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Leadership Strategies for Integration of ICT in Kuwait Schools: Perceptions, Practices and Possibilities

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Abstract

Several researchers have emphasized the significant role of Information and Communication Technology (ICT) in advancing the process of teaching and learning at schools. Therefore, a number of countries started to introduce ICT resources in all levels. Similarly, the Kuwaiti Ministry of Education (MoE) has recently mandated that all school staff meet certain standards to ensure that they have the ability to use ICT resources in their schools. However, the literature indicates that the integration of ICT in the classroom does not only rest in the hands of teachers; school principals also play a vital role in determining the success or failure of ICT use in the teaching process. This study sought to document the impact of Kuwaiti secondary school principals on their teachers' attitude toward ICT embedding in classroom teaching. The multiple case studies approach was employed to access data from three secondary schools in Kuwait. Both open ended questionnaires and focus group interviews with 15 teachers were used to collect the data. The data analysis showed that all participating teachers recognized the impact that their principals' leadership practices had on ICT embedding. They highlighted the effectiveness of the principals' stimulation and encouragement of ICT embedding, which resulted in a change to the teaching practices, making them more ICT related. The study revealed that school principals in Kuwait had less autonomy, authority, and opportunity to adopt unique practices and behaviours in leading their schools. Therefore, the study recommends that the MoE revisit its regulations, specifically, those related to the school principals' roles and responsibilities.

Keywords: Kuwait, leadership practices, ICT embedding, qualitative, ICT

1. Introduction

In the literature, there has been an emphasis on the significant role played by information and communication technology (ICT) in advancing the process of teaching and learning at schools (Kozma & Anderson, 2002; Pelgrum, 2001; Hennessy, Ruthven, Brindley, 2005; Goodison, 2003; Kangro & Kangro, 2004). As a consequence, countries around the world have started to introduce ICT resources in all levels: *Macrolevel* (national policies), *Mesolevel* (school policies), and *Microlevel* (class level). However, the integration of ICT resources in the education process continues to be complex and challenging (Cooper, 1998); additionally, that integration in teaching and learning has yet to be fully achieved (Kozma & Anderson, 2002). Importantly, such integration of ICT in the classroom does not only rest in the hands of teachers; school principals also play a vital role in determining its success or failure (Kotrlik, Harrison & Redmann, 2000), particularly through the support they give to the teachers. For example, Daresh (1995) noted that the behaviors of the school leadership had an effect on the students' learning environment and, further, these behaviors directly and indirectly affect teacher instruction and student learning. In addition, Whitaker (1997) identified four master skills of school principals (providing resources, supporting instruction, communicating, and always being present) that influenced higher levels of student achievement in their schools.

Realizing the importance of school leadership to support the successful integration of ICT in classroom teaching, in 2002 the Kuwaiti government mandated that all school principals and teachers obtain an International Computer Driving License (ICDL) (ECDL Foundation, 2008), to ensure that they had the ability to use the available ICT resources in the schools. Moreover, the Kuwaiti Ministry of Education (MoE) offered several incentives and rewards for school principals and teachers to foster the integration of ICT in the process of teaching and learning (Ministry of Education, Kuwait, 2002).

As a result of the mandate, school principals are required to: (a) provide materials and human needs, including professional development (PD); (b) implement the central vision by directing the school, and ensuring that the central vision has been understood; and (c) improve the school's climate (Ministry of Education, Kuwait, 2007). However, the current policy and directives do not stipulate how the schools are to implement the ICT for pedagogical purposes. While a survey of the national literature of ICT indicates that most of the researches into ICT uptake were conducted outside Kuwait, a preliminary study, conducted by Almajdi (2006), recommended further research into ICT change and its relationship to principals' ICT competencies. Given the limited studies on leadership practices of school principals for embedding ICT in the Kuwait context, there is a genuine and immediate need for in-depth studies that concentrate on Kuwaiti school leadership practices for embedding ICT (Schiller, 2002; Wilmore & Betz, 2000). In response to this need, the current study documented the impact of Kuwaiti secondary school principals on their teachers' attitude toward ICT embedding in classroom teaching.

