**THE UNIVERSITY OF HULL**

**An investigation into how Web 2.0 technologies can be used to enhance the educational supervision of teachers**

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by

Mohammed Alghamdi

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# ABSTRACT

The concept of educational supervision has witnessed significant development in recent years and many studies in this field have demonstrated how computers and the internet have been employed in the process. However, the researcher has found no studies that examined the use of Web 2.0 online platforms and tools that promote interaction among users in educational supervision.

The main purpose of this study is to examine the possibility of using Web 2.0 technologies in educational supervision in Saudi Arabia and investigate how these technologies can be used to enhance the educational supervision of teachers. In practical terms I planned to introduce Web 2.0 tools into the educational supervision process to support and enhance activities undertaken by supervisors and teachers.

A small-scale four-stage development programme was run with groups of teachers and supervisors with the evaluation of that process making use of a mixed method approach to data collection. In the first stage interviews were held with seven supervisors and seven teachers, in order to explore the possibility of application, to build a picture and to enable me to become acquainted with data collection and analysis procedures and techniques. In the second stage, data was collected from 23 supervisors by focus group and questionnaire regarding the current usage of Web 2.0 technology in educational supervision and to examine how such technologies could facilitate supervisors' work. In stages three and four, data was collected from thirty teachers through a pre-survey, followed by a Web 2.0 training programme and post-survey. The objectives in these stages were to study teachers' usage of Web 2.0 technology and to evaluate the effect of the training programme in order to recognise and use the affordances of Web 2.0 tools for supervision.

Teachers' knowledge, awareness and confidence in relation to all of the tools were shown to have increased after the training programme, with the majority showing enthusiasm about employing this technology in educational supervision. The participants generally agreed that using Web 2.0 technologies in educational supervision is crucial and facilitated supervisors' work.

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# CHAPTER 1: INTRODUCTION

## 1.1 Overview/background

A large number of countries have expressed great interest in e-learning because of the great benefits of the Internet, with governments around the world becoming gradually aware of the nature and extent of the planning needed to introduce the use of technology in schools. In Japan and the Republic of Korea, for example, this has taken the form of an information technology master plan, whereas other countries have introduced a specific programme such as the Education Strategic Plan (Paraguay), or National Action Programme (Sweden) (Chapman et al., 2004).

The Kingdom of Saudi Arabia (KSA) has similarly exhibited an interest in introducing technology into the education system and e-learning. There has been a great population growth in Saudi Arabia, with professors, supervisors and classrooms unable to cope with the exponential growth in numbers of students (Al-Mogbel, 2002). A great number of challenges face the Saudi education system, such as shortage of supervisors, knowledge growth, expanding the education system and geographical barriers. This gives rise to a perceived need for teachers and supervisors to have the necessary knowledge and skills to improve effective opportunities in their workplace. This is reflected in the important projects agreed by the Ministry of Education and approved by the politicians, who have allocated large budgets. For instance, the King Abdullah bin Abdulaziz Public Education Development Project had an estimated cost of around £16 billion, allocated for improving the educational system in Saudi Arabia, for example by investing in technology and upgrading teacher training (Tatweer, 2010).

Implementing such projects is one of the aims for educational supervision in KSA, as part of the drive for fully developing the educational process. Acheson and Gall (2003) suggest that supervision is a collaborative, interactive and democratic process between a supervisor and teacher where the supervisor has been appointed by government to oversee the work of teachers. It is important to recognise, however, that the supervisor role in KSA focuses on teacher development and improving teaching in schools rather than merely supervising teachers' activities. The role of supervisors in many countries is often to carry out the educational supervision process and it is common practice for them to visit classrooms directly to evaluate teachers and inspect teaching processes; this is called the observation and evaluation model (Glickman et al., 2001). After analysing the teachers' performance in the physical environment of the school by

following a standard procedure the supervisor then compiles a report. The report points out any problem areas, and it is shared with teachers so that improvement in teaching methods can be made. Teachers receive great assistance and advice by such a supervision process, which enables teachers to improve their performance and enhance their teaching methods for the betterment of students' learning; this is the core aim of the supervision process (Glickman et al., 2001). The literature review will discuss in detail the evolution of the concept of supervision, the practices used by supervisors, objectives of supervision and the methods of supervision and examine these principles in relation to current and potential practice in Saudi Arabia

