Original Paper

Computerized Pedagogical Management among School Teachers

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Abstract

Online pedagogical management is a mandatory element in the national program for embedding computerization in Israeli schools. In this study, the smart-school online system was used as an example of an online pedagogical management system among teachers in schools. The study examined the factors that influence the level of use of the Smart School system among teachers according to Davis (1989) technology acceptance model (TAM).

The study involved 60 teachers aged 23-63. Subjects were asked to fill out an online questionnaire. The questionnaire included statements that examined the perceived ease of use of the Smart School system by teachers, statements that examined the perceived benefit of the system, statements that examined the teachers' emotional attitude towards the system, statements that examined the level of digital literacy of teachers, and he level of use of the system by the teachers.

Keywords

Education, technology, pedagogy, management, education, digital literacy, digital education

1. Introduction

Online pedagogic management aims to transform the school into a computerized organization by replacing the traditional blue diary with a computerized virtual diary. Teachers are asked to enter online information on attendance data, discipline events, documentation of subjects and homework. A hoped-for information system will also be used to record scores, track and evaluate achievements throughout the school year, including the production of periodic progress reports and certificates.

Recently, as a result of the adoption of the National Computerization Program, which is gradually entering the school system from the 2010-2011 school year, we have witnessed a massive increase in the use of online information systems for pedagogic management, both via cellular and computer. The

adoption of technological systems requires organizations in general, and schools in particular, to make a great deal of time, energy, and money in planning, building and implementing the project. Which determine its success/failure.

One way to define the success of an organization's information system is according to the user's level of use by the users (Delone & McLean, 1992). This level of use is uneven, and employees use information systems at different levels and levels of use. Beyond levels and quality of use, the use of sequence steps can also be seen, from the beginning of use, through routine use, to the stage of advanced use. In the advanced stage of use, it is possible to expect an increase in efficiency, effectiveness and productivity in the work of the employee and the organization (Delone & McLean, 1992).

The research can help to understand the factors that influence the level of actual use of the system, managers and functionaries can use the research and its results to bring the teachers to a more advanced level of use, running such research within a given school can give a snapshot of the use of the system.

- Chapter A of this paper will review literature relevant to the topic, review some articles from the field of computerized pedagogic management, focus more on the "Smart-School" system, as a system for managing the feedback and quote the relevant information. At the end of this chapter I will present the research questions.

- Chapter B will deal with the methodology of research, in the form of data collection and analysis. Also, I will present in this chapter the research population and the research tools.

- Chapter C will include the findings of the study. I will present the findings in charts, graphs and literally. The findings will be presented in an order consistent with the order of hypotheses.

- Chapter D, the discussion chapter, will discuss the relationship between the results obtained and the hypotheses of the study. Also, in this chapter I will examine the relationship between the findings of this study and other studies

2. Method

2.1 The Research Process

This study examines the use of the Smart School system as a pedagogical management system and is an online information system. First, I saw fit to make a distinction between the terms "Information Systems" and "Information Technologies". According to Mioduser (1995), the term "Information Technology" includes all forms of technology designed to create, store, transmit and use information in its various forms. The term "information systems" means the people, hardware, software, data and procedures required to collect, transfer, process and store data and information distributed in the organization. The goals of information systems are to support decision making, coordination, analysis and management of the organization. Despite the differences between the concepts "information technology" and "information systems", the concepts often appear in the literature indiscriminately.

The questionnaires will be distributed via the Internet (through official forums and e-mail distribution

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lists of teachers who teach in schools that have adopted Smart School as an online pedagogic management system). The questionnaire will be built in Google Docs, and anonymous answers will be automatically collected in a spreadsheet that was available only to my personal site.

