COMPUTER USE BY SECONDARY SCHOOL PRINCIPALS

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ABSTRACT
The purpose of this study was firstly to identify the extent to which Iranian secondary school principals used computers and secondly to explore the relationship between a number of variables related to the use of information and communications technology (ICT). Findings indicated that four factors played a role in explaining the level of computer use by principals. These factors included high level of computer access, strong perceptions of the attributes of ICT, high level of computer competence, as well as the high level of transformational leadership behaviors, all contributed significantly to the level of computer use by principals. All four constructs are equally important but have varying impacts on computer use. Therefore, all four constructs should be viewed in an integrated manner in accordance to the conceptual model proposed in this study.

Keywords: ICT, Secondary school principals, Computer use

INTRODUCTION

One developing country that is currently pursuing the technological track in education is Iran. Based on Iran's National philosophy of Education, education should develop individuals' potential in an integrated manner and produce individuals who are spiritually, intellectually, and emotionally balanced and compatible(Kousha & Abdoli, 2004). Technology is the catalyst for this massive transformation and foster the development of a workforce prepared to meet the challenges of the next century. With respect to this vision, Ministry of Education provided ICT related workshops and courses for principals and teachers. The plan emphasized that they should acquire seven fundamental digital computing skills (Kousha & Abdoli, 2004). Although several institutions have completed the training programs of their staff, research studies have not been done to measure the efficiency of this plan, as well as the knowledge, skills, and attitude that principals and teachers acquire during these courses. In fact, national programs in developing countries are not based on research. Hence, the success of these programs is limited (Albirini, 2006a).

In addition, the Ministry of Education in Iran has invested a great deal of funds to facilitate the integration of ICT in schools. In spite of this large expenditure of funds, the potential for ICT to alter principals' use of computer for instructional and administrative purposes, teachers' teaching methods and students' learning process in Iranian schools have not been fully realized. The reason is that many Iranian schools do not use ICT in teaching and learning and administrative tasks (Jahangard, 2003) owing to that fact that the use of computer was provided with no supplementary measures to enable principals and teachers to develop positive attitudes toward ICT in education and to use them in their schools (Albirini, 2006a). Also, in reviewing the literature about the use of ICT in schools, the part which is evidently missing in research on ICT use and integration is the role of the school principals as the technology leaders. Although, some research studies have shown that ICT has a huge impact on the ways in which principals work (Yuen, Law & Wong, 2003; Schiller, 2003), the ICT research literature has largely ignored the role of principals as technology leaders (Schiller, 2003; Michael, 1998). This gap in the research literature is rather strange because many research studies related to school improvement, school effectiveness, and change showed that school principals play an important role in creating successful changes in schools (Schiller, 2003).

According to Schiller (2003), school leaders are key factors in ICT implementation in schools. They have to shoulder the heavy responsibility for creating changes in schools through the use of ICT and facilitating the process of making complicated decisions to integrate it in schools (Schiller, 2003). Although the role of the principal in supporting technology integration is very important, there are a few researches conducted by Iranians on the role of the principal in ICT implementation. Also, little is known about the use of ICT by principals and the factors that are related to their level of computer use. This article will discuss on these issues through an analysis of data collected from Iranian secondary school principals.

REVIEW OF THE LITERATURE

One of the important factors to implementing changes in the schools is effective leadership (Calabrese, 2002). Anderson and Dexter (2005) collected data of more than 800 schools in the USA to identify technology leadership characteristics. Their findings indicated that "although technology infrastructure is important, for educational technology to become an integral part of a school, technology leadership is even more necessary" (p.

74). The educational potential of information and communications technology will not be realized without the support of school leaders, specifically the principal (Schiller, 2003). Principals play various roles such as change agent, lifelong learner, main supporter, and resource provider in relation to ICT implementation in schools (Han, 2002). If principals want to lead effectively their school in technology integration, they should accept technology and realize the role that technology can play in the teaching-learning process. In fact, "it is difficult to imagine a leader who does not use technology trying to convince teachers that it is important" (Cafolla & Knee, 1995, P.3). Therefore, principals need to understand the capacities of the new technologies, to have a personal proficiency in their use, and be able to promote a school culture which encourages exploration of new techniques in teaching, learning and management (Schiller, 2003).

According to Albirini (2006a), access to computer resources has often been one of the most important barriers for technology integration in both developed and developing countries. Norris, Sullivan, Poirot and Soloway (2003) reported on the analysis of data from the snapshot survey of more than 4,000 K-12 schools in the USA and concluded that there was a significant relationship between level of access to computer and level of computer use. Also, Rogers (2003) stated that the perceived attributes of an innovation are one of the important factors in explaining the rate of adoption of an innovation. A large amount of the variance in the rate of adoption of innovations, from 49 to 87 percent, is explained by five attributes: relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). The five attributes refer respectively to: (1) 'the degree to which an innovation is perceived as better than the idea it supersedes; (2) the extent to which an innovation is perceived as consistent with the existing values, past experience, and needs of potential adopters; (3) the degree to which an innovation is perceived as relatively difficult to understand and use; (4) the extent to which the results of an innovation are visible to others; and (5) the degree to which an innovation is experimented with on a limited basis'(Rogers,2003,p.16). Regarding the relationship between perceived innovation characteristics and computer technology adoption, Al-Gahtani (2003) conducted a quantitative research in Saudi Arabia and found that relative advantage, compatibility and observability were positively related to the adoption of technology, whereas complexity was negatively correlated. Hence, 'innovations that are perceived by individuals as having greater relative advantage, compatibility, observability, and less complexity will be adopted more rapidly than other innovations' (Rogers, 2003, p.16).

Individuals' attitudes toward ICT have been recognized as an important factor for the success of technology integration in education (Akbulut, 2008; Bebetsos & Antoniou, 2009; Hashim, Ahmad, & Abdullah, 2020). Han (2002) conducted a case study on pre-school leaders' practices in the use of ICT and found that principals who have positive attitudes toward technology are very helpful and supportive in introducing these new technologies into the school. For example, they encourage their colleagues to have ICT training, equip the school with sufficient computers and ensure that staff has access to relevant technology. Ajzen and Fishbein (2005) indicated that attitudes consist of three elements: affect, cognition, and behavior. The affective element refers to the individual's emotional feelings or liking of a person or an object. The cognitive element refers to the person's knowledge about a person or an object. The behavioral element refers to the person's overt behavior towards a person or an object. A complete description of attitude requires that all three components be assessed by obtaining measurements of all the three response classes (Ajzen & Fishbein, 2005).

