Educational Need Assessment of Teachers' Technological skill in Sarpol-e Zahab County

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ABSTRACT

This study was performed with the goal of educational need assessment of teachers' technological skill in Sarpol-e Zahab County in the academic year 2014-2015. The present study has a practical purpose and is conducted with a descriptive-survey method and analytical review. Studied statistical population consists of all teachers teaching in primary school and first and second periods of high school in Sarpol-e Zahab County. Population size and sample size were determined respectively 712 and 124. Statistical population was chosen by stratified random sampling and according to sample size in each grade. The measuring tool of variables was a 56-item questionnaire made by the researcher. It investigated studied teachers' necessary technological skills in two parts of general skills (11 paragraphs) and professional skills (14 paragraphs) and their required competences in two parts of cognitive (14 paragraphs) and functional (17 paragraphs) in a range of 4 levels. Validity of the questionnaire was determined based on the point of view of 10 experts in the field of education and new technologies and its validity was equal to 0.939 for the entire questionnaire based on Cronbach's alpha and calculation of internal consistency coefficient of gathered data among 50 individuals of statistical population. Data analysis was performed in two parts: descriptive (frequency table, average, standard deviation) and inferential (one sample t test and Friedman test). The results of research showed that teacher's educational needs in 9 paragraphs of general skills part, in 4 paragraphs of professional skills part, in 2 paragraphs of cognitive competences and in 11 paragraphs of functional competences and totally in 26 paragraphs of studied 56 paragraphs were significantly higher than the average.

Introduction

Policy and aims of UNESCO in education is improvement of education quality through variety in materials and methods and promotion of experiment, innovation, publication and sharing the best data and materials. Today in twenty-first century educational systems all the over the world are under pressure to increase the use of information and communication technologies in teaching knowledge and skill to students (UNESCO, 2002, page 3). This issue is rooted in the fact that today teachers are placed in the age of general uncertainty when sudden changes in professional practice are totally normal. This situation is the consequence of some factors such as economic instability, technological innovations and political plans. But one of the most pervasive changes in professional practice of teachers is the advent and use of information and communication technologies (wheeler 2001, page 7).

Accordingly, requisite for the success of made efforts in context of improvement of education is professional development and increase in teachers' knowledge and technological skills. Therefore, in previous decade, the focus of discussion around the quality of effective schools had been more and more mindful of professional development of teachers. The importance of quality of professional development is because of identification of challenges in front of teachers in teaching practice and increase in people's expectation toward quality of education (Richter etal.2011 , cited by Taheri et al. 2013, page 150).

Today, education quality and information and communications technologies are tied in a tangible way. A large part of teachers' professional skills depends on available information and communications technologies and use of these technologies in teaching and learning process.

Problem statement

Today we live in a knowledge-based society where knowledge and skill play an important role in it (Favsavat et al. 2011, page 811). Today when organizations rely on their employees' knowledge and skill, educational organizations such as ministry of education play an important and vital role in the development of human resources through providing education (Hansen 2007, page 312).

If education is considered as cognitive, social, affective, spiritual and moral learning, the teachers' role in applying the best experiences, resources and environment for achieving learning is clear. The teacher's role in each educational system is guiding and organizing through teaching and learning process so that desirable changes can be emerged in students' behavior and speech (lovles, 2005, Page 1). Teachers as the

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most important and valuable sources at schools are the center of successful efforts there. According to the analysis of teachers' training policies in 25 countries that has been conducted by organization for economic co-operation and development, the quality of the teacher is the most important factor in this context among various effective variables in students' educational advancement is family history of students (organization for economic co-operation and development, 2005, page 1).

