

Professional Development: Teachers' Attitudes in Online and Traditional Training Courses

Egoza Wasserman

Herzog Academic College, Jerusalem, Israel

Ruth Migdal

Elementary School, Israel

Abstract

Humans have a basic need to be constantly engaged in learning. The learning process, however, has undergone interesting changes as a result of the technological revolution, such as the advent of online learning. Technological changes in learning have also affected professional development courses. The purpose of this study is to compare attitudes among teachers enrolled in online and traditional training course in "Pisgah" teaching staff development centers in Israel. This study was conducted using a quantitative method. The study population included 495 teachers. The findings indicated four factors related to teachers' attitudes: Effectiveness and Application, Environment, Course Assignments, and Attitudes towards ICT (information and communication technology). Significant differences were found in the Environment factor and the Attitudes towards ICT factor between online and traditional training, in favor of online training. A multi-regression analysis found that the effectiveness of a course can be explained by the Environment, Course Assignments, and Attitudes towards ICT factors.

Keywords: professional development, online learning, technology acceptance model (TAM)

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Technological development has affected the educational system in general and professional development training programs in particular. Both traditional (face-to-face) and online training programs have undergone significant changes. In online courses using information and communication technology (ICT), there is no face-to-face relationship between the lecturer and the trainee or between members of the trainee group. In the field of online training, valuable insights can be provided to lecturers by examining attitudes of trainees pertaining to teaching methods, quality of teaching, and coping with ICT. This study compares attitudes of trainees in online courses with those of trainees in traditional training courses.

Professional Development

Recent trends in teachers' professional development stem from an increased understanding of the importance of the teacher's role, which influences the school, improves

the quality of teaching, and influences students in various aspects of their lives. In addition, teachers are the most important factor in their students' achievements (Gerard, Varma, Corliss, & Linn, 2011; Sanders & Rivers, 1996). Professional development for teachers can take many forms, including university courses, local and national conferences, workshops, and specialized institutions. Recently, momentum has gained among communities and local groups of teachers who emphasize professional development and view it as a social and interactive process. These groups provide participants with tools for growth and professional development (Desimone, 2011).

Advantages of Professional Development. Professional development provides a wide range of interactive activities designed to improve teachers' professional knowledge, skills, and teaching practices, and to contribute to their personal, social, and emotional growth (Avidav, 2000). In addition, according to Darling-Hammond (1998), professional development courses help teachers face a number of challenges. The courses give them an in-depth understanding of the academic and learning materials. They provide teachers with tools and skills to develop their students' motivation and to present learning materials in an experiential and interesting manner. The courses expand teachers' knowledge in the fields of developmental psychology and learning disabilities. There are professional development programs that focus on specific challenges and situations that demand special training of teachers. For example, the trend of "mainstreaming" or integrating special needs students into regular classrooms, which has become prevalent in recent years, has increased the need to provide guidance and appropriate tools to teachers in these classes. One program trains teachers to integrate children with behavioral disorders into the classroom by helping teachers improve and practice their skills in interacting with the child. This has yielded a high success rate of integration, in comparison to situations in which the teacher did not take part in such a training course (Webster-Stratton, 1998).

Given the prevalence of technology in modern life, there has been a trend towards developing professional training courses that focus on expanding teachers' technological knowledge. Research that examined professional training courses in technology, in which thousands of science teachers participated, found that ongoing training courses of more than a year brought about significant improvement in the achievements of participating teachers' students (Gerard et al., 2011).

Pisgah Centers

In Israel, a system of teaching staff development centers operates under the auspices of the Ministry of Education's Department for Teaching Staff Development. The centers are known as "Pisgah" Centers, from the Hebrew acronym. Pisgah Centers are designed to deliver professional development programs to teachers. The Department is responsible for formulating policy for professional development, guiding and assisting Pisgah Centers in fulfilling their mission, managing and supervising the centers, and operating learning frameworks for the staff in these centers. Control and supervision of the centers is carried out by a team from the Pisgah Center and the Department for Teaching Staff Development.

A key principle underlying Pisgah Centers is continuity. They emphasize the importance of continued learning, advancement of knowledge, and development of professional skills throughout a teacher's professional life. The goals of the professional development program at Pisgah Centers are to expand teachers' knowledge, deepen their understanding of teaching and learning processes, develop new teaching methods, and perfect skills to advance their performance and their students' achievements. These goals assume the need for continuous education (Avidov-Unger, 2013).

