ORIGINAL ARTICLE

Solutions for Developing University Lecturers' Competences to Meet the Education 4.0 Requirements

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ABSTRACT
The education 4.0 has been exerting a strong influence on higher education; to respond to our society's needs, lecturers have been required to possess necessary competences. Inclined to the education 4.0, numerous are universities worldwide which have been undertaking innovations in all aspects. This article concerning this challenge will insist on analyzing our university lecturers' teaching methods on which the education 4.0's effect can be seen clearly. Based on the thorough analysis, this article proposes some solutions to develop university lecturers' competences in the process of adapting to education 4.0. These proposed solutions which are well scientifically founded and experimented will display their feasible and indispensable qualities to help our universities develop needed workforce during this rapidly changing era.

1. INTRODUCTION

According to the resolution 14/2005/NQ-CP on Nov-11-2005 on the basic and entire innovations of Vietnamese education during 2006-2020, the Prime Minister declared: "Education innovations must ensure its practicality, efficiency and compatibility. Enlarging scales must go hand-in-hand with improving quality; implementing social equality must harmonize with ensuring formation efficiency; innovations must include aim, process, curriculum and learning and teaching methods, models of learning results". Therefore, existing in the period of globalization and international competition, Vietnamese university education has to transform itself to adjust to real circumstances.

Vietnamese university education is on change to suitably develop to be harmonious with social needs and international adaptation. One of the key issues of this process can be found in university lecturer staffs' development. They occupy the decisive role of improving university education quality (Ministry of Education and Training, 2018). Presently, university lecturer staffs are enlarging their quantity and professional competences day after day. Their knowledge, professional level and real activity competence have been upgraded step by step in all aspects, which contributes to the success of our country's innovation so far.

However, the amazing development of science and technology has had a considerable impact on our university education, so lecturer should express his/her capacities suitable for the education 4.0. This is the reason why our researcher team has chosen the research on "Solutions to developing university lecturers' competence meeting the education 4.0 requirements."

2. LITERATURE REVIEW

From ancient time up to now, teachers have played an important role in education. "A good teacher will create a good role"; this concept shows that the capacity of teachers plays a huge role in determining the quality of training. Improving faculty capacity and improving teaching quality will inevitably improve students' learning outcomes that are of great interest to educational institutions and researchers. Followings are some studies on this issue.

In the study "Measuring the Effects of Schooling by Hattie in 1992, the author has collected data for 10 years to analyze the factors influencing teachers' ability to play a decisive role on education quality. Next, the author Christopher Jepsen (2005) through the topic "Teacher Characteristics and Student Achievement: Evidence from Teacher Surveys" has demonstrated the positive effects of teachers' abilities on classroom effectiveness.

Teacher standards specify minimum requirements for teachers of all levels who want to be identified by the Organization for Economic Co-operation and Development (OECD) in its 2005 report: "Teachers matter": developing and retaining effective teachers include 3 areas: professional ethics; knowledge and pedagogical capacity. In addition, teachers need skills in planning, monitoring, evaluating as well as organizing and managing classrooms (OECD, 2005).

In addition, Omer Cem Karacaoglu (2008) has researched 4 groups of lecturers' competency such as: competency related to professional knowledge; competency related to knowledge of the area of expertise; competency related to self-improvement and competency related to national and international values.

In 2012, the study "Initial Teacher Training/Education standards for Lecturers in Scotland's colleges" used a quantitative research method by surveying 525 samples from Scottish universities to build top standards for teacher training for Scottish universities include the following criteria: Guide and support learners in the teaching process; Curriculum planning and designing; Teaching creates a safe, interactive learning environment to encourage learning; Evaluation drives learning; Quality and Quality Improvement and Vocational Practice and Development (Andrew, 2012). Wamala Robert and Seruwagi Gerald (2013) through the study "Teacher Competence and the Academic Achievement of Sixth Grade Students in Uganda" investigated the effect of teacher competency on the academic achievement of sixth graders in Uganda. The 2009 survey was based on data sourced from the Southern African Consortium for Monitoring Education Quality (Southern African Consortium for Monitoring Education Quality) in 2009 surveying 5,148 records of sixth-graders attending primary schools in Uganda. Results showed that high student achievement in Reading and Maths was significantly related to high teacher competency in similar areas. However, this generalization cannot apply to all students in all countries because of differences in learner characteristics and learning environments.

In Vietnam, there have been many studies and articles presenting views on teacher competencies such as: Training high-quality teachers in the current era has raised the concept of high-quality teachers in addition to the criteria of moral qualities. They must be someone with good professional qualifications; grasp and effectively deploy pedagogical science in teaching activities; capable of using well active teaching methods; know how to use methods and forms of testing and assessing students' learning results in an objective, scientific, fair and creative way; adapting to different teaching conditions and learners (Nguyen Thi My Loc, 2010).

In 2014, the author Trinh Van Huong studied the effect of lecturers' capacity on student's learning activeness, thereby showing the professional and pedagogical capacity of teachers such as: Teacher personality; Classroom management capacity and student testing and evaluation; The ability to use teaching facilities plays an important role in affecting students' learning positivity.

In summary, through the previous research results, it has been shown that the need to strengthen the capacity of teachers is a measure to improve learners' learning achievement in education. In order to achieve this, we must first confirm. determine the necessary practical competencies of special teachers in the era of education 4.0 based on the standards, requirements of the profession, professional knowledge, pedagogical ability, ethical qualities necessary to ensure say good teaching and learning at university level.