According to Rogers (2003), innovation-decision process consists of five steps which are knowledge, persuasion, decision, implementation, and confirmation. These five steps usually follow each other in a time-ordered manner. Knowledge is the first stage of the successful adoption of computer technologies and it is essential for other steps in the innovation-decision process. If principals do not have enough competent in computer use, they may not adopt computer technologies into their instructional and administrative tasks (Afshari et al., 2008). Without the knowledge and skill of computer technology, principals might have a high level of uncertainty that influence their opinions and beliefs about the innovation (Rogers, 2003). In line with this idea, Felton (2006) stated that competence is a key to the use of computers by principals on a daily basis. In fact, competence in operating a computer and in utilizing software may improve the quality and efficiency of administrative performance in schools (Felton, 2006). Improved quality could lead to improve decision-making. It is clear that effective training is crucial if principals are to use ICT effectively in their work (Kirkwood, 2000). If training is inadequate or inappropriate, then principals will not be sufficiently prepared, and perhaps not sufficiently confident, to make full use of technology. Hence, lack of principals' competence and lack of quality training for principals can be barriers to principals' use of ICT.

Many technology experts have indicated that "the integration of ICT in education should occur in the light of the cultural conditions of the country and the prevailing school culture" (Albirini, 2006b, p.50). In fact, cultural barriers, either societal or organizational, are very important among the barriers to the adoption of technology. Societies and organizations can overcome most of the technical barriers through different means of support, but

cultural barriers are harder to deal with. In the field of education, it has been noticed that principals' reactions to technology innovations are mediated by their cultural perceptions (Felton, 2006). According to Rogers (2003), a cultural perception is a very general idea of social system norms. In other words, it refers to the cultural suitability of computers (Thomas, 1987). Albirini (2006a) carried out a study examining the factors relating to the teachers' attitudes toward ICT. He collected evidence from high school English teachers about their perceptions of computer attributes, cultural perceptions, computer competence, and computer access. The sample consisted of 63 male and 251 female teachers. The results showed that computer attributes, cultural perceptions, and computer competence are factors that explain the greatest amount of variance in computer attitudes. Also, he stated that cultural perceptions toward different computer-related technologies are key factors related to both the initial acceptance of these technologies as well as future behavior regarding their usage. Similarly, Lee, Choi, Kim and Hong, (2007) conducted a study on the relationship between users' cultural profiles and technology adoption in the context of the mobile Internet. Their findings of large-scale on-line surveys in Korea, Hong Kong, and Taiwan indicated that cultural factors have a significant influence on users' adoption perceptions of mobile Internet services. So, they concluded that cultural differences are a contributing factor in the adoption of technology, particularly in third world countries.

According to Flanagan and Jacobsen (2003), leadership plays a key role in the success of technology utilization in education. Thomas (2001) stated that there is a strong link between educational technology and school leadership. Leadership style is exhibited by the leader could help or hinder technology infusion (Flanagan & Jacobsen, 2003; Thomas, 2001). One of the best styles of leadership that can change and transform individuals is transformational leadership (Northouse, 2001). Transformational leadership occurs when one or more persons engage with others in such a way that leaders and followers raise one another to higher levels of motivation and morality (Bass & Riggio, 2006). In other words, transformational leadership is a process that both the manager and followers should change themselves (Northouse, 2001). Although the transformational leader plays an essential role in precipitating change, followers and leaders are inextricably bound together in the transformation process (Northouse, 2001). This type of leadership is becoming more and more important to organizations, as workforces become more diverse, technology improves and international competition heightens (Jobs, 2002).

Transformational leadership is comprised of four distinct dimensions: charismatic leadership or idealized influence, inspirational motivation, intellectual stimulation and individualized consideration (Bass & Riggio, 2006). Idealized influence (attribute) demonstrates attributes of principals that motivate respect and pride and display a sense of power and confidence; idealized influence (behavior) refers to the principals' behavior to communicate values, purpose, and importance of mission; inspirational motivation refers to leaders that motivate and inspire others by challenging them to exert effort; Intellectual stimulation stimulates followers' efforts to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways; and individualized consideration focuses on development and mentoring of followers and attends to individual needs(Bass & Riggio, 2006). Beatty and Lee (1992, as cited in Thite, 2000) conducted several case studies of the implementation of CAD/CAM systems in numerous British and Canadian companies in an effort to investigate the linkage between leadership and technological change in organizations. Through semi-structured interviews and using a critical incident approach to assessing leadership abilities, the researchers tracked managerial involvement throughout the implementation process. The outcome of their qualitative research suggests that a transformational approach to leadership is likely to be more effective in overcoming barriers to change than a transactional leadership approach that concentrates on technical problem solving to the neglect of people and organizational issues.

According to Burns (2003), transactional leadership involves exchanging one thing for another. In fact, the effective transactional leaders are expert in giving and taking. This style is useful for stable situations but is less useful for organizations that are facing environmental turbulence or rapid change (Kirkbride, 2006). Transactional leadership was measured by contingent reward and management-by-exception (active and passive). Contingent reward leaders explain the expectations of followers and the compensation they will receive if they meet their performance expectations. Management-by-exception-active leaders attend to followers' mistakes and failures to meet standards and management-by-exception-passive leaders react to correct action after problems become serious enough (Bass & Riggio, 2006).

Regarding the importance of transformational leadership as an influence on principals' use of technology, Christopher (2003) conducted a study at the University of Virginia. A self-designed instrument was used in this study. Leadership items were taken from Bass and Avolio's Multifactor Leadership Questionnaire Leader Form. Surveys were sent to a random sample of 397 principals throughout the Commonwealth of Virginia, and 185 principals participated in the survey. Her analysis indicated that the overall extent that principals used decision support technologies was significantly correlated with their perceptions of all four transformational leadership

behaviors (individual influence, inspirational motivation, intellectual stimulation, and individual consideration). Also, she suggested that educational leadership programs should be provided to train principals to use technology as a management tool. If principals do not use technology on a consistent basis; they should not expect the faculty to use technology regularly. Modeling the use of technology provides an effective method for exposing teachers to new strategies and demonstrating to the staff that it is acceptable to take risks and make mistakes, without the fear of retribution (Dawon & Rakes, 2003)

THE STUDY

The purpose of this study was to identify the extent to which secondary school principals use computers in Tehran (a large province in Iran) and to explore factors related to the level of computer use by principals. Selected factors used in this study were based on Rogers' (2003) diffusion theory, Technology Acceptance Model, and previous researches which include perceived computer attributes; computer competence; computer access; principals' attitude toward computers; leadership style of principals; and cultural perceptions. Principals' profiles (gender, age, and administrative experience, type of school, and academic degree, as well as information regarding their background in computer training) were also included in order to ensure maximum possible control of extraneous variables by building them into the design of the study (Gay & Airasian, 2000). More specifically, this study addresses the following questions:

1. What is the level of computer use by secondary school principals?
2. What are the principals' attitudes toward computers?
3. What are the principals' perceptions of:
   a. Computer attributes?
   b. Their level of computer competence?
   c. Cultural relevance of computers to Iranian society and schools?
   d. Their level of access to computers?
4. What is the leadership style (transformational and transactional leadership) of principals?
5. What is the relationship between the level of computer use by secondary school principals and their perceptions of each of the above variables?
6. What is the proportion of the variance in the level of computer use by secondary school principals that can be explained by the selected independent variables and the relative significance of each independent variable in explaining the dependent variable?