1.1. Research Questions

The study sought to answer the follow research questions:

1. What are the impacts of leadership practices on ICT embedding in schools, as perceived by teaching staff?
2. What are the most important leadership practices that a principal needs to demonstrate to facilitate ICT embedding, as perceived by teachers?

2. Methodology:

2.1. Multiple Case Studies

To address these research questions, a multiple case studies approach (Bogdan & Biklen, 1998; Johnson & Christensen, 2008) was adopted. Such an approach is particularly useful in the field of social sciences, especially when used to conduct an in-depth investigation into a set of events or situations in which the researcher has little or no control (Yin, 2009). Indeed, Yin asserts that case studies are ideal for contexts where conditions are expected to be "highly pertinent" to the phenomenon under research. Multiple case study design also allows for a comparative analysis, as each case study can elaborate on a theory or provide a new theoretical perspective, which can be explored in the alternative case study.

In the current study, three Kuwaiti secondary schools were selected to participate. The reasons for selecting three schools were twofold. First, the three-case study design can produce stronger data compared to a one-case study. Yin (2009) asserts that "[t]he evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust" (p. 53). The second reason was the use of the literal replication technique. This means that three schools were selected that share similar conditions and similar criteria were adopted for this study. Also, the selection of schools was based on the prediction that these cases would produce similar results. As recommended by Yin (2009) for sourcing rich data, two data sources were employed in the study, namely: (1) focus group interviews; and (2) open-ended questionnaires. The three Kuwaiti secondary schools accessed had well established ICT programs and were nominated by the MoE as leading schools in embedding the ICT process.

2.2. Context

This study took place in Kuwait, a small country located in the northeast of the Arabian Peninsula, covering an area of 17,820 km². The country is considered wealthy, with oil as its primary source of income; Kuwait has about 8% of the world's oil reserves. The majority of the population (2.7 million non-nationals and 1.3 million nationals) are settled in the capital city, Kuwait (Katzman, 2008). In recognition of the need for skilled local laborers, to ensure the future of the country, the Kuwaiti government has recently developed a range of strategies to meet the aspirations and the knowledge needs of the people. One such strategy has led to the reform of the education system, namely, the introduction of ICT into the teaching and administration system. In the general population and business arena, ICT is widely used in Kuwait. Thus, according to the National Profile for the Information Society (2003, 2007) report, the Kuwaiti government has developed a number of plans and strategies to integrate ICT into the country's various government systems. Kuwait is now the third highest ICT user in the Arab world. Indeed, the Internet World Stats website (2011) reported that the number of Internet users in Kuwait is rapidly growing. In 2000, only 5.8% of the population had access to the Internet. By2010, however, the percentage of the Internet users had dramatically increased 33.6% of the population. Such indicators reveal the enormous and widespread growth of ICT usage over

the last ten years. Importantly, the Kuwait constitution specifically identifies education as an essential right of all citizens and, thus, must be supported by the state (Ministry of Education, 2007). For this reason, all levels of public schools are free and compulsory for children from the ages of 6 to18 (International Bureau of Education, 2011).

2.3. Research Participants

The study collected data from three Kuwaiti secondary schools that had well established ICT programs; they were also nominated by the MoE as leading schools in embedding ICT. The schools were selected through the district supervisors (who have the responsibility for assessing the performance of the school principals and their schools) (Al-Jaber, 1996), as well as from two major educational districts (one school from the Al-Asimah district and two schools from the Hawalli district). Fifteen randomly selected teachers (participants) were chosen from these schools (five teachers from each school). In the analysis processes, codes were applied to each informant along with a letter indicating the data method used in collect the data, namely: 1) focus group interview, and 2) open-ended questionnaire. Table 1 captures the participants' coding system.

2.4. Data Collection

A number of data sources were employed in the study. In addition to open ended questionnaires, a series of focus group interviews was conducted with the participants. According to Gay, Mills, and Airasian (2009), in a multiple case study approach, many sources of information are acceptable, as long as the data collection procedures are moral, feasible and lead to an understanding of the phenomenon under investigation.

