



Research Article

Mobile learning for differentiated school leadership development

Tarek Shal, Norma Ghamrawi and Najah Ghamrawi

Faculty of Education, Lebanese University, Lebanon.

Correspondence should be addressed to Norma Ghamrawi  nghamrawi@ul.edu.lb

Received 23 May 2019; Revised 4 December 2019; Accepted 15 December 2019

Drawing upon empirical data, this article explores the potentials of an optimized social media tool in supporting differentiated leadership development of school principals. This is a case study that involved 48 school principals: 24 from public schools and 24 from private schools; following surveying of 649 principals from both sectors in Lebanon. The study was addressed using qualitative telephone interviewing which followed the participation of a purposeful sample in using a Mobile Application named SkooLead developed by the researcher. SkooLead aimed at responding and catering for all the obstacles cited by school principals as hindering them from using Web 2.0 for personalized learning. As such, SkooLead offered a presumably optimized medium for personalized differentiated leadership development by school principals. Data was treated using theme-based analysis. The case study offered promising findings as to the potential of such tools, under optimum conditions, in nourishing differentiated leadership development by school principals.

Keywords: ICT; Web 2.0; Educational technology; Social media; School leadership; School improvement; Differentiated leadership development

I. Introduction

The world has become flat by virtue of technology which has led to snowballing globalization bringing people together from distant places, allowing for collaboration that can happen by now amongst people anywhere and anytime (Friedman, 2005). In the same vein, many studies claimed that Web 2.0 are potentially effective learning tools providing opportunities for such personalized learning that could happen based on learners' preferences, potentials, time and availability (Liaw, Hatala, & Huang, 2010; Park, 2011; Chatti, 2012; Shal, El Kibbi, Ghamrawi, & Ghamrawi, 2018a; Shal, El Kibbi, Ghamrawi, & Ghamrawi, 2018b).

The notion of technology as a tool for personal learning has already crept into schools. This study focused on the degree Lebanese school principals utilized Web 2.0 as tools for personal differentiated learning and professional growth. It also examined the obstacles inhibiting optimum usage of such tools; and developed a mobile application that potentially combats such challenges so as to arrive at robust and scientific judgments as to the role that social media tools can play in modern leadership development of school principals.

I.2. Purpose of the Study

The purpose of this study was to investigate the potentials of an optimized Web 2.0 App (Skoolead) developed by the researcher in supporting differentiated leadership development of school principals. The App was designed based on previously collected data (surveying of 649 principals). The researcher developed it taking into account all the challenges mentioned in an attempt to explore the learning opportunities such a tool can offer to school principals when such obstacles are minimized.

Particularly, this study was guided by the following interview questions post to the involvement of participants in a 6-weeks leadership development program using the Web 2.0 App :

1. Based on your experience with Skoolead, in what ways (if any) do you think that this application helped you develop your leadership skills?
2. What is the 'single' most critical area of strength of using social media (such as this one) for leadership development purposes?

3. What are the areas of weakness of using social media (such as this one) for leadership development purposes?
4. What are your recommendations for future programs such as this one?

1.3. Importance of the Study

Apart from ICT usage in classrooms as a learning aid or by leadership teams as an administrative tool, this study attempted to go beyond that to examine their potentials as tools for personalized professional development. In fact, Web 2.0 tools enable learners to learn anywhere and anytime, allowing them to create their own professional learning path (Shal et al., 2018a). This marks a new era for professional development - an era of idea exchange that is accessible anywhere, anytime and that connects minds from across the globe (Park, 2011; Chatti, 2012; Shal et al., 2018a). These tools are real-time, cost-effective, and accessible around the world, and they are driven by practitioners, not just consultants (Selwyn, 2016; Shal et al., 2018b).

While many studies have emphasized the benefits of using ICT tools in learning and teaching or administrative school matters (Mingle & Adams, 2015); a small number has focused on Web 2.0 as a professional development tool (Mingle & Adams, 2015; Shal et al., 2018b). The findings of this study would enrich both the international and local literature with knowledge about a topic of growing importance and great impact on life in general and learning in particular.

2. Literature Review

2.1. Web 2.0 and Learning

Knowledge has become the driving engine for economies (Jansen, 2017). It is viewed as a product of human interaction rather than being something that is produced solely in human minds; something we 'do' rather than being something we 'have' (Castells 2000, as cited in Gilbert & Kelly, 2005). As such, learning is viewed by researchers to exist within flexible networks which free learning from the constraints of time and place (Gilbert & Kelly, 2005; Siemens, 2006; Park, 2011; Raikos, & Waidyasekara, 2014; Shal et al., 2018a, 2018b).

Selwyn (2016) uses the term 'social networking' to indicate networks of collaborative learning which may take place around common interests and affinities. Such networks could lead to serious remodeling of traditional schooling enabling learners to join groups that match individual educational interests (Shal et al., 2018a, 2018b). This is quite promising for many researcher as it could lead to real and actual differentiation of learning (UNESCO, 2002; Haddad, 2007; Clarke, 2009; Pascu, 2009; Dzidonu, 2010; Soomro & Hesson, 2012; Shal et al., 2018a, 2018b). The critique against schools which put students in classes according to age rather than abilities and interests (Zimmerman, 1990; Veenman, & Spaans, 2005) would then be abolished.

Thus, a growing recognition of Web 2.0 tools as a tool for differentiation of learning is underway (Dzidonu, 2010; Soomro & Hesson, 2012; Shal et al., 2018a, 2018b); however, experiments to understand how such tools may be deployed are still premature (Shal et al., 2018a, 2018b).

In this line, several studies have acknowledged Web 2.0 as a tool for learning (Siemens, 2006; Park, 2011; Raikos, & Waidyasekara, 2014; Shal et al., 2018a, 2018b). The most popular Web 2.0 tools internationally are Facebook, Twitter, Skype, YouTube, Email, and WhatsApp (Park, 2011; Raikos, & Waidyasekara, 2014; Jansen, 2017). Shal et al. (2018a) found that the order these tools were known and used by Lebanese school principals was as follows: WhatsApp, Email, Facebook, YouTube, Skype and finally Twitter.

2.2. Popular Web 2.0 Tools in Practice

Steiner (2013) suggests that emails are easiest tools for least expert users as they require only the construction of a list to which learning material can be sent at the prick of a finger. Smith, Whiteley and Smith (1999), over the course of three studies, conclude that email is potentially a strong tool that supports or replaces course delivery. Additionally, Debard and Guidara (1999) claim that emails could lead to more student interaction; and deeper, more active, and more engaged learning. Likewise, You and Yu (2000) and Vonderwell (2003) argue that Email can be a wonderful tool for delivering feedback to learners.

