The Cypriot Public Primary School Principals' Self-Perceived Competence and Use of ICT for Personal, Teaching, and Administrative Purposes

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Introduction

Information and Communication Technologies (ICT) integration in public primary schools is a major priority of the Ministry of Education and Culture (MOEC) of Cyprus. Following the guidelines of the European Union (EU), which promoted the strategic framework "i2010-A European Information Society for growth and employment," many millions of euros have been spent and many more are about to be invested in order to equip schools with the necessary infrastructure, hardware and software; organize in-service training (INSET) for teachers; develop a Learning Management System (LEM) and a School Management System (SMS); create a broad network among schools; and enrich the curriculum with specific goals and activities on ICT (Doratis 2007).

However, results from various studies indicate that ICT integration in primary schools of Cyprus can not be considered as successful yet. A survey from Empirica (2006) revealed that only 7.9% of the primary school teachers use computers in class in more that 50% of their lessons, whereas more than 35% of the primary school teachers use computers in class in less than 10% of their lessons. Moreover, another study that was conducted among primary school teachers in 2004 revealed that 53% of the teachers hold negative attitudes toward computer technology integration in their classroom practices (Eteokleous 2008).

The success or failure of this innovation is very much dependent on the efforts and competence of the school principals. According to Anderson and Dexter (2005) "school's technology efforts are seriously threatened unless key administrators become active technology leaders in a school" (p. 74). Like every innovation, school leaders

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are expected to lead the efforts acting as "change agents" (Murphy and Shipman 1999, p. 213) transforming their schools into learning organizations (Reezigt and Creemers 2005) by promoting internal training and an ongoing professional development and by "providing opportunities for meaningful student involvement, developing staff collaboration, securing outside resources to support the school and the forging of links between home and the school" (Reynolds and Teddlie 2000, p. 144).

This study aims to reveal the Cyprus public primary school principals' self-perceived competence and use of ICT for personal, learning, and administrative–managerial purposes and how this competence might influence their workload. In addition, it examines which independent variables (gender; years of service; years of experience as a principal; academic qualifications; access to computer and the Internet at home; INSET on ICT for personal, teaching and learning, and administrative purposes; existence of a computer at the principal's office and the staff room as well as the existence of a computer lab at school; years learning about or working with computers) affect the primary school principals' attitudes toward ICT. The current study is the only one carried out in Cyprus regarding principals' self-perceived ICT competence. Therefore, its results might throw some light to identify whether primary school principals are ready to lead this innovation or whether policy makers should focus their efforts on amplifying principals' capacity to lead effectively ICT integration in schools.

The Educational Context of the Study

The Role of Primary School Principals in the Educational System of Cyprus

The centralized structure of the Cyprus Educational System (CES) deteriorates the role of principals in primary schools. According to official regulations of MOEC about the functioning of public primary schools, the main responsibilities of school principals are to: run their school effectively; promote the implementation of the national curriculum; undertake instructional duties; keep school records, school register, and attendance records; etc. On the other hand, they do not have a say in which school they would like to be appointed. Moreover, they do not have the authority to recruit their teaching personnel and of course, they have no appositeness about the salary of their staff. Additionally, principals – like teachers – are not allowed to stay in a school for more than 6 continuous years. It should also be mentioned that the principals' involvement in curriculum development is very limited (Theofilides et al. 2006). Kithreotis and Pashiardis (2006) concluded that the inflexibility of the centralized educational system of Cyprus is one of the biggest barriers in the efforts of the principals to create effective leadership and to shape a strong positive culture in a school.