Whilst there have been numerous advances within the educational supervision system there arises the need for a system to develop educational supervision from traditional supervision (observation and evaluation) to a more comprehensive and personalised system within KSA, especially as geographical barriers are still presenting challenges in promoting the efficiency and effectiveness of the teacher supervision processes. The development in IT provides the opportunity to reform educational supervision within KSA and implement modern technologies to keep up with such advancements. Such an approach offers the potential of exploit the benefits of modern technology to improve supervisors' performance in facilitating and supporting teachers. The use of Web 2.0 in teacher supervision, it has been suggested, promotes collaboration, communication and the efficiency of interaction among teachers and their supervisors (Sarrafzadeh et al, 2010). Web 2.0 may, therefore, be a solution to the problems and difficulty of communicating with increasing numbers of teachers, which is an issue of some concern to Saudi Arabia.

Building on the role of Web 2.0 in promoting efficiency and effectiveness in education supervision, it is argued that internet tools are potentially valuable in meeting the objectives of teacher supervision (Reynolds, 2007). These online services provide opportunities for e-learning and enhancing the learning skills of teachers and learners. Use of social networking is also growing for online learning and it is an effective idea to gain education and learning skills and enhance e-learning opportunities (Redecker et al., 2009). This raises the question whether the same tools might be used to facilitate educational supervision. The purpose of this thesis, therefore, is to determine if Web 2.0 technologies have the potential of successful adoption by both supervisors and teachers to facilitate and enhance supervision in the Saudi Arabian education system.

## 1.2 Research Problem

The concept of educational supervision has witnessed significant development in recent years. This is due to the surge in studies being carried out in this field, the growth of teacher and student populations and advances in the use of technology within learning institutions. Many of these studies employ the use of computers in educational supervision, as has been explored in my Master dissertation (Alghamdi, 2009), which discussed the use of the internet (Web 1.0 tools) in educational supervision using tools such as emails, educational forums as well as video conferencing. Moreover, a study carried out by Saigh (2009) discussed the use of the Internet in the supervision of kindergartens, while Obidat (2007) opines that problems like the difficulty of communicating with the rising numbers of teachers can be solved by the model of e-supervision. Similarly, Al Thobaiti's (2008) research sought to create and introduce a database program which aids the Head of the Educational Supervision Centres in tackling the issue of the enormous amount of data the supervisors collect throughout their numerous visits to schools within the Centre's catchment areas. Alhijran (2005) points out many actual benefits of the e-supervision model, such as saving time, effort and cost for the teacher and supervisor alike. Moreover, Alhijran argued that it is illogical to carry out face to face supervisory meetings, given the advancement of means of communication. Nawawi (2001) envisages a proposal to utilise the Internet in educational supervision where experiences can be transferred through meetings on the Internet. In this respect, Nawawi regarded this as a means of attaining equality in training and reflecting the participation principle.

Many studies have thus demonstrated the value and asserted the importance of utilising the Internet (Web 1.0) along with computers to improve and encourage e-supervision methods. For instance Bernard and Goodyear (2013) speculated that technological capacity has influenced and will continue to influence supervision. Since supervisors, counsellor educators, and professional counsellors are evidently opting for greater use of technology (Bernard and Goodyear, 2013), they argue, it is useful to improve graduate counselling programmes by progressing the current use of technology to utilise time in supervision sessions so that teaching and learning reach their fullest potential. Saliha (2008) established educational supervisors' views regarding the idea of supervision and the implementation of its tools, in addition to the human and financial limitations, which affect implementation in the area of education in the Saudi

context. Shea and Babione's (2001) study of the use of the Internet, funded by the 2000 Ameritech Fellows Grant, saw Indiana University Southeast partnering with special education teachers in the southern Indiana region. The Electronic Enhancement of Supervision Project (EESP) that emerged from this project combined supervision training of special education teachers with technology to increase the knowledge base of special education preparation and distance education. Applications such as listserv, e-mail, and webcams were promising in recording Master teachers' knowledge in settings that are distant from campus. The study recommended that care should be taken to ensure that both participants and sites have sufficient equipment, time and technology expertise.

