Exploring the Level of Information and Communication Technology Services and Use in Secondary School Library Media Centres in Kuwait: An Interpretive Case Study Research

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Abstract

The purpose of this study is to investigate the provision of information and communication technology (ICT) services and applications in secondary school library media centres (SLMC) in the state of Kuwait. This study focuses on the school community (teachers and pupils) and their skill at using, and knowledge of, ICT. There has been no previous research which has investigated the use of ICT in secondary school library media centres, so this study aims to fill the gap. In order to thoroughly understand the phenomenon, an interpretive case study approach has been adopted, and multiple qualitative and quantitative data gathering techniques have been utilised. In order to research the subject within context, pertinent literature was reviewed from both developed and developing countries.

Initially, data gathering instruments showed remarkable findings. Both qualitative and quantitative data analysis approaches were used to produce valid and reliable results. The findings indicated that there was a significant lack of ICT related services in Kuwaiti school libraries. The results also showed that integration of ICT services into SLMCs was strongly advocated by teachers and pupils alike. To conclude, the results highlighted the need to better understand the importance of new environments in education. The findings of this research also highlighted the need for Kuwaiti policymakers to review and improve the current situation.

Keywords: School library Media centre, ICT in school libraries, Qualitative and quantitative study, Case study.

1 Introduction

The school library media centre (SLMC) is a core component of a school. A typical library has the capability to inspire teachers and students alike (Barrett and Douglas, 2004). Clark (2006) stated that in recent years, the emergence of Information and Communication Technology (ICT) has considerably changed not only the educational theory and process, but also the SLMC services and facilities. The potential of ICT in the school is such that it can help sustain the quality of teaching and reinforce the relationship between learners and curriculum. The ICT applications within an SLMC also provide school communities with a wide range of information resources and stimulate their perception of information (Garner, 2006,; Papazoglou, 2001). Evidence suggests that technology has granted access to a broader range of knowledge beyond the school (CILIP, 2001). Developed countries, in particular, have integrated and deployed the ICT applications into their education system and their SLMCs.

Developing countries, however, still struggle and endeavour to embed the new technology tools into their education system. Recently, the state of Kuwait realised the importance of ICT in schools and the significance of the new environment. The Ministry of Education in Kuwait has not shown a particularly strong initiative in incorporating the ICT applications within its schools. The new technology that has been supplied to the secondary schools and its SLMCs has been poorly integrated and falls short of harnessing its huge potential (Al-Sayer, 2001). There is a need to evaluate and understand the new phenomenon from different angles. Therefore, this paper focuses
on investigating the level of ICT applications and services available in Kuwaiti secondary schools and their libraries, as well as exploring school community skills and maturity towards ICT.

Research is any conscious premeditated inquiry and investigation which seeks to increase one's knowledge of a given situation. The research method technique varies according to the subject under investigation (Goldhor, 1972). This study adopted an interpretive multiple-case study approach including a qualitative and quantitative method. Qualitative and quantitative data gathering instruments were utilised to collect data which was pertinent to the research in question.

Ultimately, the paper is part of a broader project. This study focuses on the integration of ICT applications in the secondary school libraries of many developed and developing countries, the roles the libraries play, and their significance and services. In addition, the researcher endeavours to demonstrate the school community's perception towards ICT-based services in the SLMCs. Therefore, to clarify the proposition, and to answer the study questions below, we focused on the use of qualitative and quantitative methods and instruments throughout the research. The study makes use of an interpretive philosophical stance in order to factor in the researcher's own views, references, and experience, and provide an in-depth analysis and understanding of the phenomenon under investigation. Furthermore, the paper adopts an interpretive multiple-case study approach and, to gain knowledge and data, combines qualitative and quantitative multiple data collection instruments including interviews, direct observation, documents and questionnaire.

2 General Rationale for the Study

The Kuwaiti government has been concerned with establishing libraries in each school since the 1950s (Zehery, 1994). Moreover, the Ministry of Education has attempted to supply their schools, and indeed their SLMCs, with proper resources. This is in order to provide various information resources to enhance teaching and learning processes (Al-Musalam, 1988). However, a qualitative and quantitative study conducted by Haidar (1974) and another study carried out by Al-Terkait and Rezg (1987) indicated that the SLMCs in Kuwaiti secondary schools were still far from ideal and had inadequate facilities to serve school communities. Traditionally, Kuwaiti school libraries have limited information resources and are mainly used as a place to store outdated books (Zehery, 1994).

