



A Study for the Development Needs of Professional Teachers at Vocational Education and Training Institution in Mongolia

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Abstract – This paper describes an importance of development needs of professional teachers at vocational education and training institutions in Mongolia. Study group consisted of 14 public and private vocational education institutions and 285 professional teachers participated in the survey. The purpose of this study was to determine the needs of teacher training and professional development at vocational education and training institutions. In particular, the relationship between the needs of teachers and the factors that influence them have been analyzed within the framework of the survey. For statistical analyses, variation value, reliability analysis, KMO and Bartlett's test, commonality of variables, correlation analysis were performed. The findings indicated that it is necessary to implement various policies and activities to support and develop school-based activities and support them financially in order to ensure the professional development of teachers. Also, it is required to consider the teacher development of training content and improvement of training courses to support the development of teachers of vocational education and training. Moreover, there is need to operate the content of training for teacher development. The paper concludes with recommendations for further investigation.

Keywords – teacher, development, needs, vocational education, competency

I. INTRODUCTION

Nowadays in rapid development, education for sustainable development, and education in the era of the COVID-19 pandemic require us to rethink and clarify teacher development issues and solutions. Teacher development in the VET sector is a vital issue in the teaching and management of this sector [1]. In Singapore, there is a methodology that studies the demand of the labor market for 5-10 years, and there is an opportunity to make investment and planning of the sector without delay [2]. Besides, there is a team that develops and implements a special program called "international language" used in professional education in Japan [3]. Considering these experiences, it is important to reflect on the knowledge and skills of teachers who conduct professional

education in the countries of the world. Teacher development is a very broad concept. Before discussing the issue of teacher development, it is necessary to clarify the concept of teacher professional development. The concept of teacher's professional development is explained by the researchers from their own point of view, and their opinion is that the teacher's knowledge, ability, and maturity are combined with the teacher's development. Nowadays, countries are actively conducting research on the issue of professional development of teachers. For instance, Organisation for Economic Co-operation and Development (OECD) is working with its member countries to study the issue of professional development of teachers and achieve certain results [4]. In our country, since the beginning of present education, the development of teachers, especially the policy of teacher development and legal reforms of general education, and legal reforms have been considered in connection with social changes. One case of this is that Mongolia has become one of the few countries in the world that has been able to legislate its teacher education development issues. Furthermore, since January 1, 2019 Mongolia has a law to support the development of independent teachers [5]. In addition, there is an urgent need to conduct research on the needs of teacher training, professional development, and taking into account international experience and the characteristics of our country.

II. LITERATURE REVIEW

A researcher have their own perspective and experience regarding the teacher development issues. Effective teacher development requires continuous learning rather than just training [6]. Teacher development itself should be continuous. According to the trends of the researchers, the issue of developing the teacher without alienating their workplace is important. Also, some countries leading the way in terms of quality of education are implementing the problem of teacher development by selecting the effective ones around student development from the many ways to support the professional development of teachers. In 2019, a

joint analysis of the needs of teachers for continuous professional development was carried out by the researchers of the central organization of educational research and methodology. Referring to some results of the research, a good teacher is ranked in the following order: firstly, he/she loves children, secondly, he/she has good teaching methods, thirdly, he/she is ethical, and then he/she has knowledge of professional theory and methodology. The results of the research show that, in addition to providing scientific knowledge to nowadays teachers and students, the society demands more from us to focus on developing them into proper individuals, becoming intelligent and responsible citizens [7]. Teachers should be active rather than passive participants in knowledge development programs [8]. Teacher development is the result of the teacher's own motivation, active participation, and research [9]. At the level of education policy, teacher development training and multifaceted activities are carried out at an appropriate level, but one of the most important factors for teacher development is the teacher's own activity and participation. The Law on Support for Teacher Development also addresses this issue. Furthermore, content knowledge alone is not enough for a teacher; teachers must also learn appropriate pedagogy to support student learning. Therefore, teacher development should focus on pedagogical content knowledge (PCK), which includes "the most important aspects of teachable content" [10]. It has been observed that each country is selectively implementing teacher development models in accordance with its national characteristics, civilization, and educational policy [11]. In Mongolia, researchers are studying the issue of teacher development to an adequate extent, but there is no policy regulation to develop this model. Therefore, it is a priority that we have a teacher development model. In the future, the technological system to attract and develop teachers should be started with innovative activities [12]. Although the issue of teacher development and professional development is reflected in the policy and legal framework, it is necessary to consider the fact that the policy document is dominated by the word "training". Teachers today, in addition to training, are developing by giving importance to multifaceted activities to support teacher development. For instance, teachers have the desire to participate in exchange programs, to carry out research work in teams, and to develop their peers by sharing their experiences [13]. Therefore, there is a lack of social need to organize multifaceted activities that support teacher development in addition to training for teacher development and professional development.

