



Vocational Teacher Desired Characteristics

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Abstract

This article presents results of survey research which aimed to investigate of desired characteristics of vocational teachers, and analyze the factors of desired characteristics of vocational teachers. The 240 samples, collected using stratified random sampling, comprise of Faculty of Technical Education Teachers, 5th year undergraduate students of Faculty of Technical Education, and in-service vocational teacher. The research instrument used for collecting data was a 80-item Likert's six-point scale questionnaire. Research instrument reliability, analyzed by Cronbach's alpha coefficient, was between 0.637-0.968.

The research findings reveal desired characteristics of vocational teachers consisting of 12 factors namely, 1) 'possess the spirituality of teacher spiritual' consisting of 20 indicators, 2) 'organize the quality learning activities' consisting of 13 indicators, 3) 'co-operate with other organizations' consisting of 6 indicators, 4) 'construct new academic knowledge' consisting of 4 indicators, 5) 'work safety' consisting of 4 indicators, 6) 'master in multi-context' consisting of 4 indicators, 7) 'create good learning atmosphere' consisting of 4 indicators, 8) 'arrange suitable environment' consisting of 3 indicators, 9) 'realize changes in the world' consisting of 5 indicators, 10) 'work with full competency' consisting of 4 indicators, 11) 'keep pace with new information' consisting of 3 indicators, and 12) 'understand the learners in all aspects' consisting of 3 indicators. All factors mutually describe vocational teachers' desired characteristics at 64.131%.

Introduction

Currently, Thailand is experiencing change influenced by world economic, social and technology development. These influences cause the need for an increase in manpower to work in many sectors including industrial, commercial, agriculture, tourism, and services. The Thailand government has been focusing and emphasizing on education policy as one urgent

mission in all education levels, regarding the production and development of nation manpower (Meesuk, 2016).

One of the departments involved in human resources development is the Office of Vocational Education Commission (OVEC). The main responsibility of OVEC is being an organization which conducts education for the improvement of quality of life for Thai people. The OVEC aims to enhance the knowledge, skills, experience and competencies of people in skilled

work for the labour market. Data from OVEC in 2016 revealed there are 914 vocational school in Thailand (data dated November 18, 2016) classified as technical college, vocational college, polytechnic college, industrial and community education college, college of agriculture and technology, in addition, the college offers a variety of courses which are named by the type of subject taught. There are huge number of teachers who teach in all colleges around the nation.

Problems exist in vocation education to prepare the manpower for Thai labour market such as the achievement of vocational students have been declining (Ruamchomrat, 2015). The solutions to solve the problems was established and must be considered from the beginning of the nation's human development system in the education system. Teachers must have significant roles as a teacher or trainer who transfer knowledge, moral values and ethics, in addition, way of life and specific career acquisition to students. Hence, the role of the teacher as a good model in terms of knowledge and behavior and moral and ethical developer. The current social situation has changed the teacher's role, as society expects and needs the teacher who has desire, quality and potential. Especially, teachers who teach in vocational education. (Wongdee, Yampinit, Mejareurn, and Chimphlee, 2016)

The above mentioned changes have caused experts to pay more attention to the production process of vocational teachers. It begins with the teaching of students who study for vocational teaching in university with the focus on how to develop the characteristics that respond to the changes. In order that the Office of the Higher Education Commission (OHEC), main unit for professional development, has issued the Notification of the Higher Education Commission on guidelines for compliance with Thai Qualifications Framework for Higher Education B.E.2552. This Act describes the desired characteristics of all degree graduates, especially in bachelor's degree. The Act is considered to be the basic level for the current Thai society, defining the attributes of bachelor degree graduates in two parts, including, knowledge & competencies and desired characteristics.

Firstly, the level of knowledge and competencies of bachelor degree graduates must have 5 skills, at least, consisting of 1) knowledge which is comprehensive, coherent and systematic in the field of study. 2) ability to examine complex problems and solutions creatively from their own insights and relevant disciplines

knowledge. 3) ability to investigate and use mathematical and statistical techniques to analyze and solve complex problem through appropriate mechanisms selection to communicate the results to various type of the recipient. 4) in case of professional courses, importance is to have necessary knowledge and skills to perform in disciplines effectively. 5) in case of academic courses that do not focus on professional practice, importance is to deepen understanding of research in relevance field and must consider the ability of research interpretation, analysis and evaluation to the extension of knowledge in the disciplines.