Through examination of theory, research and my practical experience in educational supervision, I have become interested in what is called electronic supervision and distance supervision, which rely on the use of computers and the Internet.  However, all the studies that I came across relied either on the Internet as a resource base or Web 1.0 tools and there were no studies that examined the use of Web 2.0 technology in educational supervision. Winters et al. (2012) assert that the use of Web 2.0 and mobile technologies by educational supervisors is limited. Web 1.0 technologies, such as emails and forums, did not provide applications for adequate interaction among stakeholders, unlike Web 2.0, which is more interactive, efficient and effective in the communication process (Sadaf et al, 2012). It is on the basis of the purported advantages of Web 2.0 that I became interested to deploy its tools and platforms in educational supervision. The question therefore arises, what exactly is Web 2.0 technology?

In short, Web 2.0 is a term that first appeared in 2004 and was introduced by Tim O'Reilly, the founder of O'Reilly Media (O'Reilly, 2005). The idea behind Web 2.0 technologies is the sharing of information among Internet users and facilitation of user publishing, in contrast to web 1.0 which only provided the information from a provider. Commonly, Web 1.0 websites comprised one-way delivery of information and static pages.  Subsequently, however, applications such as social networks and blogs allowed users to share and contribute information, in ways that were not available a few years ago. However, in Saudi Arabia, which is lagging behind other countries in terms of technological advances because of the recency of its introduction, it is likely that Web 2.0 is unknown to many educators and even specialists (Alzahrani

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and Woollard, 2012; Alebaikan and Troudi, 2010). Nevertheless, some of the tools and applications used in Web 2.0 technology are available to the general population and are used on a day-to-day basis (Levy, 2009; Blattner and Fiori, 2011).

In order to test these assumptions, a pilot/ exploratory study was conducted among teachers and supervisors in the Kingdom of Saudi Arabia (See Chapter 4). The results of this pilot study shaped the final research questions and objectives. Therefore, this study was conducted in order to explore empirically whether or how Web 2.0 technologies are being used to facilitate collaboration and interaction between educational supervisors and teachers within a collaborative framework. The study also worked with teachers through a training programme to determine if they would employ Web 2.0 in the education supervision process. In particular, a number of questions are identified as worthy of empirical investigation as to how educational technology is 'working-out' in practice in educational supervision.

### 1.3 Clarification of my stance as a researcher

Before joining the doctoral programme at the University of Hull, I worked in educational supervision in Riyadh, Saudi Arabia, as a supervisor from the year 2000. During those years I gained many skills and valuable experience in educational supervision and leadership. Through my experiences as a supervisor I was passionate about using technology in educational supervision. As a result of this I joined King Saud University to do a Master degree in Educational Technology. I graduated in 2007 with distinction and honours. The research was titled: *How do supervisors employ the Internet (Web 1.0 tools) in educational supervision and what are their perceptions about it?* In 2010 I joined the University of Hull to study for another Master degree in leadership and learning, and the dissertation was in the same area that I am interested in, titled: *The Electronic Supervision Model: e-mail, educational forums and interactive video conferencing in educational supervision.*

During my work in educational supervision I contributed to training many teachers in teaching methods for very young children, and I developed a training programme in educational games in early primary school which was still on the list of the teachers' training centre in Riyadh at the time of submitting this thesis. Through reading and experience, I have become increasingly aware of the use of the Internet to find out and

search for new knowledge in the field of educational technology and I employ much of that knowledge and experience in working with the teachers whom I supervise.

The principal aim of this study was to try to employ the new technology, especially Web 2.0 technology, in educational supervision on a practical basis, drawing on qualitative and quantitative data collected from previous studies and through working with the educational supervisors and teachers who participated in this study. In summary, the project involved surveys that were used to depict the level of use and attitudes of teachers and supervisors toward Web 2.0 technologies. Through the gathered data, the project aimed at determining the potential for employing Web 2.0 technology in the supervision of teachers within Saudi Arabia.

I have created a good relationship with the participants in this study through the training programme applied during the data collection and continuous communication through the online tools used in this study such as WhatsApp, Google plus, Twitter and blogs and I still sustain relationships with some of them through these tools. There are a number of issues relating to my position as a researcher and to ethical concerns which had the potential for bias, however, in terms of evaluating the impact of the planned programme. These issues are discussed more fully in Chapter three.

My ambition is to translate the results of this study into a training programme for supervisors and teachers to identify the Web 2.0 potential and employment in general education, educational supervision, in particular, and to use these tools as a platform for the exchange and sharing of experience and knowledge between educational supervisors and teachers and to improve their relationship.