3. RESEARCH METHODS AND RESULTS

3.1. Research methods

In this paper, the authors used a combination of two research methods - qualitative and quantitative research methods. The article proposes solutions for developing lecturers' competences to meet the education 4.0 requirements which are conducted with two research methods summarized in 11 most basic research stages as following:

+ Stage 1: Title of research: the authors had to identify the research title. The title is "Solutions for developing lecturers' competences to meet the education 4.0 requirements". This study is based on experience, accumulated knowledge, and practical needs of universities.

+ Stage 2: Objectives of research: the authors must find the objectives of the research. The study's goal is to propose a model of lecturers' competences and thereby offer solutions for developing lecturers' competences to meet the education 4.0 requirements.

+ Stage 3: Research theories and related to studies: the authors have to find the research theories related to studies. This stage helps the authors build a model of lecturers' competences.

+ Stage 4: Authors based on the mentioned theories to build preliminary scales and model lecturers' competences to meet the education 4.0 requirements.

+ Stage 5: Qualitative research: interviewing experts in educational subjects. The authors did preliminary scales based on 20 experts' ideas about education and training to improve the scale and design survey questions. The authors asked 40 experts, and all of them had an agreement with all factors in the model of lecturers' competences to meet the education 4.0 requirements.

+ Stage 6: The authors adjusted the research model. This stage helps the model be better.

+ Stage 7: The authors had an adjustment and refined scale by testing a reliability scale with Cronbach's Alpha coefficient and exploratory factor analysis. The authors surveyed 30 lecturers teaching at Sai Gon University. This stage helps to have preliminary data, and the research results improved the questionnaire for quantitative research (n = 218 people).

+ Stage 8: Quantitative research (n = 218 lecturers): the authors continued to survey 218 lecturers by using by questionnaires. They are teaching many majors for Sai Gon University. Reliability scale with Cronbach's Alpha coefficient and exploratory factor analysis testing. There are 7 questions with 64 items and 218 lecturers answered, and data collected from Sep 2020 to October 2020 at Sai Gon University.

+ Stage 9: Cronbach's alpha, EFA, SEM: the authors used a random sampling technique and spent 20 minutes for a survey; reliability scale with Cronbach's Alpha coefficient and exploratory factor analysis testing. Next, the authors had continued with confirmatory factor analysis (CFA). CFA showed to clarify: Chi-square testing is P-value>5 percent; CMIN/df $\leq$ 2, some cases CMIN/df maybe $\leq$ 3.0 or<5.0 (Hair et al., 1998), GFI, TLI, CFI $\geq$ 0.9. Besides, RMSEA $\leq$ 0.08.

+ Stage 10: Official model of research: the authors tested SEM model based on the results of stage 9.

+ Stage 11: Conclusions and recommendations: The authors analyze research data and propose solutions to develop university faculty competencies to satisfy education 4.0.

Our research uses SPSS 22 and AMOS 22 software to handle information collected from survey with Likert scale assessing at 5 levels: from 1 score (Not necessary) to 5 scores (Very necessary) of the necessity of 5 competence groups, and the scale from 1 score (not good) to 5 scores (very good) in the survey of university lecturers' competence to answer to the education 4.0's requirements.

The scale of 5 levels is referred to the scale of distance values (maximum - minimum)/n = (5-1)/5 = 0.8. Therefore, the average values of the scale in the survey are conventionally regulated as follows:

Table 1. Regulations of handling survey

$1.0 \leq AV <1.8$	$1.8 \leq AV <2.6$	$2.6 \leq AV <3.4$	$3.4 \leq AV <4.2$	$4.2 \leq AV <5.0$
Not necessary	Less necessary	Reluctant	Necessary	Very necessary
Not good	Intermediary	Upper-intermediary	Good	Very good

• *AV: Average Value*

Our authors have tested the scale's reliability with Cronbach's Alpha; the outcome is 0,893 with 64 items in total. This proves the survey's high reliability.

3.2. Research results and discussions

3.2.1. Theoretical basis concerning lecturer's competence in the education 4.0

- The concept of competence: This concept is understood in many ways according to objective of use, choice, concreteness: *"Competence is an individual attribute allowing that individual to achieve success in a certain activity, obtain results expected in some particular conditions". "Competence is taken for the deep synthesis of knowledge, skills, attitude which leads to realizing a professional work and can be expressed in practical activity"* (Dang Thanh Hung, 2012). In general, the nature of competence consists in synthetically taking use of all knowledge, skills and individual attributes to successfully undertake a certain task in certain context.

- The concept of education 4.0: Intelligence education 4.0 is the education taking advantages of the Internet and Artificial Intelligence's progresses to give birth to a society learning all life whenever and wherever. It can be understood that the education 4.0 uses intelligent technologies to change education models for the future. The education 4.0 model is nothing more than an intelligent education model which creates links among schools, administration, and workforce employers. Those links will help learners freely develop individual competences.

The revolution 4.0 has made all things intertwined by the Internet and the information developed day after day. As a result, the process of transferring knowledge, experience among humans must also change satisfactorily, especially in the education sphere in general and the university education in particular. The coming into existence of the artificial intelligence and its development has been applied to education, which helps people grasp knowledge

more quickly and save time. In the education 4.0, lecturers' task should become the bridge between information and students during the process of transferring knowledge and experience (Honga et al., 2008).

