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Investigation of pre-service teachers' intentions to use of social media in teaching activities within the framework of technology acceptance model

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Abstract

In recent years, social media is used frequently in daily life, as a result of this; it affects different fields in our lives. Intensive use of technology in teaching activities causes the social media to enter in this filed too. In this context, teachers and students started to use social media in terms of teaching and learning activities such as information sharing, web based learning, creating discussion groups etc. The aim of the study is to investigate pre-service teachers' intentions to use of social media in teaching activities which becomes indispensable in technologic environments. In accordance with this purpose a survey was prepared within in the framework of Technology Acceptance Model (TAM) which was developed by Davis (1986) and extended by Venkatesh and Davis (2000). The survey was implemented to pre-service teachers who are studying at a university in the faculty of education. Reliability, validity and factor analysis for the scales in the survey were performed. For each items in the scales, frequency distribution, percentages, means and standard deviation were calculated

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1. Introduction

Social networks which are used by a group of people and defined as a total of a number of activities that are made possible by social technologies (Hamid, Chang, & Kurnia, 2009), have been covering an overwhelming part of our

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daily lives in recent years with the variety and usage rates. According to comScore's, a research company's research while Turkey stands as the fifth most time spending country in social networks (Kural, 2012), and %94 percent of the online population of Turkey is also registered user of Facebook, a social network company (Kaymaz, 2014). Leaving aside the negative sides of this percentage of usage, the fact that a common area used in this scale will also be used by educators in activities of education is an inevitable outcome. In this respect, now, social networks are used in areas of information, education, learning and teaching, apart from communication and social goals. As the user interfaces are quite easy, social network sites are beneficial to academicians in many ways and they provide practical solutions for students and researchers in terms of forming groups, sharing within these groups and communication and feedbacks (Gülbahar, Kalelioğlu, & Madran, 2010).

In recent years, there has been an important progress in terms of professional utilization of communication technologies and the admission and prediction of the acceptance of these technologies by the users (Vankatesh & Davis, 2000). One of these studies is Davis's (1989) Technology Acceptance Model (TAM), which was developed later by Venkatesh and Davis (2000) as Technology Acceptance Model 2 (TAM2, Fig. 1). According to TAM2, individuals' intentions of using a system are affected by two variables: First, "perceived usefulness" which comes from the belief that the work performance of the individual will improve when a system is used, and the second, "perceived ease of use" which covers the belief that there is no need to try hard to learn this system (Vankatesh & Davis, 2000). These two variables are also affected by two concepts as processes of social effect (subjective norm, voluntariness and image) and cognitive instrumental processes (job relevance, results demonstrability and perceived ease of use) (Vankatesh & Davis, 2000).

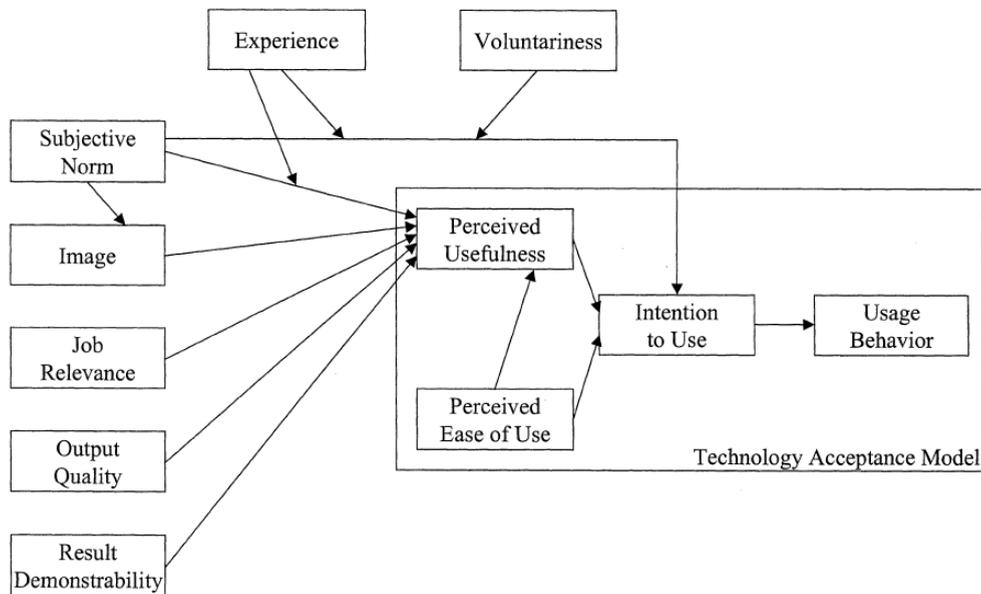


Figure 1- TAM2 (Vankatesh & Davis, 2000).

The purpose of this study is to develop a measuring tool to determine the tendencies towards the usage of the social media, which has become an indispensable part of electronic mediums, in teaching process by the candidates of teaching as a profession. In this respect, a scale has been prepared by using Technology Acceptance Model 2 (TAM2) and the resulting data has been presented.

2. Methodology of research

This is a quantitative research. Data were collected by using a questionnaire, developed by the researchers by

using the Technology Acceptance Model 2 (TAM2; Venkatesh & Davis, 2000).

2.1. Sample

The research has been carried out with 322 teacher candidates who are students in different teaching programs in the city of Ankara. %82.3 of these candidates was females and %17.7 of them was males. %82.9 of the candidates has stated that they use social media every day. The most commonly used social media were Facebook (305 people), Twitter (205 people) and Instagram (148 people). The most common purposes of using social media were communication and online chat (277 people), spending spare time (211 people), sharing videos, photos and status and profile updates (201 people) and educational purposes (183 people).