Second, desired characteristics of graduates have 5 aspects including 1) initiative to solve problems and arguments in both personal and group situations by the performance of leadership in seeking new appropriate alternative solutions. 2) able to apply insights of theoretical and methodology knowledge in their discipline to solve problems and arguments in other situations. 3) able to explore and offer solution processes in academic or professional problems by accepting the limitations of the nature of knowledge in each discipline. 4) engaging in the development of knowledge and skills in their discipline to be up to date and increasing knowledge and understanding continuously. 5) perform highly ethical and responsibility in academic, professional and community context, continuously (Thai Qualifications Framework for Higher Education, 2009). All desired characteristics have been initiated by higher education institutions to use for planning and designing of teaching and learning aimed to develop graduates to be professional personnel with the characteristic as described.

Moreover, the Teacher Council also announced Code of Ethics of Teacher Profession B.E.2556, which states that educational profession must behave nine practices in five sections according to ethical performing including personal ethics, professional ethics, client centered ethics, collegial ethics and societal ethics. In addition, teacher's characteristics have been studied according to professional standard found that teacher's characteristics are divided into 12 standards, 50 indicators (Khuanhat, 2007). In particular, there was a study on the specific characteristics of vocational teachers which showed the characteristics of vocational teachers and was divided into five aspects comprising of academic, instruction, teacher personality, human relationship and ethics, with 61 indicators (Jantarat, 1998). In the same year, the characteristics of the industrial teachers was

studied, the results of the study showed the characteristics of industrial teachers with 4 aspects including knowledge and professional skills, teaching ability, personality and virtue, and counseling and guidance, with 45 indicators (Tampahasdi, 1998). Teachers' characteristics have been continuously studied with a variety of results. Most results are from interviews conducted by analysis of the opinions of the administrators using statistics such as frequency, mean, standard deviation, and percentage, which are found to be related to vocational teachers in five aspect including knowledge, skills and technical, pedagogy, personality, and interpersonal relationship, there are more than 80 indicators involved (Onaum, 2005; Hanpalachai, 2005; Hankla, 2007; Seipel, Walton, and Johnson, 2011).

In the age of change, under the circumstances of competition in the Thai labour market both inside and outside the country, vocational teachers are significantly important because the process of country development requires the educational process to prepare qualified manpower. The production of quality vocational teachers align with the current situation and desired characteristics as the social and educational system requires is the beginning of Thailand's development process. Higher education institutions as vocational teacher production unit needs to set main goals to be used as a guidelines for producing and developing qualified vocational teachers. Therefore, the study of indicators and analyze the factors of desired characteristics of vocational teachers with a reliable statistical method by reflecting the features in multi-dimensional structure and reflecting more than one person's latency factors will be a benefit for the educational researcher as a method to understand the actual attributes (Pipatsuntikul, Chinodom, and Sutisripok, 2018; Rawanprakhon and Tayraukham, 2017).

Hence, it is very important that the responsible organization in charge of vocational education be aware of the attributes. What are the desired characteristics of the current vocational teacher and what are the factors and indicators? The findings can be used for planning, developing, and managing of vocational teachers education.

Objectives

This research was conducted following 2 objectives:

1. To investigate the desired characteristics of vocational teachers

2. To analyze the factors of desired characteristics of vocational teachers

Conceptual Framework

This research considers factors from previous studies which were found to be related to vocational teachers in five aspect including knowledge, skills and technical, pedagogy, personality, and interpersonal relationship (Hankla, 2007; Hanpalachai, 2005; Jantarat, 1998; Khuanhat, 2007; Onaum, 2005; Seipel, Walton, and Johnson, 2011; Tampahasdi, 1998). As shown in figure 1.

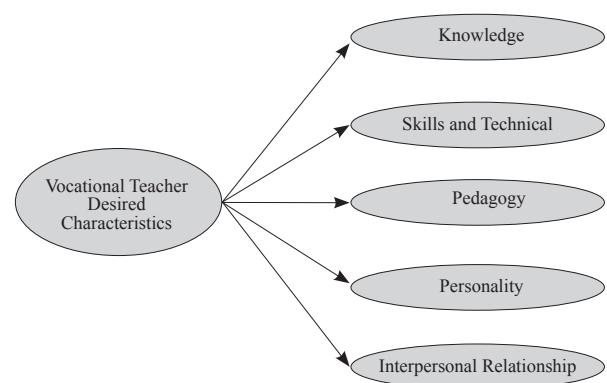


Figure 1 Conceptual Framework

Research Methodology

1. Population and sample

Population of the study were teachers in the Faculty of Technical Education, 5th year undergraduate students in the Faculty of Technical Education, and vocational teachers who teach in vocational colleges under the Office of Vocational Education Commission.