Effectiveness of teachers depends on the training they receive. Today this training is known as in-service training within the educational system of education in many countries of the world. With development of new technologies, a large part of such training has been in the field of technology. Information and communications technologies can be applied as a powerful tool for promoting quality and efficiency of education. This will change the traditional teaching methods and will help teachers improve teaching and learning process. Perhaps we can consider these technologies as a catalyst which activates the ways of thinking about teaching and learning and makes changes in class. To meet the proposed requirements, the integration of information and communication technologies with education is indispensable (Hojati, 2009, page 2). For training teachers, in-service training courses are seen as a strong potential. Results of many studies show that teachers who have completed in-service training courses are more effective than those who passed pre-service training (Mertler[1], 2004, cited by Samii Zafarghandi 2011, page 153). In-service training is one of the most suitable and available sources and solutions for improving and promoting human resources and achieving knowledge and skill for the aim of growth and promotion. However education is expensive and costly, it can be affordable, effective, justifiable and enforceable when it is executed based on a proper and scientific needs assessment in the pre-designed and specified frame work. Therefore this activity like any other organizational activity requires correct and systematic planning. In this regard, determining the educational needs is proposed as the first step in planning in-service training. If properly planned and implemented, it will be basic and important preparation for effectiveness of in-service training and consequently efficiency of employees (Abbas Zadegan and Torkzade, 2000, page 13). Needs assessment in the context of teaching technological skills is of greater importance and urgency for two reasons. The first reason is that today with the fast growth of technologies, teachers can't feel any need for learning and using these technologies any longer. This issue has become necessary. On the other hand implementation of in-service training in technological skills is more costly than other required courses for teachers. Thus for planning in this regard it is very crucial to recognize and determine properly existing educational needs in this area among teachers.

Research Methodology

This study has a practical purpose. The method is descriptive-survey. Analytical review is used. Statistical population in this study consists of all teachers teaching in primary school and first and second periods of high school in Sarpol-e Zahab in the academic year 2014-2015. Based on the report of ministry of education total number of these teachers

is 712 and with separation 398 at primary school, 134 in the first period of high school and 180 in the second period of high school. Since statistical population is a combination of different educational groups at three levels, for choosing samples stratified random sampling method was used. Based on Cochran formula and Morgan table, sample size was equal to 124. 69 teachers from primary school, 23 teachers from the first period of high school and 32 teachers from the second period were chosen with separation.

Model of research
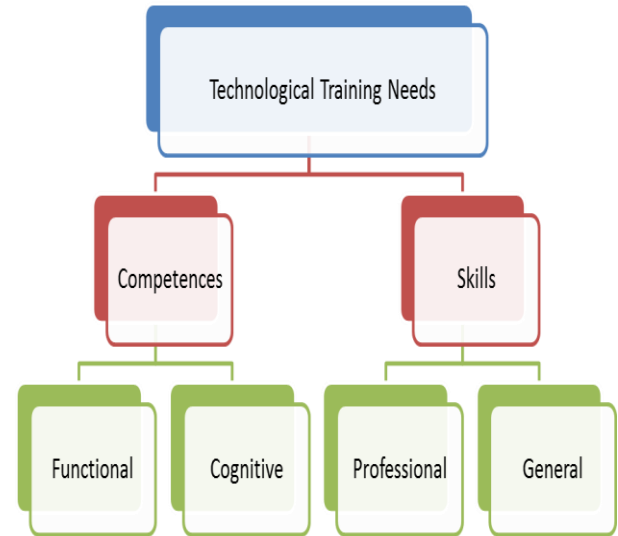
Conceptual Model of Studied Variables

Educational needs assessment questionnaire of teachers' technological skills

In order to determine need level of each individual in the statistical sample for technological skills, a 56-item questionnaire made by researcher was used. In this 56-item questionnaire, teachers' educational needs were evaluated in 4 parts: general skills (11 paragraphs), professional skills (14 paragraphs), cognitive competences (14 paragraphs) and functional competences (17 paragraphs). For analyzing data of this research, descriptive statistics (frequency, average and standard deviation) and inferential statistics (one sample t test and Friedman test) were used.

Findings

Table results show prioritizing teachers' training needs for general technological skills. With regard to provided ranking "understanding of how to store, archive and organize files on memory cards, USB, CD and DVD" has the average rating 5.60 and is placed in the first priority of teachers' training needs.

"Familiarity with installation of various applications according to the subject of the study" with average rating 4.51 is placed in the last priority of teachers' training needs for general technological skills.

Table results show prioritizing teachers' training needs for professional technological skills. With regard to provided ranking, "Familiarity with Microsoft Office software package Word, Excel, PowerPoint" has the average rating 2.74 and is placed in the first priority of teachers' training needs.

"Familiarity with Email (Create, send, receive and prepare lists of email addresses, etc.) and the ability to communicate asynchronously and synchronously through messenger, conference" has the average rating 2.28 and is placed in the last priority of teachers' training needs for professional technological skills.