III. RESEARCH METHOD

The purpose of this study is to determine the needs of teacher training and professional development at vocational education and training institutions. Regarding the research methods it was conducted using quantitative and qualitative research, factor analysis, and content analysis method.

A. Research methodology and scope

In quantitative research method questionnaire is included the following steps:

- General information about the teachers in TVET

- Professional improvement status and results of teachers in TVET
- Needs, conditions and opportunities for professional development of teachers
- Strengths and weaknesses of the system at professional development and teachers professional development in TVET
- Obstacles and ways to overcome them in the continuous professional development of the teacher
- Analyzing statistics and research data (content analysis)

Qualitative research methods: Regarding the developmental needs of teachers in the TVET, the answers to the open-ended questionnaire about the ways to solve the developmental needs of the teachers were processed and other suggestions were compiled. Quantitative research analysis was used to collect and process research data. The database includes the main findings identified during the research by analyzing the primary data. The research data were processed using EXCEL and SPSS-25 programs. When processing data, results were obtained by individual and comparative counting, correlation, and factor analysis of relevant data. In terms of scope and sample, the study included professional teachers of TVET. In the study sample, regional and local areas of study, professions, and gender representation were taken into account. In the 2021-2022 school year in Mongolia, there are 719 general academic and 1405 professional teachers working at TVET in a total of 2124 teachers, and these teachers were taken as the "population" of the survey. A survey of TVET teacher development needs was developed for professional teachers, and the results of the responses were processed using SPSS-25 software. In doing so, factor analysis was performed on the variables and the results were obtained. These include: Omitted value and 0 variation value, reliability analysis, KMO test or sample adequacy analysis, commonality of variables, rotated component matrix, or comparison and correlation analysis of each factor's variables, and each analysis has been clarified.

a) Omitted value

This value indicates that the variables within the test (questionnaire) or the questions that represent the purpose of the study are fully included. Regarding the increase in frequency of the variables, there are no missing values. The data is complete in that unit because there are no numeric values beyond the variable's normal range (or minimum value of 1 and maximum value of 5).

b) 0 variation value

The value of zero variation was calculated as the sum of each group of questions. The answers of 8 professional teachers and 5 teachers who participated in the research are unrealistic or the value of variation is less than 1.

TABLE 1. 0 VARIATION (BY ID OF RESEARCH PARTICIPANTS)

Professional teacher ID	137	152	15	77	148	171	245	248
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As can be seen from Table 1, teachers with the above ID numbers gave unrealistic answers.

c) Reliability analysis

The reliability analysis of the data showed that the Cronbach alpha value of the teachers' questionnaire was .711-.947, which is acceptable. It is not necessary to exclude any variable from the overall statistics in the questions within the framework of the reliability analysis (table 2).

TABLE II. RELIABILITY STATISTICS

Questionnaire	Professional teacher	
	Cronbach's Alpha	N of Items
Compatibility of in-service training	.761	3
Rules and program standards used in teacher training activities	.917	8
Difficulties faced by the teacher in organizing teaching and learning activities	.918	17
The need arises for the teacher to carry out his/her teaching activities properly	.922	13
The way teachers deal with emerging needs	.711	6
The need for professional improvement and development and relevant factors	.838	7
Subjects who receive support to meet their professional development and improvement needs	.837	7
Activities to support the development of primary education teachers	.822	7

d) KMO and Bartlett's Test

KMO=.714-.934 is above the acceptable [14] or sufficient sample for the variables in the factor analysis. However, for the consistency of professional development training, the KMO test is less than the acceptable level, i.e. 0.690. Sampling adequacy for this factor is average (table 3).

TABLE III. SAMPLING ADEQUACY ANALYSIS

Questionnaire	Kaiser-Mey-er-Olkin Measure of Sampling Adequacy	Approx. Chi-Square
Compatibility of in-service training	0.692	210.146
Rules, programs and standards used in teacher training activities	0.907	1492.453
Difficulties faced by the teacher in organizing teaching and learning activities	0.915	2510.636
The need arises for the teacher to carry out his teaching activities properly	0.914	2236.361
A way of dealing with needs	0.725	329.779
The need for professional improvement and development and relevant factors	0.849	700.318
Subjects who receive support to meet their professional development and improvement needs	0.874	672.719

e) Commonality of variables

The commonality of variables will be used for further processing of the data, and consequently, it will be compared with a certain coefficient. Here, have given a value of 0.4, and the following variables are less than this value, so they can be excluded from the analysis (table 4).