METHOD

This was a descriptive study of an exploratory nature. Creswell (2003) stated that exploratory studies are most advantageous when ''not much has been written about the topic or the population being studied'' (p. 30).The target population in this study was Iranian secondary school principals in the province of Tehran during the 2007-2008 school years. The list of principals was based on the secondary principals' Directory. The Directory is maintained and updated on a quarterly basis by Tehran Department of Education. The total number of secondary school principals was 1312 in the Directory of the Department of Education in Tehran.

Furthermore, a set of questionnaire was used to obtain the required data for this study. The questionnaire was divided into two parts. Part A measured the perceived level of computer use by principals. Factors that were related to it were measured in part B. Questionnaires were distributed to 320 sample principals selected randomly from the population. In this study, stratified sampling was used because Tehran is one of the biggest cities in Iran and consists of 19 educational areas. Also, the population to be sampled was not homogeneous but, in essence, consisted of several subpopulations (Wiersma, 1995). When sub-populations vary significantly, it is advantageous to sample each subpopulation (stratum) independently**.** Researcher used this stratified sampling method to have less variability in selection.

Two indispensable characteristics of measurement that must be considered in establishing the appropriateness and usefulness of measurement instrument are reliability and validity. Although theses instruments were valid, face and content validity of these instruments were established again by a panel of expert. To ensure that Iranian secondary school principals had a complete comprehension of the instrument used in the study, the survey was translated from English into Persian using the double back translation method to ensure the accuracy of the Persian version.

Furthermore, Cronbach's alpha was used to measure internal consistency and calculated via the SPSS 15 statistical package. Cronbach alpha is the most common form of internal consistency reliability coefficient. The Cronbach's alpha coefficients for these scales were: Computer Access Scale=0.867, Computer Attributes Scale =0.909, Attitude toward ICT Scale =0.92, Computer Competence Scale=0.97, Cultural Perceptions Scale=0.611,

Transformational leadership style Scale=0.812, Transactional leadership style Scale=0.596 and Level of computer use Scale=0.917.

To carry out this study, first, approval was obtained from the Ministry of Education and also contact was made with the research department of Tehran's Ministry of Education. A meeting was arranged to discuss the proposed study. Furthermore, a letter of introduction and a questionnaire packet were delivered to the superintendent in the research department for review. Finally, approval was received from the superintendent and permitted the researcher to attend the principals' meeting in each educational area of the Ministry of Education. A total of 350 packages were distributed among all members of the sample in these sessions. In the packages, there were some materials. These materials included a cover letter, the questionnaire, and a stamped, addressed return envelope was enclosed for some respondents' convenience in returning the completed questionnaires. The completed questionnaires were collected at the end of these sessions. Principals who could not fill their questionnaires completely were given approximately three weeks from that date to return the questionnaires by mail. In all, 350 surveys were distributed, 320 were returned, resulting in a return rate of 91.4%. All of the returned surveys, a total of 320, were used in the analysis. In this study descriptive statistics were used to describe and summarize the properties of the mass of data collected from the respondents (Gay & Airasian, 2000). Correlation analysis was used to determine the relationship between each of the independent variables and the level of computer use by secondary school principals in Tehran. Furthermore, multiple regression was used to measure the degree to which the independent variables would explain the proportion of variance in the dependent variables and to identify the relative significance of each independent variable in explaining the dependent variable. By convention, an α level of 0.05 was established a priori for determining statistical significance.

FINDINGS & DISCUSSION

The findings indicated that about 51.6% of the respondents were males and more than half of the respondents (50.3%) were within the 45-54 age range. About 44.7% of the respondents had 21 or more years of experience. More than half of the respondents (53.1%) worked in private schools, and approximately 60.3% of the respondents held bachelor's degrees. Moreover, the majority of the participants (95.5%) reported that they had computer training, and 83.8% of them had more than 60 hours of training. In terms of the type of training, more than half of the principals participating in the study (52.8%) reported that they received their training through in-service training.

Computer Use by Principals

The dependent variable, level of computer use, was quantified by the score of 39 items using a five-point Likert scale. Each item was rated by respondents from 1 ("Never use") to 5 ("use daily"). According to Table 1, the principals' perceptions of the level of computer use were moderate; with an overall mean score of 3.32 (SD= 0.76). Also, findings indicated that principals spent a few times a week working on their computers. It would seem that Iranian principals need effective and extensive trainings to raise their proficiency in computer use and to integrate technology into their schools.

Table 1. Distribution of Mean Scores on the Computer Use Scale

Scale	Percent (%)			Mean	S.D.
	Low	Moderate	High		
Internet use	10.3	43.8	45.9	3.49	0.79
Hardware and software use	11.9	51.9	36.3	3.27	0.66
Instructional use	16.6	39.4	44.1	3.36	0.93
Administrative use	17.2	47.8	35.0	3.23	0.90
Overall Computer Use	12.2	55.0	32.8	3.32	0.76

Moreover, analysis of collected data on the computer use scale indicated that among the subscales of the level of computer use, Internet use had the highest mean (M = 3.49). Also, findings indicated that nearly all the respondents used the Internet at home and at school , and the most frequent use of the Internet was for sending and receiving e-mails (46.9% "2 or 3 times a week"). It would seem that e-mailing was the most accepted application among principals who were surveyed. In fact, there may be several reasons for this—e-mail is efficient, widely available, and effective. Thus, it is not surprising that email was accepted and used far more by the sample population of this study.

Principals can increase their professional knowledge in the form of knowing current research, new technologies, and the best teaching practices through the use of the Internet. Findings of this study pointed out that most of the respondents used a web browser a few times a week to explore professional and educational resources. Three

reasons may underline the obtained results. The first possible reason is that "low telecommunication density and very low bandwidth during peak hours sometimes makes it impossible to download files or software" (Uddin, 2003, p.225). Furthermore, most of the principals had little Internet experience to find useful professional and educational resources. Lastly lack of knowledge and skill for searching and downloading the valuable professional and educational resources also limit the use of the Interne. In fact, the Internet can be an avenue for researching information and data. It helps principals to find information regarding their profession and educational subjects in order to develop processes for effective decision-making and problem solving which result in better accountability (Felton, 2006). Therefore, trainings should be provided for principals to learn all possible Internet resources together with underlying techniques of strategic browsing to enhance their Internet literacy (Atkinson & Kydd, 1997).

As for the hardware and software use subscale, the main use for computers was in word processing, whereas construction of spreadsheets, databases and presentations (such as Powerpoint) were used "never" or "a few times a month". Only 2.5 percent of principals stated that they read spreadsheets "daily" at work with 20.0 percent indicating 2 or 3 times reading in a week, while 56.9 percent indicated that they had "never" read or had read "a few times a month" a spreadsheet. These results are consistent with Schiller's (2003) study. He found that the word processing was the most frequently utilized software among the principals and they used it to create documents and slides.

