

Print ISSN: 2288-4637 / Online ISSN 2288-4645
doi:10.13106/jafeb.2022.vol9.no10.0243

Factors Affecting Quality of Lecturers at Higher Educational Institutions: The Context of Technology 4.0 in Vietnam

The Tuan TRAN¹, Tuan Hiep LE², Phuong Thu Thi DO³, Tho Thi DO⁴

Received: September 15, 2022 Revised: November 26, 2022 Accepted: December 05, 2022

Abstract

Improving the quality of teaching staff in universities is an important goal of most universities. Therefore, it is necessary to evaluate the factors affecting the quality improvement of lecturers at universities. There are many factors affecting the improvement of this quality of human resources. This article uses the survey method to assess the factors affecting the improvement of the quality of lecturers in education and training institutions of the Ministry of Transport of Vietnam. Currently, the Ministry of Transport of Vietnam has 4 educational institutions. The research team has assessed the impact factors at these 4 facilities. The research team conducted a survey for faculty members of the Ministry of Transport. The result was 446 votes. The authors have performed factor evaluation by multivariate regression model. The influencing factors include Professional competence, the virtue of teaching staff, scientific research capacity, participating in building a democratic educational environment, Professional support policy, Instructor's income, and Information technology support. Research results show that most of the factors have a positive impact on improving the quality of lecturers. Based on the survey results, the authors also make policy suggestions to further improve the quality of teaching staff of the schools in the coming time.

Keywords: Teaching Quality, Scientific Research Capacity, Professional Support, Higher Education

JEL Classification Code: A23, C83, I23

1. Introduction

The quality of human resources is an important factor in all industries and fields, helping businesses, industries, localities, and countries to create competitive advantages. In particular, in the context of the Industrial Revolution 4.0, which promises breakthroughs but also puts a lot of pressure on university training activities. There are four universities and academies in the transport industry to meet the demand

for human resources for the market and the transport industry. In Industrial Revolution 4.0, there are a radical and comprehensive change in the direction of untrained, unprofessional workers, certificates, working skills, and the risk of finding jobs.

On the contrary, jobs for trained workers with talents, skills, and proficient use of information technology, the internet, and automation will increase. Over the years, educational and training institutions of the Ministry of Transport have begun to focus on developing their teaching staff to prepare human resources to meet the requirements of the new context. Developing the quality of lecturers at the educational and training institutions of the Ministry of Transport is facing many limitations and difficulties in the challenge of industrial revolution 4.0. In addition, Vietnam is moving towards a low-emission economy, and awareness of environmental protection is also important in the new context, at least for the Transportation Ministry. It helps education and training institutions under the Ministry of Transport keep up with the general trend of the region and the world, facilitating international integration. Therefore, it is necessary to research and develop the quality of lecturers

¹First Author. Faculty of Transport Economics, University of Transport Technology, Vietnam. Email: tuantt83@utt.edu.vn

²University of Finance and Business Administration, Vietnam. Email: hiep.lt@ufba.edu.vn

³University of Transport Technology, Vietnam. Email: phuongdtt@utt.edu.vn

⁴Corresponding Author. Faculty of Transport Economics, University of Transport Technology, Vietnam. [Postal Address: 54 Trieu Khuc Ward, Thanh Xuan Nam, Thanh Xuan, Hanoi, Vietnam] Email: thodt@utt.edu.vn

at educational and training institutions of the Ministry of Transport.

This paper will analyze the factors affecting the quality of lecturers to propose solutions to improve the effectiveness of developing the quality of lecturers at educational institutions of the Ministry of Transportation.

2. Literature Review

There are many criteria to evaluate the quality of teachers (ideal teachers) that educational philosophers have proposed under many different streams of educational thought. These philosophical discussions often revolve image of the teacher as well as their essential qualities and values. In the conceptions of philosophers from antiquity to postmodernity, teacher images are shaped by the views and educational goals of particular philosophers or thinkers or by schools of philosophy. For example, the teacher is a ‘midwife’ (Socrates); as an artist in the use of knowledge (Plato); the moderator of the dialogue (Bergman); a cultural provider (Cicero); as a liberator (Freire); as a person focused on teaching discipline (Breiter); as a model (Aristotle); as empiricist (Locke); as a trainer (Watson); as an educator following nature (Rousseau); as essential home (Bagley); as a creative instructor (Luvencfeld); like a socialist (Barth); as existentialist (Frankel); as mediator (Feuerstein); learner-centered (Neill); and as a postmodernist (Foucault) (Palmer, 1983).