The three focus group interviews sought to capture the fifteen teachers' perspectives regarding their principals' leadership practices. The teachers discussed their perceptions about their school principal's impact on their personal attitudes, beliefs and practices toward ICT. They also reflected on the impact of ICT on their teaching practice and personal experiences. Each focus group session lasted for 2 hours.

Open-ended questionnaires were distributed, via email to the participants, by the researcher. in March 2011. The questionnaires also obtained additional information regarding a number of specific practices, which helped to fill the gaps identified after the completion of the original data collection, and to clarify issues that emerged during the data analysis. The gaps arose due to the limited time available for the teacher interviews,. According to Tashakkori and Teddlie, (2003), the open-ended questionnaire is a useful data collection strategy that yields rich qualitative data. Furthermore, it ensures that no influence was posed by the interviewer's presence or suggestions, and that the participants express their own opinions fully, and qualifying their statements when necessary (Colorado State University, 2011). Hence, the open-ended questionnaires became a complementary source of information. Each question was explained, with the participants being asked to provide information from their personal experiences, along with supporting examples. The questionnaires were distributed at the beginning of the week; the participants were asked to complete the questionnaires and choose one of the following ways of returning their responses: (1) answer and send the digital form of the open-ended questionnaire by email; (2) complete the open-ended questionnaire by writing answers directly on the paper document; and (3) answer the questions directly by posting them in an email.

2.5. Data Analysis

As the qualitative data tended to overlap, be iterative, spiraling, and cyclical (Merriam, 1998), the data analysis proceeded concurrently with the data collection, on a continuous basis. This process occurred during the data collection, as well as during the data collection intervals (Merriam, 1998). The study adopted a content analysis process, producing two codes emerging from the data, namely: (1) Exercised; and (2) Needs. The Exercise code refers to the actual leadership practices of the participating schools for facilitating ICT embedding processes. The Needs code refers to teachers' perception of the leadership practices that are needed to be practiced by the principals.

The qualitative data for the three schools were coded and analyzed progressively, using an internal case analysis approach to a cross pattern search approach. The research notes were used at this stage of the analysis. Each case became a stand-alone entity; consequently, each internal-case analysis discovered specific patterns for each school before the cross-school analyses were undertaken (Merriam, 1998). The within-case analysis involved the scanning of the documentation from the interview transcripts and each individual case, to gain an initial overall understanding of each individual case (Creswell, 2008). Additionally, all the code words were listed to prevent any overlap, while the raw data were digitally stored. Following the within-case analysis, the researcher searched for patterns across the

three schools (Merriam, 1998). Importantly, the cross-case analysis was used to construct general patterns that would fit each school, provide an explanation and, thus, establish meaningful associations between the components of the three cases. The three case studies data analysis findings were then examined so that they could be integrated into the case study data analysis, rather than stand alone. This approach involved identifying the similarities and differences of the teachers' perceptions. Tables were constructed to allow for the easy presentation of the findings and to assist in identifying the patterns.

3. Results

In the following sections, the data analysis is presented in relation to each case. Next the discussion section highlights the various leadership practices in the schools. Then, general patterns are constructed that fit each school by extracting the similarities and differences among the cases. Selective quotations are used to represent and capture common responses from the participants.

3.1. Case A

School A, a male school, located in an affluent class community in the Al-Asimah district, is the capital city of the State of Kuwait. The school has 388 students, 67 teachers, and consists of grades 10 to 12. The school has modern facilities and students are encouraged to engage in a range of physical activities, such as football and volleyball, in spacious recreational areas. There are four computer labs with 20 to 25 computers in each lab. Further, each school department officially has one computer with "broadband" Internet connection, while some departments have more than two computers with Internet connection. The school also has four theatres, designed for the use of datashow multimedia presentations, and a library, with a plain white board (for use as a screen) and a projector.

The teachers of school A highlighted the significance of the leadership practices of their school principal on ICT embedding. For example, the effectiveness of the stimulation and encouragement helped in increasing teachers' motivation to change their teaching practices by incorporating ICT. Teacher A/A provided evidence of the Principal's leadership impact by stating that:

A/A Yes, the practices of the school Principal have impacts on the ICT embedding processes; the influential practices are **stimulation and encouragement for teachers to initiate…ICT…simulative, interacting, encouraging and supportive actions were effective to the extent that some colleagues had changed their teaching approach from a routine approach to an ICT-based approach**. The Principal's intervention had **resulted in changing their practices** (Q).