TABLE IV. AN IMPORTANT ROLE, PARTICIPATION AND SUPPORTING ASPECT IN THE PROCESS OF PROFESSIONAL DEVELOPMENT OF TEACHERS

Communalities	Initial	Extraction
The teacher himself/herself	1.000	.319
Subject departments	1.000	.468
Training department	1.000	.632
Vocational education training evaluation and information methodology center	1.000	.488
Professional association	1.000	.540
International organization	1.000	.663
Voluntary public and industrial and business organizations/units	1.000	.593
The central state administrative organization in charge of vocational education and training	1.000	.464

f) Correlation analysis

According to the results of the correlation analysis, the following needs are weakly related to the factors related to the needs of teachers. It includes:

The teachers improvement of research knowledge, skills and analysis methods needs are weakly correlated to the following needs:

- the improvement of knowledge in foreign languages
- the needs for knowledge about legal changes and reforms,
- to improve the knowledge of education, psychology, teaching methods,
- the need to develop competency-based curriculum.

Within the framework of relevant factors that require the professional development and development of teachers, changes in the legal and legal environment are also related to the effect of cooperating teachers, the influence of student demand and needs of local jobs.

IV. PROFESSIONAL TEACHER QUESTIONNAIRE AND SURVEY RESULTS

A. General information of the study

Study group consisted of 285 professional teachers from 14 urban and rural TVET were included, which identified the needs for teacher training, professional development, and development of TVET, then the results of the study were prepared. It was developed in the framework of the purpose of determining the needs of teacher training, professional development and development of VET institutions. Considering the professional teachers who participated in the research according to their age and educational level, the percentage of teachers with master's and doctorate degrees among teachers of all ages is 40-49 years old, the percentage of teachers with a bachelor's degree is high in the age group of 30-39, and the percentage of teachers with a diploma is high in the age group up to 30. Among all professional teachers, teachers with "teacher" qualifications and bachelor's level education have the highest percentage. In addition, about 59.0% of all professional teachers are in terms of skill level, about 18.0% are senior teachers, trainee teachers, and 3.5% are master level teachers. In order to strengthen the above

concept related to the continuous development of teachers, when asking the question "Whose role, participation, and support is important in the process of professional development and development of teachers?" 84.6% of all respondents answered "the teacher himself/herself", "training department" 85.2%, and "regional methodological center" 85.2% answered "very important" (Fig. 1). In this study to determine the needs of professional teachers, first of all, the professional teachers asked that how important is the above activity, which is popular internationally and supports the needs of teacher development, for the teachers in vocational education institutions in Mongolia.



Fig 1. The role and participation of subjects in teacher development

One of the objectives in the research on the needs of teacher training is to clarify the factors affecting the needs of teachers. Within the framework of this objective, 285 professional teachers who participated in the research were asked which factors are related to the needs mentioned in the previous chapter, and the results were processed (Fig. 2).

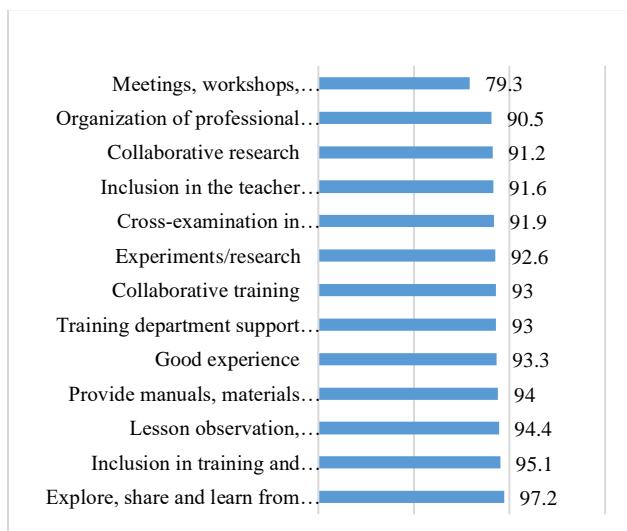


Fig 2. Activities to support teacher development (importance)

The above figure result shows that the importance of the teacher professional development, such as to explore, share

and learn from each others, inclusion in training and seminars and lesson observation, collaborative preparation and testing. Some of the results in the survey on the need for use and updating of teaching materials from teachers, for instance:

