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Maturing Practices in the Implementation and Management of the Use of ICT: An Empirical Study in Primary Schools in the District of Nicosia: The Role of the ICT Coordinator

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ABSTRACT

The particular small-scale study aimed to exhibit issues of ICT implementation and management in primary schools in the district of Nicosia, drawing upon the role of actors within the school setting. Therefore, an exploration of the assimilated role of the teachers, school principals and school ICT coordinators is addressed. In the light of a newly published policy document, involving prescriptions for the role of the aforementioned people, the study seeks to investigate whether practices within the real context of schooling are becoming mature by drawing on evidence from previous studies. Questionnaires and semi-structured interviews were the data collection techniques employed. The research findings revealed that a slight progress in particular domains of the ICT implementation and management process was identified. It is worth mentioning that, due to space constrictions only a few of the findings are cited and discussed here, regarding the role of ICT coordinators. Based on the comparison with the previous studies, it was denoted that the changes that occurred in the interval years 2003-2006 were not radical in a way to transform the teaching and learning approaches.

KEYWORDS: *ICT management, ICT implementation, ICT coordinator, Policy-oriented document, Maturing practices*

INTRODUCTION

The pervasive implementation of the technological innovations into everyday activity is being hailed as a major change agent in sectors of social and cultural enterprise in the so-called information and 'network society' (Castells, 1996). The ever-increasing development of Information and Communication Technologies (ICTs) engenders new forms of social communication and collaboration, new functions of economic practices and reforms of political actions, comprising, in so doing, a driving indicator of national development (Kozma, 2005). Under this scope of transformations, it is supported that ICT can play an intrinsic role in the educational arena as 'ICT is not only the backbone of the Information Society, but also an important catalyst and tool for inducing educational reforms that change our students into productive knowledge workers' (Pelgrum, 2001:163). Students become digitally literate which is a growing imperative in the workplace and in

recreational activities of contemporary life (OECD, 2001).

Hereupon, 'no country can afford to ignore the need to introduce ICT into the education system' (Pelgrum & Law, 2003:87) in order not to be left behind in economic and social development for which knowledge and information are indispensable incentives. The integration of ICT into the educational arena is not a privilege of the developed societies but constitutes precedence for educational agendas of developing countries as well. However, there are differences both in priorities and strategies for the ICT assimilation followed by each government according to their educational system and the phase of implementation they stand (Pelgrum & Law, 2003). With reference to this study, the implementation of ICT is particularly explored in the primary educational setting in Cyprus, a rather small nation and still a developing country.

Framing the study

Cyprus has an experience of nearly seven years in the broad implementation of ICT in primary education, which started in 2000 when the first ICT action plan namely "Evagoras" was put in practice (CDU, 1999). Officials and educational leaders aim to introduce technological applications as effective learning and management tools that will earn a vital place in classrooms and become important allies of the progressive educator. In what extent does this happen? What are the practices that take place within schools to promote effective teaching and learning procedures? Are the strategies and decisions taken by the Ministry implemented in practice? These are some of the issues that will enable policy-makers and stakeholders to provide solutions in order to improve the current state and promote the formulated goals set in the scope of transforming the educational enterprise. Therefore, it is of crucial importance to periodically appraise the actual situation of ICT in the real context of schools (Pelgrum, 2001).

Previous researchers dealt with issues concerning implementation, management and ICT policy in Cyprus primary education (Eteokleous, 2004; Hadjithoma, 2003; Sergiou, 2005) and presented some aspects of the situation worth commenting. The main issue emanated from these accounts is that ICT is not frequently utilized within classrooms and "Evagoras" document has not been fully implemented. The small number of people employed by the government to introduce ICT in primary education was the main reason for the identified problems as they could not provide the maximum help and support. Moreover, the role of ICT school coordinator was not officially determined through the years. In fact, as Hadjithoma (2003) and Eteokleous (2004) claimed, apart from the district advisors there was not any other direct support in schools and the absence of an ICT coordinator was a significant factor for the limited computer use. However, the study of Sergiou (2005) revealed evidence of ICT coordination in schools by regular teachers, who took some responsibilities although they were not officially employed.