The History of ICT Implementation in Primary Schools of Cyprus

MOEC following a centralized approach introduced ICT in primary schools in the early 1990s. Although the innovation was top–down "the strategy for ICT integration involved a combination of centralized initiative and largely decentralized implementation policy" (Karagiorgi and Charalambous 2004, p. 22). According to MOEC, ICT should not be used as a discrete subject but "as a dynamic tool in the teaching and learning process aiming at a more effective implementation of the school curriculum and developing of skills such as problem solving, decision making, communication and information handling" (MOEC 2007, p. 274). Today, almost 20 years after the initial efforts for ICT integration, all classrooms have at least one computer, a scanner, and a printer. It should also be mentioned that INSET programs for using ICT have been developed by the Pedagogical Institute.

Literature Review

The dominance of ICT in schools has inevitably altered the way principals execute their teaching and administrative duties. Using a computer is no longer a benefit for the few gifted ones but a necessity for almost all of those who wish to be effective leaders of their school. Nowadays, the vast majority of principals in developed countries have access to a computer at school. But having access to a computer is not of such importance as using the computer productively for teaching and administrative purposes. Many scholars emphasize that principals must not only use computers extendedly, but additionally they must act as role models (Anderson and Dexter 2005; Gurr 2000) providing to their teachers "visible support and encouragement for the use of the technology" (Murphy and Gunter 1997, p. 138). Stegall (1998) suggested several actions for school leaders who wish to model technology use in their school including: participating in professional training, reading books and journals about computers, going to technology conferences, joining technology organizations, using the Internet, visiting innovative schools, forming a technology committee, finding "experts" to help them, writing a technology plan, etc. BECTA (2003) concludes that school leaders "personally using the technology in their everyday working lives, raise the profile of ICT in their schools" (p. 3).

A main question that emerges is what impact does the use of ICT by the principals have on their work? Does technology really reduce the principals' heavy workload or does it make things worse? Gurr (2000), who interviewed principals from Australia, found that the use of ICT had not necessarily resulted in a decrease in the workload of principals and concluded that "it is not so much that technology has decreased workload, but that technology has facilitated new work, and has improved older work patterns" (p. 16). The above finding is consistent with findings of other researchers who also found out that principals do not necessarily have a decrease in their workload as a result of their use of technology (Bishop 2002) but, on the contrary,

the integration of ICT results in an increase of their workload (Schiller 2003). Of course, there are researchers who do not agree with the above findings claiming that technology can reduce the workload of the principal (BECTA 2004; Felton 2006).

The level of ICT use by principals is very much dependent on their self-perceived competence in using ICT. Self-perceived competence in using ICT or computer self-efficacy refers to the belief that individuals hold about their own ability to operate successfully with technology. Bandura (1991) defines self-efficacy as the peoples' "beliefs about their capabilities to exercise control over their own level of functioning and over events that affect their lives" (p. 257). The school leaders' computer self-efficacy is very important for the ICT integration efforts because the stronger the perceived efficacy the higher the goal challenges people set for themselves and the firmer their commitment to them (Bandura 2002).

Increasing their own competence in using ICT is of vital importance for the school leaders who wish to successfully integrate ICT in their school. Actually, principals have a dual role to play concerning the INSET in their school. First, they must ensure that they receive the appropriate training on ICT (BECTA 2007; Dawson and Rakes 2003; Flanagan and Jacobsen 2003) in order to increase their skills and knowledge and effectively inspire and lead the staff in integrating technology across the curriculum (Flanagan and Jacobsen 2003). Dawson and Rakes (2003), through their study on principals' training, came to the conclusion that "the type and amount of technology training principals receive, can make a positive difference in schools" (p. 46) toward ICT integration. Second, principals must promote the professional development of their staff in order to help them integrate ICT successfully in the teaching and learning process (Balanskat et al. 2006; Flanagan and Jacobsen 2003; Mueller et al. 2008).

Research Methodology

The population was comprised of 336 principals who were serving in public primary schools of Cyprus at the school year of 2007–2008. The sample was chosen randomly and was consisted of 250 school principals all over Cyprus. Data were collected through questionnaires, which were mailed to the principals. One hundred and thirty-one questionnaires were received completed (return rate 52.4%).