Challacombe (2013), drawing on research and educational thought from the early twentieth century, outlined four main archetypes for the ideal teacher that derive from academic study and emphasize different aspects of the teaching profession, the work of good teachers, and the goals they strive to achieve.

The quality of our teaching staff delivers value by facilitating the co-creation of learning with students. Principles for assessing the quality of trainers include service delivery (S-D) (Vargo & Lusch, 2004) which focuses on communication between stakeholders. According to the S-D logic, the co-creates receiver value with the supplier; suppliers do not provide value alone but offer value propositions to recipients. In this model, the instructor and the students are the provider and the receiver, respectively, and S-D logic is used to understand the faculty-student and student-student exchange. There is no one-way value transfer from the instructor to a student in this interaction, nor is the student a value passer. Instead, the instructor provides a value proposition that can be converted into value, created jointly by the instructor and the student (Lindgreen et al., 2022).

Fieschi and Heywood (2004) suggested that teacher professionalism is a set of standards according to values and practices. The faculty’s professionalism focuses on

the teacher’s work, expertise, commitment, development of professional judgment, professional ethics, and cross-school ethos. A link can be found between the professional standards (norms and values) of the professionalism of the faculty and the possibility of professional development. Epstein (1978) suggested that the identity of each teacher is also a concept of synthesis, integration, and action. This concept is considered a process of each lecturer’s diverse experiences and forming their consistency. It can be seen as the result of practice, reflection on the training, and continuous professional development. In particular, it can be seen that the essential components that make up a lecturer’s own identity include: personal experience, place of work, major, relationships with colleagues, and relationships with students tablets (Dinsmore & Wenger, 2006).

Marentič Požarnik (2009) argued that there are precise criteria for developing the quality of university teaching staff. Those criteria include research and publication in specific journals. According to the document, pedagogical qualifications account for about 25% of lecturers’ promotion and quality development criteria. Another important point when assessing the quality of teachers is to become a guide for students at the master’s or doctoral level or to be able to write books or reference textbooks for students.

Another study by Rizwan and Khan (2015) showed that attitudes, including perceptions and emotions, strongly influence how a trainer thinks and reacts to particular experiences. Eggen and Kauchak (1988) found that teacher attitudes are fundamental to effective teaching and student achievement. Several other studies have shown that some factors constitute a teacher’s attitude to facilitate a caring and conducive classroom environment. These factors include accountability, enthusiasm, effective teaching, and fairness, which promote learners’ motivation. Further analysis in this study found that these factors were associated with increased student achievement.

Eisemon and Davis (1993) stated that the faculty’s scientific research capacity combines research ability and passion. Its results are products and scientific works of practical significance in theory and practice. Lim and Song (1996) stated that scientific research capacity is reflected in the number of scientific research works, the number of books published, and the number of articles in journals and seminars.

Regarding the professional development of lecturers, Mormina (2019) suggested that most participants had already transitioned from subject orientation to the first stage of student orientation. The lecturers have tried to find ways to impart knowledge so students can easily absorb it. Only a few lecturers move on to the second or third stage – treating students as active people who can work independently and assigning them practical tasks or allowing them to work in groups.

Although the concept of competence (level of expertise) is challenging to define and can easily be misused for another goal, it can represent a valid starting point for planning and reflection on career development. Competency is a complex system of knowledge, beliefs, and tendencies to act built from expertise, organized into specific areas, basic skills, general attitudes, and perception styles.

Many scholars have proposed criteria to determine the capacity of lecturers to improve the quality of lecturers in universities. Developed countries in Asia (e.g., Japan, Singapore, and South Korea) have recently received increasing interest from policymakers to investigate the evidence for establishing programs around “best practices” and solutions to local problems (Hiebert & Stigler, 2017). Global policy agendas focused on faculty quality and reform in Asian countries have conceptualized faculty participation in faculty development programs as a requirement and common standard in the teaching profession. While many transnational studies have examined faculty learning and its context, the critical leadership styles that support faculty development in Asian countries have not been widely shared worldwide compared to other context elements (Le & Tran, 2021; Nguyen et al., 2021a).