To achieve these goals, local Pisgah Centers offer training courses, seminars, meetings with teachers, discussion groups, guidance, and so forth. These activities are directed by a staff

of academic professionals and pedagogic counselors. The training courses and learning program are conducted in different areas of the country. They include in-depth professional knowledge of educational materials that the teachers transmit, teaching skills, and issues relevant to teaching. The training courses utilize a wide variety of teaching and learning tools aside from books, including a didactic data base, ICT, educational games, and videos. In addition, Pigsaw Centers offer after-hours ongoing guidance and advice to teachers participating in their programs, such as observation in the field, whose purpose is not evaluation but development and empowerment of the teachers (Gutman, 2011).

Online Learning

Use of computer and Internet technologies for teaching purposes has increased dramatically (Cole et al., 2017; Halverson & Smith, 2010; Kontos, 2015; Sela, 2005; Tynan, Ryan, & Lamont-Mills, 2015). This gave rise to the possibility of developing online courses (Anderson & Dron, 2011). Online courses allow a large audience of learners to receive high-quality education on a wide variety of subjects. The main attributes of online learning are use of technological media, physical separation between teacher and pupil, and two-way communication (Fraj-Hussein, Barak, & Dori, 2012; Sela, 2005). In addition, online learning offers a differential approach to categories of learners who have specific training and individual needs (Tudor, Stan, & Paisi-Lazarescu, 2015). The online learning environment enables individual and collaborative work supported by a variety of tools and learning methods. Reducing the student's dependence on the teacher as a source of knowledge highlights the central contribution of online tools to facilitating social interaction in a learning environment (Beldarian, 2006; Kumi-Yeboah, Dogbey, & Yuan, 2017; Simpson, 2006).

Advantages and Disadvantages of Online Courses

The effectiveness of online courses has been examined by numerous researchers (Fraj-Hussein et al., 2012; Johnson & Palmer, 2015; Kramer et al., 2015). Development of online learning enables learners to select the institutions of study according to the level of professionalism, without considering the distance of the institution from their residence (Sela, 2005). In addition, the time and place of study is determined by the learner (Hershkovitz & Kaberman, 2009). Time resources, transportation fees, and absence from work are minor considerations in the framework of online courses (Fraj-Hussein et al., 2012). Social relations are formed that may provide a basis for raising learners' self-confidence and self-image by exposing them to opinions and content via technological tools rather than face-to-face interaction (Fraj-Hussein et al., 2012; Sela, 2005; Tudor et al., 2015). Online courses make a significant contribution to collaboration during learning (Maborito 2004; Tudor et al., 2015).

Although there are many advantages to distance learning via online courses, there are reasons that some learners prefer traditional learning methods. They may feel isolated and disconnected in an online course. The lack of immediate and effective response to questions or tasks is frustrating for many learners (Fletcher & Bullock, 2015; Fraj-Hussein et al., 2012; Hershkovitz & Kaberman, 2009). The inability to use nonverbal communication like facial expressions or body language with the teacher or peers may diminish students' confidence (Drange & Roarson, 2015; Mabrito, 2004). For some students, the lack of contact with peers has a negative effect on learning (Kassandrinou, Angelaki, & Mavroidis, 2014). Technological problems may cause intense frustration, especially if there is not a possibility of enlisting the help of professionals. Online courses demand a high level of self-discipline (Drange & Roarson, 2015; Fraj-Hussein et al., 2012; Hershkovitz & Kaberman, 2009; Mabrito, 2004; Sela, 2005; Worley & Tesdell, 2009) and the digital text may be more difficult to read (Hershkovitz & Kaberman, 2009). In addition, there are conflicting opinions regarding the level of resources needed for online courses. There is a reduction of cost since there is no need for a physical place to teach the course. However, according to some researchers, the cost of

developing online courses is higher, therefore there is no savings of resources (Sela, 2005; Tynan et al., 2015; Worley & Tesdell, 2009).

Optimal integration of ICT into classrooms depends on teachers' thinking processes, beliefs, and their attitudes towards ICT (Sang, Valcke, Van Braak, & Tondeur, 2010). Buabeng-Andoh (2012) added that teachers need to be confident that the technology will make their teaching more interesting, easier to understand, more enjoyable for them and for their students, and will increase students' motivation. A path analysis found that perceived usefulness (PU) and perceived ease of use (PEU) were key determinants of teachers' attitudes towards ICT (Teo, 2010). The results showed that pre-service teachers' perceived ease of use had significant effects on perceived usefulness and attitudes to computers. In addition, three external factors were found to be significant in predicting pre-service teachers' attitudes to computer use: subjective norm, facilitating conditions, and technological complexity. If teachers have positive attitudes, they are more likely to integrate ICT into their teaching and learning processes (Buabeng-Andoh, 2012).