- Lecturers' necessary competences in the education 4.0: In the university education context, lecturers, playing an important role, contribute the decisive part to producing quality workforce. Presently, some educators show different views of competences that lecturers must acquire to complete their responsibility of educator, researcher… In addition, the authors have been teaching at the university for over 26 years and based on the experiences, accumulated knowledge and actual needs of the universities, the authors propose model of lecturers' necessary competences in the education 4.0 (Figure 1) with specific justifying bases such as:
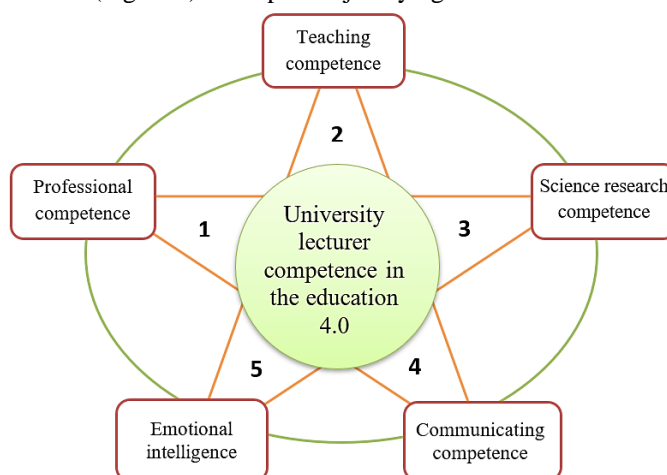

Figure 1. Model of Lecturers' necessary competences in the education 4.0

The author Nguyen Huu Lam (2018) in his article "Developing lecturer competence so as to upgrade education and training quality in universities and colleges" has proposed three necessary groups: professional competence, researching competence and teaching competence. Bui Ha Phuong (2019) in the article "Building the criteria to assess university lecturer competence and methods to upgrade lecturer staff quality in the University of Social and Human Sciences, National University of Ho Chi Minh City has proposed three necessary groups for lecturers: teaching competence, science researching competence and community serving competence. Lecturer staff is the very essential force, which determines education 4.0's quality. Using the above authors' views, our researching team suggests five necessary competence groups of lecturers in the education 4.0: professional competence, teaching competence, science researching competence, communicating competence and emotional intelligence. The following part will discuss these five groups in detail:

+ Professional competence must occur in the first place. In order to deserve their standing on the platform, lecturers need to equip themselves with solid professional knowledge. In addition, to serve the education 4.0, complementary knowledge like foreign languages, information technology, educational knowledge are what they should not lack. So, the factors in lecturers' professional competence figure as follows: professional knowledge (CM1); complementary knowledge (information technology, foreign languages, etc.) (CM2); profession developing competence (CM3); professional attitude and ethic (CM4); knowledge in education sphere (CM5) (Nguyen Thu Ha, 2014).

+ Teaching competence is what most lecturers are supposed to improve during their career; nevertheless, in the education 4.0, that competence is demanded to reach higher levels. Lecturers have to be able to apply technology to their teaching and develop transferring ability for effective results. Therefore, teaching competence of lecturers is composed of: teaching, idea and information transferring competence (GD1); analyzing, synthesizing, problem solving competence (GD2); technology applying competence (GD3); organizing and planning competence (GD4); testing and assessing competence of students (GD5); self-studying and self-developing competence (GD6) (Nguyen Thi Tuyet, 2008).

+ Science researching competence is the necessary one that allows lectures to raise their level and discover new ideas for enriching professional knowledge as well as applying it to practical activity. Lecturers' science researching competence in the education 4.0 includes: discovering competence of new issues (NC1); science researching competence (NC2); participating competence to collectively science researching works (NC3); student conducting

competence of undertaking science researching (NC4); assessing competence of science researching results (NC5) (Tran Thanh Ai, 2014).

+ Communicating competence has its important part in helping lecturers to transfer knowledge and information to students. This competence can be regarded as an ensemble of behaviors, interactions, rules which takes shape throughout everyday communicating experiences. For lecturers in the education 4.0, this competence cannot be missed because each individual's knowledge is formed in different ways, among which are communicating with neighbors, team and partnership working, interacting with students. So, communicating competence of lecturers are made up of: communicating competence with neighbors (GT1); team and partnership working competence (GT2); interacting competence with students (GT3); information sharing competence with students (GT4); confidence in own abilities (GT5); disciplined in working, loving studying (GT6); creativity (GT7); enthusiasm and conscience in working (GT8).

+ Emotional Intelligence (EQ) is the ability to understand, control and express one's own emotions. This very essential competence affects lecturers' life quality a lot. If they have good EQ, they can harmoniously settle relationships to better their work. Lecturers' emotional intelligence comprises: wisdom and conscience in working (CX1); understanding one's strengths and weaknesses (CX2); controlling one's emotions (CX3); self-motivating (CX4); understanding others' emotions and correctly behaving (CX5); adaptiveness (CX6); controlling stress and pressure (CX7); positively viewing of issues (CX8).

After all, in order to satisfy the education 4.0's demands, there have to be necessary competences. We iterate them again: professional competence, teaching competence, science researching competence, communicating competence and emotional intelligence. Among them, most educators are caring for the three first ones. However, in the article, the authors suggest that the two others should not less important: communicating competence and emotional intelligence. The education 4.0 recommends lecturer for self-development by studying, equipping oneself with improving one's level to obtain higher academic degree and rank, practicing skills, applying suitable curriculum and methods, ensuring teaching and studying quality. The above competence groups will help lecturers feel more confident and easily adapt themselves to the education 4.0.