The accession of ICT has persuaded the developed countries to integrate the new technology into their educational organizations, and indeed, their SLMCs (Birch et al., 2003). Thus, it is felt that the current SLMCs in Kuwait should effectively implement the new technological environment, as SLMCs already exist in many developed countries. Realising the significance of ICT, the Ministry of Education in Kuwait has endeavoured to diffuse the ICT into their SLMCs for the last two decades. This is in order to enlarge the traditional school libraries services, as well as to encourage school communities to use SLMCs (Al-Tammar and Badawi, 1994).

The purpose of this study is to investigate the secondary SLMCs in Kuwait regarding the availability of ICT services and applications. The study explores teachers' and students' perception,
maturity and skills in the use of ICT services. Furthermore, it determines whether the harnessing of the new technology encourages the school communities to use the SLMCs, and whether the ICT in schools improves educational theory and practice.

The central research questions this study seeks to answer are as follows:

1. What are the perceptions of students and teachers in relation to the importance of the ICT services in schools and SLMCs?
2. What is the effective level of usage of ICT facilities in the SLMCs by students and teachers?
3. What are the barriers and enablers for effective integration of ICT services within the SLMC in Kuwaiti secondary schools?

3 Literature review

Various factors have been discussed during the review of the literature in this paper, enabling the reader to understand the theme. However, the researcher briefly identified two main propositions. The first, to review various researchers' perspectives on the significance of the use of qualitative and quantitative methods in librarianship terrain. The second, to display the pertinent literature on the efforts of integrating ICT into SLMCs.

3.1 Qualitative and Quantitative Approach

Qualitative and quantitative research is associated with a number of different approaches and is utilised in many social researches (Bryman, 1988). A number of IS researchers, for example, advocated that qualitative and quantitative dimension may be used in any research (Paré, 2001). In addition, Powell (1991a) revealed that qualitative research focused on disclosing people’s experiences. It has had a positive influence on the information science researches by viewing library users’, librarians’ and administrations’ perspectives. In recent years, the qualitative method has been predominantly used in librarianship studies. Powell (1991a) argued that "qualitative research tends to apply a more holistic and natural approach to the resolution of a problem than does quantitative research. It is also give more attention to the subjective aspects of human experience and behaviour" (Powell, 1991a, p.47).

Qualitative and quantitative researches can be used in different research strategies, besides survey and experiment researches. It is employed by positivist researchers, and also very often by interpretive and critical researchers (Oates, 2006; Gay, 2006). Denzin and Lincoln (1998) argued Powell's standpoint that both qualitative and quantitative researchers are concerned with an individual's perspective. Moreover, Light (2003) revealed that qualitative data is concerned mainly with meaning (materials), whereas quantitative data with that of measurement (data). The qualitative data can be analysed through quantitative numerical analysis procedure (Oates, 2006). Powell (1991b) revealed that qualitative researchers can be considered qualitative research.

In relation to this study, the qualitative and quantitative data techniques used can effectively cover and clarify all questions and contexts addressed in the paper. The qualitative and quantitative data techniques allow the explanation of an individual’s point of view, and the observation of realistic life surrounding the phenomenon. Moreover, from this approach the researcher is able to foster rich
information from documents, and gain valuable data from a large population (Denzin and Lincoln, 1998; Light, 2003). Therefore, the data pursuit in this study requires qualitative and quantitative approaches.

As a form of gathering data and materials, qualitative data is a collection of non-numeric data, analysed and interpreted in order to gain insights into a particular phenomenon of interest (Gay et al., 2006). This type of data technique is crucial for interpretive multiple-case study researches (Oates, 2006). Janesick (1998) suggested that qualitative design "requires the researcher to become the research instrument. This means the researcher... must sharpen the skills necessary for observation and face to face interview" (1998, p.42). Qates (2006) claimed that qualitative researchers were unsatisfied regarding the information that they gather about data analysis. While Gay et al (2006) asserted that quantitative data is a "collection of numerical data in order to explain, predict, and/or control phenomena of interest" (2006, p.9), it is stated elsewhere that qualitative data derive directly from the fieldwork (McClure, 1991).