2.2 Research Model
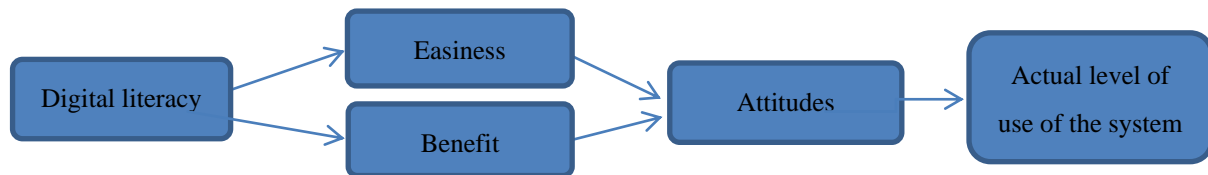
The model presented in the diagram focuses on the factors I will explore in this study. The model was built using the TAM technology acceptance model (Davis, 1989). The model includes the level of digital literacy of teachers as an external factor, and unlike the TAM model, the use of Attitude Toward Use is not included .

According to the model, there is a direct correlation between the level of teachers' digital literacy, perceived ease of use, perceived benefit, attitudes toward the system and the level of actual use of the system.

B.2-Participants

Teachers and teachers who teach in schools that have adopted the Smart School system as a pedagogical management system. The study involved 50 subjects, out of 66% women and the rest men. The age range of subjects ranged from 23 to 66, with an average of 37.67 (standard deviation 9.25). About 60% of the subjects had a bachelor's degree and 40% had a master's degree. The subjects' seniority ranged from one year to 47 years and averaged 12.31 (standard deviation 10.17).

B.3-Research tool

In order to collect the data in this study, a questionnaire which included the following parts was distributed to the participants:

1.   Demographic details - gender, age, education, years of seniority in teaching, position.

2.   Perceived Ease of Use - The subjects were presented with ease of use statements such as "learning how to use the Smart Smart System for me". The subjects were asked to rate their agreement to each Likert scale on the Likert scale, ranging from 1 (not at all) to 6 (to a very large extent). The reliability of the questionnaire was examined using internal traceability and was found to be high (Alpha Cronbach, 0.962).

3.   Perceived utility - The subjects were presented with statements of ease of use such as "Overall, I find the Smart-School system useful in my work". The subjects were asked to rate their agreement to each Likert scale on the Likert scale, ranging from 1 (not at all) to 6 (to a very large extent). The reliability of the questionnaire was examined using internal traceability and was found to be high (Alpha Cronbach, 0.972).

4.   Digital Literacy of Teachers - The subjects were presented with statements of ease of use such as "I control the use of various communication channels on the Internet, such as forums, blogs, Twitter,

Facebook". The subjects were asked to rate their agreement to each Likert scale on the Likert scale, ranging from 1 (not at all) to 6 (to a very large extent). The reliability of the questionnaire was examined using internal traceability and was found to be high (Alpha Cronbach, 0.966).

5.   A position towards SMARTSCOL - The subjects were presented with different positions when each position was presented between negative and positive. The subjects were asked to rate their agreement to each Likert scale on the Likert scale, from 1 (disagree) to 7 (to a very large extent). The reliability of the questionnaire was tested using internal traceability and was found to be high (Alpha Cronbach, 0.989).

6.   Method of use - The subjects were presented with four modes of use and each participant was asked to choose the method of use closest to his actual use. These are the models of use presented:

•   I have no knowledge of the Smart School system, and I do not want to use the system either now or in the future.

•   I'm in the process of acquiring knowledge about the Smart School system, and I'm not using it on a regular, daily basis.

•   I have basic knowledge about the Smart School system, I use the system on a daily basis for basic needs such as attendance, grades, homework…

•   I have extensive knowledge about the Smart School system, I use advanced system, I constantly learn about the system to discover new uses.


3. Result

This chapter presents the findings of the study and the statistical analyzes for examining the hypotheses. The table below presents the descriptive statistics of the main research indicators.