Regarding the instructional use domain, the majority of participants indicated that they two or three times a week used computers for recording observation; monitoring student achievement for specific objectives and grades; creating master schedules; recording discipline referrals; writing up classroom observations; monitoring achievement test data; locating curriculum resources; developing or writing curriculum; and creating graphs and charts. Plomp and Pelgrum (1992) stated that one way in which computers might work their way into the school is through administrative use and that this might lead to the use of computers in instruction. An examination of data indicated that mean score of the administrative use subscale was lower than another subscales, and computer use for instructional purposes was generally ahead of administrative uses. Moreover, findings indicated that within the area of administrative uses, communicating with staff, and members of the wider school, initiating and sustaining collaborative activities with colleagues within and outside their school were the areas of greatest use, while financial matters, maintaining administrative records about students, using a program to analyze information for solving problems, using technology to support levels of professional collaboration, and using technology to engage new kinds of professional development were the least used areas. Therefore, the early assumption that the introduction of computers into schools for administrative purposes would spread to their use for instructional purposes was not supported by the data.

Principals' Attitudes toward ICT in Education

Attitude scale contained 23 items that asked respondents to describe their attitudes towards ICT. This scale was developed by Albirini in 2006a and comprised of three subscales: affective domain; cognitive domain, and behavioral domain. Respondents' attitudes were measured on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicated positive attitudes towards ICT while lower scores indicated less positive attitudes.

Table 2.Distribution of Mean Scores on the Attitude toward ICT Scale

Scale	Percent (%)			Mean	S.D.
	Negative	Moderate	Positive		
Affect	0.0	24.1	75.9	4.11	0.53
Cognition	0.0	20.3	79.7	4.05	0.45
Behavior	0.0	29.1	70.9	3.97	0.59
Overall Attitude	0.0	21.3	78.8	4.05	0.44

As Table 2 illustrates, principals' attitudes towards ICT were positive, with an overall mean of 4.05 and a standard deviation of 0.44. Principals' positive attitudes towards ICT exhibit their initiation into the innovation-decision process (Rogers, 2003). It seems that Iranian principals have already gone through the Knowledge and Persuasion stages (Rogers, 2003) and are probably proceeding to the Decision phase. As many theorists have indicated, attitudes can often foretell future behaviors (Ajzen & Fishbein, 2005). Thus, it can be concluded that principals who have positive attitudes towards ICT in education, use computer in their administrative and instructional tasks once computers become more available to them. At this stage, principals' expertise in computer use and the social support from others (colleagues, peers, etc.) might affect their attitudes toward computer use. Furthermore, findings of this study indicated that the affective domain has the highest mean score (M= 4.11) among the three subscales of attitude scale. This implies that principals had positive emotional feeling

of computer in education. So, the majority of respondents reported that they like, enjoy, and feel comfortable using ICT in general and in education. This was followed by the cognitive attitudes (M=4.05, SD=0.45). The vast majority of principals stated that they have realized the impact of technology on their life and society in general. Regarding the behavioral subscale, participants indicated that they have the intention to buy computers, to learn about them, and to use them in the near future.

Computer Attributes

This study examined key attributes of ICT to determine the extent to which it has successfully been diffused and adopted in the Iranian educational system by principals. Only four of the perceived attributes of ICT were examined among a sample of Iranian principals. These attributes were relative advantage, compatibility, simplicity (in this study non-complexity of ICT was measured), and observability. The Computer Attributes Scale was developed by Albirini (2006a) and contained 25 items. Since respondents rated their perceptions of computer attributes on each item from "strongly disagree" (1) to "strongly agree" (5), the range of possible mean scores was between 1 and 5, with higher scores indicating more positive perceptions of computer attributes.

Table 3.Distribution of Mean Scores on the computer attributes scale

Scale	Percent (%)			Mean	S.D.
	Low	Moderate	High		
Relative Advantage	0.0	35.6	64.4	3.85	0.62
Compatibility	2.5	35.6	61.9	3.74	0.71
Complexity	1.3	40.3	58.4	3.77	0.69
Observability	0.0	29.4	70.6	3.95	0.66
Overall Attributes	0.0	35.6	64.4	3.82	0.62

As shown in Table 3, the respondents' perceptions of the attributes of ICT were somewhat positive, with an overall mean score of 3.82 and a standard deviation of 0.62. Among the four categories of computer attributes, observability has the highest mean value (M=3.95, SD=0.66), indicating positive observed advantage of ICT. This was followed by the relative advantage subscale, with a mean score of 3.85 and standard deviation of 0.62. Most of the principals taking part in this study believed that computers offer an advantage over previous ways of performing their task in that they can assist in acquiring and evaluating information to manage work-related problems. In fact, computers can lead to adequate and intelligent solutions for on-the-job problems (Felton, 2006). Also, they can have a positive impact on the productivity of principals as managers and instructional leaders and can be perceived as a valuable tool.

The simplicity subscale had the mean score of 3.77 and the lowest mean score, 3.74, was from the compatibility subscale. These results indicated that Iranian principals were roughly comfortable with using computers and easily made the transition to using one at school. Their level of comfort with the innovation was somewhat high which enabled them to adopt the innovation quickly. In fact, these two factors (the comfort level of the participant with the innovation and the compatibility of the innovation with the participants' values, beliefs, and educational background) have the most impact on adoption of the innovation (Rogers, 2003).

Computer Competence

The Computer Competence Scale was used to measure secondary school principals' beliefs about their computer knowledge and skills. This scale was developed by Flowers and Algozzine in 2000. According to this questionnaire, eight domains of the perceived ICT competencies of principals (basic computer operation skills; setup, maintenance, and troubleshooting of equipment; word processing; spreadsheets; database; networking; telecommunication; and media communication) were measured. Principals' computer competence was quantified by the score of the 34 items on a four-point scale, ranging from 1 (No Competence) to 4 (Much Competence). The responses were reduced to a mean score that demonstrated the level of each respondents of their computer competence, with higher scores indicating greater competence.

Table 4.Distribution of Mean Scores on the Computer Competence

Scale	Percent (%)				Mean	S.D.
	No competence	Little competence	Moderate competence	Much competence		
Basic computer operation skills	0.0	5.0	22.2	72.8	3.60	0.52
Set up, maintenance, and troubleshooting of equipment	11.6	23.1	35.9	29.4	2.88	0.81
Word processing	0.0	9.1	22.5	68.4	3.51	0.60
Spreadsheets	18.1	38.1`	27.5	16.3	2.44	0.81
Database	18.8	36.9	29.4	15.0	2.45	0.87
Networking	10.9	17.5	34.7	36.9	2.96	0.80
Telecommunication	5.3	15.6	30.0	49.1	3.19	0.81
Media communication	12.2	20.3	47.5	20.0	2.80	0.80
Overall computer competence	4.7	15.0	41.3	39.1	2.99	0.62

As shown in Table 4, the mean score of the participants' responses on basic computer operation skills (3.60) was the highest among the eight subscales, indicating much competence in this skill. More than two-thirds of the respondents (72.8%) had much competence, 22.2% had moderate competence, and the remainder had little competence (5.0%) in basic computer operation skills. it seems that basic computer operation skills have not been the major educational needs among the principals. Furthermore, study results indicated that most of the principals were competent in using basic word processing (M= 3.51) and a few of them were proficient in constructing spreadsheets, databases and presentation software (M= 2.44, M= 2.45). In fact, "by increasing the availability of computers at school and home, it is not surprising that basic computer operation skills and word processing are skills that most principals are competent in. These skills are not seen as important for principals as other staff can assist them and therefore the principals can spend more time on other aspects of ICT. On the other hand, the relatively low proficiency of principals in creating and using spreadsheets and databases are essential for those in leadership positions where use and interpretation of data is increasingly becoming a critical skill" (Schiller, 2003, p.179).