There are six sources of qualitative evidence that can be employed in the case study research, including: documentation, interviews, direct observation, archival records, participant observation and physical artefacts (Yin, 1994; Myers, 1997), while the main quantitative data source method is survey and questionnaire (Zayton, 2004). Powell (1991b), in addition, declared that qualitative data gathering such as direct observation and interviews are correlated with quantitative data instruments in many librarianship researches. Through interviews and observation, the qualitative researcher has the opportunity to be close to the participant. Goldhor (1972) argued that the investigator influenced the qualitative data gathered, and to avoid this the researcher should prepare himself before implementing these techniques. As the quantitative investigator is dependent only on questionnaires to gather data, this means that the interaction between the researcher and participant is superficial (Denzin and Lincoln, 1998). Many previous librarianship researches encountered difficulties when using the questionnaire: the instrument often gave inappropriate answers which consisted of opinions rather than evidence. Moreover, the questions sometimes are ambiguous and the participant does not know what the researcher means (Goldhor, 1972). However, qualitative and quantitative data is significant for librarianship to measure and improve its policies and its services. It is critical that the data and statistics found should be clearly defined, accurately reported, and correctly analysed (Goldhor, 1972, Hafner, 1998).

3.2 ICT in education in the developed countries

The significant impact of Information and Communication Technology (ICT) on education has led many countries to integrate it into their education systems (Birch, 2006). Regarding the provision of ICT in the education system, Clark (2006) stated that: “In some instances and under certain conditions, it has been shown that technology helps students learn more, learn faster, become more motivated, and become more connected to the community and the outside world” (2006, p.483). Furthermore, developed countries keenly put the emphasis on ensuring all school communities...
could effectively and efficiently manipulate the new technology (Baskin and Williams, 2006; Lai and Pratt, 2004; Hew and Brush, 2007). Various initiatives and schemes showed the disparity between the integration and use of ICT in the education system across Europe, Australia, the USA and a few Asian countries (Johnson and Maddux, 2007; Baron and Bruillard, 2007; Baskin and Williams, 2006; Lim, 2007). Most of these initiatives were precisely studied and examined qualitatively and quantitatively by researches from different approaches. These studies aimed, for instance, to demonstrate SWOT analysis for the new environment. In other words, they were investigating the level of ICT equipment and school community skills, awareness and use of the technology in the school (Frieden and Elliott, 2007; Vannatta and Fordham, 2004; Baker, 2005).

3.3 ICT in schools in the developing countries

Developing countries have striven to pursue the technological revolution and adoption of integration of ICT into the education system (Al-Mekhlafy and Al-Basha, 2000). Al-birini (2006) described the situation in developing countries regarding the deployment of ICT into the education system as:

Governments in most developing countries have responded to the challenge by initiating national programmes to introduce computers into education. Doing so, these governments have added to their burden of debt... even though the costs are large and the payoffs modest (2006, p.374).

Very few pertinent pieces of literature have had such a powerful impact on ICT in schools. There is, the researcher found, a lack of other research conducted in this field, which cannot be expected to represent the real picture of ICT in education in these countries (Summerline, 2000). Moreover, most of the recent studies which have been undertaken in developing countries have attempted to discover different attitudes through qualitative and quantitative approaches (Bovée et al., 2007; Albirini, 2006, Aduwa-Ogiegbaen and Iyamu, 2005). These approaches include teachers’ and pupils’ opinions towards information skills, rather than determining how they are used ICT in the classroom, as well as the quantity and quality of the ICT applications in the school (Zeidan, 2007).

3.4 The school library media centre (SLMC) and ICT

The impressive change on the SLMC in recent years has varied its role. The antiquated school library was solely a store of books located in a small room within a school, supporting teachers and students with physical information. However, the school library, and indeed SLMC, is now a learning laboratory situated prominently within schools, providing non-traditional materials such as computers, internet and audio-visual means, in addition to traditional resources such as books, referencing and periodicals. (Morris, 2004; Aryan, 2001; Tilke, 1998; Roys, 2004).

Clabo (2002) expanded upon the meaning of the typical SLMC as a "centralised information and technology centre designed to support the school's curriculum and provide resources that meet the educational and recreational needs of both the faculty and the students" (2002, p.24). Interestingly, the SLMC has played an important role in the school community, especially when ICT was integrated in its services (McDonald, 2006).

3.5 The SLMC in developed and developing countries
The integration of ICT into secondary school library media centres has had a vast influence and is implemented worldwide, particularly in developed countries. This recent technological innovation has created a significant evolution in library services and utilisation over the last few decades (Ingersoll and Culshaw, 2004). However, in spite of the widespread nature of ICT-based applications, there are few documents and studies conducted in this field.

Developed countries’ literature indicates that secondary SLMCs provide disparate traditional and non-traditional services. Moreover, many libraries have advanced ICT services that provide sophisticated access to electronic formats that support the curriculum. Surprisingly, other studies have showed that many SLMCs in developed countries lack a decent library collection and basic ICT services (Office for Standards in Education, 2006; Liguete, 2007; Turner, 2006; Tilbian, 2005). In addition, Barstad et al. (2007) found in his study that the majority of teachers and students use the library infrequently. He also added that students claimed that teachers never encouraged them to visit the SLMC.