3.2.2. The reality of the necessity and lecturers' competences and their real competences in the education 4.0

In fact, although every university has its own particularities of objectives and needs of training in respect of different career, the development of lecturer staff always bears a material signification for needs of upgrading education quality in the education 4.0. apart from professional competence, teaching competence, communicating competence, morality quality to interact with students (Plotnikova, 2007). Especially, the education has transformed itself into economy knowledge and education 4.0, lecturers face with pressure in the teaching and interacting with colleagues and students, so lecturers also need emotional intelligence. The proposed competence groups are the premise of motivating lecturers to work enthusiastically and give a positive power for students, contributing to the profound change of training quality of the university in particular and the country's education in general.

- Lecturers' professional competence in the education 4.0: Lecturers' professional competence is made up of professional knowledge, understanding, skills, etc. having the particularity for professional position or department that individuals need to be able to complete their works effectively. Professional knowledge for specialized career is one of the core competences lecturers need to possess. Nevertheless, the education 4.0 asks lecturers to have some complementary competences such as information technology, foreign languages, ability to use information technology in teaching, which are inevitable in the education 4.0. Other than that, to keep up with the education4.0's development trend lecturers should be open up to knowledge of education sphere and professional developing competence, and another indispensable quality in lecturers is their attitude and professional morality (Hoang Sy Tuong, 2018).

When observing the results from Chart 1, we can see the five necessary factors of professional competence are: professional competence in specialized career; complementary knowledge (information technology, foreign languages, etc.); developing career competence; attitude, professional morality; knowledge in education sphere; knowledge in education sphere, they are all assessed about 4.0 scores at the necessary level. On contrary, lecturers' levels assessed by themselves are not high enough, they vary between 1.5 scores and 3.5 in the scale, especially, developing career competence reaches only about 2.25 scores. Professional knowledge in specialized career and complementary knowledge are assessed from 3.0 scores to 3.5, which are upper-intermediary. In general, the space between the necessary and real levels still remains large.
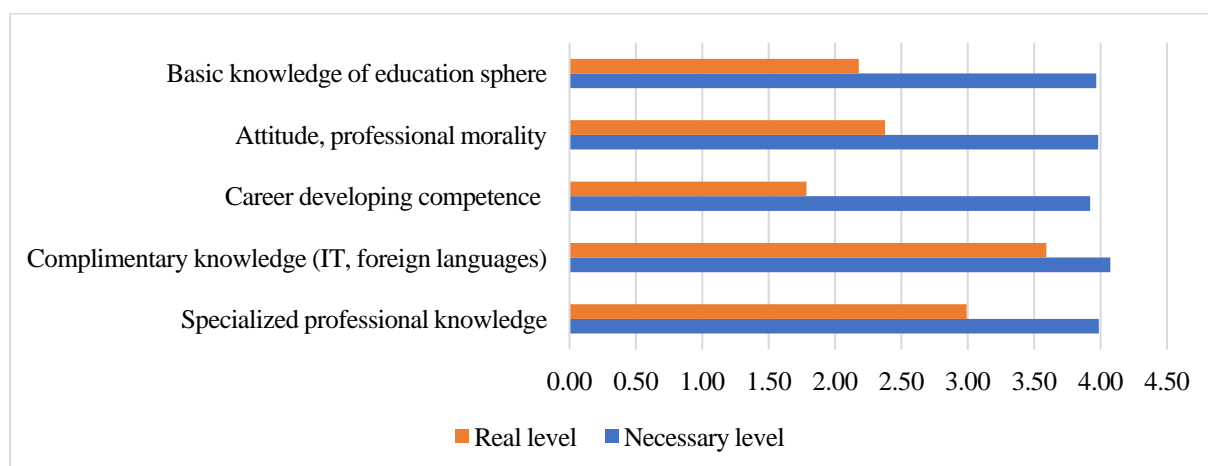
Chart 1. The reality of lecturers' competences in the education 4.0

- Lecturers' teaching competence in the education 4.0: Lecturers' teaching competence in the education 4.0 is expressed by factors like: knowledge transferring competence, explaining opinions and abstract theories; specialized and large knowledge of discipline. In addition, lecturers need to have various skills of using teaching methods, motivating students. Issues analyzing, synthetizing, solving competence and technology applying competence when teaching also play a decisive part in the education 4.0. According to the current education's trend, lecturers who want to achieve their work should organize and plan teaching schemes, test and assess students in regard of the education 4.0's orientation. To adapt to the education 4.0, lecturers have to improve self-studying and self-developing competences, which allow them to easily adapt themselves to education development trend.
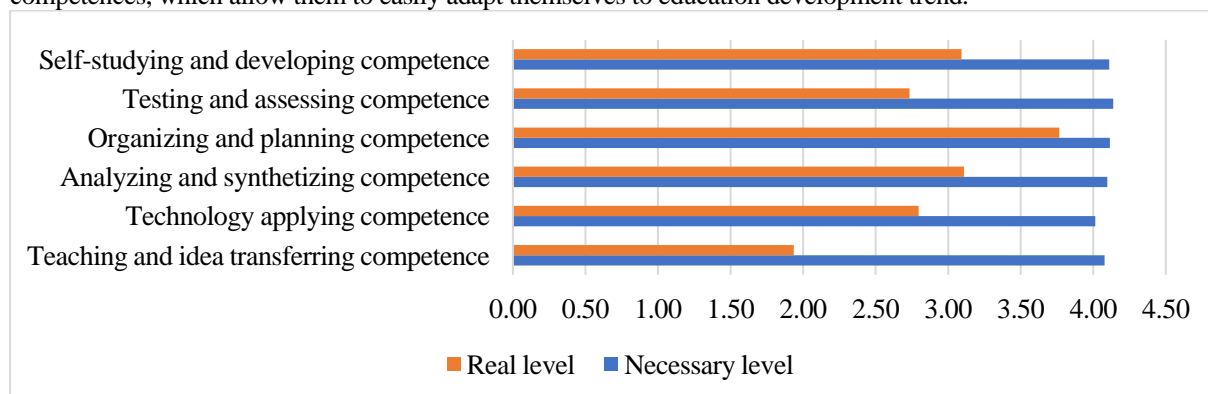