Teacher A/A provided evidence of the impact of the Principal's leadership practices and the impact of those practices on the teachers' behaviors and ICT practices. He acknowledged the Principal's efforts in stimulating and encouraging teachers to successfully adopt ICT. For example, some of his colleagues had changed their teaching practices to be more ICT related. Similarly, teacher C/A described his Principal as an influential player who increased teachers' motivation to incorporate ICT in teaching. His perception is expressed in the following assertion:

C/A There was an influential role regarding the leadership practices of the Principal on all ICT activities we see today in the school. The Principal **proceeded to urge and encourage us to use ICT in the school through multiple levels, including the School Board, the heads of departments, and teachers**...At the beginning of the academic year, the Principal explained to all teachers that using ICT is the standard of excellent work...**this directly affected many teachers' behaviors**. The Principal's **personal attention and the continuing support, and attempts to improve the level of ICT use in the school were the most significant leadership practices** of the Principal (Q).

Hence, Teacher C/A admitted that the ICT use in the school, without the Principal's support and guidance, would have been negatively affected, as most of the teachers employed ICT in their teaching as a result of the Principal's efforts.

The teachers were asked about the most important practices of leadership that should be exercised by the principal to facilitate ICT embedding in the school. All five teachers agreed on the importance of giving the principal autonomy and authority to manage the school's budget, as well as the autonomy to provide support from local institutions and businesses. In addition, the teachers also emphasized the importance of the MoE's support. They considered that the ICT embedding process would benefit by the principal being more independent in relation to professional development (PD) matters. Specifically, Teacher A/A believed that the principal should have greater power to assess the teachers' work and reward excellent work, thus helping to motivate and encourage teachers in school.

However, while acknowledging Principal A's lack of autonomy and authority within the educational hierarchy, the teachers provided evidence of the Principal's strategies to improve ICT uptake in his school. These strategies helped to embed ICT skills through the Principal's leadership, namely, his guidance, interaction, stimulation, encouragement, and support for improving ICT uptake purposes.

3.2. Case B

School B, a female school, located in the Hawalli district, has 531 students, 87 teachers, and covers grades 10 to 12. The school's facilities are modern, with large playground spaces that allow the students to engage in a range of physical activities, such as basketball and volley ball. The administrative facilities are well equipped. The school has four computer labs, with 25 to 30 computers in each lab. Each department in the school is allocated one computer, but some have acquired extra computers, with Internet connections. Unlike other schools in Kuwait, an open Media Centre was established in the school; it is equipped with 15 computers, three printers, a DVD player, and a large LCD television. The students are allowed to spend their free time in the centre. Two theatres, designed for projecting multimedia presentations, are available. The school's library has a plain white board, for use as a screen, and a projector, as well as four computers with Internet connection, assigned for student research activities.

The interviewed teachers all acknowledged the importance of the leadership practices of their school's Principal on their work. For example, Teacher B/B commented:

B/B There is a clear impact from the leadership practices of our school's Principal on ICT…the teachers are affected by such behavior…**due to the amount of praise received by a teacher who uses ICT and the favorable light in which the Principal views the teacher, as a result there is competition among the teachers** (Q).

Teacher B/B identified the Principal's interest in ICT uptake as having led to more positive impacts on the ICT embedding processes. Additionally, her Principal's praise and appreciation for teachers who initiated ICT had contributed to effective ICT embedding and had created a competitive atmosphere in the school, which encouraged teachers to establish and incorporate ICT into their practices. Accordingly, these outcomes reflected the effectiveness of the Principal's leadership practices for embedding ICT. Similarly, Teacher E/B observed that the Principal's work had effectively encouraged teachers and, at the same time, provided the requirements for the ICT embedding process. Teacher E/B reported:

E/B I believe there was a positive impact from the leadership practices of the school Principal on the uptake of ICT in our school. **This was reflected by the effect on motivation and the desire of teachers to use ICT**…There were a number of reasons for the significant impact and the spread of a culture of ICT use in our school. They are: (a) **the induction and persistence of the stimulus by the Principal on the use of ICT; (b) the employment of a computer science department to support the school technologically; and (c) the supplementation of the possibilities and requirements of ICT embedding** (Q).