In Lebanon, and particularly with school principals, emails topped the list of Web 2.0 tools used for learning purposes (Shal et al., 2018a, 2018b). While it was used for information spreading within and across schools, principals suggested they used it to exchange new information they got from the world wide web (Shal et al., 2018b).

As for Facebook, studies have found that it supported both academic and social goals fulfillment for college students (Bosch, 2009; Madge et al., 2009; Mazman & Usluel, 2010; Tian, Yu, Vogel & Kwok, 2011). In Lebanon, Shal et al. (2018b) noted that Facebook was mostly used for socialization purposes. Very few of those principals used it to look up postings related to their careers.

Likewise, YouTube has been recognized as a strong learning venue for both students and teachers whereby they can produce and consume knowledge by uploading and downloading videos based on their interests and their needs (Arrington, 2009; Williamson, 2012). In Lebanon, YouTube served a dual role with school principals; where they suggested they used it for entertainment as well as for learning new stuff (Shal et al., 2018a, 2018b).

While Skype has been widely used internationally for videoconferencing purposes, allowing for connecting classrooms across the globe, holding virtual field trips, and reaching out to experts in varying fields of study (Steiner, 2013); very few school principals in Lebanon used it to connect with experts whom they could learn from (Shal et al., 2018a, 2018b).

The least popular in Lebanon (Shal et al., 2018b), yet is widely globally is Twitter (Britland, 2012; Harper, 2013; Nielsen, 2013; Sheninger et al., 2011; Sheninger, 2013; Steiner, 2013; Williamson, 2012). Twitter has been noted to support college and university level students in writing and in communicating in subject areas (Sheninger et al., 2011; Sheninger, 2013). In Lebanon it was only used to follow political figures by a very few number of school principals (Shal et al., 2018b).

2.3. Personalized (Differentiated) Learning

A prime determinant in personalized learning environment (PLE) is learner controls (Shal et al., 2018a). PLEs allow a learner to control the content being presented, the look and feel of the environment, and the interactions with other individuals and institutions (Severance, Hardin, & Whyte, 2008). PLEs empower self-directed learners to access and control their learning (van Harmelen, 2008). One of the powerful concepts of a PLE is the ability to aggregate resources. PLEs help bring resources to a learner; these resources may be people, documents, or other learning tools (van Harmelen, 2008).

A key to a PLE is the social networking piece; this piece should not discriminate between formal and informal learning objects (Waters, 2008). Network learning activities include content authoring and delivery, organizing and syndicating, identification and authorization, chatting, conferencing, and phoning (Downes, 2006). According to Downes, the following elements are needed to develop a robust learning network: diversity so that different perspectives are present; autonomy so that each entity works independent of the other in values and principles; connectedness so that each entity can communicate freely with another entity; and openness so that entities can free communicate without restriction (2007).

In brief, the profile of change necessitates the need to allow learners to learn on their own based on their own learning styles. PLEs naturally respond to this urgent need as they create a learner-centric environment because the learner controls the entire environment. PLEs bring together the diverse environments of work, study, and play. PLEs are powerful personalized learning tools as they can quickly adjust to changing conditions.

2.4. Mobile Learning

A growing number of studies is emphasizing the important role of mobile devices in education (Campbell, 2006; Lenhart, 2009; 2010; Williamson, 2012; Steiner, 2013). "Young people tend to have very positive perceptions of mobile phones and regard the technology as an important tool for social connection" (Campbell, 2006, p. 290). Besides texting, accessing the Internet and social network sites (SNS) has become a prolific communication activity among college students (Lenhart, 2009; 2010).

Despite the growing interest in mobile devices, instructors remain concerned that such connection to the social world disconnects students from learning, leading some to ban all electronic communication devices from lectures (Steinfaft, 2009). Both theoretical and empirical evidence supports this concern, suggesting that

students potentially split their attention in ways that cause them to miss important details presented during class, an outcome that could have potentially damaging effects on their achievement (Kraushaar & Novak, 2010; Wei et al., 2012).

Unfortunately, no studies have been made available on the world wide web catering for mobile learning by school leaders (Shal et al., 2018a, 2018b). All studies have focused on mobile learning by students.

2.5. School Leaders Personalized Learning

Apart from administrative uses and classroom utilization of ICTs, and based on the previous argument, ICTs enable learners to learn anywhere and anytime, it allows them to create their own professional learning path (Sheninger et al., 2011). It follows that ICTs allow educators to participate in a new era of professional development - an era of idea exchange that is accessible anywhere, anytime and that connects the field's brightest minds. These tools are real-time, cost-effective, and accessible around the world, and they are driven by practitioners, not just consultants (Fisher, 2012; Sheninger et al. 2011).

Studies carried out on school leadership in several parts of the world have revealed that leadership development can be cultivated virtually through the use of personalized learning environments, which involves the use of ICTs such as online reflective journals, forum discussions, chats, emails, and many others (Thornton, 2009).

School leaders in few countries such as New Zealand, Canada, Australia and the US seem to have benefited from utilizing ICTs to promote self-leadership development (Fisher, 2012; Sheninger et al., 2011; Thornton, 2009). Researchers have indicated that with the availability of the 'Smart Phones' within the pockets of school leaders, these tended to more frequently utilize ICTs for the purpose of participating in blogs, using Facebook, twitter and YouTube, TEDx and others (Fisher, 2012; Sheninger et al., 2011; Thornton, 2009).

This study focuses on how school leaders utilize a Web 2.0 App to promote self- professional growth that is differentiated enough (personalized) to help them develop within their careers

3. Method

3.1. Research Design and Participants

This is a case study that involved 48 school principals: 24 from public schools and 24 from private schools; following surveying of 649 principals from both sectors in Lebanon. Quantitative surveying investigated the relevance and utilization of five Web 2.0 Apps by school principals: Facebook, Twitter, Skype, YouTube, Email, and WhatsApp. Earlier studies showed that the order these tools were known and used by Lebanese school principals was as follows: WhatsApp, Email, Facebook, YouTube, Skype and finally Twitter (Shal et al., 2018a). Moreover, it was found that Web 2.0 Apps were used as tools for communication and socialization far more than being used as viable tools for learning (Shal et al., 2018b).

In fact, the survey concluded with an invitation for principals offering them to participate in a case study in which they would use their mobile phones in order to learn about leadership matters in a personalized mode. Those who responded positively constituted a pool from which a stratified sample was drawn representing both sectors and covering all the 8 governorates of Lebanon.