Chart 2. The reality of lecturers' teaching competence in the education 4.0

Chart 2 provides us with results of the 6 factors of teaching competence: teaching, knowledge and information transferring competence; analyzing, issues synthetizing, solving competence; technology applying competence when teaching; teaching work organizing and planning competence; student testing and assessing competence; self-studying and self-developing competence are all assessed more than 4.0 scores at the necessary level. On the other hand, the teaching and knowledge and information transferring competence is given about 1.8 scores on average. The other competences have scores from 2.75 to 3.0, which correspond to the upper-intermediary level. In conclusion, the real level is far behind the necessary one.

- Lecturers' science researching competence in the education 4.0: Researching competence affects professional competence, only if they research sciences, lecturers can enrich their professional knowledge and apply it to practical life. So, science researching is one of the compulsory tasks for lecturers. During teaching process, they find new issues that demand them to do science researches. Those who are able to do science research will always search for new issues and positively participate in science researching activities. More than that, lecturers in the education 4.0 should be able to lead students to do science researches and assess science research results.

The 5 factors of science researching competence are showed in Chart 3: new issue discovering competence; science researching competence; participating to researching activities competence; leading students in doing

researches competence; science research result assessing competence are all evaluated more than 4.0 scores at the necessary level. On the other hand, at the real level, participating to activity researching competence attains 2.25 scores. The other competences have scores from 2.5 to 3.0 (corresponding to the upper-intermediary level). Only the science researching competence is assessed 3.25, which is quite good. So, the bridge between the two levels of lecturers' science researching competence is quite long to overcome.
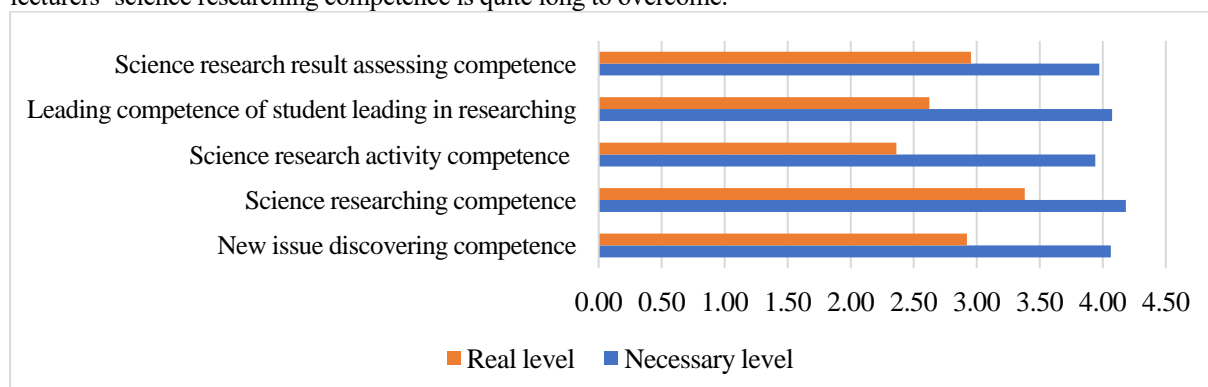

Chart 3. The realty of lecturers' science researching competence in the education 4.0

- *Lecturers' communicating competence/their morality quality in the education 4.0:* Lecturers' communicating competence is the ability to use verbal language to express thoughts, ideas, feelings to interested subjects clearly and convincingly, as well as motivate bilateral communication. In the education 4.0, lecturers share information with students and assume the intermediary part between students and sources of knowledge. Lecturers not only help students understand knowledge but also care for students' needs in order that they possess effective studying methods. To accomplish that responsibility, lecturers must confide in themselves, be disciplined in working, love studying, be creative, endeavor and conscientious.