In order to assess the principals' competence and use of ICT, a special survey instrument was developed. The first part consisted of nine close-ended questions which were relevant to the principals' demographics information (Table 1). The second part contained four questions which investigated the principals' self-perceived competence in using ICT and the frequency of ICT use for personal, teaching, and administrative purposes. Descriptive statistics (means, standard deviations, minimums, maximums, frequencies, percentages) and inferential statistics (t-test, one way ANOVA, and Chi-Square tests) were used to analyze all the variables and assess the principals' self-perceived competence, principals' self-perceived competence in

Table 1 Frequency distribution of principals' and schools' demographics

Variable	N(131)	%
Gender		
Males	46	35.1
Females	85	64.9
Years of service		
18–25	19	14.6
26–30	5	3.8
31–35	62	47.7
36+	44	33.8
Highest academic qualification		
Pedagogical Academy	93	71.0
Bachelor	14	10.7
Master's	19	14.5
PhD	5	3.8
Access to a computer at home		
Yes	111	84.7
No	20	15.3
Access to the Internet at home		
Yes	104	79.4
No	27	20.6
In-service training (INSET) for using information and communication technologies (ICT) for personal purposes		
Yes	103	78.6
No	28	21.4
INSET for using ICT in teaching and learning		
Yes	83	63.4
No	48	36.6
INSET for using ICT for administration and management		
Yes	23	17.6
No	108	82.4
Computer experience (years learning about or working with computers)		
1–5	31	27.0
6–10	46	42.7
11–15	19	16.5
16–20	16	13.9
21 and more	1	0.9

undertaking several tasks on computers, principals' frequency of computer use at school and at home, and computer applications that are used for teaching, administrative, and personal purposes by principals. The reliability coefficients were assessed using Cronbach's alpha on the four questions of the second part of the survey instrument. Results indicate that the coefficients were very high for all four questions, i.e., 0.954, 0.912, 0.887, and 0.911 respectively.

Research Findings

Demographics

In Table 1 the demographics of the principals that participated in the research are presented. Of those principals who took part in the quantitative research – 64.9% were females; about eight out of ten of them had access to a computer and the Internet at home; and seven out of ten of them were holders of the Pedagogical Academy diploma only (plus 1 year of completion). Regarding INSET on ICT, the majority of them received training for using ICT for personal purposes (78.6%) and for using ICT in the teaching and learning process (63.4%). On the contrary, a high percentage of them (82.4%) had never attended INSET on ICT for administrative and managerial purposes. Finally, the principals cannot be considered as very computer experienced since only three out of ten of them have been learning or working with computers for more than 10 years. As far as it concerns the schools' background information – 65.6% had a computer in the principal's office; 84.7% had a computer in the staff room; and 60.3% had a computer lab.

Principals' Self-Perceived Competence in Using ICT

The results of the study indicate that, generally, principals did not feel very competent in using ICT. In particular, principals felt fairly competent in using ICT for personal purposes and for lesson planning and preparation (Table 2). This is not surprising since 78.6% have attended INSET on ICT for personal purposes. They felt less competent in performing their administrative duties and this has its explanation since only 17.6% had attended INSET for administrative and managerial purposes. Finally, they perceived to be even less competent in using ICT for teaching purposes, although 63.4% have attended INSET for using ICT in teaching and learning. This can be justified since, on average, principals teach only 11 h a week in classes and usually they teach lessons that are less demanding (Religion, Geography). These lessons have very few software programs available, and it depends mostly on the efforts of each educator to find or prepare the appropriate software. Principals, with their heavy administrative workload and their habitual way of teaching, find it very difficult, time-consuming, and perhaps ineffectual to alter their classroom practice just few years before their retirement.