The sample taking part in the case study was 50% private school principals and 50% public school principals. According to frequency of usage of Web 2.0 Apps, the sample was 25% public school principals who were frequent users, 25% public school principals who were infrequent users, 25% private school principals who were frequent users, and 25% private school principals who were infrequent users. It should be noted that frequency meant in this study those who rated themselves with 10 out of 10 on most parts of the survey prior to this case study; while infrequent users were the ones who rated themselves with zeros on most parts of that section.

In this study, the researcher developed a Web 2.0 mobile App based on the finding collected in earlier studies where school principals were asked to illustrate the obstacles confronted them from using Web 2.0 as a learning tool. As such

The case study extended over 6 weeks, at the end of which telephone interviews were conducted with participants. The aim of the telephone interviews was to elicit principals' feedback and evaluation of their experience pertaining to the utilization of the mobile application. Through this mobile application, the study experimented the degree social media could foster differentiated leadership development for school principals, when made available to them under optimum conditions.

3.2. Topics discussed through the Mobile Application

The first week's topic was the only one that was selected by the researcher and the rest were suggested by participant principals themselves. Topics discussed included: (1) Classroom Observation; (2) Dealing with Student Misbehavior; (3) Designing balanced student exams; (4) Motivating teachers; (5) Positive & Toxic School Cultures; & (6) Teachers Teaching Teachers. Starting week 2, participant principals were asked to suggest a topic for the next week and the group would arrive to agreement on the topic among each other.

3.3. Telephone Interviewing

As mentioned in the previous section, at the termination of the case study in which participants utilized the mobile phone application in order to expand their knowledge about leadership matters; a telephone interview was conducted with each one of them. The duration of the telephone interview was 10 minutes on the average. The time to call school principals was agreed on earlier via WhatsApp individually with each participant.

Telephone interviews are widely accepted as an effective qualitative data collection data collection method (Irvine, 2012; Creswell, 2014). Like any research method, it has its advantages and disadvantages as cited by the literature of research methods. The potential benefits associated with using telephone interviews as a mechanism of data collection includes (a) using economic and human resources efficiently, (b) minimizing disadvantages associated with in-person interviewing, (c) developing positive relationships between researchers and participants, and (d) improving quality of data collection (Irvine, 2012; Creswell, 2013). The potential challenges to telephone interviewing include (a) maintaining participant involvement, (b) maintaining clear communication, (c) communicating with participants who offer extraneous information, (d) encountering participants with health concerns, and (e) communicating with a third party (Irvine, 2012; Creswell, 2013).

Several studies have addressed the advantages of telephone interviewing in educational research (Sturges and Hanrahan, 2004; Stephens, 2007; Holt, 2010; Gratton & O'Donnell, 2011; Harvey, 2011). Sturges and Hanrahan (2004), Harvey (2011), Gratton & O'Donnell (2011) and Stephens (2007) assure that telephone interviewing is a highly time-efficient research tool especially when the researcher and the researched are separated by considerable distance, making traveling for an interview time consuming. In other words, the geographic reach is no more a constraint when telephone interviews are utilized. Additionally, Holt (2010) argues that this tool is highly flexible allowing more participants to take part in interviews, as it can be conducted from their homes or workplaces and based on their availability. Even rearrangement of interview appointments are generally more flexible with this type of interviewing (Holt, 2010; Gratton & O'Donnell, 2011).

All the above mentioned attributes of telephone interviewing were of great importance for the researcher who was able to arrange and rearrange interview appointments with participant principals very flexibly and at a very low cost. In fact, many of the school principals required interviews to take place during the evening where they would be relaxed at home. Those are times where interviews would not generally happen when they are conducted face-to-face.

Finally, quality of data was ensured through a request sent to principals to record telephone interviews. Out of the 48 participant school principals, only two refused to have their conversation recorded. Recording interviews makes data transcription and hence analysis very manageable (Cresswell, 2014).

3.4. Analysis of Interview Data

Except for two interviews, all telephone interviews were recorded and then transcribed as per the interview schedule. The researcher wrote down the basic themes whilst conducting those two unrecorded interviews.

Data derived from telephone interviews were analyzed thematically. Thematic analyses move beyond counting explicit words or phrases and focus on identifying and describing both implicit and explicit ideas within the data, that is, themes (Steiner, 2013; Tzuk, 2013; Creswell, 2014; Markton, 2014).

Codes are then typically developed to represent the identified themes and applied or linked to raw data as summary markers for later analysis (Steiner, 2013; Tzuk, 2013; Creswell, 2014; Markton, 2014). Such analyses may or may not include the following: comparing code frequencies, identifying code co-occurrence, and graphically displaying relationships between codes within the data set (Creswell, 2014).

3.5. Trustworthiness of the Case Study

The set of terms that describe the trustworthiness of the telephone interviews utilized for the purpose of the case study and data generated through it are: credibility, transferability, dependability and confirmability (Creswell, 2012). First of all, the credibility of the study was ensured the same way construct validity was addressed. In fact, the same referees reviewed the interview schedule and advised on it. All referees were convergent on decreasing the number of items into maximum of four. This is consistent with the literature of telephone interviewing (Creswell, 2014). The researcher initially prepared an interview schedule consisting of 7 questions, and based on referees' feedback he cut them down into 4 besides the greetings and courtesy questions that often precedes telephone interviews (Creswell, 2013; 2014). Apart from this, referees validated the interview schedule. This in effect supports the credibility of the study.

In addition, the researcher attempted to employ the method of extended data collection, where he established a state of saturation for every posed question on a given participant. The researcher made sure not to move into the next question unless the participant had no more to say about a given idea. Second, the researcher employed a tape recorder to ensure the factual accuracy of interviews as authentically as provided by the participants. This enabled him to report information as accurately as possible. Third, reflexivity was considered on the behalf of the researcher who attempted to analyze the content in micro-context as well as in macro-context, reflecting on the results critically compared with the pre-understandings of the researcher (Cresswell, 2014). The researcher also made sure to adopt an inquisitive approach to data collection and gently avoided giving his own opinion about posed issues, even when participants asked him to.

Another point was that, questions were administered in Arabic so as to ensure that the language may not forbid respondents from fully understanding the interview questions. However, respondents were given the freedom to answer in whatever language they felt at ease with (English/Arabic or French). In practice, almost all participants responded in Arabic, using frequently English/French terms. It was then translated to English by the researcher himself.

On the other hand, like any other qualitative research, transferability is not a claim (Creswell, 2012; 2013; 2014). As discussed earlier in the sampling section, the interviewed sample involved representative participants from the larger sample to him the questionnaire was administered. Besides, all the recommendations of the literature pertaining to transparency and detailing steps carried out were respected, thus leaving it for the readers to decide if the findings could be expanded into other situations.