This brief outline of the most influential factors for the diffusion of ICT in the school include: the motivational and supportive activities of the Principal, as well as the provision of the ICT requirement needed by the teachers. Additionally, E/B's Principal strove to establish and support ICT in the school by asking the Computer Science Department to play a supporting role. Without the Principal's leadership and problem solving skills (to convince the Computer Science Department to take an ICT supporting role), the lack of support, and the limited financial resources, the ICT embedding process would have been less successful. These perceptions have identified a number of major and effective strategies followed by the Principal to positively influence teachers' motivation toward ICT adoption, namely: (a) motivating; (b) supporting; and (c) directing. The continuity of such practices led to the recognition by the staff of the impact of his leadership skills. Importantly, the Principal's efforts to improve the ICT uptake in her School signaled her effective leadership characteristics in a culture where the principal's power, the bureaucratic culture, and hierarchical system must be maintained.

The five teachers were also interviewed to gain more in-depth information in relation to their opinions regarding the most important leadership practices that a principal needs to demonstrate to facilitate embedding ICT in a school. The teachers proposed a number of practices which they saw as underlying the successful outcome of ICT embedding, such as giving the principal more authority and autonomy to effectively lead the school. For example, Teacher B/B reported the teachers' need for more support to advance their ICT practices, suggesting that greater autonomy, both financially and morally, be given to the principal to motivate staff. Teacher E/B suggested that more funding should be given to the school, and that the principal should extend and manage the financial incentives and

support. The teachers agreed that they needed more support from the MoE to further embed ICT within the teaching program. Further, the teachers perceived that the principal needed greater authority on certain matters, such as conducting PD programs, and maintaining and purchasing ICT equipment.

3.3. Case C

School C, a relatively new male school, located in a middle class community in the Hawalli district, has 421 students, 93 teachers, and covers grades 10 to 12. The school's facilities are modern with large playground spaces to allow students to engage in a range of physical activities, such as basketball and volley ball. The administrative facilities are well equipped. The school has five computer labs with 20 to 27 computers in each lab. Each school department has, officially, one computer with internet connection. There are two theatres, designed for the use of data show/ projector, and one library, with white board and projector.

The interviewed teachers, while acknowledging the positive impact of their principal's leadership practices on ICT embedding, also noted a number of factors that play a vital role in the ICT embedding processes. For example, Teacher B/C stated that:

B/C **At first I have to draw your attention to other factors that are as important as the leadership practices** of our school Principal. For example, the availability of equipment, training, clear policies...etc. **I believe we have in this school an enthusiastic Principal and his leadership practices play a vital role in ICT embedding processes.** Without a Principal who is interested in ICT, we cannot develop further in ICT embedding. His practices made us willing to explore and initiate ICT (F/Lines: 32-38).

The impact of Principal C's leadership practices can be seen in the above statement. For example, in Kuwait, it appears that the Principal's role is restricted by the MoE, particularly in relation to the supply of equipment, the provision of PD opportunities for teachers, and the development of action plans. Despite these constraints, the Principal plays a significant connective role with the outside world to embed ICT. Without the Principal's direct intervention to provide these needs, the staff would be reluctant to implement ICT on a regular basis.

Teacher E/C claimed that, without external support, only limited positive impacts on the ICT embedding process would be achieved by the principal's leadership practices. Additionally, some rules of the MoE appeared to have deterred teachers from effectively using ICT. Teacher E/C gave examples of the Ministry's restrictions on obtaining materials or programs from outside the school, which blocks some enthusiastic principals and teachers. For instance, the Ministry does not permit schools to request materials or any other support from students. Therefore, if the teachers comply with the Ministry's regulations, the principal is faced with more challenges in organizing the necessary ICT support for the teachers.