### 1.4 Significance of the Study

This study derives its significance from the importance of educational supervision and how to promote it, especially in Saudi Arabia. The study is based on the application of the developments within Internet use (in this case, Web 2.0 technologies) and their employment in educational supervision. This study could aid the process of employing computer technologies to help policy makers and decision makers to advance educational supervision through using the best tools available. This study is unique as it has put a spotlight on developing the relationship between teachers and supervisors by constant interaction, most of which is online. So far there is no evidence of a study done in the Saudi context using Web 2.0 technologies in educational

supervision, although there has been some consideration of Internet (Web 1.0) use as noted earlier. Therefore, this study may be considered as a pilot initiative for employing Web 2.0 in educational supervision by introducing a practical approach and providing material that can be used to create training or induction programmes for supervisors to improve their performance when facilitating and supporting teachers in curriculum implementation.

I anticipate that the move from the traditionally-based educational supervision to technologically-based supervision through the use of Web 2.0 tools will be a positive approach. This study thus aims to contribute to the development of solutions to the difficulties faced by educational supervisors who need to monitor a large number of teachers while dealing with the administrative burdens and technicalities entrusted to them. Using Web 2.0 could alleviate the difficulty of communicating with teachers, especially in remote areas. Educational supervisors would be able to use Web 2.0 to facilitate the delivery of information, circulars and decisions, while providing any necessary assistance in the fastest way possible. I acknowledge that inherent in these assumptions is a potential for bias in both data collection and analysis.

The use of Web 2.0 technologies for education is not scarce anymore, although at the beginning of this study (2011), empirical studies, especially in Saudi Arabia, of education supervision in learning institutions, had yet to be recognised. These circumstances have made this study a significant contribution towards having supervisors equipped and well versed in Web 2.0 technologies and tools. The study is intended to assist both teachers and supervisors in adoption of technologies in educational institutions. It is expected that supervisors, with the help of Web 2.0 tools, can assist teachers and in turn teachers can develop their teaching methods. The traditional model of educational supervision in Saudi Arabia, it is hoped, can be transformed with the help of this study.

The application of a practical supervision methodology with a suitable theoretical basis can benefit from the study, which contributes to knowledge on uses of technologies and their effectiveness in improving education by mediating between teachers and supervisors. I anticipate that, through Web 2.0 technologies, supervisors will be able to communicate with and evaluate teachers with more efficiency and effectiveness. The results of this study could also be used to identify training needs, allowing

programmes and courses to offer educational supervisors and teachers an insight into new technologies and how to employ them in them in the workplace. This study may also open the door for researchers to conduct more studies on new tools and trial their applications in a regulated environment, as well as to investigate further the difficulties that may be faced in the employment of Web 2.0 technology in educational supervision.

### 1.5 Research Questions and Assumptions

### 1.5.1 Research Questions

The main question of this study is: ***How can Web 2.0 technologies be used to enhance the educational supervision of teachers?***

The following research questions guide the study:

1. To what extent do supervisors and teachers understand the term/concept Web 2.0?
2. To what extent do supervisors and teachers currently use Web 2.0 technologies for supervision?
3. To what extent are supervisors and teachers familiar and confident with the mentioned Web 2.0 tools?
4. To what extent can activities undertaken by supervisors and teachers with Web 2.0 technologies support or enhance supervision?
5. To what extent can participants recognise and use the affordances of Web 2.0 tools for supervision?

### 1.5.2 Research Assumptions

The thesis aims to illuminate the characteristics and affordances of Web 2.0 technology based on literature review and exploratory study results (Chapter Four) in order to provoke new epistemological assumptions about Web 2.0 and knowledge formation. The study states that Web 2.0 could be used to enhance educational supervision and used as a supervisory approach. Epistemology and ontology will be discussed in depth in Chapter Three. My epistemological position in this study is that empirical knowledge can be generated and values shared that are produced from quantitative and qualitative data generated from teachers and supervisors participating in the study, especially as I built good relationships with supervisors and teachers before, through the empirical work and after the study. My epistemological stance is

discussed further in Chapter Three (methodology), section 3.2.1. However, based on the above, I assume that,

1. Many supervisors and teachers are confident in using some Web 2.0 applications in their private lives and thus are motivated to participate on a Web 2.0 platform in this study.
2. Using web 2.0 technologies can enhance and support communication between teachers and supervisors.
3. Using Web 2.0 technologies can facilitate supervisors' work.
4. Using Web 2.0 technologies can improve teachers' performance.
5. Using Web 2.0 technologies increases the knowledge of teachers and supervisors through the exchange of knowledge.
6. Web 2.0 technologies have many advantages, which have a great potential to enhance education and supervision.
7. There is great potential for collaborative learning and enhancing teachers' knowledge through educational supervision.