The three prementioned studies were based on the policy-document "Evagoras" which was the only official document since its publication in 1999. However, in 2005 a handbook, "ICT in Primary Education", was published by the Cyprus Ministry of Education (2005). It provides suggestions of good practices that pri-

mary school participants may apply in the school setting. Even though this document might not formally be issued as a policy, it can be thought as the next stage of policy. This can be fairly suggested, as policy-makers are now in a position to state what best practices are, drawing upon the five-year experiences since the publication of 'Evagoras'. Therefore, the use of this Handbook enables the particular study to be in continuity with the studies of Hadjithoma (2003) and Sergiou (2005).

Aim and objectives of the study

The particular study aimed to investigate the current state of implementation and management of ICT in primary schools in the district of Nicosia, in Cyprus, to determine the sectors of progress through the scope of the new phase in the ICT policy in the educational enterprise. Therefore, the subsequent objectives of the study were to examine the current ICT practices and perceptions of school participants in the real context of the school environment and critically evaluate them with reference to the handbook "ICT in Primary Education". The study also aimed to further examine the extent to which these practices are becoming mature over the last years drawing upon a comparison with the previous studies of Hadjithoma and Sergiou. Due to space constrictions, the particular article is being dealing with issues concerning only the role of school ICT coordinators providing answers to the following research questions:

- What is the role of the ICT coordinator in primary schools in terms of implementing ICT in the school setting?
- What are the differences in school ICT coordinator's role between the study of Sergiou (2005) and this one?
- What are the ICT coordinators' needs in primary schools in Cyprus?

ICT WITHIN THE SCHOOL SETTING

The role of the ICT coordinator

As already mentioned, the successful implementation of ICT in schools depends on a multifaceted approach to ICT use in which the empowered involvement of school actors (i.e. principal, ICT coordinator and teachers) is crucial to promote the government's formulated plans. It is only then, that technology will ensure a significant impact on educational enterprise and school life. The role of the ICT coordinator in the age of technology-empowered education is the critical link to actual implementation in the learning and teaching process. The ICT coordinator has a direct impact on the ICT innovation (Nachmias et al., 2004). Teachers, who play a pivotal role in the failure or success of implementing ICT as a transformation mean of teaching and learning procedures, lack confidence in utilising ICT appropriately and sufficiently (Demetriadis et al, 2003). This is a major impediment for not realising the potentials of ICT in the leaning context (Mooij & Smeets, 2001). Thus, they need appropriate levels of professional advice and support on ICT use within the schools in order to become confident enough and convinced that they can use it without being experts. This support and collaboration vested mainly on the ICT coordinator.

Therefore, ICT coordinator is responsible for organising ICT facilities in the school setting. According to Sergiou (2005) this position in the Cyprus education-

al system is not officially determined. However, his/her role is to regulate and ensure the effective use of ICT and inform the principal and the district ICT advisor of the progress in the field. Even though s/he is a regular teacher, his/her role is multifaceted including maintaining hardware and software, ordering consumable products (i.e. cartridges), managing the school network, providing technical support, modelling lessons to colleagues, schedule timetables for the use of the computer laboratory and providing advice and support in one or more subjects.

RESEARCH METHODOLOGY

The study took place in the school year 2005-2006 and eight schools comprised the sample, which were categorised based on two grounds: the setting (urban, rural) and the size (small, large according to the number of teachers). The participants were 90 primary teachers, 8 principals and 8 school ICT coordinators. In order to investigate the role of school ICT coordinators, individual semi-structured interviews were obtained from a small number of participants, i.e. two ICT coordinators employed in a big and small urban school respectively. Based on the interviews rich and highly illuminating data concerning the ICT coordinator's practices in the particular schools were extracted. The interviews were based on a schedule of contents in order to prevent conversation drying up. The very virtue of the interviews was their openness as they were held in a form of conversation where the participants were able to give extensive, argued responses (Burgess, 1984 cited in Mason, 2002). They drew upon the suggestions of the Handbook to reveal information concerning their multifaceted role, their perceived needs to apply sufficiently ICT practices and indications of teachers' practices, as they are coordinating the whole process of ICT integration in their school. The last part of the interview was based on the perceived changes occurred in the field of ICT implementation. The interviews were all tape-recorded and fully transcribed. Data were used for thematic analysis and were fractured around the examined key terms.