Consequently, the researcher attempted to present the research context quite thoroughly. He strived for the sake of collecting sufficient detailed "thick" descriptions of data in context and reporting them with sufficient detail and precision. It will be up to those who would like to 'transfer' the findings of this research to other contexts to decide whether this is reasonable or not.

The dependability of the study was ensured through piloting the interview schedule as recommended by the literature (Creswell, 2014). The interview was piloted with 4 principals: 2 from the public sector and 2 from the private sector.

The interview was carried out over the phone under the same conditions intended to be utilized with the actual sample. In fact, the pilot study had the effect of corroborating data by making sure that the interview questions were understood the same way by the several participants in the study. The transcription and translation of the verbatim from Arabic to English, also contribute to strengthening the dependability of the study as it allows participants to speak freely without any language barrier. This has recommended by Lincoln and Guba (1985, cited in Creswell, 2014). When the employed language is clear enough for the participants, it

is expected that their responses truly reflect their beliefs about the concept being investigated and better approximates it.

As for confirmability, the researcher has respected the recommendations of the literature of research methods (Creswell, 2014). As such, the researcher used low inference descriptors (which are quotations from interview scripts of participants) in order to present participants' ideas as authentically as possible parallel to interpretations offered by the researcher. This enables readers to judge for themselves such interpretations. Another consideration taken by the researcher was to ask participants for feedback. The researcher made sure to state in his own words responses provided by the interviewees. This was done after each question in the interview schedule. The method of peer debriefing was also used, where the researcher discussed his work with another researcher in the same field yet outside the context of the study. This researcher had a general understanding of the nature of the study and the researcher attempted to review perceptions, insights, and analysis with this peer.

Finally, thematic analysis was undertaken to identify common and divergent themes from the telephone interviews. Data were initially coded by the researcher and then by a critical friend who is an expert university professor with huge experience with thematic analysis of interviews on an independent basis. On-going discussions on the content of the codes ensured that both researchers could agree upon a joint thematic framework. This process followed the iterative tradition of qualitative research where data collection and analysis activities are closely connected and overlapping as per recommendations of the literature (Creswell, 2013; 2014).

3.6. Development of Mobile Application

In order to investigate the potential of Web 2.0 in fostering personalized learning of school leaders, a mobile application was developed. The selection of mobiles amongst all other ICT tools has to do with the advanced computing capability of smartphones that are typically optimized for internet usage. This means that individuals can access information and advice from anywhere at any time. They also provide functionality that is not available via a laptop such as the ability to capture information from sensors on the move.

A mobile application (or mobile app) is a software application designed to run on smartphones, tablet computers and other mobile devices. They are usually available through application distribution platforms, which are typically operated by the owner of the mobile operating system.

Developed by the researcher, the mobile application named "SkooLead" aimed at providing school principals with leadership-related tips, ideas, research findings, quizzes, etc...which they can make use of at their own pace, time and interest in order to learn and develop professionally. The application offered them a platform to discuss, ask, inquire and share ideas with colleagues who shared similar concerns as all were principals of public schools.

Figure 1 represents the icon of the application along with illustrations pertaining to its functions. When principals download this application on their mobiles, this icon appears on their screens which when pressed provides them with the four individual sub-icons. Each sub-icon stands for an option as shown in Figures 2 and 3.

3.7. Ethical Considerations

Ethical issues related to social science research are very important and have been strictly respected in this study. First, the personal data relating to participants was totally removed so as to protect the privacy of individuals participating in this study (Creswell, 2014). The main ethical concern addressed in here is the confidentiality. The researcher asked every participant by the end of the interview whether there were parts of the interview that they did not prefer to have it published even under nicknames or pseudonyms. None of the interviewees requested any reservations. Only two interviewees refused to have their conversation recorded and that was strictly respected.

On the other hand, informed consent has been considered essential according to the literature (Creswell, 2014). The researcher assured that participants were aware that they were able to choose whether or not to participate in a study. Participants were provided with a complete understanding of the purpose and methods to be used in the study, and the demands placed upon them as participants (Best & Kahn, 2006; Jones &

Kottler, 2006). Participants also understood that they had the right to withdraw from the study at any time. However, such an issue was never encountered.



Figure 1. Mobile Application icon developed for the purpose of the case study



SkooLead



Figure 2. Page opened upon Clicking on the mobile application icon

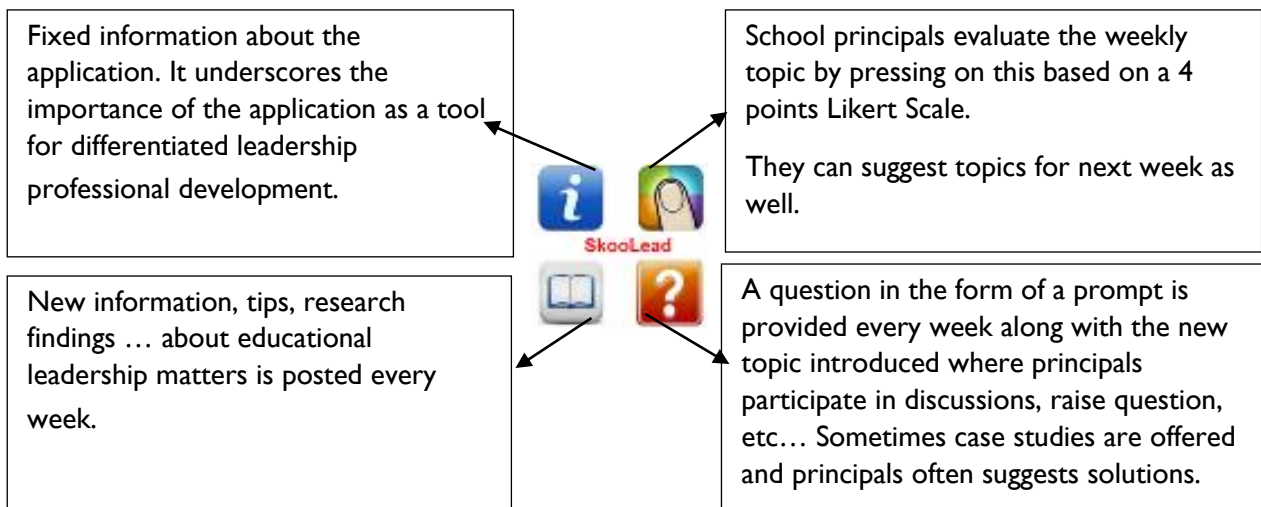


Figure 3. The details of the sub-icons of the Mobile Application icon developed for the purpose of the case study

4. Results and Discussion

4.1 Evaluation of Topics discussed on weekly basis during the course of the case study

By the end of every week, participant principals evaluated their experience with the mobile application on a Likert Scale of four points: 4= very useful; 3= useful; 2= useless; 1= very useless. Data is presented in table 4.1.