Based on these assumptions I will concentrate on the role of Web 2.0 technologies in enhancing the educational supervision process. This study presents a new approach to supervision.

### 1.6 Research Aims

- To evaluate the teachers' and supervisors' level of awareness of the concept of Web 2.0 technologies.
- To identify supervisors' and teachers' familiarity and confidence with the mentioned Web 2.0 tools.
- To identify the current use of Web 2.0 technologies among teachers and supervisors.
- To examine what the possibilities for using Web 2.0 technologies in educational supervision might be.
- From the outcomes of this work, to design a framework that could assist teachers and supervisors to recognise and use the affordances of Web 2.0 tools in promoting the quality of education supervision.

### 1.7 Terms and Definitions

There are various terms that are significant in the use of Web 2.0 technologies because they are associated with the application of these technologies in teacher supervision. These terms are defined below.

*Supervision***:** Patrick and Dawson (1985) defined supervision as the cycle of activities between a supervisor (normally appointed by the major employing body) and a teacher with the objective of improving classroom performance. Acheson and Gall (2003) extend such a definition when they argue that supervision is a collaborative, interactive and democratic process between a supervisor and a teacher that focuses on teacher development and improving teaching in schools rather than merely supervising their activities. For my purposes, supervision is a range of activities and programmes organised by the educational supervisor, which are designed to improve teacher performance through, in this circumstance, the use of Web 2.0 applications and their characteristics.

*Web 2.0:* O'Reilly (2005) coined the phrase 'Web 2.0' in 2004, but the label remains difficult to define acceptably. For the purposes of this study Web 2.0 is defined through certain characteristics that involve interaction among users, namely, *Collaboration, Socialising, Participation (sharing), Interaction and Creation.* These characteristics will be explained further in the review of the literature in Chapter Two.

*Interaction*: is two parties' exchange of communication by the means of Internet technologies. Interaction can be synchronous or asynchronous. Synchronous interaction takes place when there is no archiving, and the subsequent retrieval, of parties' real-time communication. Asynchronous interaction; however, happens when parties cannot communicate or respond in real-time and thus they resort to archiving the information to retrieve it later.

*Creation*: where anyone is allowed to create and edit pages and contribute to a wiki, for example. Wikis are those Web 2.0 technologies that are open to contributions and edits of the users. Leuf and Cunningham (2001) pointed out that students are able to engage actively in wikis in order to create new knowledge in content creation. Blogs also are useful for publishing information for the public and allow anybody to be a creator of information. They are a type of content creation tool.

*Participation* (sharing): refers to the involvement of individuals or how often they use Web technology. Participation involves the ability and perception of a Web user to use

Web 2.0 services to attain their own goals, whilst being able to distribute content (audio, images, video and text) to other Web users.

*Socialising*: many social networking sites, such as Facebook, Twitter and Myspace, assist the meeting of different users who share to a certain extent the same values, experiences, beliefs or professions. Socialisation occurs when Web users utilise social and professional networking sites for the creation of new friendship or professional networks, interaction, and for sharing content with existing social networks.

*Collaboration*: takes place when Web users employ online services to benefit from the others' knowledge to develop the quality of existing information. Web 2.0 assists collaboration through permitting Web users to edit, publish and create items for peer review through the use of collaborative websites.

### 1.8 Thesis Structure:

The structure of the research is visualised in Figure 1.1, which demonstrates that the research began with a thorough review of current and past literature with the aim of understanding the use of Internet technologies and web tools in education supervision and the underlying theoretical framework. The figure shows that a framework was developed for practice of Web 2.0 technologies in educational supervision based on the affordances of such technologies. The figure also illustrates that surveys were conducted among supervisors and teachers to determine their perceptions and experiences of the use of Web 2.0 in education supervision. More importantly, the figure illustrates that an implementation intervention through teacher training was carried out to determine the potential of successful adoption and implementation of Web 2.0 platforms and tools in education supervision in Saudi Arabia.