The Technology Acceptance Model. The success of online technology for professional development is dependent upon teachers' acceptance of online learning as an alternative to traditional face-to-face delivery (Smith & Sivo, 2012). Cheok and Wong (2015) argued that teachers' use of online courses and e-learning systems for instruction may be predicted by the flexibility, interaction, PU, and PEU of the courses. To prevent teachers from being deterred from building online courses, they need to be involved in the planning and evaluation of the instruction. Experience (including mistakes) provides a basis for learning activities. Teachers are most interested in learning subjects that have immediate relevance to their jobs or personal lives. Learning should be problem-centered rather than content-oriented. (Johnson, Wisniewski, Kuhlemeyer, Isaacs, & Krzykowski, 2012).

The Technology Acceptance Model (TAM), introduced by Davis (1989), is a theoretical model for predicting how an individual user comes to accept and use a given technology-based information system. It specifies causal relationships among external variables, beliefs, and attitudinal constructs, and actual usage behavior (Hubona & Kennick, 1996). It determines attitudes and behaviors through two major variables. The first is perceived usefulness (PU), which is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). The second is perceived ease of use (PEU), which is defined as "the degree to which a person believes that using a particular technology would be free from effort" (Davis, 1989, p. 320). Intention to use is one of the strongest predictors of technology usage behavior, as has been well established in the research literature (Davis & Venkatesh, 2004). Research on technology acceptance in the fields of information systems and engineering support the theory that PU and PEU are primary determinants of a user's intention to adopt a new technology (Smith & Sivo, 2012; Venkatesh, Morris, Davis, & Davis, 2003). For this reason, the TAM serves as an optimal model to measure teachers' intentions towards the adoption and continued use of online professional development.

By focusing on a small number of fundamental variables, the TAM effectively provides a framework to determine the effect of external factors on internal beliefs and intentions (Davis Bagozzi, & Warshaw, 1989). The TAM has been successfully expanded upon in several studies to suit numerous research objectives by adding variables such as user characteristics, self-efficacy, and organizational factors (Lee, Kozar, & Larsen, 2003; Pan, Gunter, Sivo, & Cornell, 2005). Perceived ease of use, perceived usefulness, and social presence were found to be significant determinants of teachers' intent to continue using online technology to meet their future professional development needs (Smith & Sivo, 2012). The incorporation of perceived usability into the TAM more influential in explaining TAM elements than its absence, thereby

supporting the importance, positive influence, and necessity of evaluating usability when investigating educational technology acceptance and usage behavior (Holden & Rada, 2011).

The purpose of the current study is to examine and compare attitudes of teachers who study in the framework of professional development offered through online asynchronous courses and those enrolled in traditional courses. The online asynchronous courses were conducted remotely using a distance learning system. Learners were not directly exposed to the lecturer, but only to the assignments the teacher sent to them. In the traditional courses, learning was in a classroom with the teacher and other learners.

Methods

The subjects in this research were teachers who received training within the framework of Pisgah Centers in Israel during the academic year 2015-2016 in either traditional courses or asynchronous online courses. The research was conducted using a quantitative method. Questionnaires were sent to all of the trainees at the end of the courses via Google Docs. Trainees were requested to complete the questionnaire as a requirement for completing the course. It was emphasized to the participants that the questionnaire was anonymous.

Study Population

The questionnaires were sent to 494 teachers who teach in a wide variety of educational institutions in Israel. Of these, 469 responded. These teachers received training in school and regional training programs. The study population was 14.3% male and 85.7% female. The distribution of seniority in years of teaching was as follows: 21.4% of the subjects had taught for 1-5 years; 19.8% taught for 6-10 years, 24.1% taught for 11-15 years, 23.6% taught from 16-24 years and 11.1% taught for 25 years or more.

Research Tools and Reliability

The statements in the questionnaire were written by teachers specializing in the field of teaching and the regional expert evaluation coordinators for professional development courses. This questionnaire was also used by Wasserman and Maymon (2017) who found the reliability of Alpha Cronbach for this questionnaire to be 0.948.

The questionnaire comprises two parts. The first part included 26 statements relating to teachers' attitudes towards the training. Examples of statements given in the questionnaire include: "The purpose of the course was realized," "I received tools for thinking in the course," and "There was a feeling of openness in the course." Respondents rated the extent to which they agreed with statements on a scale from 1 to 5, with 1 indicating "not at all," 2 indicating "to a slight extent," 3 indicating "to a moderate extent," 4 indicating "to a large extent," and 5 indicating "to a very large extent." The second part of the questionnaire included demographic data such as gender and seniority in teaching.