Compared with the Western literature, Hallinger and Walker (2017) discovered distinctive features of critical instructional leadership in five East Asian societies (China, Taiwan, Malaysia, Singapore, and Vietnam). First, school principals have a narrow scope in setting missions and goals according to national education policies. Second, principals implement school curricula guided by the national

curriculum and often employ a strategy of allocating instructional leadership responsibilities within schools. Third, principals introduced PLCs in schools and saw management relationships as a key to enabling PLCs. They also encourage faculty involvement in teaching professional development. Thus, instructional leadership behaviors in the Asian context exemplify the guidance of school teaching by national policies and support teacher learning by shaping the learning environment in schools (Hallinger & Walker, 2017)

3. Research Methodology

The study uses a survey method for lecturers of training institutions of the Ministry of Transport of Vietnam. The survey subjects are lecturers and staff working at educational institutions, including universities such as Hai Phong Maritime University, the University of Transport Technology, and the University of Transport.

The model of factors affecting the quality of lecturers was built with seven independent variables, as in Figure 1. In addition, demographic variables such as gender, age, occupation, education level, etc. The evaluation model of the factors is shown in the figure below (Figure 1):

After conducting the survey, the collected questionnaire will be cleaned and entered into the database. Incomplete or erroneous responses will be removed to ensure data accuracy and reliability in analysis. The final number of votes collected after being cleaned was 446 votes.

After the scale of the factors is tested, the structural model hypotheses and the model’s overall fit will be tested.

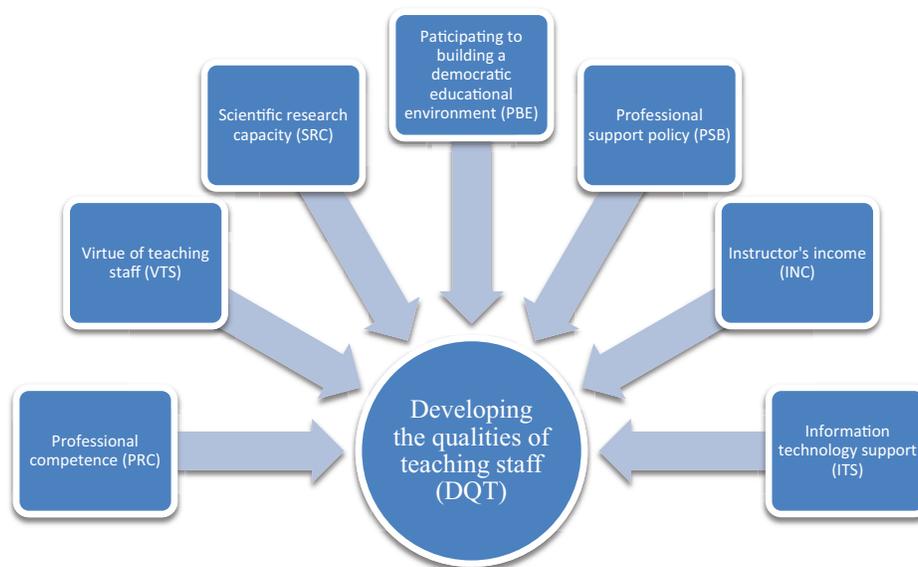


Figure 1: Evaluation Model of Factors Affecting the Quality Development of Lecturers at Educational institutions of the Ministry of Transport

Multiple regression models and tests with significance level 5 will be built as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_n X_n$$

In which:

Y: Developing the quality of teaching staff

X_i : Factors affecting the development of the quality of teaching staff

β_0 : Constant

β_n : Regression coefficient

This step aims to evaluate the impact of each factor or group of factors on the quality of lecturers. The degree of influence is expressed through the numbers in the regression equation. Factors with an extensive Beta index will have a more significant impact. Factors with a negative Beta number will have a negative effect and vice versa.

4. Results

4.1. Scale

It is necessary to evaluate the reliability of the scales through Cronbach’s Alpha coefficient of the questionnaire to build a suitable official scale. Testing the reliability coefficient of the scale plays a significant role in the accuracy and relevance of the research results (Table 1). On the one hand, it helps to eliminate the observed variables that are not reliable enough. It helps to study the adjustment and develop the official scale. The scale is accepted when Cronbach’s Alpha reliability coefficient is 0.5 or higher and will exclude those variables with a total variable correlation coefficient lower than 0.3, making Cronbach’s Alpha coefficient unsatisfactory (Tran, 2022).

