Teachers' Attitudes towards the Use of Technology in Education

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ABSTRACT

Present study was done with the purpose of evaluating teachers' attitude in the city of Babol to implement technology in education. The study method was descriptive survey. Statistical population consists of all 3381 teachers of Babol in the academic year of 2011-12. The samples of 380 teachers were selected based on Morgan table according to stratified sampling method in which each academic term selected as a category related to population size. In this study in order to review teachers' attitude in implementing technology in education, a questionnaire was used. To analyze data, descriptive statistics methods such as frequency, percentage, mean and standard deviation were used. Also, in order to assess research questions, one sample T test was used. Teachers' attitude about advantages of implementing technology in education, implementing technology in education, the amount of technology efficacy in education, preconditions of implementing technology in education and effectiveness of technology in education was positive. The results indicated that teacher's attitude toward the use of technology in education, was positive. As the change made by entering information and communication technology in Education system's elements, traditional methods can't help learner's requirements in today's society and it's necessary that the main elements of education system particularly teachers subject to right alteration with global progresses and with positive attitude in this path, use this changes for upgrading their knowledge level and usage of them to improve education.

KEYWORDS: teacher, educational technology, attitude, technology, education

INTRODUCTION

Educational technology is not a new phenomenon. Its history can be as old as the history of education itself. However, educational technology in its technical sense has entered into education professionals' focus for less than a century. During this period, different accounts have been provided for the concept of educational technology. Some people regard educational technology as utilizing a variety of tools such as projectors and films. Others consider this field as application of any materials from the use of a piece of chalk or any simple teacher-made instruments to sophisticated tools, all for the purpose of education [1]. Some other people identify the use of various teaching methods and syllabus design with educational technology. And finally, a group of people consider educational technology as a miracle able to solve educational problems caused by small spaces, great numbers of students, and teachers' inefficiency [2].

Historically, educational practitioners have always attempted to employ technology and teaching methods known by teachers and students at that time to meet their educational needs. Technology and teaching methods used by the generation contemporary with World War II were generally presented in auditory mode [audio-lingual method]. However, the same generation besides listening to the radio and talking to each other, enjoyed reading books. Today, students are born in an audio, visual and dynamic world so teachers' struggle to teach them taking advantage of educational methods and media used in the past will be useful or the result gained are not so considerable [3]. Recent developments in the field of education in general and in the field of educational technology in particular have provided new orientations and approaches that can be regarded as a great revolution [4]. Rapid technological changes in the teaching-learning process have led to extensive developments, aiming to improve the quality of education in schools. New technologies providing appropriate opportunities in the favor of students' talents and their personal interests have significantly improved the quality of educational system in schools [5]. The results of studies suggest benefiting modern and up-to-date technologies such as computers and the internet in classrooms makes it possible for students to learn with greater speed and higher efficiency and feel satisfied by attending the classroom [6]. Therefore, teachers are needed to know much about new technologies and media and treat them with a positive attitude [3].

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It should be mentioned the appearance of new technologies into the field of education is accompanied by some resistance from some individuals, especially from teachers and administrators in the field. The results of research suggest that teachers generally do not show positive attitudes towards new technologies and develop a fear when confronting them [7]. The reason why some teachers welcome the entrance of new technologies into classrooms, while others reject it, is a controversial issue. Creating a positive attitude in teachers towards educational technology and, thus, developing and applying it in learning process is a requirement for the entrance of such technology in education. Based on what has been mentioned and given the significant role of teaching in the development of students' talents and abilities and the fact that the employment of educational technology by teachers can considerably influence the discovery of students' potential talents and capabilities, the present study tries to examine teachers' attitudes in Babol (a city in northern part of Iran) towards utilizing technology in education. Given the objectives of the study, a review of the literature is presented as follows:

Aksan and Eryilmaz (2011) conducted a study under the title of "Why don't mathematics teachers use educational technology and instructional materials in their classrooms?" The results of this analysis concerning the main reasons why mathematics teachers in elementary schools do not use educational technology and materials in math classes indicate that the existing educational system, teachers, students, and factors and processes used in instruction are among possible reasons for such a problem [8].

Yalcin, Kahraman and Yilmaz (2011) in their study on "The levels of teachers' self-efficacy in using educational technology in elementary schools" examined teachers' self-efficacy in elementary schools through benefitting educational technology. To do so, a 28 item questionnaire was administered to 43 elementary school teachers in Arzinkan. Data analysis in this study was performed through SPSS Software. The findings of the study indicated high levels of self-efficacy for elementary school teachers regarding educational technologies. These teachers believed that the application of educational technologies and their advantages have been useful to them [9].