Table 1. Averages, Standard Deviations and Ranges of the Study Indices

Average Standard Deviation	Minimum		Maximum	
Ease of Perceived Use	4.31	1.22	1.00	6.00
Perceived benefit	4.09	1.29	1.00	6.00
Digital Literacy	4.63	1.40	1.00	6.00
Attitudes	4.65	1.95	1.00	7.00

As shown in Table 1 above, perceived ease of use was slightly more than perceived benefit. In addition, the teachers rated a relatively high level of digital literacy (4.63 out of 6) but only medium positions (4.65 out of 7).
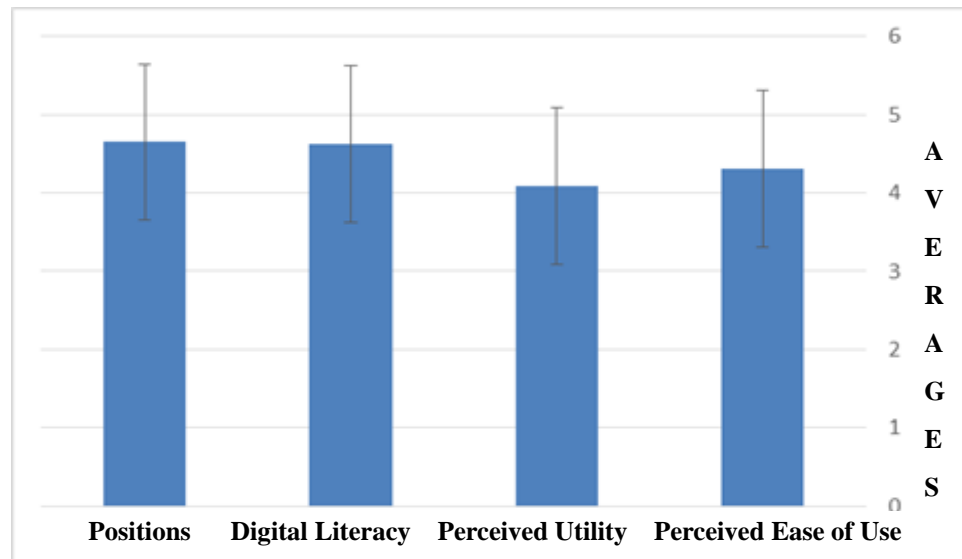
Figure 1. Distribution of the Mean of the Variables

In the next section, the statistical analyzes of the hypothesis of the study are given. The significance level for examining the various hypotheses is 5%.

3.1 Testing Hypotheses

1: There will be a positive and direct correlation between teachers' digital literacy and the perceived ease of use of the smart school system.

In order to test this hypothesis, Pearson correlates between the variables. The results of the analysis showed that there was a significant positive correlation between digital literacy and perceived ease of use (r = .398, p < .01). That is to say, the better digital literacy teachers are, the easier it is to use the system. The first hypothesis was confirmed.

2: Finding a positive and direct link between teachers' digital literacy and the perceived utility of the smart school system.

In order to test this hypothesis, Pearson correlates between the variables. The results of the analysis showed that there was a significant positive correlation between the level of digital literacy and perceived benefit (r = .370, p < .01). In other words, the more digital literacy teachers have, the more they perceive the system as having a higher benefit to them. The second hypothesis was confirmed.

3: There will be a positive and direct relationship between the perceived ease of use of the smart school system and the attitude toward its use.

In order to test this hypothesis, Pearson correlates between the variables. The findings of the analysis showed that there was a significant positive correlation between the perceived ease of use and the teachers' attitudes toward its use (r = .743, p < .01). In other words, the more easily perceived teachers are perceived, the more positive attitudes they face. The third hypothesis was confirmed.

4: There will be a positive and direct connection between the perceived utility of the smart school system and the attitude toward its use.

In order to test this hypothesis, Pearson correlates between the variables. The findings of the analysis showed that there was a significant positive correlation between the perceived benefit and the teachers' attitudes towards its use ($r = .198$, $p < .01$). In other words, the more perceived teachers are perceived, the more positive attitudes they perceive. The fourth hypothesis was confirmed.

5: There will be a positive and direct connection between the attitude toward the system and the actual system use.

In order to examine this hypothesis, a one-way analysis was performed, with the explanatory variable being the actual level of use of the system, and the explanatory variable was the teachers' position. The findings are presented in the table below.