2.2. Data collection and instrument

In this research, in collecting the data, the scale that was developed within the framework of Technology Acceptance Model (Venkatesh & Davis, 2000) was used. The items in the scale were graded according to Likert 5 type as; “totally agree = 5”, “agree = 4”, “partly agree = 3”, “do not agree = 2”, “absolutely do not agree = 1”, and listed from 1 to 5 in accordance with these choices. In this study, first of all, a first level confirmatory factor analysis was made for eight latent variables (intention, subjective norm, perceived ease of use, perceived usefulness, image, job relevance, result demonstrability and voluntariness) that constitute the main dimensions of Technology Acceptance Model 2 (Venkatesh & Davis, 2000), along with the model constructed with 33 observed variables. The output quality, which is the 9th variable, was not included in this study as the samples were teacher candidates and did not have any professional experiences yet.

2.3. Data analysis

Confirmatory factor analysis was made for the dimensions in the developed scale by using AMOS18 program. While less than 3 was considered as a good Klem (2000), χ^2 / df value for the model compatibility tests, any value under 5 was considered as acceptable. In the study, this information was taken into consideration for the χ^2 / df value. Schermelleh – Engel et al. (2003), have stated that in the model compatibility tests, .any values less than .08 in the Root Mean Square Error Approximation (RMSEA), .10 in the Standardized Root Mean Square Residual (SRMR), and higher than .9 in the Comparative Fit Index (CFI) were acceptable compatibility standards. Moreover, any value higher than .9 in Non-normed Fit Index (NNFI), also named as Tucker-Lewis Index (TLI) is considered as acceptable (Tucker & Lewis, 1973). In this research, the compatibility of these values in constructing models for confirming factor analysis was tested.

3. Results of research

The modification indexes that were proposed by the results of the first analysis were analyzed and clauses in which the answers could have affected each other, the clauses that were explained by the same dimension were determined and after the required modifications were made, they were analyzed by restarting the program. The value of voluntariness which had bad values was entirely dismissed from the model by a modification. The results of the analysis showed that the compatibility indexes had acceptable and/ or over acceptable values ($\chi^2/df=2.346$, $p=.000$, $RMSEA=.06$, $SRMR=.03$, $GFI=.90$, $CFI=.96$, $TLI=.96$).

The factor load values, averages and reliability of the developed model that is realized by the confirmatory factor analysis are summarized in Table1. Cronbach Alpha (α) or, for the dimensions with two clauses, considering they have a normal distribution, Pearson correlation parameter (r) was calculated in reliability calculations.

Table - 1. Results of factor analysis

Scale items	Factor load	Mean Reliability
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Intention to use			
1. I am planning to use social media in my teaching activities.	.77	3.84	
2. During my professional life as a teacher, I am thinking of using social media for teaching activities.	.91	3.79	r=.70
Subjective Norm			
1. The people whose opinions I value expect me to use social media effectively during my teaching activities.	.75	3.55	
2. The people whose opinions I value encourage me to use social media during my teaching activities.	.83	3.47	α=.85
3. The people who are important for me support me to use social media during my teaching activities	.83	3.55	
Perceived ease of use			
1. It is easy for me to carry out teaching activities on social media.	.78	3.66	
2. For me, social media is suitable to carry out teaching activities.	.79	3.63	α=.83
3. I can do the things I want, in terms of teaching activities, on social media	.82	3.74	
Perceived usefulness			
1. Using social media will improve my performance in teaching as a profession.	.81	3.69	
2. Using social media will improve my productivity in my profession.	.79	3.69	α=.90
3. Using social media will improve my efficiency in my profession.	.84	3.65	
4. I think that using social media in my teaching activities will be beneficial for me in terms of my profession	.84	3.73	
Image			
1. The teachers who use social media in their teaching activities will be more prestigious than those who do not.	.86	3.42	
2. The teachers who use social media in their teaching activities will be more popular.	.71	3.43	r=.61
Job relevance			
1. Using social media is important for my profession.	.78	3.74	
2. Using social media is related to my profession.	.82	3.48	α=.84
3. Using social media serves the purpose of my profession	.80	3.46	
Results demonstrability			
1. I don't think that I will have any difficulty in explaining advantages/disadvantages of using social media.	.63	3.79	
2. I believe that I can get in touch with my colleagues about the results of using social media.	.73	3.78	α=.75
3. I think that I will be able to see the results of using social media clearly.	.77	3.70	

4. Conclusions

The data acquired by the scale that is developed by the results of the study in question, is presented in the outcomes section. In evaluating the factor analysis results, the information that the factor load values of the clauses that are in the scale should be equal to or higher than .45 was taken into consideration (Tabachnick & Fidell, 1989). In the analysis within the study, the factor loads of the scale were found to be changing between .63 and .91. In the reliability calculations of the scale, it was taken into consideration that the reliability parameter for each dimension should be (cronbach alpha) .70 or higher (Büyüköztürk, 2006). Cronbach alpha values are changing between .75 and .90 for this study. As for the correlation values that are calculated for dimensions with two clauses, they were of average values (r=.70 ve r= .61). When these statistical values are examined, it can be concluded that the scale is suitable for determining the tendencies of teacher candidates' in terms of usage of the social media in their professional lives. When the average values of the answers of the candidates are considered, one can conclude that they are eager to use social media in their professional lives. However, in order to have a more sound result, the

developed scale should be applied to wider groups. Moreover, the subject can be examined in a more detailed way by applying a comprehensive statistical technique which takes the relationships between the dimensions of the scale into consideration, and by the analysis of different demographic variables.

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