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                    │  Literature  │
                    │    review    │
                    └──────────────┘

              Exploratory        study

        ┌────────────────────────────────────────┐
        │  • To help to highlight the problem of  │
        │    the study.                           │
        │  • To examine the extent of awareness   │
        │    of Web 2.0 technologies and its      │
        │    tools.                               │
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  ┌──────────────┐   ┌──────────────┐   ┌──────────────┐
  │ Educational  │   │   Web 2.0    │   │ Connectivisim│
  │ supervision  │   │ technologies │   │    theory    │
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  ┌──────────────────────────────────────────────────────┐
  │ Affordances of Web 2.0 technologies for educational   │
  │ supervision                                           │
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  │ Generation of a framework for using Web 2.0           │
  │ technologies in educational supervision               │
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Supervisors' perceptions — Exploring supervisors' perceptions of using Web 2.0 tools to facilitate supervisory work — Focus group and questionnaire

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  ┌──────────┐   ┌──────────────┐   ┌──────────┐
  │ Pre      │ ← │ Training     │ → │ Post     │
  │ survey   │   │ programme for│   │ survey   │
  │          │   │ teachers     │   │          │
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Empirical study — Implementation of the study by using some Web 2.0 tools (Supervision of teachers' work through these tools) — Blogs, wikis, and WhatsApp

Figure 1-1: Structure of the Research

This section summarises the main emphases and relevance of each chapter of the thesis. This thesis consists of six chapters. The sequence of the whole thesis is as follows:

**Chapter 1**: (Introduction): begins with an overview of the research problem. Then it outlines the aims, objectives, research questions, and research assumptions, definitions of key terms and significance of the study. Also, the structure of the thesis is presented.

**Chapter 2**: is a literature review introducing the main themes of the thesis. It begins with an overview of educational supervision in Saudi Arabia. It presents the characteristics of Web 2.0 technologies and affordances of Web 2.0 applications in educational supervision. It outlines the major learning theory relating to the Web 2.0 technologies (Connectivism). On this basis, a new approach is proposed to practising educational supervision by using Web 2.0 applications: Wikis, blogs, Web-based digital video tools and social networks. The chapter ends with consideration of the factors that influence the willingness and ability to adopt innovations and considerations in managing the change process.

**Chapter 3**: presents the research design and methodology. Methods and procedures are discussed. It presents data collection techniques, the population and sampling techniques. It also introduces the validity and reliability of this study as well as ethical considerations.

**Chapter 4**: presents the data analysis, interpretation and presentation of the findings for each stage of the research successively. In each stage, a summary of the project execution is provided, followed by a detailed analysis of the findings.

**Chapter 5**: discusses the study findings and results in relation to the literature, including supervisors' and teachers' current use of Web 2.0, knowledge and confidence issues and views on how Web 2.0 is being or can be exploited to facilitate supervision. The chapter ends by describing the transition to a new approach and implementation of Web 2.0 in educational supervision.

**Chapter 6**: summarises the research process and findings regarding current use of Web 2.0, the transition to the new, Web 2.0 enabled approach to supervision and future outlook. It highlights the key contributions of this study and presents recommendations

based on the findings. This chapter discusses the limitations based on the main results, and concludes with suggestions for further research.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Introduction

The aims of this chapter are to review current and past literature on the use of Internet tools in education supervision and to describe the characteristics of various Web 2.0 tools and platforms according to their suitability for teacher supervision processes and programmes. The chapter is divided into six main sections. The first section describes the background and evolution of educational supervision. This review indicates the objective of educational supervision and the traditional methods of supervision. Also, in-service training of teachers in Saudi Arabia is discussed. The second section describes web technologies, highlighting the development from Web 1.0 to Web 2.0 The third section describes the affordances of Web 2.0 technologies, i.e. wikis, blogs, digital video tools and social networks and the potential for enhancing the efficiency and effectiveness of education supervision. The fourth section introduces the connectivism theory and its relevance to educational supervision. The fifth section introduces a framework for action as a new approach to the practice of educational supervision. This framework describes the potential role in the supervision process of some applications, with practical examples. The chapter ends with a consideration of factors influencing the decision to adapt an innovation (such as Web 2.0 facilitated teacher supervision), issues in change management, and the importance of Continuing Professional Development (CPD) for supporting and embedding change.