The results presented in Table 1 show that: all scales have Cronbach’s alpha coefficient greater than $0.7 > 0.5$, so it can be concluded that the scales are built quite well. These scales

will bring reliability to the model and help the influence model to be accurately determined.

4.2. Exploratory Factor Analysis (EFA)

The KMO coefficient of the independent variables in the obtained model is $0.836 > 0.5$ with $\text{sig} = 0.00 < 0.05$, which is satisfactory for EFA analysis. Thus, all observed variables belonging to 7 independent variables are accepted to conduct EFA exploratory factor analysis (Table 2).

Table 2 shows that when the combination of scales is analyzed, seven factors are drawn corresponding to 7 independent variables. The total variance extracted was $67.79\% > 50\%$, indicating that six extracted factors explained 67.79% of the variation of the data. Thus, there is no change in the group of research hypotheses.

The explanation of the factors is done based on recognizing the observed variables with significant transmission coefficients in the same factor. The results of the EFA analysis are shown in the factor matrix after rotation. All factors are more significant than 0.5, so the variables are kept the same, not removed. In particular, no element is uploaded twice.

The exploratory factor analysis of the dependent variable “quality of lecturers” shows that the KMO coefficient is $0.716 > 0.5$ with $\text{sig} = 0.00 < 0.05$, so the factor analysis is deemed appropriate.

The total variance extracted is $73,263\% > 50\%$, so it can represent the variation because it explains 73,263% of the interpretation of the data. Principal Component Analysis extraction with Varimax rotation was performed, and 1 factor extracted was suitable for a hypothesis to have one dependent variable in the model (Nguyen et al., 2021b).

The coefficients in the factor rotation matrix are 0.867, respectively; 0.860 and 0.840 are > 0.5 , showing that this dependent factor is related to the model and ensures the satisfaction of EFA conditions. Thus, all factors included

Table 1: Cronbach’s Alpha

Code	Scale	No of Observation	Cronbach’s Alpha	Results
PRC	Professional competence	6	0.785	Good
VTS	The virtue of teaching staff	3	0.881	Good
SRC	Scientific research capacity	3	0.889	Good
PBE	Participating in building a democratic educational environment	3	0.833	Good
PSB	Professional support policy	3	0.744	Good
INC	Instructor’s income	5	0.722	Good
ITS	Information technology support	3	0.677	Good
DQT	Developing the qualities of teaching staff	3	0.810	Good

Table 2: Extracted Variance of Independent Variables in the Model

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.229	27.806	27.806	7.229	27.806	27.806	3.482	13.391	13.391
2	2.859	10.996	38.801	2.859	10.996	38.801	3.013	11.589	24.980
3	2.552	9.815	48.617	2.552	9.815	48.617	2.929	11.266	36.246
4	1.943	7.472	56.089	1.943	7.472	56.089	2.898	11.146	47.391
5	1.680	6.461	62.550	1.680	6.461	62.550	2.677	10.295	57.686
6	1.362	5.240	67.790	1.362	5.240	67.790	2.627	10.104	67.790
7	0.930	3.579	71.369						
8	0.855	3.290	74.659						
9	0.705	2.710	77.369						
10	0.646	2.485	79.854						
11	0.592	2.277	82.131						
12	0.543	2.087	84.218						
13	0.506	1.947	86.165						
14	0.450	1.732	87.898						
15	0.402	1.546	89.444						
16	0.385	1.482	90.926						
17	0.328	1.261	92.187						
18	0.316	1.215	93.402						
19	0.299	1.150	94.552						
20	0.284	1.092	95.645						
21	0.251	0.967	96.611						
22	0.221	0.849	97.460						
23	0.196	0.756	98.216						
24	0.170	0.655	98.870						
25	0.157	0.605	99.475						
26	0.137	0.525	100.000						

Extraction Method: Principal Component Analysis.

in the model explain the variation of the model’s data after factor analysis.