Table 1 indicates high satisfaction levels on behalf of school principals whereby in all cases, and without any exception, the majority indicated that they believed the themes introduced through the mobile application were very useful to them and their work as school principals. This applies to both public and private school

principals. It is also noted that principals who gave low ratings (useless) were public school principals except for theme no.6 (shown in Table 1).

Table 1.
Weekly Evaluations of Case Study Themes

Week	Theme	Evaluation			
		Very Useful	Useful	Useless	Very Useless
1	Classroom Observation	36	10	2	0
		Pr: 15-Pub: 21	Pr:9- Pub:1	Pub:2	-
		75%	20.8%	4.1%	0%
2	Student Exams	38	10	0	0
		Pr:21- Pub:18	Pr:4- Pub:6	-	-
		79.1%	20.8%	0%	0%
3	Student Misbehavior	32	16	2	0
		Pr:16- Pub:16	Pr:8- Pub:6	Pub:2	-
		66.7%	33.3%	4.1%	0%
4	Motivating Teachers	35	10	1	0
		Pr:20- Pub:15	Pr:4- Pub:7	Pu: 1	-
		72.9%	20.8%	2%	0%
5	School Culture	36	10	2	0
		Pr:18- Pub:18	Pr:6- Pub:4	Pu: 2	-
		75%	20.8%	4.1%	0%
6	Teachers helping teachers	32	13	3	0
		Pr:18- Pub:14	Pr:5- Pub:8	Pub:2- Pr:1	-
		66.7%	31.2%	6.2%	0%

4.2 Thematic Analysis of Telephone Interviews

Telephone interviews were transcribed and raw data was subjected to thematic analysis. Table 2 presents themes obtained for the first research question.

Table 2.
Themes obtained for Interview Question 1

Interview Question 1: Based on your experience, in what ways (if any) do you think that this application helped you develop your leadership skills?		
	Themes	Sample Quotations
1	Quality Knowledge	"It [this program] offered me in depth knowledge of topics of concern to me and my school" (Pr.A.2)
2	Flexible	"I didn't have to go to a class like we used to do in training at the faculty of education. I could read or watch new things every week any time I choose and in any place that I prefer" (Pu.C.1)
3	Challenging	"I believe that a key aspect that made me learn has to do with the fact that I was always challenged to respond to the forum" (Pu.D.1)
4	Authentic	"When you read about something and then see how it looks like in various schools, you learn how to make use of readings that you make" (Pr.F.2)
5	Contextual	"You learn the importance of customizing what you learn to fit into the reality of your school" (Pr.E.2)

As table 2 shows, five themes emerged from the first interview question. First, the program has been considered as an important source of knowledge for principals. They expressed appreciation of the quality of *knowledge* they received especially that it was linked directly to school practice and did not remain at the level of theory. Second, principals suggested that the program triggered learning by being flexible. In this line, they explained that time and place flexibility are integral components that pushed them to acquire information and learn.

Third, principals explained that the program was quite challenging in the sense that it was important for them to share ideas within the forum. It would be clear to every participant who is participating and who is not and hence they were encouraged to put more effort to take part in discussions. Fourth, principals suggested that authenticity was a key issue that motivated them to learn. The collaboration among principals over the form and sharing of ideas as per each school context made a difference for them.

Finally, principals believed that information they received was presented in a way that made them feel it is customizable because it was contextual. Being contextual was further emphasized through principals' feedback and suggestions.

As for the second interview question, emergent themes are presented in Table 3.

Table 3.

Themes obtained for Interview Question 2

Interview Question 2: What is the 'single' most critical area of strength of using social media (such as this one) for leadership development purposes?		
	Themes	Sample Quotations
1	Malleability (of time & place)	"I wish all professional development happen this way...I choose the time and place where I want to learn" (Pr.A.2)
2	Collaboration	"We come from different backgrounds and we are able to share our experiences in order to put it all in the pot,... it's just worthwhile listening to everybody." (Pu.B.2)
3	Choice	"I cannot describe to you how much learning is different when you choose what you want and need to learn about. This program allowed us to decide on what we wanted to learn and in what capacity " (Pu.A.1)
4	Cost	"I think this program is a fairly cost-effective opportunity to grow as a school principal without having to pay a lot of money" (Pr. C.2)

Table 3 indicates four themes emerging under interview question. First, principals regarded the mobile application as being malleable as to the time and place of learning. In reality, 37 principals out of 48 considered this aspect to be the most important feature of the program. Second, principals underscored the value of collaboration and learning with and from peers. Peer support and participation has been considered as an important feature of such learning spaces.

Third, principals considered choice given to them to decide on topics as key asset of the program. When given a say in what to learn and in what depth, principals seem to find themselves more encouraged to take part in learning. Finally, principals considered cost to be an added value for the program. They expressed that program was cost-effective and hence was affordable by any school principal who really wants to develop his/her leadership skills.

As to the third interview question, emergent themes are presented in table 4.

Table 4.
Themes obtained for Interview Question 3

Interview Question 3: What are the areas of weakness of using social media (such as this one) for leadership development purposes?		
	Themes	Sample Quotations
1	Connectivity	"It [this program] offered me in depth knowledge of topics of concern to me and my school" (Pr.A.2)
2	Accountability	"I didn't have to go to a class like we used to do in training at the faculty of education. I could read or watch new things every week any time I choose and in any place that I prefer" (Pu.C.1)
3	Retrieval of Information	"I believe that a key aspect that made me learn has to do with the fact that I was always challenged to respond to the forum" (Pu.D.1)
4	Group Size	"When you read about something and then see how it looks like in various schools, you learn how to make use of readings that you make" (Pr.F.2)
5	Language	"You learn the importance of customizing what you learn to fit into the reality of your school" (Pr.E.2)
6	Social Skills	"probably learning only through programs such as this one would make you lose your social skills, as you will be working with a machine only" (Pr.D.2)

As table 4 suggests, there are six essential concerns when using social media for leadership development. First of these is connectivity. Many school principals suggested connectivity as a problem confronting such programs whether 3G or WiFi. Second, some principals thought that they felt that accountability is an issue with such programs. In fact, being unbound to submission of formal assignments or sitting for exams was a concern.

Third, some principals mentioned retrieval of information as a concern confronting such programs. They explained that they found themselves with no saved information by the end of the program. Fourth, some principals explained that they preferred less group sizes. With 48 school principals, principals explained that choosing topics was a bit challenging. Fifth, some principals considered language to be a barrier. In fact, the language employed in the case study was Arabic to ensure that all parties involved would comprehend easily and effectively information and requirements.