Chart 4 displays information of the 8 factors of lecturers' communicating competence in the education 4.0: communicating competence with neighbors; team working and collaborating competence; interacting competence with students; information sharing competence; confidence in oneself; discipline in working; loving studying; ability to be creative; being endeavor and conscientious in working are evaluated more than 4.0 scores. On contrary, information sharing competence with students; confidence in oneself and team working and collaborating competence have only 1.5 scores, which means the weak level. Scores of from 2.0 to 3.0 are distributed to the other competences (corresponding to upper-intermediary level). Only endeavor and conscientious in working qualities attain 3.5 scores, which is good. The two levels of necessity and reality are still different from each other.
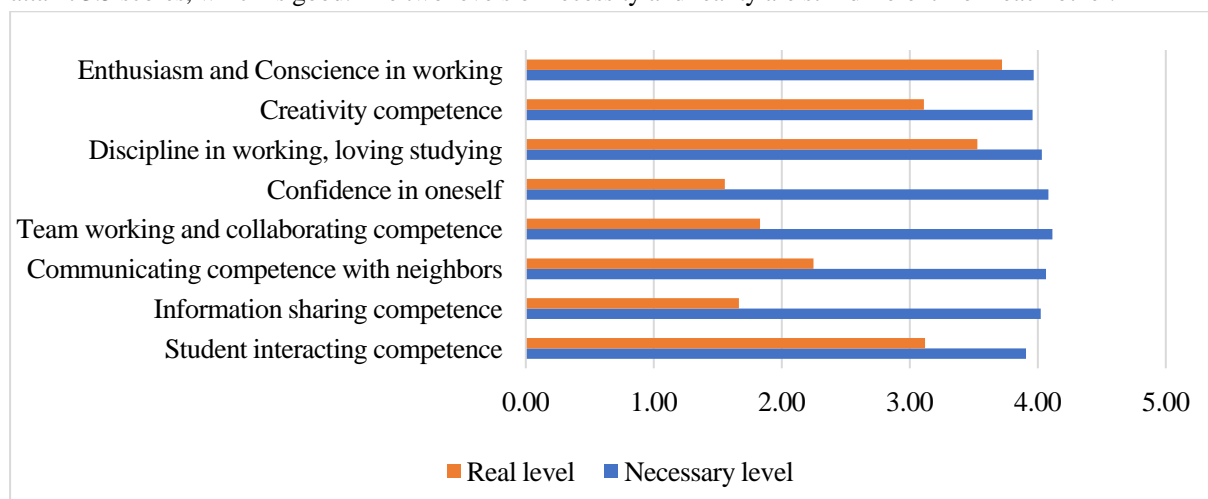

Chart 4. The reality of lecturers' communicating competence in the education 4.0

Most of the 10 lecturers interviewed agree that lecturers' competences for answering to requirements in the education 4.0 still remain limited due to several different reasons. Some of them think: "*In the education 4.0, lecturers*

must have information technology and foreign language abilities to access modern contents and methods. However, lecturers' works are now overloading and they have little time spent on collecting information on the internet. That's why when touching social issues, they don't feel confident. Besides that, the collaborating and sharing information among them is not well working because they don't have much time for professional activities together" (A female lecturer, 48 years old, Education Management Department).

- Lectures' emotional intelligence in the education 4.0: Emotional intelligence helps lecturers understand better and have professional responsibility. What is important is to know one's strengths and weaknesses. Being able to control one's emotion in all situations, a person of emotional intelligence knows how to motivate oneself to be harmonious with situations. Nowadays, lecturers face with many difficulties coming from knowledge development or teaching technologizing, under such pressures, lecturers have to control stresses and pressures in order to observe issues positively. More than that, it is essential to feel others' emotions to correctly behave and handle conflicts and troubles at work and in life.

Looking at results in Chart 5, we realize that understanding and conscientious in working; knowing one's strengths and weaknesses, controlling one's emotions; self-motivating; feeling others' emotions; correct behavior; adaptive quality; controlling stresses and pressures; positively observing issues are evaluated more than 3.6 scores at the necessary level. At the real level, lecturers' emotion controlling competence has 1.75 scores, and the other competences obtain scores from 1.8 to 3.0 (corresponding to the upper-intermediary level). Only knowing one's strengths and weaknesses competence has 3.5 scores, which is good. So, there is a great discrepancy between the necessary level and the real level of lecturers' emotional intelligence in the education 4.0.
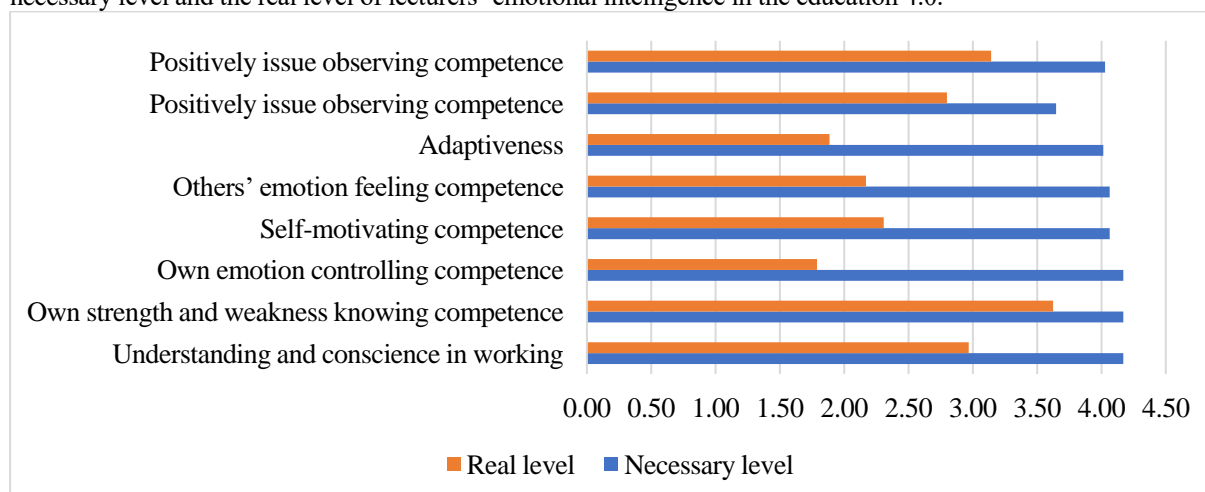

Chart 5. The reality of lecturers' emotional intelligence in the education 4.0

Among 10 lecturers interviewed, the majority agree that lecturers' emotional intelligence in the education 4.0 still remains limited because they face with many difficulties at work and in life. We are mentioning an opinion: "The education 4.0 requires lecturers a large and profound knowledge. Nonetheless, life difficulties don't allow me to upgrade my level and continue my study as master degree. Under working pressure, sometimes I cannot control my emotions caused by work and life stresses." (Extracted from a male lecturer's interview, 38 years old of Information Technology Department).