Sample of research were 240 teachers in the Faculty of Technical Education, 5th year undergraduate students in the Faculty of Technical Education, and vocational teachers calculated by the criteria of Exploratory Factor Analysis method, 3 to 5 times of the number of the indicators are studied. Hence, in this research, 80 indicators were studied, it was necessary to use the appropriate sample size to analyze by 240 data. 240 samples is the appropriate by size, suitable and sufficient for analysis of Exploratory Factor Analysis. Therefore, researcher determined the sample by stratified sampling by using character of sample as the stratum.

So, samples were divided into three groups equally; 80 each, including teachers in the Faculty of Technical Education, 5th year undergraduate students in the Faculty of Technical Education, and vocational teachers.

2. Research instrument

Research instrument used in the study was desired characteristics of vocational teacher questionnaire. There were 85 items which were divided into two parts, first, 5 questions about general information of the respondents comprising of gender, age, status, working experience, and type of college. Second part of the questionnaire was 80 items in 6 points rating scale questions about the vocational teacher desired characteristics comprised of 5 aspects including questions about knowledge, skills and technical, pedagogy, personality, and interpersonal relationship. The quality of the research instrument was improved, content validity analyzed by Index of Congruence (IOC) from 5 experts: 2 experts who qualify as higher education graduates in master or doctoral degree related to vocational education and 3 experts were vocational teachers who had worked in vocational college for at least 5 years.

The content validity of the items in questionnaire were developed, revealed that there was no question determined IOC less than 0.80. In addition, researcher improved the questionnaire based on the experts' recommendations and add more clearly details. Eventually process of research instrument development, the 85 items questionnaire was used to try out for reliability analysis in next step. After the research instrument was tried out to verify the reliability. Cronbach Alpha coefficient was determined by using internal consistency coefficient. The 40 respondents who are research population but not sample were asked to respond the questionnaire, time used was ranging from 7 to 9 minutes to finished questionnaire. Each variables revealed reliability coefficient as follow:

Items about knowledge	reliability coefficient were	0.637
Items about skills and technical	reliability coefficient were	0.911
Items about pedagogy	reliability coefficient were	0.942
Items about personality	reliability coefficient were	0.968
Items about interpersonal relationship	reliability coefficient were	0.902

3. Data collection

Researcher collected data in following order:

- Coordinate with research sample to be divided into: teachers in faculty of technical education, coordinated through the Dean's office of the faculty of

Technical Education, Rajamangala University of Technology Thanyaburi; 5th year undergraduate students in faculty of technical education, coordinated through division of Technical Education; and vocational teachers who teach in vocational college under the Office of Vocational Education Commission, coordinated through professional internship students.

- Assigned the research assistants to coordinate with sample.

- Researcher issues the letter of support to respond the questionnaire to sample's organization, namely Faculty of Technical Education, Rajamangala University of Technology Thanyaburi and vocational institutions under OVEC.

- The researcher set the time for the respondents sent the questionnaire back to the researcher within 2 weeks via the coordinator.

- Assigned the researcher assistants to submit the questionnaire to the sample by mail and send manually.

- After the end of 2 weeks, there were 171 questionnaires returned back, accounting for 71.25%. The researcher had followed to the sample and asked them for responding by contact the coordinator in each unit. The return period had been collecting increased by 1 week.

- There were 162 questionnaires more returned. The researcher checked the completeness and correctness of the questionnaires returned. Incomplete questionnaire were eliminated and completely 240 questionnaires to be analyzed.

4. Data analysis

Data were analyzed by using the software package for analysis. Divided into general information namely gender, age, status, work experience, and type of college, were analyzed by descriptive statistics such as frequency and percentage. Moreover, analysis of data to answer research questions, including Exploratory Factor Analysis (EFA) by principal component method and using rotation technique, varimax method.

Results

The results of general data analysis of the sample shown that the majority were male, 177 (73.75%). 87 (36.25%) of all sample age are lower than 25 years old, followed by age between 36-45 and 25-35 years old were 65 and 63 accounting for 27.08% and 26.25%, respectively. There were three groups of sample status

with higher number, 91 and 90 accounting for 39.92% and 37.50%, were vocational teachers and 5th year undergraduate students, respectively. The last was 59 teachers in faculty of technical education (24.58%).