However, some principals explained that they preferred reading information in English or in French. Finally, some principals were worried that such programs could constitute a threat on their social skills as school principals who are able to collaborate with peers on face-to-face basis. They explained that machines should not replace human interactions.

As for the last interview question, 5 emergent themes were. These are presented in table 5. Some emergent themes presented in table 5 relate to areas of weaknesses and this could be justified. Accountability and connectivity highlighted as areas of weaknesses were considered as essential recommendation for fostering such programs effectively. Principals recommended graded assignments to be part of the program. Moreover, they suggested support of national internet agency to receive better internet services when such programs are offered. Principals also considered a longer duration of such programs as an advantage. Lengthier programs, in their opinion, are more enriching to participants. Besides, principals considered widening the scope of participants to include teachers as members of such programs; to be an added value. They explained this in terms of offering an additional perspective to the group. Finally, some principals suggested using WhatsApp if possible to run such programs as they felt more comfortable using it.

Table 5.
Themes obtained for Interview Question 4

Interview Question 3: What are your recommendations for future programs such as this one?		
	Themes	Sample Quotations
1	Duration	"It would be more beneficial to have the program run over a lengthier period of time" (Pu.F.1)
2	Accountability	"It would be useful to urge principals to be committed to submit something and receive a formal evaluation for it like a grade" (Pu.A.1)
3	Wider Scope	"Maybe involving teachers could enrich the whole experience" (Pr.D.2)
4	Connectivity	"It is important to secure functional 3G and WiFi connections...maybe you could do something with Ogero [internet providing agency in Lebanon]" (Pu.F.2)
5	Using WhatsApp	"I would prefer to use WhatsApp over this application if all features can exist on WhatsApp...it is more friendly and we do check it over a hundred time per day" (Pr.B.1)

Besides, "Skoolead" was highly valued by almost all participants as a strong tool that facilitates personal professional learning with an average mean score of 95% given to its content offered over the course of 6 weeks. Themes derived from the thematic analysis of telephone interviews are presented in Figure 2.

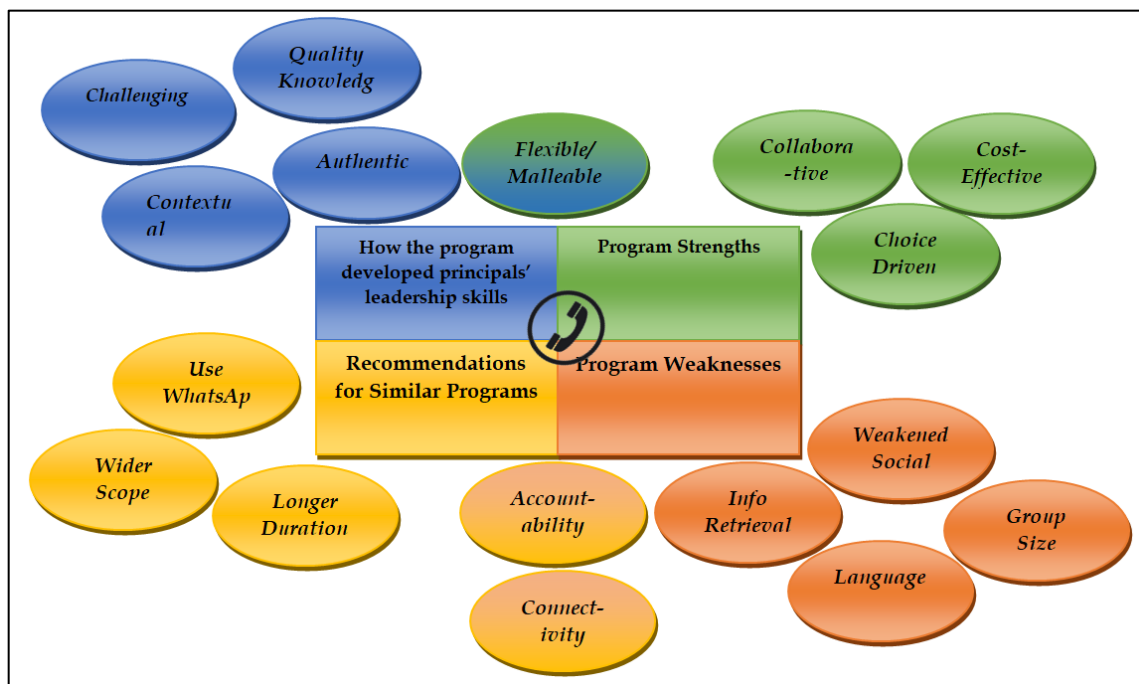


Figure 2. Conceptual framework of emergent themes from telephone interviews showing features of social media tools suitable for differentiated leadership development

Figure 2 shows that participants in the case study held strong beliefs as to the power of "Skoolead" as a tool for developing their professional knowledge and skills. They expressed that the tool was authentic and contextual allowing them to "watch the talk" (Pr.F.1) rather than receiving only theoretical information that they find themselves "unable and unaware of where and how to use it in School" (Pu.B.1).

Besides, the tool has been viewed to be both challenging and flexible where they decide about the "what, where, when and why of concepts and themes to be learned" (Pu.F1), yet "urges them to participate,

¹ Pr: Private School – Pu: Public School – The number stands for the number given for the interview
A: North of Lebanon – B: Bekaa – C: Beirut – D: Mount Lebanon – E: South Lebanon – F: Nabatieh

collaborate and share" (Pu.A.1) once they become members of the community the tool addresses. Finally, the knowledge obtained by using the social media tool was considered to be "incomparable to the type of knowledge obtained from training" (Pu.C.1) they attended.

The tool was considered to be worth using by virtue of being time and place flexible; collaborative in nature, bringing many experience and varied backgrounds to a pot; cost-effective and allowing for making choices.

However, principals also highlighted areas that make this tool and hence similar social media tools to be potentially weak. These included the lack of "exams, assignments, and graded project" (Pu.D.1) which tend to make them more committed to professional development. They also highlighted information retrieval from such a tool and hence other similar tools to be a key issue.

Besides, few principals expressed that some of the constraints they encountered learning through this tool was the choice of Arabic language for the tool, the relatively large group size which they believed should be smaller for personal gains to be more. Finally, few principals warned that such tools would "kill their social skills" (Pr.F.1) and that face-to-face trainings are more powerful in this line.

Finally, principals offered recommendation for "Skoolead" and hence similar tools. They assured the importance of "linking participants to some graded work" (Pu.D.1); minimizing group size such as "running groups of sizes 12-18 participants" (Pr.E.1); involving a wider scope from schools such as "bringing teachers on board" (Pr.F.2); lengthening the duration of the program "to become 8-12 weeks long" (Pu.F.2); and supporting school leaders with stronger internet connectivity.