Such regulations deter the Principal from freely managing and leading the school. For example, teacher D/C revealed:

D/C The Principal, as an individual, is one person in an integrated system, namely the Ministry of Education. W**ithout the support of the Ministry, the Principal and us as teachers cannot be innovative** in utilizing ICT in our teaching as **it requires lots of financial and technical support.** We need financial, moral, professional support to face the challenges associated with ICT embedding...The Ministry of Education needs **to revisit the regulations to give principals more autonomy** to manage the affairs of the school and to deal with the change associated with the introduction of ICT**....With limited financial resources and the lack of attention to aspects of development for teachers**, principals need to play an important role by providing alternative support to the teachers, which requires a lot of money... principals in each district need to be able to formulate a **joint action plan to manage the introduction of ICT** based on the reality of the schools' abilities and possibilities (F/Lines 1006-1076).

According to Teacher D/C, the principals were left on their own to manage and facilitate the ICT embedding processes. They have enormous responsibilities with limited support and more challenges as a consequence of the MoE regulations. Further, the principals in each district need to collectively set up action plans to assist the smooth integration of ICT in teaching activities. The above statement reflects the extent of the Ministry's restrictions on principals, who are not free to develop joint action plans across their district schools. Therefore, it is evident that principals in Kuwait confront a number of barriers and challenges associated with the MoE regulations.

4. Discussion

As outlined earlier, the participating teachers recognized the positive impact that their principals' leadership practices had on ICT embedding. They highlighted the effectiveness of the principals' stimulation and encouragement of ICT

embedding, which resulted in changing teaching practices to be more ICT related. For example, teacher C/A identified the leadership practices of his Principal as the main driver for ICT integration in the school. Similarly, Teacher D/A acknowledged that, without the Principal's support and attention, the school would not have reached the current stage of the ICT activities. Further, Principal B's assertions of support for embedding ICT were corroborated by the teachers, who acknowledged the Principal's motivational strategies to create positive competition among the teachers in the use of ICT.

Although, the teachers described each principal's leadership practices differently, they indicated that such practices contributed to enhancing ICT adoption by demonstrating three major and effective strategies, namely: (a) motivating teachers to interact with the change associated with the introduction of ICT; (b) supporting teachers to facilitate ICT adoption by providing professional development opportunities and supplying teachers' with the necessary materials; and (c) directing teachers by providing advice and instructions on how to manage the change. The Principals appear to demonstrate such strategies in order to positively influence teachers' motivation toward ICT adoption. These strategies focus on the individual teacher to ensure that they receive adequate attention and support to make them willing to change their teaching practices to be more ICT related. The consequence of such strategies enable the principals to be "ranked high in the intensity of their involvement...[and] in leading processes" (Nachmias, Mioduser, Cohen, Tubin, & Forkosh-Baruch, 2004, p. 298).

Additionally, the principals were important players in the implementation process (Yuen, Law, & Wong, 2003). The results from the current study confirm LaBonte's (2005) findings that effective leadership practices have a positive impact on the use of ICT. Further, the research outcomes confirm the need for the principal to have a clear vision, collaborative leadership, and a system approach, essential for the success ICT embedding. The current findings also concur with Yee's (1999) results that the qualities of the principals' leadership practices influence the outcome of the ICT implementation. In this respect these strategies, collectively, appear to help teachers adopt a shared vision regarding how ICT is to be used for teaching and learning (Hughes & Zachariah, 2001; Otto & Albion, 2002). They also encourage teachers to be advocates of ICT through their increased belongingness to the school and their engagement in the production of innovative plans to utilize ICT resources in the process of teaching and learning (Kozma, 2003). Bryderup and Kowalski (2002) saw teacher involvement in the production of ICT plans as a crucial component in successful ICT integration.