Apart from the individual view of the role of the ICT coordinator via the interviews, a collective view through the questionnaires distributed to teachers, shed light in ICT coordinator's role. Even though the questionnaires provided information in terms of the teachers' role in using ICT and the interviews focused on the role of principals and ICT coordinators, the data emanated were possible to be cross-checked, as all the participants were called to comment on the actions taken from the others. This methodological triangulation provided convergent evidence on issues of implementing and managing ICT in schools.

ANALYSIS OF FINDINGS

The role of ICT coordinator in Cyprus primary school

The research findings elaborated from the collected data indicated a strong relation among the "ICT implementation plan" and the assimilated role of the ICT coordinators. In particular, all schools had a teacher responsible for the ICT coordination appointed in cooperation with the school principal and the teaching staff. However, as principals were not knowledgeable on ICT issues some of their responsibilities described in the Handbook were undertaken by the ICT coordina-

tors. Their role was unofficially determined with the prescribed set of duties and responsibilities not completely followed. The uptake of the responsibilities for ICT coordination was based on their personal interest and will and because they had more ICT knowledge than other teachers in their school. This is consistent with the information retrieved from the interviews with the principals. It seems that their role is multifaceted and overburdened, as one of the interviewees stated that ' [...] anything that has to do with computers is considered to be my responsibility'. Their role lies on a technical, organisational and advisory line but the extent and amount of undertaken responsibilities varies from school to school and according to the capabilities of the particular person.

Particularly, both ICT coordinators said that they are responsible for technical issues such as fixing any faults that occur in computers or peripherals (i.e. printers, projectors), installing new software and hardware drivers, and managing the school network. If they are unable to resolve any technical problems they are responsible to contact the company who provided the computers. Further, among their responsibilities is the organisation of a time schedule for the computer laboratory so that all teachers have the opportunity to visit it with their class, as the use of a computer suite is more appropriate for the whole class teaching (Somekh & Davis, 1997).

Concerning the support on pedagogical issues, coordinators argued that teachers often seek their help for practical applications of specific software to support their teaching. In respect to that, they referred to the lack of time and appropriate knowledge in order to be as helpful as possible. What is worth mentioning is that both interviewees agreed on the necessity of direct pedagogical support to the teachers, i.e. model lessons and training within the school setting, in order to meet effective ICT implementation. At the moment the 'in-school' support is entitled in the responsibilities of the district ICT advisors. However, as the latter have no time for visiting schools frequently, it is obvious that there is a lack of adequate pedagogical support and guidance for teachers. Therefore, it depends on the ICT coordinators' knowledge, interest and willingness to provide this kind of support and for that the approaches differ.

I support my colleagues, as much as I can, on technical issues but also for software; how they can use particular educational software to teach for example something in Greek. But unfortunately I do not have so much knowledge and time to organise model lesson, which I think are very important (ICT coordinator B).

Two years ago, the school principal gave me some non-contact time for helping colleagues with computer integration. I scheduled a programme, 80 minutes a week, in a particular time and class, and in cooperation with the teacher we organised their lesson in the computer laboratory. The first time I was doing the lesson and the class teacher was just an observer. The second time s/he was also involved in the teaching and the third time the lesson was made exclusively from the teacher and I was just present in the class just to feel secure. I admit that it worked a lot and teachers gained the most of it [...]. Of course it depends on the teachers as well; when there isn't any interest this cannot take place (ICT coordinator A).

In an overall view, in the extent they afford, ICT coordinators provided help and support to their colleagues. The data extracted from the questionnaire¹ verified that teachers tend to communicate between them as they mostly received help from actors within the school unit, i.e. colleagues and ICT coordinator (Table 1). This denoted the existence of an ICT school community which set ground for more teachers to develop e-confidence in computer classroom use. Peer support and collaboration are indicators of potential improvement.