In addition, principals taking part in the study stated that they have moderate competence in using telecommunications; networking; set up, maintenance and troubleshooting of equipment; and media communication. In Iran, these innovations are still new and only certain people know how to operate the equipment. The development of Internet technology also might be the reason why principals did not have much competence in telecommunications system. Today, in Iran, the use of basic Internet skills has become more common especially in Tehran's schools. According to Starr (2001), competence in using computers requires a positive attitude, practice time, and staff development in computer use. Hence, considerable continuing professional development opportunities should be provided for principals to learn how to use hardware and software applications within the context of their administrative and instructional responsibilities. Consistent and continuous training can increase the proficiency of principals.

Cultural Perceptions

Principals were asked to respond to 16 Likert-type statements dealing with their cultural perceptions of computers and the impact of computer use on Iranian society and schools. This questionnaire was developed by Albirini (2006a). Based on this questionnaire, respondents can rate their cultural perceptions on each item from "strongly disagree" (1) to "strongly agree" (5), the range of possible mean scores is between 1 and 5, with higher scores indicating more positive cultural perceptions.

Table 5. Distribution of Mean Scores on the Cultural Perceptions

Scale	Percent (%)			Mean	S.D.
	Low	Moderate	High		
Cultural Perceptions	0.0	26.3	73.8	4.00	0.53

As can be seen from Table 5, the overall mean on the cultural perceptions scale was 4.0, with a standard deviation of 0.53, indicating that principals' perceptions of the cultural relevance of computers were positive. In

other words, principals had positive perceptions of the value, relevance, and impact of ICT as it relates to the cultural norms in Iranian society and schools. So, principals did not feel ICT as a threat for Iranian culture.

Computer Access

Respondents were asked to rate their level of access to computers. The access questions covered: (a) the location of computers used by principals (home, office, and school), and (b) the frequency of access (never, once a month, once a week, two to three times a week, and daily). Computer access of principals was represented by a mean score on a 5-point scale ranging from 1 (Never) to 5 (Daily).

Table 6. Distribution of Mean Scores on the Computer Access Scale

Scale	Percent(%)					Mean	S.D.
	Never use	Once a month	Once a week	2 or 3 times a week	Daily		
Home	6.9	9.7	28.8	32.8	21.9	3.53	1.13
Office	3.4	7.2	10.3	32.2	46.9	4.12	1.07
School (Computer lab or Library)	18.8	16.6	25.9	24.7	14.1	2.99	1.31
Overall Access Level	10.0	9.1	23.4	26.6	30.9	3.55	1.05

According to Table 6, the mean score of the overall Computer Access Scale was 3.55 (SD = 1.05), which implies that, on average; secondary school principals had access to a computer almost two or three times a week. Furthermore, findings of this section indicated that only 30.9% of principals had access to computers daily. Many school districts communicate vital information daily to administrators, and they expect communications, reports, and other documents to be transmitted in the same way. In fact, frequent and immediate access to computer to get data (e.g. student files and grades, arrange class schedules, track discipline problems, and evaluate teachers) is important for principals. They can use these data to develop processes for effective decision-making and problem solving which result in better accountability (Felton, 2006). Moreover, principals reported high levels of computer access in more personalized spaces such as in their offices (M=4.12) and at their homes (M=3.53). The high level of computer access for administrators can be a positive sign. It shows that the importance of computers as a management and instructional tool has been understood by decision makers.

Leadership Style

In this study, the leadership style of principals was measured by the Multifactor Leadership Questionnaire. The MLQ5x was developed by Bass and Avolio in 2000. The Multifactor Leadership Questionnaire 5x is the most recent version of the Multifactor Leadership Questionnaire, which is the instrument most commonly used to measure transformational, transactional and laissez-faire leadership. In this study laissez-faire leadership was not examined because this style is extremely passive, where a leader avoids decision making and supervisory responsibilities (Lewin, Lippitt, & White, 1939). Moreover, laissez faire leadership indicates a complete abdication of leadership (Bass, 1985).

Transformational Leadership Style

Transformational leadership questions are in the questionnaire categorized as: idealized influence (attributed) idealized influence (behavior), inspirational motivation, intellectual stimulation, and individualized consideration. The transformational leadership score is the average score of 20 items making up transformational leadership. The range of possible mean scores was between 0 and 4, with higher scores indicating a greater level of perceived transformational leadership.

Table 7.Distribution of Mean Scores on the Transformational Leadership Style

Scale	Mean	S.D.
Idealized influence (attributed)	2.99	0.67
Idealized influence (behavior)	2.88	0.71
Inspirational motivation	2.74	0.76
Intellectual stimulation	2.69	0.80
Individualized considerations	2.85	0.69
Overall Transformational leadership style	2.83	0.59

As a composite variable, transformational leadership received a mean rating of 2.83 (on a five-point scale). The findings indicated that a representative sample of Iranian secondary school principals fairly often provided some elements of transformational leadership. Bass and Avolio (2003) suggested that ideal ratings for the transformational variables should be greater than three (>3.0). This benchmark shows that principals who have a mean score greater than three are very powerful in achieving the best outcomes. However, the principals surveyed as part of this research did not meet this benchmark.

Based on literature review, the level of transformational leadership in developed country is higher than developing country. In fact, in developed countries such as USA, educational master degrees are mandatory. School principals must complete the Principals' Qualification Program (PQP) before being appointed as a principal or vice-principal (Bush & Jackson, 2002). Moreover, there are programs for newly appointed principals in New South Wales and in New Zealand. In Ohio, new principals should attend a two-year curriculum to develop their knowledge, dispositions and leadership skills (Bush & Jackson, 2002). On the other hand, in developing countries specifically in Iran, training is not a requirement for appointment as a principal and there is still an assumption that good teachers can become effective managers without specific preparation (Bush & Oduro, 2006). This may be a reason that principals surveyed as part of this research did not meet an optimal level of transformational leader.

Among the different categories of transformational leadership, idealized influence (attribute) had the highest mean value (M=2.99, SD=0.67). This was followed by idealized influence (behavior) (M=2.88, SD=0.71). These statistics suggest that principals are able to display fairly often charismatic leadership behaviors in their schools. In fact, idealized influence occurs when leaders engender the trust and respect of their followers by doing the right thing rather than ensuring they do things right. When they focus on doing the right thing, they serve as role models (Kelloway & Barling, 2000). These leaders are regarded as effective and influential. They have personal power, which is not a typical feature of an ''ordinary'' leader (Kent et al., 2001).