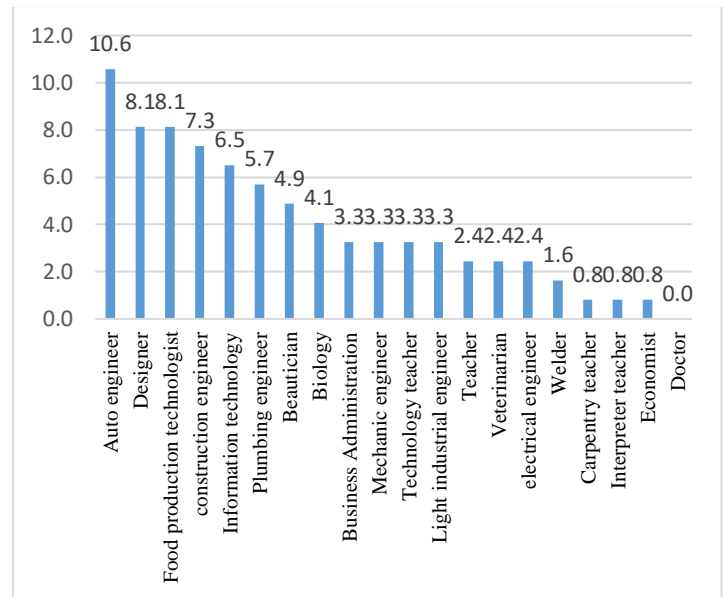


Fig 3. The need to use recent books and manuals

The need to update the use of recent books and manuals in the auto engineer profession is 10.6%, designer 8.6%, food production technologist 8.1%, construction engineer 7.3%, information technology 6.5%, plumbing engineer 5.7%, and beautician 4.9%. important" need.

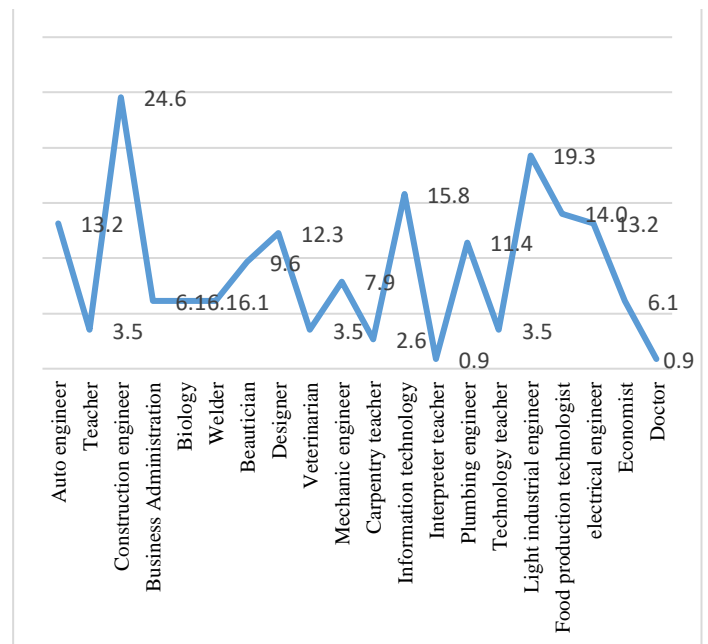


Fig 4. The need to use a laboratory, computer, and work in an internet environment

The need to use a laboratory, computer, and work in an internet environment was answered with a high percentage of civil engineers (24.6), light industry engineers (19.3), information technology (15.8), food industry technologists (14.0), and automotive engineers (13.2), electrical engineer

(13.2), designer (12.3), and plumbing engineer (11.4). These results can be understood in connection with the specialty.