Considering the type of institution and work experience of sample, firstly, the type of institution was found the sample to be more than half was from technical college (n=141, 58.75%), followed by Rajamangala University of Technology Thanyaburi (n=59, 24.58%) and College of Business Administration and Tourism (N=28, 11.67). There are only few sample from Industrial and Community Education College, Polytechnic College, and College of Technology and Management (total n=12, 5%). Considering to work experience was found that there were 76 unemployed respondents (31.67%), followed by 11 to 15 years experienced were 42 (17.50%) and between 6 to 10 years experienced were 40 (16.67%), respectively.

For the analysis of the factors of vocational teacher desired characteristics, the researcher analyzed the factors by extracting the elements by Principal Component Analysis and Orthogonal rotation by varimax method as follows in order:

1. Examination of basic statistics agreements had conducted before performing EFA. Researcher have analyzed the significance of correlation matrix between items by analysis of The Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity to examine the initial agreement on suitable data for factor analysis. The result of the KMO test should be more than 0.50, test result revealed 0.864 that mean the data were suitable to be analyzed. For the Bartlett's Test of Sphericity is a test of identity correlation matrix of population. If data is suitable for analysis, test result should has statistical significant.

Bartlett's Test of Sphericity shown correlation coefficient with statistically significant at .000 revealed the data obtained from sample were good suitable for analysis of the EFA as shown in Table 1

Table 1 Test results of statistical significant of correlation matrix between items by The Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity analysis

KMO and Bartlett's Test			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.864	
Bartlett's Test of Sphericity	Approx. Chi-Square	14690.485	
	df	3160	
	Sig.	.000	

2. Communalities analysis found that the initial contribution before the extraction of components from Principal Component Analysis of all items was 1.000. After the extraction, the values were from 0.633 to 0.803. That's mean the indicators were appropriate for EFA.

3. Eigen Value considerations after rotating, based on an Eigen Value of 1.000 or greater, which is the sum of the squares of the coefficient of each component. Components with an eigenvalue greater than 1.000 and factor loading more than 0.30 have 17 components. Considering of cumulative percent of variance of 17 components was 71.45% of total variance but there were 5 components, component 13th to 17th, has less than 3 indicators according to good criteria of appropriate factor should have at least 3 indicators in the component. The researcher has eliminated these indicators and components. Thus, the 12 vocational teacher desired characteristics were identified with total number of indicators was 73. All factors mutually describe vocational teacher desired characteristics at 64.131% as shown in Table 2.

Table 2 Number of factors, Eigen Value percentage of variance, and cumulative of percentage of variance of vocational teacher desired characteristics factors

Factor	Eigen Value	% Variance	Cumulative %
1	29.247	36.559	36.559
2	3.631	4.539	41.099
3	2.841	3.551	44.649
4	2.296	2.870	47.519
5	2.104	2.630	50.149
6	1.882	2.352	52.501
7	1.791	2.239	54.740
8	1.666	2.082	56.823
9	1.541	1.926	58.748
10	1.462	1.828	60.576
11	1.449	1.811	62.387
12	1.394	1.743	64.131

4. Naming of the factors, the researcher named the factor according to 12 components and considered by the factor loading and statement description contained in each factor as follows:

Factor 1 consisted of 20 indicators, factor loading were from 0.363 to 0.728, and eigenvalue was 29.247, named 'possess the spirituality of teacher spiritual'

Factor 2 consisted of 13 indicators, factor loading were from 0.427 to 0.706, and eigenvalue was 3.631, named 'organize the quality learning activities'

Factor 3 consisted of 6 indicators, factor loading were from 0.550 to 0.756, and eigenvalue was 2.841, named 'co-operate with other organizations'

Factor 4 consisted of 4 indicators, factor loading were from 0.654 to 0.741, and eigenvalue was 2.296, named 'construct new academic knowledge'

Factor 5 consisted of 4 indicators, factor loading were from 0.398 to 0.717, and eigenvalue was 2.104, named 'work safety'

Factor 6 consisted of 4 indicators, factor loading were from 0.362 to 0.594, and eigenvalue was 1.882, named 'master in multi-context'

Factor 7 consisted of 4 indicators, factor loading were from 0.468 to 0.704, and eigenvalue was 1.791, named 'create good learning atmosphere'

Factor 8 consisted of 3 indicators, factor loading were from 0.372 to 0.743, and eigenvalue was 1.666, named 'arrange suitable environment'

Factor 9 consisted of 5 indicators, factor loading were from 0.402 to 0.606, and eigenvalue was 1.541, named 'realize changes in the world'