In most of the developing countries because of their general socio-cultural characteristics, charismatic leadership is considered as the most appropriate and the most critical manner of leading for organizational leaders (Tuomo, 2006). Organizational change is the essence of development, and there is usually an urgent need for change in the internal work cultures of these countries at all levels (Tuomo, 2006). According to Conger, Kanungo and Menon (2000), effective changes require the initiative, guidance, and effort of charismatic leaders. Thus, Iranian principals should posses the charismatic qualities, in managing their teachers in order to ensure that they are able to share similar idea and vision towards achieving the organizational goals. In addition, policy makers should provide training in order to mould the charismatic qualities among the principals.

Respondents' third highest mean score came from individualized consideration (M=2.85, SD=0.69), implying that principals fairly often display individualized consideration leadership behaviors in their school. In fact, "a large portion of individualized consideration is developmental. Such principals can identify followers' needs for growth and provide the mentoring or coaching required to both meet those needs for growth and expand them to higher levels of potential" (Avolio & Bass, 1995, p.202). Hence, trainings should be provided for principals to learn how to support teachers' efforts, to encourage their autonomy and to empower them to take on more responsibility in line with their growing expertise and interest (Kelloway & Barling, 2000)

Also, the findings of this study displayed that principals fairly often motivated and encouraged their teachers to envision attractive future states, as indicated by inspirational motivation mean score (M=2.74, SD=0.76). In fact, this dimension of transformational leadership is very important because envisioning a desired future state and showing how to get there is fundamental to effective leadership. According to Ozaralli (2003), envisioning is creating an image of a desired future organizational state that can serve as a guide to interim strategies, decisions, and behaviors. Without the ability to define a desired future state, the executive would be "rudderless in a sea of conflicting demands, contradictory data, and environmental uncertainty" (Sashkin, 2000, p. 2). Envisioning integrates what is possible and what can be realized. It provides goals for others to pursue and drives and guides an organization's development (Bass & Riggio, 2006). Hence, principals should be trained to be able to inspire and communicate their visions in ways that are compelling, make people committed to it, and help make it happen.

In addition to the other characteristics of leadership, transformational leaders can stimulate extra effort from their subordinates through intellectual stimulation. This leadership factor encompasses behaviors that enhance followers' interest in and awareness of problems, and that develop their ability and propensity to think about problems in new ways (Bass, 1985). Hence, this style of leadership can increase followers' abilities to conceptualize, comprehend, and analyze problems (Bass & Avolio, 1990). Findings of this study indicated that

the mean score on intellectual stimulation was the lowest among the five dimensions of transformational leadership (M=2.69. SD=0.80). In all, the area where most improvement is needed is intellectual stimulation. Intellectual stimulation needs to be nurtured and cultivated as a way of life in the organization. Hence, the 'best and the brightest" principals should be hired, nourished, and encouraged. Besides, innovation and creativity should be fostered in the school and principals should be trained to be able to show their teachers new ways of looking at old problems, to teach them to see difficulties as problems to be solved, and to emphasize rational solutions.

Transactional leadership Style

Participants were asked to respond to 12 Likert-type statements dealing with their transactional leadership behavior. Based on this questionnaire, three dimensions of transactional leadership were examined which were contingent reward, management-by-exception-active and management–by-exception-passive. However, the transactional score is the average score of the 12 items encompassing transactional leadership. Based on this questionnaire, transactional leadership style was measured by a mean score on a five-point Likert scale, where 0 (not at all) represents the minimum score of the scale and 4 (frequently, if not always) represents the maximum score.

Table 8. Distribution of Mean Scores on the Transactional Leadership Style

Scale	Mean	S.D.
Contingent reward	3.02	0.53
Management-by-exception-active	2.81	0.64
Management-by-exception-passive	1.10	0.60
Overall Transactional leadership style	2.31	0.34

According to Bass et al. (2003), transactional leadership is a necessary precondition for transformational leadership to be effective as it serves to develop the relationship between the leader and follower. It also provides direction and focus that, if lacking, would result in confusion and ambiguity from the use of transformational behaviors. In this study, descriptive analyses revealed that the respondents have a mean score of 2.31 (SD=0.34). It seems that principals sometimes display some elements of transactional leadership. In other words, this result indicates that principals sometimes tend to focus on task completion and teacher compliance, rely quite heavily on organizational rewards and punishments to influence teacher performance, and emphasize work standards, assignments, and task-oriented goals. The study result is not consistent with Gumusluoglu and Ilsev (2009), and Christopher's (2003) findings while the result of this section is in line with Jung et al.'s (2003) findings. This variation may be due to the difference in cultural, geographic, or religious dimensions. This is supported by Ardichvili and Kuchinke (2002) who conducted a comparative study of four countries of the former Soviet Union, Germany, and the US regarding leadership styles and cultural values among managers and subordinates. Result of this study indicated that two dimensions, contingent reward and inspirational motivation, produced the highest scores in all four countries of the former USSR. Also, two less efficient leadership styles, laissez-faire and management by exception, have received significantly higher scores in the four former USSR countries, than in the US and Germany. It is clear that socio-cultural dimensions influence leadership style of managers.

Among the three components of transactional leadership, the contingent reward subscale had the highest mean score (M=3.02). This result indicated that principals fairly often clarified role and task requirements. They discussed with teachers what was required and clarified how these outcomes would be achieved and the reward they would receive in exchange for their satisfactory effort and performance. In general, these principals provided tangible or intangible support and resources to followers in exchange for their efforts and performance, defined rules regarding work duties, maintained standards, and determined the consequences of goal attainment. Bass (1998) notes that leaders who use this method are "reasonably effective, although not as much as any of the transformational components in motivating others to achieve higher levels of development and performance"(p. 6). Also, Bass and Avolio (2003) stated that for contingent reward the rating should be greater than two. In this study, the mean score of the participants' responses on contingent reward was 3.02. It meets the criteria of Bass and Avolio.

On the other hand, Bass and Avolio (2003) indicated that the mean score of the participants' responses on management by exception (active) subscale should be less than 1.5 and the rate of management by exception (passive) should be less than one. In this study, management by exception (passive) had a rating of 1.10 and management by exception (active) had a mean rating of 2.81 which exceeded the benchmark set by Bass and Avolio. These rating were higher than what is considered ideal for a leader. In fact, optimally effective principals should use low level of management by exception (active and passive) behaviors. The management-by-exception

factor emphasizes the controlling aspects of management, where leaders intervene only when things go wrong (Bass et al., 2003). Correction, criticism, negative feedback, and negative contingent reinforcement are examples of interventions that principals can display in management-by-exception. Hence, both passive and active forms of management-by-exception use more negative rather than positive reinforcement patterns and correspond to low satisfaction with leaders by their followers (Northouse, 2001). Therefore, it is clear that appropriate courses should be provided for principals to learn the necessary leadership skills.