Table 2 Principals self-perceived competence in using ICT

I feel competent in using ICT for	N	Mean	SD
Personal purposes	114	3.26	1.15
Lesson planning and preparation	114	2.98	1.35
Administrative purposes	114	2.77	1.29
Classroom practice	114	2.65	1.24

Scale: 1 = not competent at all; 2 = little competent; 3 = fairly competent; 4 = much competent; 5 = very much competent

Table 3 Principals' self-perceived competence in undertaking several tasks on computers

Tasks	N	Mean	SD
Use of basic word processing (Microsoft Word)	114	3.46	1.33
Use a search engine in the Internet	114	3.39	1.40
Write and send an e-mail message	114	2.78	1.54
Create and use a software presentation (PowerPoint)	114	2.67	1.37
Use an educational software	114	2.53	1.28
Use a video projector	114	2.52	1.34
Use a scanner	114	2.50	1.43
Use a digital camera	114	2.25	1.39
Create and use a spreadsheet (Microsoft Excel)	114	2.20	1.20
Create and use a database (Microsoft Access)	114	1.78	1.02

Scale: 1 = not competent at all; 2 = little competent; 3 = fairly competent; 4 = much competent; 5 = very much competent

Table 4 Use of computer at school and at home by principals

Statements	N	Mean	SD
I use the computer at school	114	4.03	1.18
I use the computer at home	114	3.95	1.16

Scale: 1 = never used; 2 = few times a year; 3 = few times a month; 4 = few times a week; 5 = everyday

Primary school principals felt more than fairly competent in using word processor and the Internet (Table 3). They also felt competent in writing and sending an e-mail and in creating and using a software presentation (e.g., PowerPoint). Using a digital camera, spreadsheets, and databases are the tasks which principals do not feel competent to deal with. Similar results were found in many researches in other countries (Bishop 2002; Felton 2006; Gurr 2000). The low competence of principals in creating and using spreadsheets and databases is a matter that should make policy makers aware, because these are applications that could facilitate principals' work and decrease their heavy administrative workload.

Principals' Use of ICT at School and at Home

Principals indicated that they use the computer at school and at home few times a week (Table 4). This designates that computer has become part of the principal's life but, still, not a vital one. Researches around the world indicate that the majority of the principals use computers on a daily basis to execute their duties. An explanation of this difference with other countries could be the fact that only 65.6% of the principals had a computer in their office by the time that this survey was carried out. In addition, the absence of administrative software and the lack of training might be another rationale for this result, since principals are still enforced to perform many of their administrative duties in the traditional way. Only those with sufficient knowledge on computers have developed their own programs and use the computers, almost on a daily basis, to fulfill their administrative and managerial duties.

Table 5 Computer applications that are used for teaching, administrative, and personal purposes by principals

Purpose	Teaching			Administrative			Personal		
	N	$\overline{\text{X}}$	SD	N	$\overline{\text{X}}$	SD	N	$\overline{\text{X}}$	SD
Word processing	109	2.75	1.40	108	3.47	1.51	113	3.32	1.40
Internet (use of web search engines, etc.)	108	2.30	1.43	108	2.70	1.58	113	2.82	1.65
Educational software	109	2.02	1.05	107	1.64	0.93	113	1.88	1.00
Video projector	109	2.01	1.07	107	1.67	0.90			
Presentation software (e.g., PowerPoint)	109	1.94	1.01	107	1.80	1.00	113	1.92	1.04
E-mail	108	1.77	1.17	108	2.63	1.52	113	2.73	1.55
Scanner	109	1.70	0.97	108	1.76	1.00	113	1.85	1.05
Digital camera	109	1.66	0.97	107	1.64	1.01	113	1.85	1.15
Spreadsheets (e.g., Microsoft Excel)	108	1.58	0.87	108	1.90	1.09	113	1.85	1.95
Databases (e.g., Microsoft Access)	108	1.35	0.69	108	1.50	0.82	113	1.46	0.78

Scale: 1=never used; 2=few times a year; 3=few times a month; 4=few times a week; 5=everyday