While these strategies contribute to, and facilitate, the embedding of ICT in schools, they need to be translated into techniques and mechanisms that actively integrate ICT resources into the school teaching process. Providing teachers with subject specific ICT training is an important mechanism that enables school improvement and development (Baylor and Ritchie, 2002), due to its relevancy to classroom instruction (Cohen and Hill, 2001). Such training guides teachers on how to integrate elements of ICT into their classrooms. Further, the level of teacher ICT training determines how well ICT is embraced in the classroom (Galanouli, Murphy, & Gardner, 2004). Thus, continuous ICT teacher training and support is both influential and necessary for positive ICT embedding (Lai & Pratt, 2004). Although support for teachers was not specifically investigated as a main leadership strategy, principals need to put into place certain mechanisms that ensure their teachers are receiving appropriate ongoing support. Lawson and Comber (1999), and Lai and Pratt (2004) emphasized the importance of the provision of such continuing support, which is usually provided by the ICT coordinator.

In the study an important factor was identified as facilitating the embedding and utilization of ICT in schools, namely, the creation of cooperative relationships between different schools. The interviewed teachers indicated that some cooperative efforts were being led by the principals; for example, the role played by the Computer Science Department in supporting teachers with ICT matters reflected one cooperative effort. Nevertheless, the need for the school leadership to pay more attention to this area was also identified. Through such cooperation, teachers learn from colleagues sharing similar interests; they exchange their knowledge, encourage each other to take risks, and support each other in analyzing and reflecting on why things go wrong and how they can be improved (Triggs & John, 2004).

Furthermore, the participating teachers proposed additional leadership practices that would assist the principal to more effectively facilitate the embedding of ICT in the school. For example, they reported on the value of the principal's autonomy and authority to manage the school's budget, as well as to provide support from local institutions and businesses. Another example, given by Teacher B/B, was the teachers' need for more support to advance their ICT practices. Greater autonomy would allow the Principal to actively motivate staff through financial innovations and moral encouragement. The financial aspect was recognized by Teacher E/B as important, with the

suggestion that more funding be given to the school, and that the principal extend and manage any financial incentives and support. In their interviews, the teachers also acknowledged the need for the Principal to have greater authority in the development of PD programs, and the maintenance and purchase of ICT equipment. Further, the study outcomes revealed that Kuwaiti principals have little authority, autonomy, or opportunity to follow unique leadership practices and behaviors in manage their schools effectively, especially when new educational approaches need to be introduced. Therefore, the MoE needs to revisit its regulations related to school principals' role and responsibilities, particularly when implementing new policies. A consequence of providing more autonomy the principals would be an expansion of their leadership roles and the production of more innovative teaching strategies.

The provision of ICT training for principals, though not addressed in the current study, has been described as a crucial component of ICT leadership, and an important mechanism to embed ICT in the schools. Nevertheless, the study does show the value of principals leading and championing the process of integrating ICT in the school system (Anderson & Dexter, 2005; Flanagan & Jacobsen, 2003). According to Bassellier, Benbasat, and Reich (2003), effective leaders should be knowledgeable about the innovation they are championing. Thus, in order for Kuwaiti school principals to be effective champions and technology leaders in their schools, they need to attain a certain level of ICT competence and technology skills. For example, they need to know how to use the technology that is available in the school, and demonstrate its use, whenever possible, in their own duties to encourage such use (Anderson & Dexter, 2005). Without the skills and the display of the usefulness of the technology, the impact of their effectiveness as technological leaders will be limited. For this reason, the MoE would aid the successful implementation of ICT embedding by providing specific PDs designed to enhance school principals' technological skills.

In a time of change, teachers, like any other group of people, need encouragement and support to learn and implement new ways of doing their job. This observation is even truer when discussing the embedding of ICT in teaching practices. Hence, PDs have become an important vehicle for such training. Additionally, the principal's role has changed from one of directing to one of leading. As part of their leadership practices, the principal needs to demonstrate the worth of ICT in their daily activities, and in lesson preparation and teaching practice. Such leadership strategies will encourage teachers to be less fearful of change in their teaching approach, and support them to become part of the success story, that is, to positively embed ICT into the Kuwaiti education curriculum.

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Table 1. Participants Coding System

Teacher	School A	School B	School C	Focus group interview	Open-ended questionnaire data
Teacher A	A/A	A/B	A/C	F	Q
Teacher B	B/A	B/B	B/C	F	Q
Teacher C	C/A	C/B	C/C	F	Q
Teacher D	D/A	D/B	D/C	F	Q
Teacher E	E/A	E/B	E/C	F	Q