## 2.2 Educational Supervision

### 2.2.1 Evolution of the Concept of Educational Supervision

Examining the evolution of the concept of educational supervision from the beginning of the twentieth century, we find that it was influenced by the principles of the scientific theory of management and its application models. Supervision operations were then carried out in accordance with the principles set out by Frederick Taylor (1911). The fundamental purpose of management, he concluded, was to promote the efficiency of workers. The concept of educational supervision was primarily concerned with inspection, which is linked to the concept of scientific management, from which many principles of the implementation of that model have been taken in the management of educational systems in that period (Zahran, 1991). The principles of scientific management introduced a method for managers to control aspects of

industrial operations in factories and businesses, which supervisors subsequently started to apply in their work.

Thus the scientific management theory paved the way for bureaucracy in management and a consequent focus on educational supervision. The early 1940s saw the principle of guidance (direction), being introduced by educational officials, to allow them to monitor teachers. (Starratt, 2008). The educational platform was, however, based on traditional methods of instruction and pedagogies. Guidance from the standpoint of 'the theory of bureaucracy' is the process of organising and managing a system, in which specialist mentors are used to evaluate the functions of the educational process and ensure that the development areas are set in place. Sergiovanni and Starratt (1993) considered that supervision in concentrated on the evaluation process, which helps bureaucratic accountability rather than teacher development.

These concepts of inspection and guidance were widely implemented in the Kingdom of Saudi Arabia (KSA) (see background of Saudi Arabia in Appendix 1). However, it can be said that human relations between the educational supervisor and the teacher were neglected, with the focus being on the teacher and his performance in service. It became clear to stakeholders in the education sector in Saudi Arabia that educational supervisors did not have a defined role in preparation and qualification of teachers but rather were concerned with evaluating and monitoring teacher performance (Alabdulkareem, 2014; Alhammad, 2000). Consequently, a number of educational and intellectual attempts emerged to change the traditional concepts of inspection and guidance to a higher concept of educational supervision, which led to the second stage of the educational supervision evolutionary process. This means that there was a need to change the process of education supervision from inspection and guidance methods to exchange of knowledge, a transition more in keeping with the notion of democratic approaches to supervision which were highlighted in the previous chapter (Acheson and Gall, 2003).

The emergence of human relations in the 1950s emphasised the need for inspired and wise leadership and business integration management (Armstrong, 1987). This change influenced the concept of educational supervision, leading to the adoption of a new approach based on cooperative democratic supervision. This new concept of

educational supervision was described by the Ministry of Education in Saudi Arabia (1999a:3) thus:

> It is an artistic, democratic, humanistic, and inclusive, leadership process, which aims to evaluate and improve the educational process from all its aspects.

Under this concept of educational supervision, the educational supervisor became an individual who provides effective assistance to teachers, at the same time respecting them and involving them in the process of evaluation of their performance. Thus, this enhanced educational supervision recognised the important role of teachers and their potential to improve the educational process.

Through reviewing the concept of educational supervision and its development it becomes clear that the process now aims to have clear, broad objectives for its advancement. This includes ways of enhancing efficiency and interaction between teachers and supervisors, as described in the following sections of the literature review.

### 2.2.2 Educational Supervision

The term 'supervision' can be shown to have many meanings, such as to monitor or direct. Goldhammer et al. (1980) suggested that supervision aims to support the teacher's growth by assigning tasks to employees or teachers, stimulating growth and development, influencing the behaviour of teachers and facilitating the development and use of instructional design methodologies and materials. They define instructional supervision as the activities performed by staff in a school to improve learning and instruction by changing teaching methods and attitudes. Hoy and Forsyth (1986) confirm this definition of instructional supervision as activities aimed at improving teaching through planning, observation and analysis whilst Knoll (1987) holds supervision to be the process of investigating teaching performance needs and then guiding, directing and supporting the teacher. Similarly, Juhdali (1990) argues that supervision is a technical process wherein the supervisors help and assist other individuals in the educational process to achieve teaching and learning goals. In Saudi Arabian schools, however, the head teacher is usually responsible for the immediate supervision of teachers as well as for administration processes. Thobaiti (1990) consequently argues that educational supervision is a collaborative process between

teachers, school headteachers and external supervisors who work together to improve the teacher's performance and help achieve the objectives of teaching and learning.