Table 2. Distribution of Teachers' Attitudes toward the System According to the Method of Use of the System

Way of use of the system	Mean	standard deviation	N
Knowledge acquisition phase	3.66	1.90	19
Basic knowledge and mechanical use	5.48	1.42	25
Advanced Knowledge	5.03	2.36	5

The variance analysis showed that there was a significant difference between the three modes of use ($F (2, 46) = 6.075$, $p < .01$). In particular, it was found that the attitudes at the knowledge acquisition stage were the lowest in comparison with the positions in the basic knowledge stage that were the highest. The hypothesis was confirmed.
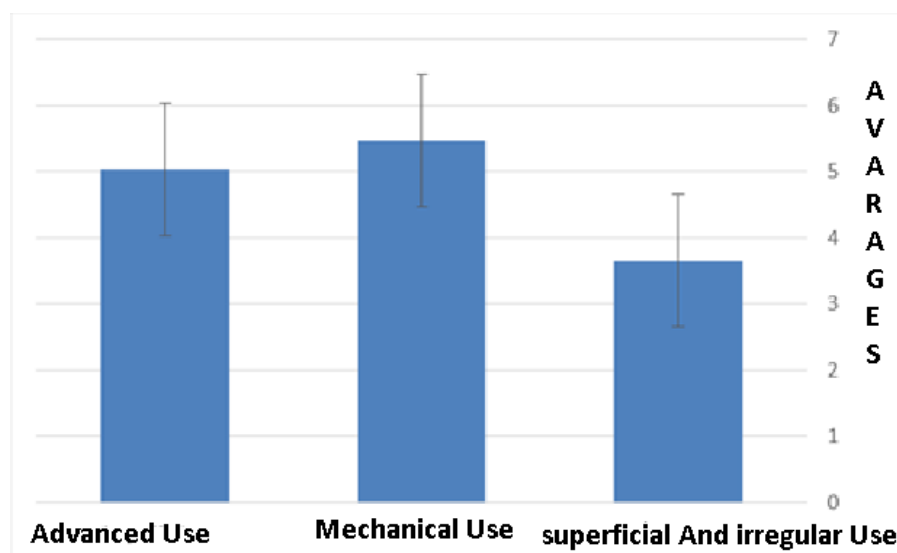
Figure 2. Comparison of Teachers' Attitudes towards the System According to Level of Use

4. Discussion

The purpose of this study was to examine pedagogic management through the SMARTSCHOOL online system and to examine factors affecting the level of actual use of the system. The success or failure of the system is determined according to the level of use that the teachers make in the system, and therefore factors that could affect the level of teachers' use of the system were examined.

The research findings confirmed the hypotheses and found a direct correlation between the level of teachers' digital literacy, perceived ease of use, perceived benefit, attitudes towards the system, and the level of actual use of the system.

The research model was modeled on the Davis Technology Acceptance Model (TAM) model and was designed to explain factors that were perceived to affect the level of actual use of the Smart School system as a pedagogical management system. And the question, what do we learn from the research findings about this model? The findings indicate that the factors examined have a direct and indirect effect on this phenomenon. The findings give managers and interested parties directions of action to increase the level of use of the system and to bring most of the teachers to the level of advanced use and full control of the system and its virtues.

4.1 Literacy

A position is a positive or negative general emotional response to the application. Many research findings point to a positive correlation between attitudes and the use of information systems (Agarwal & Prasad, 1999; Karahanna, Straub, & Chervany, 1999).

According to Davis (1989), the perceived ease of use refers to the extent to which a person expects a system to be effortless. And when a technological application is perceived by the user as effortless, the user will develop more positive attitudes towards him, which corresponds to the results obtained in the study. The perceived ease of use of the Smart School system received a relatively high average and also the attitudes of the users.

In future studies, I suggest exploring the process of assimilating pedagogical management systems, as well as examining the use of these systems from the perspective of the parents.

4.2 Limitations

I think that a sample of 50 subjects is not sufficient for a serious examination of the factors that affect the level of actual use of the system. The sample should be more extensive, but the degree of responsiveness to the online questionnaire that I distributed is more or less the size of the sample.

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