Frequency of ICT Use for Teaching, Administrative, and Personal Purposes

Generally, principals appeared to use the computer more frequently for personal purposes, than for administrative purposes and lastly for teaching purposes. Word processor and Internet were the computer programs/applications that were most frequently used by principals for personal, administrative, and teaching purposes (Table 5). On the contrary, scanner, digital camera, spreadsheets, and databases were never used or were used just few times a year for personal, administrative, and teaching purposes. Special reference should be made to the use of spreadsheets and databases for administrative purposes. It is very clear that the principals were not aware of the potentials that these programs can offer concerning the execution of their administrative and managerial duties.

The Impact of the Independent Variables

In this part there will be a brief discussion about the impact of the independent variables (gender, academic qualifications, years of service, years of experience as a principal, access to a computer and the Internet at home, INSET on ICT, access to a computer at the school office, existence of a computer in the staff room, existence of a computer lab at school, and years learning about or working with computers). According to the results, male principals, compared to their female colleagues, were more likely to be more experienced (male: $\overline{\text{X}}=11.22$ years, SD=5.35; female: $\overline{\text{X}}=8.66$ years, SD=4.69; ($t(1)=2.66$, $p<0.01$)); use computers more frequently at school and at home; have higher self-perceived competence in using ICT (Table 6); and use more

Table 6 Statistically significant differences between self-perceived competence of the principals in using ICT for several purposes and independent variables

Variables	Use a computer for personal purposes			Use a computer for administrative purposes			Use a computer for classroom practice			Use a computer for lesson planning and preparation		
	N	$\overline{X}$	SD	N	$\overline{X}$	SD	N	$\overline{X}$	SD	N	$\overline{X}$	SD
Gender												
Male	40	3.73**	1.09	40	3.30**	1.31	40	3.28**	1.13	40	3.43*	1.17
Female	74	3.01	1.10	74	2.49	1.20	74	2.31	1.17	74	2.74	1.39
Years of service												
18–25	19	4.11**	1.10	19	3.79**	1.08	19	3.74**	1.15	19	4.11**	1.05
26–30	5	4.20	0.84	5	3.80	0.45	5	3.40	0.89	5	3.60	1.14
31–35	53	3.08	1.02	53	2.55	1.23	53	2.53	1.07	53	2.75	1.14
36+	36	2.92	1.11	36	2.42	1.25	36	2.14	1.22	36	2.58	1.46
Academic qualifications												
Basic studies	90	3.06	1.10	90	2.51	1.23	90	2.42	1.16	90	2.77	1.29
Postgraduate studies	10	4.04**	1.00	24	3.75**	1.03	24	3.50**	1.18	24	3.79**	1.29
Access to computer at home												
Yes	105	3.37**	1.11	105	2.90**	1.26	105	2.76**	1.22	105	3.13**	1.29
No	9	2.00	0.71	9	1.33	1.33	9	1.33	0.44	9	1.22	0.44
Access to the internet at home												
Yes	99	3.44**	1.07	99	2.95**	1.26	99	2.82**	1.21	99	3.18**	1.28
No	15	2.07	0.88	15	1.60	0.50	15	1.53	0.83	15	1.67	1.05
INSET on using ICT in teaching and learning												
Yes	81	3.47**	1.11	81	2.98**	1.28	81	2.90**	1.19	81	3.22**	1.31
No	33	2.76	1.09	33	2.27	1.21	33	2.03	1.16	33	2.39	1.27

(continued)

Table 6 (continued)