Dogruer, Eyyam and Menevis (2010) conducted a study titled "An examination of English primary school teachers' attitudes towards the use of educational technology in their classrooms". The results of the study demonstrated that although teachers agreed that the use of educational technology has a positive impact on their experience; teachers needed more information about the use of educational technologies in their classes [10]. Ozdamlı, Hursen, Ozcinar (2009) in a study on "Teacher trainees' attitudes toward educational technology" noted that the teacher trainees believed in the positive effects of educational technology. In addition, it was found that there were no gender differences in attitudes toward educational technology. Another important finding indicated that there were no remarkable differences between the participants' fields of study and all majors showed positive views about the effects of educational technology [11].

Kabadayi (2006) conducted a study on preschool teachers and part-time teachers to examine their attitudes toward the use of technology in education. Based on the results of the study, 75% of the teachers showed their positive views concerning the use of educational technology in classrooms [12].

Here a review of studies done in Iran is presents as follows: Zanguyi (2011) in a study under the title of "Examination the teachers' attitudes towards the use of educational technology in the instruction process" addressed teachers' attitudes towards the use of new educational technologies in teaching process. The results of the study suggested that, the teachers showed positive attitudes towards the use of new educational technologies in teaching process. In addition, the results of Chi-square test showed no statistically significant difference between teachers' gender, their level of education, and their attitudes towards the use of new technologies in the instruction process. However, a significant difference was noted between teachers' workplace, their teaching experience, and their attitude towards application of new educational technologies in the teaching process [13].

Rostami (2010) in a study on "The employment of Information and Communication Technology (ICT) by Teachers of basic science in guidance and high schools" concluded that most teachers under study have stated that they rarely (weekly) use different ICT tools in their classes, indicating infrequent application of these tools by the teachers [14].

Based on what has been said, the explanation of why some teachers welcome the entrance of new technologies into classrooms while some reject it, is a very controversial educational issue. Besides, the creation of positive attitudes towards educational technology and its development and application in teaching-learning process are of prerequisites for the adoption of such technologies. Furthermore, given the highly significant role of instruction in the development of students' talents and capabilities and the fact that the employment of technology in education is influential in the discovery of students' faculties, the present study tries to examine teachers' attitudes on employment of technology in education, and as a result, it seeks to answer the following questions:

Research questions
1. What are teachers' attitudes towards the benefits of the use of technology in education?
2. What are teachers' attitudes toward the use of technology in education?

3. What are teachers' attitudes towards the influence of technology in education?
4. What are teachers' attitudes towards the prerequisites for the application of technology in education?
5. What are teachers' attitudes towards the effectiveness of technological equipment in education?

RESEARCH METHODOLOGY

The present study follows an applied objective. Regarding the method used for data collection, it is a descriptive study using a survey technique. The statistical population included all school teachers in Babol, the total number of who were 3381 teachers in 2011-2012 academic year. Table 1 shows the number of the teachers based on their instructional level.

Table 1: Teachers' frequencies and percentage based on their instructional level (statistical population)

No.	Instructional level	Frequency	Percentage
1	Elementary	1306	38/63
2	Guidance school	808	23/90
3	High school	1017	30/08
4	Technical and vocational school	250	7/39
Total		3381	100

Of the total number of 3381 teachers, a sample of 380 teachers was selected through stratified sampling method based on krejcie - Morgan Table. To do so, each instructional level was regarded as a category and the sample size for each category was determined based on the population associated with that category. Table 2 shows the number of participating teachers for each instructional level.

Table 2: Teachers' frequencies and percentage based on their instructional level (sample)

No.	Instructional level	Frequency	Percentage
1	Elementary	145	38/63
2	Guidance school	90	23/90
3	High school	118	30/08
4	Technical and vocational school	27	7/39
Total		380	100

The instrument used in the study was a standard questionnaire translated into Persian in which an attitude scale regarding the use of technology in education was employed. Based on consultations made with the research advisor and considering research variables and hypotheses, 40 items were included in the questionnaire. Each item was presented in the form of a 5 point Likert scale including: *completely agree* (5), *agree* (4), *no comment* (3), *disagree* (2), and *completely disagree* (1). For negative items, a reverse scoring method was used.

Moshtaghi Largany, Ghorbani, and Rezaeian (2008) tried to develop a scale for evaluating attitudes toward the application of technology in education. The population in their study included all high school teachers in Isfahan, of whom a sample of 311 teachers (160 females and 151 males) were selected through a multi-stage cluster sampling method. The results of factor analysis in this study indicated that the developed scale can be used as an accurate instrument in future studies [15]. Table 3 shows the correspondence of the research variables with items in the questionnaire.