5. Conclusion

The case study in which a mobile application was developed to examine the power of social media in fostering differentiated leadership development of school principals in the Lebanese context was quite promising. The case study has shown that when some attention, guidance and options are provided for school principals to learn using social media tools, they could learn and be happy and satisfied whilst learning. In other words, the case study has shown that while Lebanese school principals are relatively frequent users of social media; their usage of such tools can be leveraged to become one that is conducive for learning and growth.

6. Limitations

The case study involved only 48 school principals (24 public/24 private). Thus, the results of the case study may not be generalized. Perhaps, constituting more than one group for participation in the case study would have brought along stronger and sturdier research findings that could be more generalizable.

7. Recommendations

This study offers some insights for designing cost-effective leadership programs. In fact, parties interested in leadership development programs could be inspired to utilize Web 2.0 Apps in order to foster such programs. On the other hand, this study has shown some of the features of learning programs admired and favored by school principals. In fact, the case study offers many of those. First, principals favor malleability and flexibility of programs. They prefer to learn based on their own pace and in response to their own needs and interests. Unfortunately, the traditional training programs offered to them does not respond to this particular aspect or feature. The same way educationalists call for differentiation of learning for students, they should accept the concept of differentiation of acquisition of learning by school principals and hence allow for options and choice. Thus, interested parties are invited and encouraged to account for such features in their program designs. In fact, the study has proven that mobile devices, particularly smart phones are available in principals' pockets. As such, a very strong and valuable learning tool is being missed.

Second, the study has reflected an absence of a culture of acknowledgement of learning unless it is carried out on face-to-face basis. The utilization of distance learning via tools of this kind do not seem to be widely accepted. The case study has significantly leveraged principals' beliefs to become strong believers of the powers of social media in fostering learning. Thus, parties interested in the promotion of social media should be aware of the importance of establishing the culture conducive to accepting such tools before investing time and effort into making use of them.

Principals who are interested in developing and growing professionally are expected to be inspired by the results of this study. The use of social media does not really require very sophisticated skills. Any school principal with an initiative and some bold leadership skills can bring along a group of peers and invite them to share and participate learning resources.

However, practitioners, whether principals themselves or other parties, are encouraged to take into consideration several findings from this study such as:

- 1- **Choice:** Programs should be designed in a way that allow for choice and selection. An effective program would pave the way to choose topics, duration, language, and difficulty level.
- 2- **Virtual Collaborative Group Size:** Effective programs seem to be favored when the group size is neither too small, nor too big. A group of 12-18 principals has been recommended by school principals themselves. With such group sizes, principals would have a bigger say in program offering and would get to know each other more and hence benefit from one another in better ways.
- 3- **Flexibility:** Flexibility seems to be the most powerful foundation for social media. As such, program designers or selectors should aim at ensuring this feature is never lost. Social media should be used the same way traditional classes are run and managed.
- 4- **Contextual:** Effective programs do not copy and paste international experience which is very plenty on the World Wide Web. It rather offer knowledge in a customizable manner whereby each principal make use of that knowledge based on his/her school reality.
- 5- **Accountability:** It seems principals are obsessed with traditional classrooms. They have expressed interest in subjecting social media as learning tools to higher accountability on behalf of school principals, by engaging them in online exams or graded projects. It would be important of thinking of this element whilst designing such programs.
- 6- **Training:** Principals would require limited training sessions on using the selected tools. They should learn how to save information for future retrieval as this has been reported as a concern whilst using social media tools for learning purposes.
- 7- **Wider scope:** It would be useful to think of modes for involving other parties from the school community in such programs such as teachers, parent and even students. Getting access to perspectives other than that of school principals could render learning more authentic and contextual.

References

- Bloch, J. (2002). Student/teacher interaction via email: The social context of Internet discourse. *Journal of Second Language Writing*, 11(2), 117-134.
- Bosch, T. E. (2009). Using online social networking for teaching and learning: Facebook use at the University of Cape Town. *Communicatio: South African Journal for Communication Theory and Research*, 35(2), 185-200.
- Brabazon, T. (2007). Mobile learning: the iPodification of universities. *Nebula*, 4(1), 19-30.
- Britland M (2012). *Social Media for Schools: a Guide to Twitter, Facebook and Pinterest*, Retrieved from: <http://www.guardian.co.uk>
- Buder, J., & Schwind, C. (2012). Learning with personalized recommender systems: A psychological view. *Computers in Human Behavior*, 28(1), 207-216.
- Caldeira, C. (2008). Group cognition: Computer support for building collaborative knowledge. *Journal of the American Society for Information Science and Technology*, 59(9), 1531-1531.
- Chatti, M. A. (2012). Knowledge management: a personal knowledge network perspective. *Journal of knowledge management*, 16(5), 829-844.
- Cifuentes, O. E., & Lents, N. H. (2011). Increasing student-teacher interactions at an urban commuter campus through instant messaging and online office hours. *Electronic Journal of Science Education*, 14(1), 1-13.
- Clarke, L. (2009). The POD model: Using communities of practice theory to conceptualize student teachers' professional learning online. *Computers & Education*, 52(3), 521-529.
- Creemers, B.P.M. (1994). *The Effective Classroom*. London: Cassell