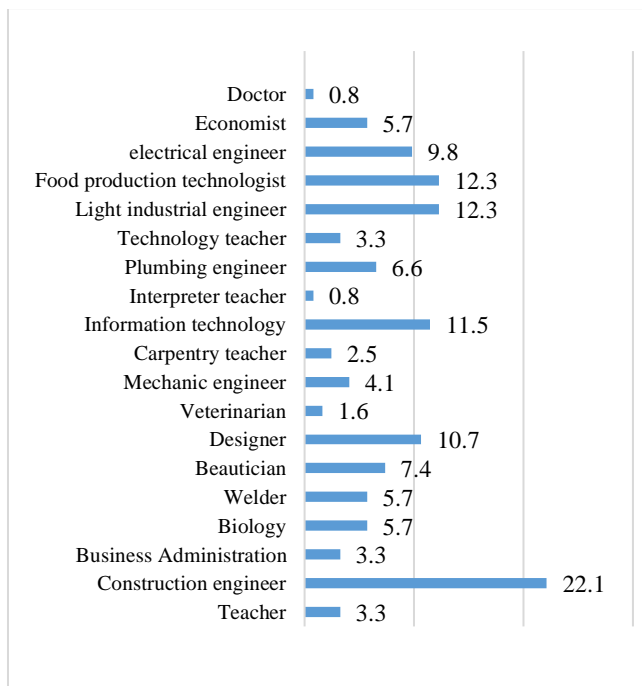


Fig 5. The need for competency-based curriculum development

Considering the response of “very important” to the need to develop a competency-based curriculum, construction engineer (22.1), light industry engineer (12.3), food production technologist (12.3), information technology (11.5), designer (10.7), electrical engineer, auto engineer (9.8 each) are professional teachers.

B. Potential ways to address the needs and requirements of professional teachers

The next objective of the research question was, "if teachers have a needs for professional development and improvement, how do they solve it? In order to clarify this, the teachers who participated in the study were asked how satisfied they are with their work. According to the responses of 421 professional teachers who participated in the survey, 85.6% of them answered "adequate", 8.4% "insufficient", and 5.7% "don't know". If it is considered "inadequate", the reasons for this are clarified, answers are obtained through an open question, and the processing results are issued.

Satisfaction with work: It is believed that there are cases where teachers are not satisfied with their work due to the following reasons. Among them: The partnership with the supporting industries and enterprises to train teachers and students in their working environment is weak and the results are lowly (leadership skills and management). Also, there is a need to acquire new technologies and learn the ability to process documents, but there is no mentoring activity from the training department, lack of knowledge of program development by methodologists, monitoring of competency-based curriculum implementation is weak (vocational advisory services). In addition to teaching, there is a heavy load of non-academic work such as building decoration, and poor grades are reflected in low wages and bonuses. There is no time for self-development due to heavy workload.

Therefore, every year the curriculum, plan, and document design changes, which creates pressure and stress (teacher workload and evaluation). There are lack of modern teaching materials, books, textbooks and manuals, the conditions of the internship premises and the working environment are lowly, the orders for the necessary materials for the internship do not arrive on time, there are no full-scale technical equipment for training, and in some cases the requirements are not met (training environment). Besides, the work stress occurs due to low basic level of students' knowledge, lack of interest in learning, low attitude and maturity (quality of students). Considering the above-mentioned reasons as a package, the teacher's dissatisfaction with his/her work is: It is connected to factors such as management skills-level of management, professional and methodological activities for providing mentoring services to teachers, teacher workload, evaluation, learning environment, and quality of students.

V. RECOMMENDATION

Among the factors related to the needs of teachers, the need to improve the knowledge and skills of research and analysis methods are weakly linked to the needs of : foreign languages, legal changes and reforms, educational studies, psychology, and teaching methods, and the need for competency-based training. Within the framework of relevant factors which requires the professional development and development of teachers is that related to the changes in the legal environment, an influence of cooperating teachers, students, and the demand and needs of local jobs.

The participants of the study highly valued the role played by the professional education assessment and information method center in the professional development of teachers, so there is a need to establish an organization that will implement or replace this function. Many of the teachers who participated in the study considered that the important activities aimed at supporting the development of teachers are the study of experience, sharing, mutual learning, participation in training and seminars, lesson observation, joint preparation and testing, provision of manuals, materials and newspapers with new methodological ideas, development and improvement of curriculum based on good practices and competencies, and joint training. Moreover, in the role and participation of subjects in teacher development, subjects such as the teacher himself/herself and the department's training sector are emphasized. Therefore, in order to ensure the professional development of teachers, it is necessary to implement various policies and activities to assist and develop school-based activities and financially support them. The need to use and update teaching materials, to use the latest books, manuals, laboratories and computers, the need to work in the internet environment, to improve knowledge of foreign languages etc., those are becoming a common need for teachers. Hence, it is necessary to consider the coordination and development of them when developing training content and training directions to support the development of teachers in professional education and vocational training institutions.

VI. CONCLUSION

For TVET teachers, professional development and continuous development is recognized as being dependent on the teacher while there is an understanding and attitude that cooperation with others, exchange of experience, attending training, and developing in accordance with the needs of employers, production and service sectors are the effective ways. The results of the research shows that the primary needs of the professional teachers involved in the research are to supply the materials used for the proper conduct in the training (required for each element of competence); availability of training equipment and tools; the need to improve professional foreign language skills; there is a need to plan and manage professional practice and practical work.

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