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[1] Mertler

First question

Friedman's test results to prioritize teachers' training needs for general technological skills

Question number	question	Average rating	priority
1	Familiarity with common terms in computer	5.27	fourth
2	Familiarity with software components (the most prevalent operating system)	4.56	seventh
3	Familiarity with file management such as creating folder, moving files, renaming, creating variety of passwords and encryptions to protect personal information, saving	5.55	second
4	Understanding of how to store, archive and organize files on memory cards, USB, CD and DVD	5.60	first
5	Familiarity with a variety of peripheral devices used in the process of entering, processing and output of data (printers, scanners, projectors and cameras)	4.77	fifth
6	Familiarity with installation of various applications according to the subject of study.	4.51	ninth
7	Familiarity with how to connect your computer to the Internet	5.46	third
8	Familiarity with how to install the printer, scanner, camera and video projection and ...	4.68	sixth
9	Familiarity with installing and updating anti-virus software.	4.52	eighth

Second question

Friedman's test results to prioritize teachers' training needs for professional technological skills

Question number	question	Average rating	priority
1	Familiarity with Microsoft Office software package Word, Excel, PowerPoint	2/74	first
2	Familiarity with the internet and ability to use it for research and advanced searches.	2/65	second
3	Familiarity with Email (Create, send, receive and prepare lists of email addresses, etc.) and the ability to communicate asynchronously and synchronously through messenger, conference	2/28	fourth
5	Familiarity with PowerPoint software and multimedia applications , … and their functions and uses to produce shapes and dramatic texts and offer educational contents	2/33	third

Third question

Results of table (12-14) show prioritizing teachers' training needs for technological cognitive competences. With regard to provided ranking, "Understanding of how to record students' data in Microsoft office software environments" has the average rating 1.51 and is placed in the first priority of teachers' training needs.

"Familiarity with information and communications ability compatible with students' level of information" has the average rating 1.49 and is placed in the last priority of teachers' training needs for technological cognitive competences.

Friedman's test results to prioritize teachers' training needs to technological cognitive competences

Question number	question	Average rating	priority
7	Familiarity with information and communications ability compatible with students' level of information	1.49	second
8	Understanding of how to record students' data in Microsoft office software environments	1.51	first

Forth question

Friedman's test results to prioritize teachers' training needs for technological functional competences.

Question number	question	Average rating	priority
2	Familiarity with how to write ICT-based lesson planning	5/87	eighth
3	Identification and the ability to use generated electronic content required for teaching	5/94	Sixth
4	Understanding of how to use the Internet and browsers and different search engines to search for content related to courses and curriculum	6/14	Third
5	familiarity with Professional use of word processor to produce curriculum, edit, and add appropriate images, tables to it and Preparation of thematic brochures related to designed program	5/78	Ninth
6	The ability to evaluate and choose information resources on the Internet	6/59	First
7	Understanding how to use shapes and dramatic texts generated by PowerPoint and multimedia applications and using them in the process of implementing the curriculum	6/26	Second
8	familiarity with practices to combine television, films and educational software in the teaching-learning process to create practical opportunities for learning and enrich teaching environment in class	5/92	Seventh
10	Ability and skill in producing and designing educational content related to teaching subject	6/13	Fourth
15	Understanding the learning management system in the classroom and in coordination with the Director	6/06	Fifth
16	Understanding of how to communicate electronically with students' parents and other partners	5/66	Tenth
17	Understanding the ways to encourage students to use Personal blog design software, and prepare newsletter and training magazines related to subjects	5/65	Eleventh

Table results show prioritizing teachers' training needs for technological functional competences. With regard to provided ranking, "The ability to evaluate and choose information resources on the Internet" has the average rating

6.59 and is placed in the first priority of teachers' training needs.

"Understanding the ways to encourage students to use Personal blog design software, and prepare newsletter and training magazines related to subjects" has the average rating 5.65 and is placed in the last priority of teachers' training needs for technological functional competences.