- Cluett, L. (2010). Online social networking for outreach, engagement and community: The UWA Students' Facebook page. In *Educating for sustainability. Proceedings of the 19th Annual Teaching Learning Forum*, 28-29 January 2010, Perth: Edith Cowan University. <http://otl.curtin.edu.au/tlf/tlf2010/refereed/cluett.html>
- Cohavi, A. (2013). How did Whatsapp became the strongest social network. Available at: <http://www.calcalist.co.il/local/articles/0,7340>.
- Creswell, J.W. (2013). *Qualitative inquiry and research design: choosing among five research approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- Creswell, J.W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Upper Saddle River, NJ: Merrill.
- Creswell, J.W. (2014). *Research design: Qualitative, quantitative and mixed methods approaches* (4th edition). Thousand Oaks, CA: Sage.
- Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century*. Macmillan.
- Gilbert, J., & Kelly, R. (2005). Frontiers and frontlines: metaphors describing lecturers' attitudes to ICT adoption. *Educational Technology & Society*, 8 (3), 110-121.
- Haddad, W. D. (2007). *ICTs for Education: A reference handbook*. World Bank Publication. Retrieved from: http://www.ictinedtoolkit.org/usere/pdfs/ICTs_for_Education_Analytical_Review.pdf
- Harper L (2013). *4 Ways to Improve School Communication Using Social Media*, Retrieved from: <http://edtechtimes.com>
- Dzidonu, J. (2010). The role of ICTs to achieving the MDGs in education: An Analysis of the Case of African Countries, Accra Ghana. Retrieved from <http://www.ait.edu.gh>
- Jansen, W. (2017). *New business models for the knowledge economy*. Routledge.
- Liaw, S. S., Hatala, M., & Huang, H. M. (2010). Investigating acceptance toward mobile learning to assist individual knowledge management: Based on activity theory approach. *Computers & Education*, 54(2), 446-454.
- Losh, E. (2014). *The war on learning: Gaining ground in the digital university*. MIT Press.
- McCarthy, J. (2010). Blended learning environments: Using social networking sites to enhance the first year experience. *Australasian Journal of Educational Technology*, 26(6), 729-740. Available at: <http://www.ascilite.org.au/ajet/ajet26/mccarthy.html>
- Madge, C., Meek, J., Wellens, J. & Hooley, T. (2009). Facebook, social integration and informal learning at university: 'It is more for socialising and talking to friends about work than for actually doing work'. *Learning, Media and Technology*, 34(2), 141-155.
- Masseni, D. (2014). Why schools are spooked by social media? The Sponsor-ed Group: Australia. Available at: http://www.sponsored.com.au/app/webroot/uploaded_files/media/Why%20schools%20are%20spooked%20by%20social%20media.pdf
- Mazman, S. G. & Usluel, Y. K. (2010). Modeling educational usage of Facebook. *Computers & Education*, 55(2), 444-453. Retrieved from <http://dx.doi.org/10.1016/j.compedu.2010.02.008>
- Mingle, J., & Adams, M. (2015). Social media network participation and academic performance in senior high schools in Ghana.
- Nielsen L (2013). *6 Ways to Use Social Media to Connect with Parents*, Retrieved from: <http://smartblogs.com>
- Ophus, J. D. & Abbitt, J. T. (2009). Exploring the potential perceptions of social networking systems in university courses. *MERLOT Journal of Online Learning and Teaching*, 5(4), 639-648. http://jolt.merlot.org/vol5no4/ophus_1209.pdf
- Pascu, C. (2008). An empirical analysis of the creation, use and adoption of social computing applications. Available at <http://ftp.jrc.es/EURdoc/JRC46431.pdf>
- Park, Y. (2011). A pedagogical framework for mobile learning: Categorizing educational applications of mobile technologies into four types. *The International Review of Research in Open and Distributed Learning*, 12(2), 78-102.
- Raikos, A., & Waidyasekara, P. (2014). How useful is YouTube in learning heart anatomy?. *Anatomical sciences education*, 7(1), 12-18.
- Roblyer, M. D., McDaniel, M., Webb, M., Herman, J. & Witty, J. V. (2010). Findings on Facebook in higher education: A comparison of college faculty and student uses and perceptions of social networking sites. *The Internet and Higher Education*, 13(3), 134-140. <http://dx.doi.org/10.1016/j.iheduc.2010.03.002>
- Selwyn, N. (2016). *Education and technology: Key issues and debates*. Bloomsbury Publishing.
- Shal, T., El Kibbi, I., Ghamrawi, N., & Ghamrawi, N.A.R. (2018a). Principals' differentiated learning through social media: Practices and obstacles. *International Journal of Education And Applied Research*, 8(1), 19-29.
- Shal, T., El Kibbi, I., Ghamrawi, N., & Ghamrawi, N.A.R. (2018b). Web 2.0 – A Tool for learning or socialization only? Perspectives & experiences of Lebanese school principals. *International Journal of Economics and Social Sciences*, 8(2), 315-347.
- Sheninger E (2013). *Should There Be Rules for Social Media Use?*, Retrieved from: <http://www.huffingtonpost.com>
- Sickler, E. (2007). Students comment on Facebook. *University Business*.
- Steiner A (2013). *Ten Ways to Use Technology to Increase Parent Participation*, Retrieved from: <http://www.highdefteacher.com>
- Siemens, G. (2006). *Knowing knowledge*. Retrieved from: www.knowingknowledge.com
- Smit, I., & Goede, R. (2012). WhatsApp with BlackBerry; can messengers be MXit? A philosophical approach to evaluate social networking sites.

- Soomro, T. R., & Hesson, M. (2012). Supporting best practices and standards for information technology Infrastructure Library. *Journal of Computer Science*, 8(2), 272.
- Sponcil, M., & Gitimu, P. (2013). Use of social media by college students: Relationship to communication and self-concept. *Journal of Technology Research*, 4, 1.
- Subrahmanyam, K., Reich, S., Waechter, N. & Espinoza, G. (2008). Online and offline social networks: Use of social networking sites by emerging adults. *Journal of Applied Developmental Psychology*, 29(6), 420-433. <http://dx.doi.org/10.1016/j.appdev.2008.07.003>
- Tian, S. W., Yu, A. Y., Vogel, D. & Kwok, R. C.-W. (2011). The impact of online social networking on learning: A social integration perspective. *International Journal of Networking and Virtual Organisations*, 8(3/4), 264-280.
- Tong, M., & Trinidad, S. (2010). Conditions and constraints of sustainable innovative pedagogical practices using Technology. *International Electronic Journal for Leadership in Learning*, 9(3).
- Toppo, G. (2011). Social media find place in classroom. *USA Today*, July, 25.
- UNESCO (2002) Information and Communication Technology in Education—A Curriculum for Schools and Programme for Teacher Development. Paris: UNESCO.
- van Treeck, T., & Ebner, M. (2013). How useful is twitter for learning in massive communities? An analysis of two MOOCs. *Twitter & Society*, 411-424.
- Veenman, M. V., & Spaans, M. A. (2005). Relation between intellectual and metacognitive skills: Age and task differences. *Learning and individual differences*, 15(2), 159-176.
- Williamson, R. (2012). *Social Media for School Communication*, Retrieved from: <http://gearup.ous.edu>
- Willems, J. & Bateman, D. (2011). The potentials and pitfalls of social networking sites such as Facebook in higher education contexts. In *Changing demands, changing directions. Proceedings ascilite Hobart 2011*. Available at: <http://www.ascilite.org.au/conferences/hobart11/downloads/papers/Willems-poster.pdf>
- Wise, L. Z., Skues, J. & Williams, B. (2011). Facebook in higher education promotes social but not academic engagement. In *Changing demands, changing directions. Proceedings ascilite Hobart 2011*. <http://www.ascilite.org.au/conferences/hobart11/downloads/papers/Wise-full.pdf>
- Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educational psychologist*, 25(1), 3-17.