4.2. Regression Analysis

Regression analysis was performed with seven independent variables, including Professional and professional competence; Professional competence; Virtue of teaching staff; Scientific research capacity; Participating in building

a democratic educational environment; Professional support policy; Instructor’s income; Information technology support

The values of the independent variables are averaged based on the observed components of those independent variables. The dependent variable is the average value of the observed variables about the quality of lecturers. Analysis was performed using the Enter method. Variables were included at the same time for the fitness assessment. The results of the regression analysis are as follows (Table 3):

Table 3: Evaluation of the Fit of the Model

Model	R	R Square	Adjusted R Square	Std. The Error in the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.700 ^a	0.591	0.582	0.69278	0.591	60.250	7	438	0.000	1.582

^aPredictors: (Constant), ITS, PBE, SRC, VTS, PSB, PRC, INC; ^bDependent Variable: DQT

Table 4: Model Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.425	0.214		-1.985	0.048
	PRC	0.232	0.057	0.175	4.049	0.000
	VTS	0.142	0.035	0.170	4.079	0.000
	SRC	0.107	0.040	0.114	2.692	0.007
	PBE	0.166	0.040	0.154	4.134	0.000
	PSB	-0.029	0.066	-0.019	-0.437	0.663
	INC	0.288	0.069	0.224	4.178	0.000
	ITS	0.232	0.052	0.205	4.448	0.000

^aDependent Variable: DQT.

The results in Table 3 show that the given regression model is relatively consistent with the significance level of 0.05. The adjusted coefficient $R^2 = 0.582$ means that seven independent variables explain about 58.2% of the variance in faculty quality. This is not very high, but it is still enough to meet the model's suitability assessment requirements that the adjusted R^2 coefficient must be more significant than 50%.

The F -test used in the analysis of the variance table is a hypothesis test about the fit of the overall linear regression model. The test considers the linear relationship between the dependent and independent variables. The significance level must be less than 5% for the model to be acceptable. In the ANOVA analysis, the significance level value is minimal (significant level = 0.00), i.e., the significance level is 0%. Hence, the regression model is suitable and can be used.

ANOVA test results show that: F value = 60,250 (sig = 0.000). The maximum VIF value of each variable is 1.581 (Table 4), which is quite small (less than 2). Therefore, multicollinearity does not affect the explanatory results of the model. The rule is that when VIF exceeds 2, it is a sign of multicollinearity (Sig of the largest factor of the variable "propensity to consume society" is $0.038 < 0.05$, so all variables are accepted).

The regression equation showing the relationship between the quality of lecturers and the influencing factors

after removing the independent variable PSB (due to the Sig coefficient > 0.05) is as follows:

$$DQT = 0.175 * PRC + 0.170 * VTS + 0.114 * SRC + 0.154 * PBE + 0.224 * INC + 0.205 * ITS$$

The results of the evaluation of the factors show that all factors have a positive impact on the quality of lecturers.

5. Conclusion and Recommendations

Professional competence is one of the factors affecting the quality of teaching staff, with an impact level of 17.5%. The professional capacity of lecturers is reflected in pedagogical skills and the ability to use a second foreign language and apply advanced methods in the teaching process.

The teaching staff's qualities also impact the quality of the lecturers with an impact level of 17%. The quality of the lecturers is reflected in the viewpoint of clear political thought, collective consciousness, and the spirit of striving for the benefit of the school, having a healthy civilized lifestyle and scientific working style

The scientific research capacity of lecturers also impacts the quality of lecturers. Scientific research plays an essential role for lecturers besides teaching activities.

Many universities, including those under the Ministry of Transport, have gradually developed specific regulations on scientific research. This is the right and also the duty of each faculty member. The promotion of scientific research by lecturers improves their professional qualifications and helps them innovate teaching methods, link theory with practice, and meet increasingly competitive requirements. Therefore, the lecturers' topics and scientific research works are increasingly in-depth and of practical value, meeting the essential needs of the knowledge economy. Practice shows that the scientific research results of lecturers at universities under the Ministry of Transport are always appreciated, highly applicable in production and life, solving practical problems, creating breakthroughs on productive forces, innovating the growth model, and developing the economy.

A democratic educational environment is an environment that demonstrates equality, fairness, and democracy in education between lecturers and students, without violence and problems of social evils. Along with the democratic development trend of society, democracy in public universities today is much more advanced than in the past. School administrators have been more open to staff and lecturers, listening more to lecturers' and students' opinions, thoughts, and aspirations.

In general, the quality of lecturers at universities under the Ministry of Transport has improved significantly in recent years. The results of secondary data analysis and primary data collected by the author have proved this. Besides outstanding achievements, there are still certain limitations in the quality of lecturers that affect the quality of higher education. Therefore, in the coming time, lecturers and leaders of public universities need to consider these issues to ensure a higher rate of lecturers.