Table 3: Correspondence of variables with items in the questionnaire

No.	Variables	Items
1	Teachers' attitudes towards the benefits of the use of technology in education	1 to 8
2	Teachers' attitudes toward the use of technology in education	9 to 16
3	Teachers' attitudes towards the influence of technology in education	17 to 24
4	Teachers' attitudes towards the prerequisites for the application of technology in education	25 to 32
5	Teachers' attitude towards the effectiveness of technological equipment in education	33 to 40

The validity of the questionnaire used in this study was evaluated and confirmed by experts in the field, indicating that the questionnaire enjoyed an appropriate face and content validity. To ensure reliability of the questionnaire, a pilot study was conducted on a sample of 30 persons and its reliability was calculated through Cronbach's Alpha as equal to 0.84. Statistical methods used in this study for the purpose of data analysis included: descriptive statistics such as frequency, percentage, means, and standard deviation. In addition, one sample t test was used in inferential statistics. Finally, it should be noted that the data analysis was performed by SPSS Software Package at significance level of $\alpha = 0.05$.

RESULTS OF THE STUDY

In order to analyze the data descriptively based on the type of variables and the nature of the collected data, participants' demographic characteristics and research variables were analyzed using appropriate descriptive indicators such as frequency and percentage. Table 4 presents frequency and percentage distribution of participants' gender, age, educational degree, field of study, and job experience, as follows.

Table 4: Frequency and percentage of teacher' gender and educational degree

Variable	Gender			Educational Degree			
	Female	Male	No response	associate	B.A	M.A	No response
Frequency	218	158	4	55	242	70	13
Percentage	57.4	41.6	1.1	14.5	63.7	18.4	3.4

The results of descriptive analysis indicated that the range of teachers' age was higher than 20 years. An analysis of job experience indicated that 14% of the participants had a job experience between 1 to 5 years; 18%, 6 to 10 years, 18% between 11 to 15 years, 18% between 16 to 20 years, and 31% of them had a job experience of 21 years and higher. Therefore, a majority of participants had a job experience of 21 years and higher, mostly in the Ministry of Education. However, 1% of participants did not answer this item.

To analyze responses given to the five special research questions, one sample t test was used. The results of inferential data analysis done on these questions, as shown in Table 5, indicate that concerning the first question since the calculated t is larger than t in critical table, so it can be argued that teachers' attitudes towards benefits of using technology in education are positive because the sample mean score (32.86) is higher than theoretical means (i.e., 24). The results analysis done on the second special question suggests that since the calculated t is larger than t in critical table, so teachers' attitudes towards the application of technology in education are positive because the sample mean score (30.30) is higher than the theoretical means (i.e., 24). The results analysis done on the third research question suggests that since the calculated t is larger than t in critical table, so teachers' attitudes towards the influence of technology on education are positive because the sample mean score (32.87) is higher than the theoretical means (i.e., 24). Based on the results of the analysis related to the fourth research question, it was noted that since the calculated t is larger than t in critical table, so teachers' attitudes towards prerequisites for the application of technology in education are positive because the sample mean score (30.33) is higher than the theoretical means (i.e., 24). Besides, the results of the analysis related to the fifth research question indicated that since the calculated t is larger than t in critical table, so teachers' attitudes towards the effectiveness of the use of technological equipment in education are positive because the sample mean score (33.66) is higher than the theoretical means (i.e., 24). Finally, the results of the analysis related to the main research question indicated that since the calculated t is larger than t in critical table, so teachers' attitudes towards the application of technology in education are positive because the sample mean score (160.02) is higher than the theoretical means (i.e., 120).

Table 5: One sample t-test to examine the research questions

Research questions		No	Mean score	SD	Theoretical means	Means differences	t	df	Sig.
Special questions	1	380	32/86	4/19	24	8/86	41/269	379	0/000
	2	380	30/30	5/09	24	6/30	24/107	379	0/000
	3	380	32/87	4/78	24	8/87	36/172	379	0/000
	4	380	30/33	3/95	24	6/33	31/251	379	0/000
	5	380	33/66	4/48	24	9/66	42/012	379	0/000
The main question		380	160/2	17/82	120	40.02	43/779	379	0/000

