approach allows research groups to work more efficiently and tackle more challenging issues. Collaboration harnesses the research capabilities of the entire group through continuous cooperation, idea sharing, research experience sharing, learning, listening, and constructive criticism, as well as leveraging the relationships and advantages of all members to compensate for individual limitations. The prerequisite for establishing strong research groups is to have experienced and highly capable researchers with high credibility serving as "leaders" of the group, gathering like-minded colleagues and peers who share the same vision and are passionate about scientific research. To develop scientific research and create a conducive research environment, these scientific leaders are essential. Therefore, universities need to have policies to nurture and retain outstanding professors and lecturers who play the role of scientific leaders in the institution. In addition, universities should strengthen contracts with outstanding scientists outside the institution to build strong research groups and expand research networks. They should actively invite foreign scientists and have policies to attract them to participate in research collaboration,

forming research groups with international networks.

Enhancing the Integration of Postgraduate Education with Scientific Research

The Ministry of Education and Training, along with universities, should research and revise policies and regulations regarding master's, doctoral, and postdoctoral programs to further strengthen the connection between postgraduate education and scientific research. Specifically, regulations should establish minimum required time for graduate students and postdoctoral researchers to be present at the university for research purposes. Favorable conditions should be created, and research activities should be weighted into thesis and dissertation scores for graduate students and postdoctoral researchers participating in research projects and scientific and technological endeavors with their advisors or other faculty members. Regulations should also set a minimum number of national and international scientific publications that graduate students and postdoctoral researchers must publish, along with provisions for additional points if they exceed the minimum requirement. This will encourage both mentors and students to actively engage in research and be co-authors in scientific publications. International and domestic scientific publications by postgraduate students, graduate students, and advisors should be attributed to the university and counted towards the university's scientific research achievements. Universities should increase funding for postgraduate and postdoctoral programs for foreign students to attract them to Vietnam for long-term study and research, with the obligation to complete a specified number of international publications as stipulated. This will contribute to the university's scientific research achievements and enhance its internationalization in education and scientific research.

Increasing Time Allocated for Scientific Research Activities

To address the issue of faculty members' reluctance to engage in scientific research activities, universities need to establish and enforce mechanisms that require faculty members to dedicate a minimum amount of time to scientific research activities. For example, universities can specify that faculty members must allocate a minimum of 50% of their working hours annually to teaching, a minimum of 35% to scientific research activities, and 15% to other activities such as self-study, professional development, student guidance, and graduate student supervision. Faculty members should not be allowed to convert teaching hours into research hours. This should become a mandatory regulation for all university faculty members and should be enforced by the Ministry of Education and Training. However, the mechanism should allow flexibility in determining the maximum teaching hours for faculty members who are actively engaged in large-scale research projects, such as writing books or leading research projects at provincial, city, or ministry levels, to ensure that they have sufficient time to fulfill their research duties.

Enhancing Research Collaboration and Technology Transfer

Firstly, universities should establish technology transfer centers to bridge the gap between researchers and businesses. Universities should create Collaborative and Technology Transfer Centers or Innovation and Creativity Centers to connect researchers with businesses and serve as intermediaries for transferring research results and new technological innovations to enterprises and organizations. Allowing faculty members and researchers to independently seek and persuade businesses to adopt research findings and innovations is currently ineffective, as it is challenging for faculty members to find suitable businesses. Furthermore, there is often a lack of collaboration and commitment between the two parties, leading to mutual distrust. Creating conditions for faculty members to closely collaborate with businesses enables them to closely follow the practical aspects of business operations, identify existing issues and limitations within companies, and provide a basis for nurturing new ideas, improving and commercializing research findings, innovations, and research results. This will enable faculty members to propose research topics and seek funding from businesses to apply research findings to serve the needs of businesses. Additionally, the state and universities should establish policies that define profit-sharing in technology transfer for researchers who are project, topic, or project leaders to ensure fair copyright compensation for researchers. The government should also enhance incentives such as tax breaks and exemptions to encourage businesses to adopt research findings and new technological innovations within the country. Innovative state policies, along with the proactive efforts of universities and businesses, will create motivation for collaboration in scientific and technological activities between universities and businesses.

Secondly, universities should strengthen international cooperation in scientific research and attract foreign researchers. Universities need to enhance international cooperation in-depth scientific research, regularly exchange and update scientific and technological information with universities, partners, and scientific and technological networks abroad. Universities should collaborate with foreign scientists and partners, create conditions for faculty members to participate in international scientific research programs, and attract foreign scientists to participate in Vietnam's major research programs. The government should have policies to financially support universities adequately to attract professors, doctors, and foreign scientists and sign research cooperation contracts. Policies should also aim to attract talented foreign researchers to participate in doctoral training programs and conduct long-term research in Vietnam, contributing to universities through research results and international publications and helping to address significant and complex issues currently facing Vietnam.

In the current context of globalization, with the crucial role of scientific knowledge, enhancing scientific research among faculty members is becoming increasingly essential. The scientific research activities of faculty members are vital for transforming the education process into a self-education process. This is also a necessary foundation for renewing the content and methods of teaching, contributing to improving the quality of education to meet the growing demands of society. The goal is to train, foster, and develop a high-quality human resource for

the industrialization and modernization of the country by 2020, laying a solid foundation for further development in the current global integration context.

Conclusion

International integration, once again, needs to be affirmed as an irreversible trend. One thing to avoid is superficial international integration, which merely aims to mimic foreign universities in appearance without considering the core factors that have contributed to their success.

The system produces what it is designed for. If we do not want to produce plastic eggs instead of nurturing chickens, we must approach international integration from a systemic perspective and start with structural changes that lead to product improvement. This requires a long-term vision, courage, and dedication from leaders.

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