Turning to the developing countries, the ICT services in libraries have been widely circulated due to their importance. The extensive nature of the new digital environment has dominated the developing countries’ considerations in integrating the ICT applications into their SLMCs (Moahi, 2002). However, very few countries have taken real initiatives to supply their schools, or indeed embrace the fusion of ICT tools and services with traditional materials into the school library media centres. In addition, insignificant research has been conducted in the study of SLMCs, their services and school community skills and use of the library.

In brief, most developing countries struggle to enlarge their library services and concentrate on furnishing schools with adequate library equipment, as well as providing sufficient ICT services for the school library community (Magara and Nyumba, 2004). However, the status of the SLMC and the integration of ICT in secondary school libraries in some developing countries is still ambiguous, and negligible in other countries due to its failures in different sectors. There are other factors that influence the development of the SLMC, which include budget, bureaucracy issues and mismanagement (Swee and Abdullah, 2005).

3.6 SLMC Situation in Kuwait

Many developing countries are struggling to supply new technology in their SLMCs. Therefore, a review of the few related literatures provided a critical insight into the efforts of a number of developing countries, which can provide a comparable picture to that in Kuwait. There is no single study that explores the current situation in Kuwaiti SLMCs. Therefore, this paper is a unique study in that it investigates the situation of secondary school library media centres in Kuwait.

4 Research Methodology and Design

Research has adopted various forms of theoretical positions in studying the information and communication technology (ICT) field (Orlikowski and Robey, 1991). It is a fairly constant
argument that the purpose of the research determines the method, the approach, and the technique of any study. In that regard, constructing an appropriate and fitting method would achieve significant outcomes (Cohen et al., 2000).

The nature of the ICT and library science fields allow different research approaches and methods to be used. Moreover, the diverse research methods applied in social science studies have improved the standard of the library and information and communication technology researches (Abdulhadi, 2003). In addition, there is potential to study the information technology phenomenon from three philosophical viewpoints: positivist, interpretive and critical (Orlikowski and Baroudi, 1991). However, positivist and interpretive paradigms have been more influential in researching information systems (IS) than the critical research approach (Myers, 1997; Lee, 1991; Paré, 2001; Light, 2003). In addition, ICT is one of the primary drivers of IS phenomenon researches (Orlikowski and Baroudi, 1991; Palvia et al., 2003). Several methodologies are available and can be implemented for IS and ICT researches. The method used in this study is interpretive; it is a case study research and combines qualitative and quantitative data gathering instruments. Bryman (1988) declared that qualitative research is more compatible with interpretive than quantitative research, which is regularly influenced by positivism.

4.1 Case study research

Evidently, case study is the preferred methodology for most researches conducted in IS and ICT topic areas, such as organizational design, system developers, IS and ICT functional applications, and resource management/IS management (Palvia et al., 2003; Paré, 2001; Orlikowski and Baroudi, 1991; Oates, 2006; Fitchman, 2004). Moreover, evidence suggests that qualitative and quantitative methods comprising survey studies, experimental studies, and case study research are the most popular research methods utilised in the field of information technology (Orlikowski and Baroudi, 1991; Paré, 2001). Furthermore, the case study method is strongly advocated in studying the library and information science terrain (Abdulhadi, 2003; Goldhor, 1972).

The case studies selected in this research were done so in a fashion that promoted an equal gender selection of boys’ and girls’ schools from the six counties in Kuwait. A total of twelve cases were targeted: two secondary schools from each county, one boys’ and one girls’. In addition, the researcher endeavoured to avoid the bias that might influence the results by adopting multiple sources of inquiry (qualitative and quantitative). Orlikowski and Baroudi (1991) argued that using a single approach for studying IS phenomena is insufficient, therefore the incorporation of other similar cases was critical in order to explore the relationship between ICT, people and organisations. Goldhor (1972) argued that librarianship research was subject to bias because its study was usually reliant on people in interviews and observations.

4.2 Data collection methods

The case study integrates and makes use of multiple qualitative and quantitative data collection methods to capture the features in both types (Kimchi et al., 1991; Zayton, 2004). Indeed, this variety of data sources is named 'multiple data triangulation', which helps minimize the risks of the
validity and the reliability of the data (Richardson, 2003; Yin, 1994; Kimchi et al, 1991; Ingram, 2002). The researcher adopted different approaches to tackle this by: a) using a number of multiple quantitative and qualitative sources of evidence, including questionnaires, interviews, observation and documents; b) being present during the distribution of the questionnaires, emphasizing and describing every single question to the pupils, and understanding the way they understand the questions; and c) making sure the size of the sample was big enough in order to reduce any potential noise.