Comparing analyzed results with interview results, we see that the 5 competence groups, including professional competence, science researching competence, communicating competence and emotional intelligence, are crucial for education development. In spite of that notice, lecturers' competences haven't met the requirements; so, they have to make efforts and improve themselves more again.

- Relationships of competences in the lecturers' competence model in the education 4.0: After analyzing describing statistics, the authors have collected variables including: Exploratory Factor Analysis (EFA) which is an analyzing approach for evaluating convergent validity and discriminant validity. This research uses factor analysis EFA with Promax rotation (non-orthogonal.) Observational variables having loading estimates ≤ 0.3 will be rejected and the research keeps on analyzing factors.

Factor analysis shows KMO=0.757 and meaning level p=0.000, which means factors extracted having relations among each other and statistical signification. The last result of factor analysis EFA has 6 factors extracted that

contain factor loading ≥ 0.37, corresponding to 6 research concepts of theoretical basis. From factor analysis EFA (the last time) 6 factors extracted at eigenvalue occupy 60% corresponding to 6 theoretical proposed. More specifically: Factor 1: includes 5 observational variables encoded from CM1 to CM5 and named Nlchuyenmon; factor 2: includes 6 observational variables encoded from GD1 to GD6 and named Nlgiangday; factor 3: includes 5 observational variables encoded from NC1 to NC5 and named Nlnghiencuu; factor 4: includes 8 observational variables encoded from GT1 to GT8 and named Nlgiaotiep; factor 5: includes 8 observational variables encoded from CX1 to CX8 and named NLcamxuc.
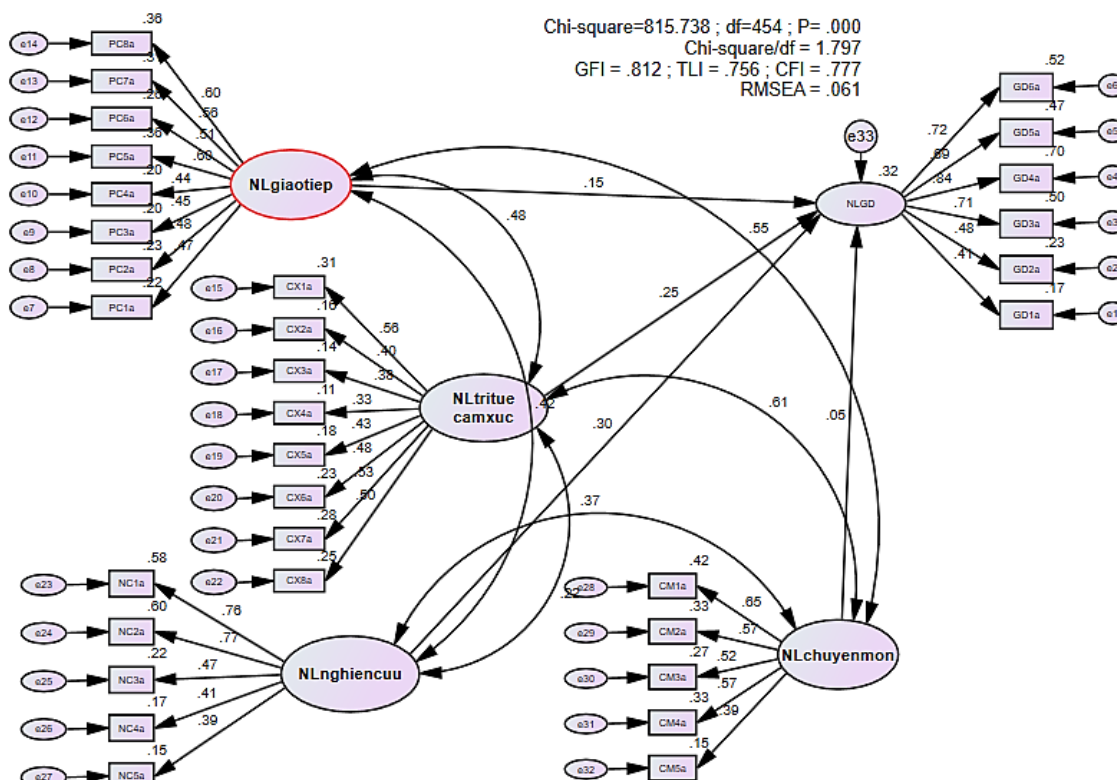

Chart 6. Relationships of competences in the lecturers' competences model in the education 4.0

Researchers verify convergent validity and discriminant validity of the scale, result given has meaning level p <0.05, two validities TL1=0.812 and CF1= 0.756; CMIN/df<2, RMSEA = 0.061. Moreover, the scale attaints convergent validity when its standardized loading estimates have all relationships in the variables (Chart 6) and statistical signification. From the above results, the theoretical model is considered suitable to the reality according to the scale verifying theory. The result analysis shows that competences embody mutual relationships, such as: teaching competence and communicating competence bear the relationship of 0.419, which means 41.9%; teaching competence and emotional intelligence 0.42 or 42%; teaching competence and researching competence 0.433 or 43.3%; teaching competence and professional competence 0.396 or 39.6%. This remark says that the 5 proposed competence groups are necessary and bear intimate mutual relationships in the education 4.0.