Table 1: Description of frequency distribution of people who provide teachers help and support in using ICT in their classroom

	Colleagues	ICT advisor	School ICT coordinator	Principal	Searching myself	Other (friends, husband)
Frequency	44	18	30	0	41	3
Percentage	75.9	31.0	51.7	0	70.7	5.2
Total n=58						

Needs of the ICT coordinator

What seemed to be an indispensable need for the ICT coordinators is the lessening of the responsibilities that do not come under their duties. As their role is to help teachers integrate technology in their teaching practices, they should be allocated specific time to be able to provide the support and practical advice needed and not to be concerned with technical issues and other practicalities that act on the expense and underestimate their role.

Definitely there has been a progress since the first years of implementation and it still continues to be but this happens really slowly. The reason for this is the non-institutionalisation of the ICT coordinator's role in order to promote the implementation process and encourage teachers to dare to change (Principal A).

DISCUSSION AND CONCLUDING REMARKS

Based on evidence from the two recent studies (Hadjithoma, 2003; Sergiou, 2005) and the findings of this study, it can be predicated that a notable change has occurred in respect of the ICT coordinator's role, in the interval years 2003-2006. According to Hadjithoma, in 2003 there was no one responsible for coordinating ICT practices within the school setting. There were only national ICT advisors, working on a district level, responsible for all the issues concerning ICT implementation, especially for guiding teachers on how to integrate computers in their classroom. However, Sergiou (2005) provided some evidence of the existence of school ICT coordinators, even though they were not officially employed by the Ministry of Education and Culture. They were part of the teaching personnel; an overburdened colleague whose ICT responsibilities were not defined and in that, the assimilated duties were based on their willingness and available time. Moving along, this research's findings revealed that the publication of the Handbook did not seem to make any particular difference. As a matter of fact, the role of an ICT

1. The number of participating teachers, who completed the questionnaires, amounted to 58 out of the 90 employed in the eight selected schools, i.e. a response rate of 64%.

coordinator remains unofficially established meaning no allocation of specific time for dealing with ICT issues apart from his/her duties as a regular teacher. However, in all primary schools there is a position to be, determined at the beginning of the year from the principal and the teaching staff. ICT coordinators seem to recognise that their role relies mostly on organisational and advisory support. The extent of provided support and pedagogical advice differs from school to school as it relies on the time, skills, interest and knowledge of the particular coordinator. This raises the need for specific training for ICT coordinators to become 'professionally engaged' with pedagogical aspects of ICT use. Thus, they will be in a position to provide higher quality of ICT support influencing the way that their colleagues use ICT technologies (Becker, 2001).

Allied to the need for more qualitative curriculum support, is the need for direct and on-site technical support. Managing ICT infrastructure is of crucial importance for the successful exploitation of ICT practices (Cuban, 1999; NGfL, 2002). In contrast to the study of Sergiou, the findings indicated that ICT coordinators are dealing to a great extent with technical issues, which undermine their role as pedagogical coaches.

In retrospect, the investigation of the schools' state of affairs, regarding ICT implementation and management, signified an indication of progress in some domains of ICT innovation, especially in the assimilated role of the ICT coordinator. However, these changes during a period of three years cannot be described as drastic and radical, although a recent policy document was published, offering suggestions for practical applications. The process of implementing innovations is a complex one that needs gradual steps rather than revolutionary approaches for completely changing the schooling organisation (Pelgrum & Law, 2003).

In the light of the above, it is evitable that establishing technology utilisation in schools needs further nurturing. There is a profound need for the development of a more coherent and co-ordinated approach for ICT to act as stimuli for pedagogical and technological innovations. As the support within the school setting proves to be of crucial importance for the implementation of ICT it should be a provision for augmenting the existing quality of ICT support. The institutionalization of the role of the ICT coordinator and the constant technical support from specialists is fundamental. ICT coordinators should be equipped with the needed incentives, i.e. non-contact time, skills, knowledge and added salary for their services to successfully implement their responsibilities. Furthermore, the challenge of specifying educational objectives and practices for ICT utilization in its rightful place as a tool into the curriculum still exists for policy makers. In that, it should be made certain that all teachers are aware of newly-published policy documents.

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