Four usable qualitative and quantitative sources were designed to gather information from the fieldwork. The following defined the different instruments utilised in the study:

- Questionnaire: is a quantitative technique method aimed at expressing its findings in figures (Rothwell, 1993). The questionnaires were sent to 12 schools, and the response rate was 95.4% (912 completed questionnaires from 955 pupils participated). Within each school, three classes were targeted from each stage.

- One to one interviews: is the first qualitative tool used in the study provides words as data findings. Two interviews were conducted with school staff (teachers) within each school. 12 interviews were also carried out with each school's headmaster.

- Direct observation: aimed also to collect qualitative data about particular behaviour through the observer being actively involved. This technique was utilised in order to gather information through observing the twelve SLMCs in the schools selected.

- Written documents: are suitable qualitative data gathering methods in collecting data from library and information researches. Oates (2006) stressed that ICT research can foster meaningful and tangible information from this kind of data.

5 Discussion and Conclusion
The combination of the four data gathering instruments yielded various qualitative and quantitative results. In addition, the analysis of the data resulted in substantial findings that answered the research questions.

The questionnaire included closed questions and the data gathered was predominantly quantitative. One question sought to identify how often pupils used the SLMC during one semester. Surprisingly, the results indicated 48.1% of respondents stated they used the library only once during the whole semester, whereas 13.7% used the library once a week. Other results showed that 64.4% of the total respondents agreed that they needed ICT in the library and the school for their learning, whilst 14.8% did not. However, only 17.3% of the students often used the ICT services in the SLMC.
45.2% of the pupils were very confident in searching the internet to find information, whilst 32% of the total respondents were only confident in computer basics. 62.3% of the total girls claimed that the teachers often encouraged them to use the ICT facilities in the SLMC, whereas only 37.7% of boys were often encouraged. Equal amounts of girls and boys agreed that ICT within the school would motivate and add value to their learning. Furthermore, 52.2% of the total responses strongly agreed that ICT should be effectively integrated into school activities and the curriculum. Finally, a high ratio of the respondents identified that not only were the ICT levels poor, but also the quantity of ICT equipment within the library was insufficient.

Interviews were used in the research as a qualitative data gathering instrument. At first glance, the interviews' findings involved almost identical answers, especially teachers’ responses. This was due to comparable conditions in the public schools: for instance, in budget, training opportunities and learning/teaching processes and environment. All teachers declared that there was a need to enhance ICT within schools, and increasing pupils’ skills more towards ICT use. The teachers and the headmasters strongly advocated integrating the use of ICT into the curriculum. Moreover, the majority of the teachers’ responses agreed with pupils' answers that the level of the ICT equipment in their SLMCs was unsatisfactory, and confirmed that there was a need to enhance the libraries’ services.

By using a direct observation approach, first-hand knowledge from the real environment was obtained. In brief, the researcher observed that many SLMCs were almost empty of visitors most of the school day, and this was because of the SLMC conditions. Moreover, he found that teachers’ and pupils' responses were comparable to those regarding ICT-based equipment. The ICT in many schools and libraries was inadequate, especially the lack of computers and internet services. Very few girls’ schools provided a reasonable ICT service, and had only one or two PCs and poor internet access.

Evidently, there is a severe lack of research within the ICT and SLMC fields, especially from developing countries. It is clear that there is a discrepancy between developed countries' initiatives, and existing schemes in the developing countries regarding ICT in education. The literature reviewed revealed that there was no single research that had investigated the application and use of ICT in SLMCs in Kuwait. This made the subject under study a unique proposition. From a pupil’s viewpoint, it is disappointing that most of the responses expressed dissatisfaction regarding ICT services and its use in their SLMCs. Although the majority of the pupils strongly advocated the exploitation of the new environment, the Ministry of Education was unresponsive.

Adopting multiple qualitative and quantitative sources of data evidence was essential in gathering diverse views on the subject, especially in organisations such as libraries. This study reaped fundamental benefits from a data triangulation method, which critically reinforced the validity of the data gathered (Kimchi et al., 1991). The results proved significant in illustrating the inadequacy within Kuwaiti SLMCs. These outcomes then raised an important question: what factors could have contributed to such changes? (Jakobsdottir et al., 2004).
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