References

- Challacombe, S. J. (2013). Professor Thomas Lehner: Archetypal translational scientist. *Journal of Dental Research*, 92(5), 393–396. <https://doi.org/10.1177/0022034513482140>
- Dinsmore, J., & Wenger, K. (2006). Relationships in preservice teacher preparation: From cohorts to communities. *Teacher Education Quarterly*, 33(1), 57–74.
- Eggen, P. D., & Kauchak, D. P. (1988). *Strategies for teachers: Teaching content and thinking skills*. NJ: Prentice Hall.
- Eisemon, T. O., & Davis, C. H. (1993). Universities and scientific research capacity. *Science and Technology Policy for Economic Development in Africa*, 56, 1091.
- Epstein, H. T. (1978). Chapter X. Growth spurts during brain development: Implications for educational policy and practice. *Teachers College Record: The Voice of Scholarship in Education*, 79(6), 343–370. <https://doi.org/10.1177/016146817807900610>
- Fieschi, C., & Heywood, P. (2004). Trust, cynicism, and populist anti-politics. *Journal of Political Ideologies*, 9(3), 289–309. <https://doi.org/10.1080/1356931042000263537>
- Hallinger, P., & Walker, A. (2017). Leading learning in Asia—emerging empirical insights from five societies. *Journal of Educational Administration*, 55(2), 130–146. <https://doi.org/10.1108/JEA-02-2017-0015>
- Hiebert, J., & Stigler, J. W. (2017). Teaching versus teachers as a lever for change: Comparing a Japanese and a US perspective on improving instruction. *Educational Researcher*, 46(4), 169–176. <https://doi.org/10.3102/0013189X17711899>
- Le, M. P., & Tran, T. M. (2021). Government education expenditure and economic growth nexus: Empirical evidence from Vietnam. *Journal of Asian Finance, Economics, and Business*, 8(7), 413–421. <https://doi.org/10.13106/jafeb.2021.vol8.no7.0413>
- Lim, Y. T., & Song, C. H. (1996). An international comparative study of basic scientific research capacity: OECD Countries, Taiwan, and Korea. *Technological Forecasting and Social Change*, 52(1), 75–94. [https://doi.org/10.1016/0040-1625\(96\)00006-6](https://doi.org/10.1016/0040-1625(96)00006-6)
- Lindgreen, A., Di Benedetto, C. A., Brodie, R. J., & Zenker, S. (2022). Teaching: How to ensure quality teaching, and how to recognize teaching qualifications. *Industrial Marketing Management*, 100, A1–A5. <https://doi.org/10.1016/j.indmarman.2021.11.008>
- Marentič Požarnik, B. (2009). Improving the quality of teaching and learning in higher education through supporting the professional development of teaching staff. *Napredak*, 150(3–4), 0–0.
- Mormina, M. (2019). Science, technology, and innovation as social goods for development: Rethinking research capacity building from sen's capabilities approach. *Science and Engineering Ethics*, 25(3), 671–692. <https://doi.org/10.1007/s11948-018-0037-1>
- Nguyen, T. D., Bui, T. H. V., Nguyen, T. L. T., Tran, M. D., & Tran, T. K. N. (2021). Perception of organizational support to lecturers' research motivation: The case of Vietnam. *Journal of Asian Finance, Economics, and Business*, 8(2), 657–666. <https://doi.org/10.11191/jafeb.2021.vol8.no2.0657>
- Nguyen, T. H., Nguyen, N. D., & Tran, B. V. (2021). Impacts of organizational factors on work motivation and job performance: Evidence from SMEs in Vietnam. *Journal of Asian Finance, Economics, and Business*, 8(10), 285–295. <https://doi.org/10.13106/jafeb.2021.vol8.no10.0285>
- Palmer, P. J. (1983). *To know as we are known a spirituality of education*. NY: Harper One.
- Rizwan, S., & Khan, R. M. (2015). Raising the quality of teaching in public schools of Pakistan: A three-dimensional analysis for capacity development of in-service teachers in instructional planning and strategies. *Journal of Education and Practice*, 6(19), 190–202.
- Tran, T. M. (2022). Investigate the factors affecting the competitiveness of Vietnam's small and medium businesses. *Journal of Management, Economics, and Industrial Organization*, 25, 70–82. <https://doi.org/10.31039/jomeino.2022.6.2.5>
- Vargo, S. L., & Lusch, R. F. (2004). The four service marketing myths: Remnants of a goods-based, manufacturing model. *Journal of Service Research*, 6(4), 324–335. <https://doi.org/10.1177/1094670503262946>