Variables	Use a computer for personal purposes			Use a computer for administrative purposes			Use a computer for classroom practice			Use a computer for lesson planning and preparation		
	N	$\overline{X}$	SD	N	$\overline{X}$	SD	N	$\overline{X}$	SD	N	$\overline{X}$	SD
Existence of a computer in the principal's office												
Yes	83	3.51**	1.08	83	3.04**	1.26	83	2.89**	1.22	83	3.24**	1.28
No	31	2.61	1.09	31	2.06	1.09	31	2.00	1.07	31	2.29	1.30
Years learning about or working with computers												
1–5	27	2.59	1.05	27	2.15	1.20	27	1.93	1.04	27	2.11	1.19
6–10	46	3.22	0.96	46	2.63	1.12	46	2.48	1.03	46	2.96	1.26
11–15	18	3.83	1.15	18	3.67	1.19	18	3.39	1.24	18	3.78	1.22
16–20	17	4.24**	0.75	17	3.65**	1.06	17	3.76**	1.03	17	4.00**	0.79

Scale: 1=not competent at all; 2=little competent; 3=fairly competent; 4=much competent; 5=very much competent
*$p<0.01$, **$p<0.001$

Table 7 Frequency of use of several computer resources/applications for teaching, administrative, and personal purposes and independent variables

Variables	Teaching purposes			Administrative purposes			Personal purposes		
	N	$\overline{\text{X}}$	SD	N	$\overline{\text{X}}$	SD	N	$\overline{\text{X}}$	SD
Gender									
Male	39	2.05	0.88**	40	2.49	0.78**	40	2.61	0.90***
Female	70	1.57	0.65	68	1.83	0.76	73	1.95	0.86
Years of service									
18–25	19	2.04	0.86**	19	2.75	0.62***	19	2.98	0.76***
26–30	4	2.60	1.27	4	2.75	0.84	5	2.84	1.00
31–35	51	1.72	0.71	49	1.97	0.81	53	2.06	0.89
36+	34	1.49	0.65	35	1.79	0.73	35	1.86	0.81
Academic qualifications									
Basic studies	86	1.62	0.68**	85	1.89	0.73***	89	1.99	0.84***
Postgraduate studies	23	2.18	0.94	23	2.77	0.80	24	2.92	0.90
Access to computer at home									
Yes	100	1.80	0.78**	99	2.16	0.81***	104	2.27	0.91***
No	9	1.07	0.13	9	1.21	0.20	9	1.20	0.37
Access to the internet at home									
Yes	94	1.82	0.79**	93	2.20	0.81***	99	2.32	0.91***
No	15	1.24	0.35	15	1.33	0.39	14	1.24	0.34
INSET on ICT for teaching and learning purposes									
Yes	79	1.87	0.82**	78	2.19	0.84	81	2.33	0.96**
No	30	1.41	0.50	30	1.78	0.72	32	1.83	0.74
Existence of a computer in the principal's office									
Yes	79	1.82	0.79	78	2.20	0.82**	83	2.31	0.93*
No	30	1.52	0.68	30	1.75	0.74	30	1.85	0.87
Years learning about or working with computers									
1–5	26	1.37	0.56***	26	1.67	0.78***	27	1.64	0.74***
6–10	44	1.67	0.76	43	1.93	0.69	45	2.07	0.82
11–15	17	2.35	0.76	7	2.62	0.70	18	2.85	0.78
16–20	17	2.11	0.69	17	2.69	0.76	17	2.90	0.87

Scale: 1=never used; 2=few times a year; 3=few times a month; 4=few times a week; 5=everyday
*$p<0.05$, **$p<0.01$, ***$p<0.001$

frequently several ICT resources and applications for teaching, administrative, and personal purposes (Table 7). Principals with fewer years of service were more likely to perceive themselves as more competent (Table 6); use ICT more frequently at school and at home; and use several computer resources and applications for teaching, administrative, and personal purposes more frequently (Table 7).

Principals with postgraduate studies were more likely to be more computer experienced; have higher self-perceived competence in using ICT for personal purposes, administrative purposes, and classroom practice (Table 6); and use the computer and its several resources and applications more frequently (Table 7). Principals with

access to a computer and the Internet at home were more likely to have higher computer self-efficacy (Table 6); they use the computer and its resources and applications more frequently (Table 7). Finally, principals who have received INSET on ICT for teaching and learning purposes were more likely to have greater self-perceived competence to undertake several computer tasks for various purposes (personal purposes, administrative purposes, classroom practice, and lesson planning and preparation) (Table 6); use computer more frequently at school; and use several resources and applications of computers more frequently for teaching, administrative, and personal purposes (Table 7).