THE RELATIONSHIP BETWEEN THE LEVEL OF COMPUTER USE AND INDEPENDENT VARIABLES

The association between computer use and independent variables were explored by using the correlation analysis. Correlation analysis was used to describe the strength and direction of the linear relationship between two variables. To run correlation analysis, preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity had taken place. The correlation matrix shows a number of significant relationships between level of computer use by principals and the independent variables (Table 9).

Table 9. Summary of the Correlation Matrix of Independent Variables and Computer Use

Variable	Pearson Correlation	point-biserial/ biserial correlation	Sig. (2-tailed)
Computer Use	1		
Age	-0.43**		0.000
Administrative Experience	- 0.45**		0.000
Training Hours	0.29**		0.000
Gender		-0.079	0.15
Type of School		-0.080	0.16
Training Course		-0.059	0.29
Access	0.78**		0.000
Attributes	0.77**		0.000
Attitude	0.47**		0.000
Competence	0.74**		0.000
Cultural Perception	0.44**		0.000
Transformational Leadership	0.69**		0.000
Transactional leadership	0.11		0.06

Principals' Profiles and Level of Computer Use

Findings of this study indicated that by increasing age and administrative experience, level of computer use by principals may be decreased. This may be due to the fact that new and young principals have been exposed to computers during their training and therefore, have more experience using this tool. Moreover, study results showed that training hours have a significant relationship with level of computer use. It would seem that training can make a difference in the proficiency of principals in using hardware, software and in instructional, administrative proficiency. Furthermore, principals reported that they received training in four ways: in-service training, non-school computer classes, self-teaching methods, and short workshop. Although the vast majority of principals stated that they attended training programs (95%), findings showed that they spent a few times a week working on their computers. It would seem that principals' training programs have not been effective to increase the proficiency of principals in using computers for administrative and instructional purposes. Formal training seems to make a difference in the proficiency of principals in using hardware and software and in overall proficiency but not in instructional and administrative proficiency. This may be due to the emphasis that formal courses place on hardware components and program applications. In fact, technology training should improve management and administrative skills. In this way, principals become more organized and efficient. According to Peterson (2002), training in computer use should help principals become proficient users to meet the challenges they face in a changing technological society. Then, effective and extensive training must be provided for principals to use a new tool or strategy.

Computer Access and the Level of Computer Use

The relationship between computer access and the level of computer use was investigated using Pearson product-moment correlation coefficient. There was a strong, positive relationship between the two variables [r =0.78, n=320, p<0.05]. This result suggests that principals who had access to computers and the Internet were more likely to use them than those who did not have adequate access to equipment and network connections. Therefore, access to hardware and software is an influential factor related to computer use. This result supports

previous studies (Albirini, 2006a; Felton, 2006; Guha, 2000; Knezek & Christensen, 2002; Norris et al., 2003; Pelgrum, 2001; Schiller, 2003).

Computer Attributes and the Level of Computer Use

Principals' positive perceptions about the computer attributes had a very strong correlation with their level of computer use (r=0.77), indicating that as principals' perceptions of computer attributes improve, their level of computer use will be enhanced as well. This corroborates the proposition that the attributes of the technology itself play a major role in determining its receptivity (Rogers, 2003). The result of this section is consistent with prior theoretical arguments made by Rogers (2003) and previous studies in which Diffusion of Innovation examined (Albirini, 2006a; Al-Gahtani, 2003; Vishwanath & Goldhaber, 2003).

Attitude toward Computers and the Level of Computer Use

Study result showed that there was a moderate and positive correlation between computer attitude and computer use [r =0.47, n=320, p<0.05. Principals, who had positive feeling; liked; enjoyed ICT use in education and had realized the impact of technology on their life and society, used technology more in their administrative and instructional tasks. This symbiotic relationship between attitudes toward ICT and its use has been widely reported in the literature (Bai & Ertmer, 2008; Drent & Meelissen, 2007; Gilbert & Kelly, 2005; Han, 2002; Knezek & Christensen, 2002). Literature confirmed these findings pointing out that attitude is an important factor for using or avoiding computer-based technology (Albirini, 2006a; Ertmer, 2005; Drent & Meelissen, 2007; Zhao & Cziko, 2001; Teo, Lee & Chai, 2008).

Computer Competence and the Level of Computer Use

As can be seen from table 9, there was a strong and positive correlation between computer competence and computer use [r =0.74, n=320, p<0.05]. It is clear that principals with higher levels of skill and knowledge will exhibit higher levels of computer use. Without the knowledge of computer technology, principals might have a high level of uncertainty that influences their opinions and beliefs about the innovation. Therefore, principals with limited knowledge and background in computer-based information systems can not use computer efficiently and encourage their schools to ride the wave of technology. Literature and the results of this study revealed that computer competence was an important factor influencing computer use (Felton, 2006; Knezek & Christensen, 2002; Pelgrum, 2001; Rogers, 2003). Also, this result is in compliance with the findings of Albirini (2006a) and Schiller (2003).

Cultural Perceptions and the Level of Computer Use

The study result indicated that there was a moderate and positive correlation between cultural perceptions and computer use [r =0.44, n=320, p<0.05]. Principals who had positive perceptions of the value, relevance, and impact of computers in Iranian society and school, used computer more in their administrative and instructional tasks. In fact, such principals can model technology use for their staff and make their vision tangible. It is difficult for a principal that has not understood the value and impact of computer use in his school and society and wants to convince teachers to use computer in their teaching and learning process (Yee, 2000). This cultural perception relates the leaders' success to their individual ability to articulate and influence norms and values.

In addition, researchers have pointed to cultural perceptions as one of the factors influencing ICT adoption (Albirini, 2006b; Lee et al., 2007; Leidner & Kayworth, 2006; Loch et al., 2003). Findings from the current study support this conclusion. Moreover, the study's result is consistent with Rogers' premise regarding the role of social norms in the diffusion of innovations, and also with Thomas's "Cultural Suitability" hypothesis, which posits that the acceptance of a new technology depends to a large extent on its compatibility with the existing culture. Specially, principals in this study acknowledged the importance of ICT for their educational system and society. It shows the influence of their cultural norms on their perception of ICT.

Transformational Leadership and Level of Computer Use

As can be seen from Table 9, there was a moderate and positive correlation between transformational leadership and the level of computer use [r =0.69, n=320, p<0.05]. The study results indicated principals, who used computer in their administrative and instructional tasks, acted as strong role models for the effective use of technology in support of teaching and learning. Besides, principals who have ability to transmit a vision or a sense of mission for comprehensive integration of technology, to foster an environment and culture conducive to the realization of that vision and to create enthusiasm in followers, applied technology to enhance their professional practice and to increase their own productivity.