3.2.3. Recommendations

In order to respond to world's development, universities must reinforce approaches of upgrading lecturers' competences. Solutions proposed are based on 5 lecturers' competence groups, as follows:

- *Solution to upgrading professional competence*: + Building a plan of upgrading profession and professional skill level, focusing on collectively training professional skills for young lecturers; + Usually organizing professional conferences, seminars of professional topics and encouraging lecturers to take part in them; + Constructing criteria of required competence standards for university lecturers: + Facilitating lecturers' participation to exchange with domestic and oversea universities for improving their professional competence in the education 4.0; + Encouraging lecturers to study in order to better professional level; + Facilitating lecturers to take advantages of modern technology which helps come up with new ideas to perfect their works.

- Solutions to upgrading teaching competence: + Founding an advisory committee of teaching skills for lecturers, investigating its work and evaluating it periodically through reply channel about lecturers' teaching activities; + Sending lecturers to relevant teaching training courses coordinated by domestic and international organizations, facilitating lecturers to access to positive teaching methods; + Organizing conferences and seminars and inviting international experts to teach and share experiences; + Organizing trainings of teaching skills combined with each of professions, especially for young lecturer staff; + Organizing profound skill courses concentrating on: lecture planning, question and situation anticipating in teaching, building estimation criteria; + Facilitating lecturers to take part in trainings relevant to estimating students' competences.

- Solutions to bettering science research competence: + Facilitating young lecturers to participate in domestic and international projects to better professional competence combined with science research and have access to positive teaching approaches; + Encouraging lecturers to participate in science research activities derived from solving existing real issues, issues emerging during teaching to solve, research to make products applicable and feasible. By congratulations, remunerations on valuable science researches, upgrading science research activity efficiency; + Innovating administration formalities related to science researches to reduce time spent on paper formalities, motivate lecturers to do research on sciences. Moreover, universities must ensure equality and clarity when examining and accepting theses; + Encouraging and rewarding theses in the way of ordering annually and collaborating with units using theses and research organizations; + Building science research quota to have valuable researches, providing budget for important scientific theses. Lecturers must have articles published annually in prestigious magazines in relevant domain.

- Solutions to improving communicating competence: + Encouraging lecturers to participate in extracurricular activities, exchange professional knowledge and teaching experiences, etc.; + Organizing art, sports, collective activities to help lecturers to participate in social activities, extracurricular courses or experiential picnics organized by university; + Encouraging lecturers to initiatively find opportunities to participate in clubs related to their career for improving their own abilities; + Universities should pay attention to lecturers' collective activities and organize more professional activities related to the education 4.0, then lecturers can access to new knowledge; + In everyday communication, lecturers always deal with lots of different situations. The more civilized society is, the higher humans' needs of communication are. Their behaviors should be intelligent, delicate, punctual, effective. Universities' leaders must set an example of communicating, help lecturers feel assured and sympathetic while communicating with together. Thanks to that, leaders make use of practical situations to help lecturers possess experiences when communicating with the environment.

- Solutions to improving emotional intelligence: + Encouraging lecturers and facilitating them to study all life, continuously develop and be open up to new ideas, be ready to learn from others: + Creating democratic atmosphere for lecturers to share ideas with others and receive new knowledge and information from others: + Facilitating lectures to confide in themselves when deciding what the best choice is for themselves at collective meetings; + Creativity is one helpful factor for lecturers in the education 4.0 because when working, lecturers have to express creativity to solve issues.

4. DISCUSSION AND CONCLUSION

From the scientific research of the article, 5 key competencies have been identified that are essential for university lecturers and that are factors that play an important role in the process of improving the quality of training in universities with the significance level is 0.00%, the confidence level is 100%. This study is the basis for proposing recommendations to promote solutions to develop university lecturers' competences to meet education 4.0. This study surveyed 218 lecturers teaching at the University of Saigon. Research results show that: + Lecturers' professional competence in the education 4.0 including attitudes, ethics and careers which are very necessary in the teaching process, but the level achieved is only at a fair level compared to the necessity; + Lecturers' teaching competence in the education 4.0 which includes communication capacity, self-study and development capacity, analytical and synthesis capacity, ability to test and evaluate learners … plays a very necessary role; however, the level achieved is average compared to the requirements of education 4.0; + Lecturers' science researching competence in the education 4.0 has been evaluated quite well but has not really responded to the innovation of the current education; + Lecturers' communicating competence/their morality quality in the education 4.0 such as enthusiasm, enthusiasm for the profession, ability to interact with learners, share information with learners … only achieved at a fair level, especially the confidence of teachers in themselves compared to 4.0 education is still low; + Lectures' emotional intelligence in the education 4.0 is a necessary ability because today's life is very complicated, so teachers need to manage their own emotions well to bring efficiency at work, but through research results. The teachers' emotional intelligence capacity is still limited compared to reality.

From the study of the current state of university faculty competencies, the article proposes 5 groups of solutions to develop university faculty competencies to meet education 4.0. The article has 3 new contributions to scientific research, namely: + Contribute in terms of research academically: the authors have studied related studies to propose a model of university faculty competency to satisfy education 4.0; + Contribute in terms of research methodology: the authors have used qualitative research methods and quantitative research methods to create reliability and convincing for the article; + Contribute in terms of research in practical application: the article explores the practical requirements of what the current 4.0 education needs and then proposes solutions to develop university faculty competencies to meet 4.0 education.

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