The independent variable in the study is the type of instruction (online or traditional). The dependent variables are teachers' attitudes to learning.

Data Analysis

Several statistical tests were conducted within the framework of the research using the SPSS program. A factor analysis was performed for the variable of teachers' attitudes towards training. Pearson correlations were calculated for the four factors found in this variable. A linear regression was calculated in order to predict the effectiveness of the learning using the factors Environment, Course Assignments, and Attitudes towards ICT. A T-test was calculated for independent models of the factors: Environment and Attitudes towards ICT for participants in online and traditional courses.

Ethics

The research questions were approved by the Pisgah Center director for use in the center and for development of plans on the basis of the findings. The research findings were transferred for data processing without any personal information that could identify teachers who answered the questionnaires.

Results

The factor analysis performed on data for the teachers' attitudes variable revealed four factors: Effectiveness and Application, Environment, Attitudes towards ICT, and Course Assignments, as shown in Table 1. It should be noted that one statement (number 8) was excluded because it loaded equally on two factors.

Table 1.

Factor Analysis for the Variable of Teachers' Attitude (N=496).

	Effectiveness and Application	Environment	Attitudes towards ICT	Course Assignments
I received tools and strategies in the training course.	.810			
The course gave me new knowledge.	.782			
The course helped me organize knowledge previously acquired.	.768			
I can use the knowledge I acquired during the course in my classroom.	.744			
The learning in the course was significant to me.	.74			
I received tools for thinking in the course.	.737			
The teaching methods in the course were varied and served as a model for work in the classroom.	.736			
The course was interesting.	.725			
I can develop and adapt teaching activities derived from the content of the course.	.699			
The theoretical background and the practical part of the study complemented one another.	.672			
The course was professional.	.639			
The purpose of the course was actualized in the course.	.615			
There was an atmosphere of attentiveness and openness.		.854		
A productive discourse developed among the members participating in the course.		.849		
I felt that they believed in my ability during the course.		.783		
The advisor answered the students' questions and responded to their needs.		.761		
There was an atmosphere conducive to learning during the course.		.721		
The advisor helped colleagues when they encountered difficulties.		.574		

Table 1. (cont.)

Factor Analysis for the Variable of Teachers' Attitude (N=496).

	Effectiveness and Application	Environment	Attitudes towards ICT	Course Assignments
The course website serves as a place for sharing and consultation between the members of the group.			.863	
During the course I was exposed to a variety of possibilities for integrating ICT into teaching.			.851	
I will know how to choose ICT tools that suit the learning, teaching, and evaluation process.			.844	
The advisor uploaded relevant materials to the course website.			.756	
The number of course assignments was reasonable.				.885
The level of the course assignments was reasonable.				.872
During the course there was non-frontal learning: self / in pairs / groups				.409
Eigenvalues	7.916	5.306	3.432	2.343
Rotation Sums of Squared Loadings	30.448	20.407	13.199	9.011
Alpha Cronbach Reliability	0.961	0.932	0.891	0.891
Mean	3.90	4.21	3.00	3.86
Std. Deviation	0.85	0.85	1.17	1.01

Pearson correlations calculated among the four factors found a significant positive correlation between environment and attitudes towards ICT ($r_p = 0.369$, $p < 0.05$) such that the higher the ratings given towards statements pertaining to attitudes towards the environment are, the higher the rating of statements pertaining to attitudes towards ICT will be. A significant positive correlation was found between Attitudes towards Environment and Effectiveness and Application ($r_p = 0.770$, $p < 0.05$) such that the greater the rise in attitudes towards the Environment are, the greater the rise in Attitudes towards Effectiveness and Application will be. A low positive correlation was found between Attitudes towards ICT and Course Assignments ($r_p = 0.320$, $p < 0.05$). A moderate positive correlation was found between attitudes towards Course Assignments and Effectiveness and Application ($r_p = 0.503$, $p < 0.05$).

In order to predict the effectiveness of the learning based on the factors Attitudes towards ICT, Environment, and Course Assignments, a multiple regression analysis was performed. The regression analysis showed that the effectiveness of the training can be explained on the basis of the following variables ($F_{3,492} = 378.664$, $p < 0.01$). The predictive variables explained 69.8% of the variance of the effectiveness of the study. Table 2 presents the results of the regression analysis.

Table 2.

Multiple Regression to Predict Effectiveness and Implementation of the Training (N=496).