PROPORTION OF THE VARIANCE IN THE LEVEL OF COMPUTER USE EXPLAINED BY THE INDEPENDENT VARIABLES

To determine the proportion of the variance in computer use that could be explained by the independent variables, a multiple regression analysis was performed. Following Gay and Airasian's (2000) recommendations, simple correlations were first performed to identify independent variables that individually correlate with the dependent variable. These variables were utilized in the multiple regression equation to make a more accurate prediction of the dependent variable and to show the proportion of variance in the dependent variable explained by the independent variables. The independent variables that individually connected to the dependent variable were: age, administrative experience, computer access, computer attributes, attitudes toward computer, computer competence, cultural perceptions, and transformational leadership.

The summary of the multiple regression results are presented in Tables 10 and 11. As can be seen from the Table 10, R Square is about 0.76. It shows that four independent / predictor variables explain about 76% of the variance / variation in the level of computer use. This shows a very respectable result. Moreover, the value of F for the final model is 252.2 and the corresponding p-value was highly significant (p = 0.0001). So, it can be concluded that the regression model fit the data at 0.05 level of significance. In other words, this model is a good descriptor of the relation between the dependent and predictor variables. Then, the estimated multiple regression model is acceptable and a stable one to explain the level of computer use.

Table 10. Summary ANOVA Table

Source	Sum of Squares	df	Mean Square	F Value	R Square	Adjusted R Square	R	P
Regression	217132.4	4	54283.08	252.26	0.76	0.75	0.87	p<.0001
Error	67781.63	315	215.18					
Total	284914.0	319						

Table 11. Multiple Regression on dependent variable (Computer Use)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std.Error	Beta		
Constant	-11.84	5.43		-2.17	0.004
Access	3.11	0.40	0.33	7.68	0.000
Attributes	0.57	0.08	0.30	7.05	0.000
Competence	0.29	0.05	0.21	5.05	0.000
Transformational leadership	0.39	0.09	0.15	4.08	0.000

As is shown in Table 11, four predictor variables were found to be significant in explaining the level of computer use. The four predictor variables were computer access (t = 7.68, p= 0.0001), computer attributes (t = 7.05, p=0.0001), computer competence (t = 5.05, p= 0.0001), and transformational leadership (t = 4.08, p= 0.0001). All four constructs are equally important but have varying impact on computer use. Therefore, all four constructs should be viewed in an integrated manner in accordance to the conceptual model proposed in this study.

CONCLUSION

This study identified the extent to which Iranian secondary school principals used computers and explored the relationship between a number of variables related to ICT use. Findings from this study showed that principals spent a few times a week working on their computers. It seems that principals should be aware of the role of ICT in their work life and get appropriate skills to use and integrate technology into the schools. To increase principal use of computer technologies for instructional and administrative purposes, the following themes need to be addressed which are support, training, change in administrative methods and strategies, improvement of school infrastructure, management of workload, and attitudes toward computer use (Casmar, 2001).

Moreover, findings of this study indicated that to create a significant impact on the level of computer use, high level of computer access is needed. In fact, principals should have access to computer technologies in their offices, schools, or any location in which access to information and productivity tools is necessary. Also, funds need to be made available to purchase hardware and software. School districts are expecting principals to model the use of technology in their schools. For principals to do this, they must have access to updated hardware and software. School budgets must include funds for training and for hardware and software upgrades. The other

finding from this study indicated that principals perceptions about the computer attributes had a very strong correlation with the level of computer use. According to Rogers (2003), innovations offering more relative advantage, compatibility, simplicity, and observability will be adopted faster than other innovations. Rogers does caution, "getting a new idea adopted, even when is has obvious advantages, is difficult" (p.1), so the availability of all of these variables of innovations speed up the innovation-diffusion process. Therefore, it is crucial that secondary school principals were trained to improve their understanding about computer attributes since they are significantly related to individuals' adoption intentions.

In addition, principals had positive attitudes toward ICT in education. They had more positive affective attitudes than both cognitive as well as behavioral attitudes. Hence, to improve principals' background knowledge and attitudes towards ICT, policy makers should upgrade principals' knowledge in computer software, hardware, and Internet. Also, principals should be exposed to various ICT tools to improve their behavioral attitudes. To achieve this, principals should be encouraged to utilize computers, educational software, and the Internet in their administrative and instructional tasks. In this way, principals will realize the potential of the technology and see how computers can have a positive impact on their productivity as managers and instructional leaders.

In the age of technology and information, Iranian principals should become competent in using computers. They should use computers effectively to perform their daily responsibilities. In fact, their ability to use computers helps them become more effective managers in using and analyzing the information that is available to them. The effective use of the computer in management, communication, and decision-making can increase their accountability. Findings of this study indicated that Iranian secondary school principals are lacking in proficiency on database, spreadsheet, presentation/ multimedia software, the Internet, and information seeking as compared with other technology competencies. Hence, school districts and principals' centers should provide professional development for principals to become proficient in all the competency areas. Also, they should implement an evaluation system that ensures school principals are working with the technologies at a proficient level.

Attention to cultural beliefs and their impact on ICT adoption are very important in developing countries (Loch et. al., 2003) because socio-cultural factors may put ICT transfer at risk (Albirini, 2006b)."Duplicating strategies from other developed countries without any consideration about cultural adaptations of technologies might be less effective and successful" (Kousha & Abdodi, 2004, p.8). According to Fleron (1977), implementation of a new technology is not finished with installation of the technology and explanation of how to use it. In fact, the new technology should be accepted by the receiving society (Asemi, 2006). It must not contradict the values of society. Findings from this study indicated that principals had positive cultural perceptions of ICT in society and school. Such principals could use technology and create a suitable environment and culture to the integration of technology in schools. This cultural perception relates the principals' success to their individual ability to articulate and influence norms and values. Hence, understanding the cultural values is as important as understanding the technological benefits. Principals who are responsible for adopting and implementing technology in school must be aware of its societal and organizational cultural impacts.

Some researchers say that successful ICT implementation is not about equipment or software but influencing and empowering teachers; it is not about acquiring computer skills, but supporting teachers in the ongoing engagement with students in their learning (Yuen, Law, & Wong, 2003). Hence, we need transformational leaders who can encourage creativity, open-mindedness and facilitate conditions and events that create a positive environment for technology adoption (Frambach & Schillewaert, 2002; Schillewaert et al., 2005). According to Rogers (2003), such principals play an important role in the diffusion and adoption of innovations. The leadership style exhibited by the leader could help or hinder technology infusion. Findings of this study illustrated that transformational leadership style have a significant association with the level of computer use by principals. It is suggested that Iranian principals should be active learners in this fast changing arena. They should never stop learning and honing their skills but they must maintain a personal plan for self-improvement and continuous learning (Bennis, 1990). Hence, principals should develop their style of leadership and be familiar with current research and best practices. Furthermore, they should use new technologies and model the use of them to change and improve the environment in which educators function. If school leaders want to initiate and implement school change through the use of information and communications technology, they must be eager to model the transformational components of charisma (idealized influence), inspirational motivation, intellectual stimulation and individualized consideration in their schools. According to Bass and Riggio (2006), transformational leadership can be taught. Therefore, decision makers should redesign programs, such as leadership studies, in order to teach the components of transformational leadership to future administrators.

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