Discussion and Conclusion

In this study, teachers' training needs for technological skills in Sarpol-e Zahab County in the academic year 2014-2015 were considered. After determining their needs in four dimensions of general skills, professional skills, cognitive competences and functional competences, rating of needs was performed. The results of this study generally indicated that general technological skills are by and large a part of teachers' training needs. However professional technological skills on the whole were not determined as a part of teachers' training needs. In examining cognitive competences, totally the obtained average was not significantly different from median; therefore this part was not also determined as teachers' training needs. But obtained average from technological functional competences was significantly higher than the median, so this part was determined as teachers' training needs as well. Among the research whose results were in line with the results of the present research, the following research can be cited.

Ramezani (2012) showed in one part of his research that teachers require general skills to work with network and new educational software. Karimi (2008) has mentioned in a part of his research results that teachers' existing competences in technology components were lower than the average. Belaghat (2007) in a part of his research result showed that managers need to be familiar with data bases. Roozbehi and Ahmadi (2006) in a part of their study have estimated the lowest awareness that principles of high school have about the effect of computer tools in education. Daneshpajuhesh and Farzad (2006) in a part of their study have demonstrated that Tehran primary school teachers are unfamiliar with information technology, so they use it limitedly in teaching and learning process.

Overview of the results of this study suggests most of training needs of teachers has been in general skills and functional competences parts. However they also have needs in other areas including professional skills and cognitive competences. By investigating the results of present research we can see that many studied teachers have not passed the basic skills of information technology, so they have proposed general skills as their most needed area. If they had passed the basic skills, they would certainly have suggested more professional needs as their training needs for technological skills. In a more detailed review of research results with separation of areas of the study, the most significant training needs of teachers in general skills area has been the familiarity with storing, archiving and organizing files on memory cards, USB, CD and DVD. This is because teachers require portable memory to transfer information from school to house and vice versa and many of them always have problem of transferring the information. In the professional skills area, the most significant training needs of teachers have been the familiarity with Microsoft office software package. This is also because of the fact that a large part of teachers' educational activities such as testing, preparation of checklists, questionnaire grading and etc. is performed through office software package and many teachers don't have ability to utilize the software in this package. In the cognitive competences area, because of

unfamiliarity of teachers with this software package, the most important training need has been recognized as "understanding of how to record students' data in Microsoft office software environments". In the functional competences area the most important training needs of teachers has been "the ability to evaluate and choose information resources on the internet". This need arises from the fact that today both for teachers and students, teaching and learning and performing educational activities in a special way depends on the virtual world and the internet.

Research recommendations

- In the investigation of the first question, the results showed that totally and in 9 cases of 11 studied cases, the need level of studied teachers for learning general technological skills has been significantly higher than the average.

By investigating cases proposed as training needs, it became clear that many studied teachers don't know the basic concepts of information technology and are not familiar with these concepts. Thus it is recommended that authorities responsible for the scientific promotion of teachers in departments and organizations of education to plan and take actions toward holding training courses for ICDL2 skills in which many basic skills of information technology are taught.

- In the investigation of second question and in the needs assessment of professional skills 5 cases of 14 studied cases were determined as teachers' training needs. Specified cases show that this question is among topics of related lessons to ICDL 1 course. Therefore it is recommended that authorities responsible for scientific promotion and planners of scientific training for teachers in departments and organizations of education to offer proposed course in the frame work of in-service training and consider it as a part of teachers' training needs.

- In the investigation of third question and in the needs assessment of cognitive competences, it became clear that studied teachers proposed two cases of studied cases as their own needs. These cases were "familiarity with information and communication ability compatible with students' level of information" and also "understanding of how to record students' data in Microsoft office software environments".

However teaching office software packages in professional skills part can be experimented, but information and communication ability and also recording students' data in office software environments can be offered in brochure and illustrated training booklet. Hence in these two grounds it is suggested to prepare and provide booklets and illustrated brochures for teachers.

- In the investigation of fourth question in functional competences part showed that 11 cases of 17 studied cases were recognized as teachers' training needs. This issue indicates that teachers' training needs are considerable in this area. Therefore with regard to specified materials in this area, studied teachers should be familiar and empowered in utilizing scientific competences. For this aim they should complete professional courses. Hence it is suggested that ministry of education makes a good relationship with universities and uses the capacity of these universities in particular Farhangian University to offer suitable and specialized training courses in this area. It is also suggested that authorities should utilize professional professors at universities to take necessary planning.

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