DISCUSSION

The findings related to the first special question suggested that teachers showed positive attitudes towards the benefit of using technology in education which is in line with findings of studies done by Aksan and Eryilmaz (2011), Yalcin, Kahraman and Yilmaz (2011), Dogruer, Eyyam and Menevis (2010), Ozdamlı, Hursen, Ozcinar (2009), Kabadayi (2006), Zanguyi (2011), and Rostami (2010) [13, 14, 8, 9, 10, 11, 12]. Today, our society is in the need of people who are able to employ IT appropriately and adopt critical thinking and strategic approaches to analyze information they receive. To do so, the application of different technologies by teachers, permanent learning of how to obtain required information, knowledge, and skills from different sources, and the use of different information sources by students, provide us with innovation, creativity, and greater emphasis on student-centered teaching methods. A closer look at the findings related to the second special question demonstrated that teachers have a positive attitude towards the employment of technology in education. Kabadayi (2006) observed that 75% of

teachers had positive attitudes about the use of educational technology in the classroom [12]. In addition, the findings of the present study is consistent with those noted by Zanguyi (2011), Rostami (2010), Aksan and Eryilmaz (2011), Yalcin, Kahraman and Yilmaz (2011), Dogruer, Eyyam and Menevis (2010), and Ozdamlı, Hursen, Ozcinar (2009) [13, 14.8, 9, 10, 11]. The application of technology in education by teachers will increase teachers' and students' information literacy and develops effectively a lifelong learning model needed for their life and work in a rich information environment. Findings related to the third special question showed that teachers view positively the influence of technology in education which is in line with Zanguyi (2011), Rostami (2010), Aksan and Eryilmaz (2011), Yalcin, Kahraman and Yilmaz (2011), Dogruer, Eyyam and Menevis (2010), and Ozdamlı, Hursen, Ozcinar (2009) [13, 14, 8, 9, 10, 11]. The employment of educational technology and its approaches exert a great influence on instructional approaches used by teachers and the quality of students' activities and learning. These effects make traditional methods of education to be performed more effectively. An analysis of the findings related to the fourth specific question suggested that teachers in the present study expressed positive views about the prerequisite for the application of technology in education. However, this finding is not consistent with the results of studies done by Zanguyi (2011) and Rostami (2010), [13, 14]. But it confirms findings observed by Aksan and Eryilmaz (2011), Yalcin, Kahraman and Yilmaz (2011), Dogruer, Eyyam and Menevis (2010), Ozdamlı, Hursen, Ozcinar (2009), and Kabadayi (2006) [8, 9, 10, 11, 12]. The application of technology requires the provisions of the suitable conditions and facilities, software and hardware equipment, and providing an appropriate context to make optimal use of it. Without providing such prerequisites, we will run into some problems in utilizing technology. Analysis of the findings related to the fourth specific question suggested that teachers have positive attitudes toward effectiveness of using technological equipment in education. These results are consistent with those found by with Zanguyi (2011), Rostami (2010), Aksan and Eryilmaz (2011), Aksan and Eryilmaz (2011), Yalcin, Kahraman and Yilmaz (2011), Dogruer, Eyyam and Menevis (2010), Ozdamlı, Hursen, Ozcinar (2009), [13, 14, 8, 9, 10, 11]. The application of technology in education by teachers using related facilities and equipment will result in an increase in teachers' effectiveness, ability and their skills, thus the instruction process becomes more effective and makes it possible for students to have a closer relationship with educational content to come up with a more stable and profound learning of the materials.

Conclusion

Given the specific research questions and the results of statistical analysis data, it is concluded that teachers in this study had a positive view about the application of technology in education. These findings correspond to those noted by Zanguyi (2011) that showed that teachers' attitudes towards the use of new educational technologies in teaching process were positive [13]. Similarly Dogruer, Eyyam and Menevis (2010) found that teachers agreed that the use of educational technology has a positive impact on their experience [10]. In the same way, Ozdamlı, Hursen, Ozcinar (2009) observed that teacher trainees believed in positive effects of educational technology [11].

Parallel to changes made to components of educational system due to the emergence of ICT, traditional means of transferring knowledge no longer can meet learners' needs in today's society. As a result, it is crucial that the main element of educations system, especially teachers, to be exposed educational developments and changes along with progress made in today's world. Besides, it is needed that authorities and practitioners in the field of education assign special budgets to provide schools and teacher training centers with different technologies and make teachers familiar with the benefits of using educational and other new technologies and how to use them through holding continuous in service classes and providing suitable facilities so that teachers having a positive view, be able to benefit from these changes and progresses to promote their knowledge. Besides, teachers must employ the entrance of new technologies into classrooms and educational milieus to improve the education process and provide a better teaching service and change their role from an informational source to the facilitator of learning process.

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