Predictive factor	B	β	t	Cumulative R ²
Environment	0.549	0.550	18.231*	59.3
Course Assignments	0.222	0.265	8.955*	65.7
ICT	0.157	0.215	7.969*	69.6

$p < 0.01^*$

The results in Table 2 indicate that the factors Attitudes towards ICT, Environment and Course Assignments clearly explain the variable effectiveness in the training. We then examined the differences in the attitude of trainees who study in online courses and those who study in traditional courses.

Table 3.

T-Test for Independent Models of Factors: Environment and ICT between Online and Traditional Training Courses (N=496).

Factors		N	Average	Standard Deviation	T-Test	Significance
Environment	Online	74	4.29	1.08	-3.68	p < 0.05
	Traditional	422	3.80	.78		
ICT	Online	74	3.61	1.01	4.91	p < 0.05
	Traditional	422	2.90	1.17		

From Table 3 we see there was a significant difference in the Environment factor between attitudes of the trainees to online courses and traditional courses ($t = -3.683$, $p < 0.05$) in favor of the online courses. Attitudes of the trainees in the online courses towards environment were $SD = 1.08$, $M = 4.29$. Attitudes of the trainees in the traditional courses towards Environment were $SD = 0.78$, $M = 3.8$.

There was a significant difference in the ICT factor between attitudes of the trainees to online courses and traditional courses ($t = 4.91$, $p < 0.05$) in favor of the online courses. Attitudes of the trainees in the online courses towards ICT were $SD = 1.01$, $M = 3.61$. Attitudes of the trainees in the traditional courses towards ICT were $SD = 1.17$, $M = 2.9$.

Discussion

The research aim was to examine the differences in teachers' attitudes towards learning in online and traditional training courses. A significant difference was found in the Environment factor between attitudes of the trainees in online courses and traditional courses, in favor of the online courses. The Environment factor covers subjects' attitudes regarding the atmosphere of listening and openness, the ability to introduce productive discussion amongst colleagues in the training course, and the feeling that the instructors believed in the learners' ability. Researchers who characterize online learning have pointed to essential characterizations that influence the attitude towards environment in online courses (Fraj-Hussein et al., 2012; Sela, 2005; Tudor et al. 2015) such as communication between the lecturer and the learner (Fedynich, Bradley, & Bradley, 2015) and between the learner and others in the learning group. Other researchers note the importance of the lecturer's presence (Kelly, 2012; Sheridan & Kelly, 2010) and ability to provide answers to the individual needs of the learners. It appears that the learning environment is characterized by social connections, an atmosphere which increases students' self confidence and self-esteem, and the ability to voice opinions in an online forum rather than face-to-face (Tudor et al., 2015). In addition, there is a significant contribution of cooperation in the learning process (Mabrito, 2004). In contrast, when there are feelings of separation and loneliness, lack of immediate response (Hershkovitz & Kaberman, 2009) or lack of nonverbal cues from the teacher or other students such as facial expressions or body language, and an atmosphere that damages self-confidence (Drange & Roarson, 2015), the learning environment is characterized as poor.

In addition, a significant difference was found in the Attitudes towards ICT factor between attitudes of the trainees regarding online and traditional courses, in favor of the online courses. The statements used in the online technology factor correspond to the PU component

in the TAM model, which refers to a learner's belief that using online technology will improve his or her work (Davis, 1989). The statements in this factor relate to improving the teacher's work, for example: "I will know how to choose online tools that are suitable for the educational and appraisal process." In addition, learners who can keep up with the pace of technological development and are able to take advantage of it without outside support (Blau & Barak, 2011) achieve a higher rate of success (Wayne, Wingenbach & Akers, 2013).

Conclusions

The results indicate that in online training courses, there is a feeling of personal connection between the student and the lecturer, an atmosphere of listening and openness, and the lecturer can answer the needs of the individual student despite the lack physical presence in the same room.

Limitations of the Research

The primary limitation of this research is the lack of ability to generalize because of the relatively homogenous nature of the sample. Since all the respondents were teachers that studied in the same Pisgah Center, they may be similar to one another. Another limitation that needs to be considered is that since the questionnaire was linked to the completion of the course, the interviewees may have referred to their specific course of study and not necessarily to the nature of the course as online or traditional.

Recommendations

Based on the findings of this study, it is recommended that the education system emphasize the possibility of choosing between online and traditional learning in professional development courses. The education system should coordinate technological developments with educational policy so they will be able to use technology to advance the educational field, as indicated by the context of the findings between Attitudes towards ICT and Effectiveness and Application. There is no doubt that attention should be given to the disadvantages of ICT in adapting them to a population in which computer skills are not high. Additionally, it should not be overlooked that a high level of computerization is not yet applicable to many members of the teaching staff and that computer training courses or assistance of expert staff should be available as needed.

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