Principals who have a computer in their school office were more likely to have higher self-perceived competence to undertake several computer tasks (for personal purposes, administrative purposes, classroom practice, and lesson planning and preparation) (Table 6); use the computer more frequently at school and at home; and use several resources and applications more frequently for administrative and personal purposes (Table 7). Principals who have greater computer experience were more likely to have higher self-perceived competence to undertake several computer tasks for personal purposes, administrative purposes, classroom practice, and lesson planning and preparation (Table 6); use the computer more frequently at school and at home; and use several resources and applications more frequently for teaching, administrative, and personal purposes (Table 7).

Discussion and Implications

The findings of this research indicate that, generally, the principals more likely do not feel very competent to use ICT. They appear to feel fairly competent to use ICT for personal and lesson planning and preparation purposes, whereas they appear to feel less competent to use ICT for administrative and teaching and learning purposes. Using a word processor, searching the Internet, and writing and sending e-mails are the computer tasks that they feel more competent to undertake. On the contrary, they seem that they do not feel competent at all in creating and using spreadsheets and databases.

Additionally, the research found that principals use ICT at school and at home few times a week first for personal purposes, then for administrative purposes, and finally for teaching purposes. Based on these findings, it can be inferred that Cyprus primary school principals more likely do not feel competent enough to undertake several tasks on computer and as a result they do not use ICT to the extent that it should be used, especially for administrative purposes. This can be attributed to the low access to a computer at the principal's school office, the insufficient official INSET on ICT for administrative purposes, the absence of any specially designed software programs for administrative purposes, and the resistance to change that some principals show.

Moreover, according to the study, principals use ICT for teaching and learning purposes rarely, although the vast majority of them have attended relevant INSET sessions. Even young principals with postgraduate studies do not use ICT for teaching

and learning purposes regularly. The heavy workload, the kind of subjects they teach, the inadequate content of the INSET they received, and the resistance to change are the possible explanations for this reality. Nevertheless, this finding is very worrying, because several researches concluded that modeling computer use and being the instructional leader of the school are two strategies that principals should apply in order to enhance ICT integration in their schools (Anderson and Dexter 2005; Gurr 2000). These two strategies do not seem to be used by the majority of the Cyprus principals. Therefore, the promotion of ICT integration in the teaching and learning process could be achieved only if primary school principals model the routine, intentional, and effective use of technology.

The study indicates that the INSET that is provided to the principals should be enhanced. First of all, special organized sessions about the use of ICT for administrative and managerial purposes should be organized by MOEC. Moreover, it has been found that principals have very low self-perceived competence in creating and using spreadsheets and databases which are programs that could be widely used to fulfill several of their administrative duties. Thus, INSET should focus also on these programs.

A notable finding of the research is that, although INSET for teaching and learning purposes can make the difference, principals, who attended this kind of sessions, to a great extent, indicated that they do not use ICT for teaching and learning purposes in practice. Among other reasons, this could be attributed to the framework of the sessions which were mostly concentrated on providing technical skills to the participants. Thus, INSET sessions should mainly concentrate on practical ways that principals could integrate ICT in their lesson daily and not on the acquisition of more technical skills. Enough money has been spent until now and the desired change through the ICT integration in our schools has not come yet. Maybe, the time has come for investing more in the professional development of the principals in order to strengthen their leadership capability to lead this innovation. After all, "If school principals are to effectively inspire and lead a staff in integrating technology across the curriculum, then professional development opportunities must be available for principals to develop these skills and dispositions" (Flanagan and Jacobsen 2003, p. 140).

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