Factor 10 consisted of 4 indicators, factor loading were from 0.334 to 0.641, and eigenvalue was 1.462, named 'work with full competency'

Factor 11 consisted of 3 indicators, factor loading were from 0.365 to 0.675, and eigenvalue was 1.449, named 'keep pace with new information'

Factor 12 consisted of 3 indicators, factor loading were from 0.335 to 0.835, and eigenvalue was 1.394, named 'understand the learners in all aspect'

Discussion

The results of the analysis of vocational teacher desired characteristics can be concluded. The factors of vocational teacher characteristics are 12 factors including factor 1 is 'possess the spirituality of teacher spiritual' consisted of 20 indicators, factor 2 is 'organize the quality learning activities' consisted of 13 indicators, factor 3 is 'co-operate with other organizations' consisted of 6 indicators, factor 4 is 'construct new academic knowledge' consisted of 4 indicators, factor 5 is 'work safety' consisted of 4 indicators, factor 6 is 'master in multi-context' consisted of 4 indicators, factor 7 is 'create good learning atmosphere' consisted of 4 indicators, factor 8 is 'arrange suitable environment' consisted of 3 indicators, factor 9 is 'realize changes in the world' consisted of 5 indicators, factor 10 is 'work with full competency' consisted of 4 indicators, factor 11 is 'keep pace with new information' consisted of 3 indicators, and factor 12 is 'understand the learners in all aspect' consisted of 3 indicators. All factors mutually

describe vocational teacher desired characteristics at 64.131%. Based on findings above, researcher presented two interesting findings including extraction and factor loading to be discussed.

From the extraction, the describe vocational teacher desired characteristics factors were composed of 12 factors with 73 indicators including 1) 'possess the spirituality of teacher spiritual', 2) 'organize the quality learning activities', 3) 'co-operate with other organizations', 4) 'construct new academic knowledge', 5) 'work safety', 6) 'master in multi-context', 7) 'create good learning atmosphere', 8) 'arrange suitable environment', 9) 'realize changes in the world', 10) 'work with full competency', 11) 'keep pace with new information', and 12) 'understand the learners in all aspect'. The finding can be discussed that these factors are synthesized from documents related to teacher education in vocational education teacher area combined with teacher professional attributes and graduates characteristics of Rajamangala University of Technology Thanyaburi. It covers all the desired feature of vocational teacher and according to the Vocational Education Act B.E.2551. Moreover, the data were collected by quality research instrument and analyzed by inferential statistics. There are more factors than previous research and better described the variance of vocational teacher desired characteristics. (Hankla, 2007; Hanpalachai, 2005; Jantarat, 1998; Khuanhat, 2007; Onaum, 2005; Seipel, Walton, & Johnson, 2011; Tampahasdi, 1998)

In additional, there are 7 indicators which are excluded and not included in any factor namely vocational teacher should be accurate and profound in content taught, vocational teacher should seek new teaching technique or create the invention used in teaching, vocational teacher should bring the results from their project work to improve teaching, vocational teacher should teach the learner how to perform the task to create new knowledge by themselves, vocational teacher should have gentle verbal towards colleagues and others, vocational teacher should be healthy, and vocational teacher should have good relations with colleagues. This is due to these indicators describe the variance with other indicators less than 3 indicators in common, even though these have factor loading and eigenvalue acceptably. However, it does not meet the criteria of the development of component indicators. The researcher then eliminated all seven indicators so that all factor were clear and empirical measurable.

Suggestions

Based on research results and discussion. Researcher can provide recommendations for this research divided into 2 issues, including recommendation for applying research results and recommendation for conducting next research follows:

Recommendation for applying research results based on the finding of the study, the 12 factors of vocational teacher desired characteristics were found are useful for the related institutions, such as Faculty of Technical Education, Faculty of Industrial Education and Technology, apply to determine student attributes or additional desirable characteristics of students in their faculty. The results used as a guideline for development of desirable graduate characteristics. Moreover, the Office of the Vocational Education Commission can use all 12 factors to develop vocational teacher in line with current context.

Recommendation for conducting next research based on the finding, it was found that 12 factors could explain the variance of the vocational teacher desired characteristics at 64.131%. That proposed to study additional indicators to explain more in residual variance. In additional, analytical factors should be analyzed by the Confirmatory Factor Analysis of 12 vocational teacher desired characteristics. And propose comparative study of vocational teacher desired characteristics between first and fourth year students for explore the differences, strengths, and weakness in development process of student activities to develop vocational teacher desired characteristics to students.

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