Glickman (1990) considers that there are three types of supervision: directive, non-directive and collaborative. He defines directive supervision as the process of ensuring that the technical skills of the teachers are within standards and established competencies for teachers to become effective. This supervision is best suited to trainee teachers who need assistance and guidance from supervisors. On the other hand, non-directive supervision ensures that teaching is a self-reflective process and teachers can use the reflection process to improve the teaching and learning processes. The role of the supervisor here is not to judge but to listen to the teacher as part of the self-reflection process. Finally, collaborative supervision ensures that teaching is an active process by allowing teachers to practise decision-making and problem solving. In this case, the teachers can theorise problems, experiment and prepare teaching strategies that are relevant to their surroundings. The supervisor's role is to help the teacher make decisions about the problems (Glickman, 1990).

Building on those definitions, Kosmoski (1997) defines supervision in education as a leadership instruction where the aim of the supervisor is to improve learning in the classroom. Fischer (2000) also provides guidance on the approaches for enhancing professional effectiveness in teaching, noting that supervisors should know beforehand their evaluation goals, methods of observing and analysing information and techniques for translating the observation and analysis results into meaningful feedback for guiding teachers. She also notes that supervisors should have deeper understanding and knowledge of instructional theory when observing and analysing classroom data. Holland and Adams (2002) agree with this view and suggest that supervision should promote teaching, professional development and collaboration in pedagogical practices. Similarly, Acheson and Gall (2003) argue that supervision should be a collaborative, interactive and democratic process that focuses on the teacher and improving teaching in schools rather than merely supervising their activities.

The most important objectives of educational supervision, according to Almughidi (2000), are to offer a real opportunity to support teachers through a practical experience and to train teachers in the necessary technical aspects and practical skills of teaching in order to produce successful teachers. It is also intended to familiarise

teachers from the beginning with taking responsibility for all the work assigned to them, as well as planning to implement an evaluation and feedback process; furthermore to involve teachers effectively in all activities within and outside the school.

In relation to this Nashwan and Jamil (2004) highlighted the other goals of educational supervision as being to:

- improve the educational process through professional leadership for principals, teachers and supervisors;
- evaluate the work of educational institutions and to provide constructive suggestions for improvement;
- develop professional growth for teachers and improve their performance and methods of teaching and to manage human and material resources effectively
- improve the educational climate of the supervisory system and the staff within it, and
- develop relations between the supervisory system and other systems in the educational setting that serve the process of supervision, to increase teachers' motivation, which in turn increases morale and raises the spirit of competition among to work.

Nolan and Hoover (2004) reflect a similar view when they define supervision in education as a function of the organisation that is concerned with improving teaching performance and enhancing student learning through teacher training and development, while Zahrani (2005) considers educational supervision to be a function and role of outstanding individuals who express and demonstrate great desire to improve the educational process. Saedi (2006) agrees that educational supervision is a collaborative process, where teachers, supervisors and school heads work together to achieve their educational goals. Kilminster et al. (2007, p.2), further pointed out that educational supervision is the provision of feedback and guidance on professional, personal and educational development matters in the context of the trainee's experience.

Finally, the Ministry of Education in Saudi Arabia (2007) describes educational supervision as a technical, democratic and comprehensive process that aims to evaluate and improve the educational process. The Ministry of Education in KSA also describes

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educational supervision as a function that links teachers and supervisors to improve teachers' teaching skills and abilities and to ensure that they develop new educational experiences. They define this function as involving involves observation, which involves supervisors visiting schools to monitor the progress of teachers, guide their teaching, research or identify any learning or teaching obstacles and solve the identified problems. As a result, they could develop the professional growth of teachers and develop their understanding of the methods of the performance and practice of various activities. The Ministry concludes by describing the present nature of modern educational supervision as a strategic, democratic, creative, and coordinating process during which teachers and supervisors meet to encourage suggestions, discussions, and reflective thoughts and eliminate the educational setting's deficiencies. Improving the teachers' professional development should be assisted, therefore, by devoted supervisors who can dedicate experience, time and effort as well as helping schools meet the required standards of education by, if necessary, taking special measures with the help of the people and institutions concerned (Hismanoglu and Hismanoglu, 2010).

### 2.2.3 Educational supervision objectives

It can be concluded from the above exploration of relevant theory and literature, therefore, that the content of the objectives and processes of educational supervision are of great importance and the concept has changed from its original limited inspectorial role and become a process of human interaction which aims to improve teachers' performance and give them a variety of developmental experiences. The Ministry of Education in KSA had concluded before the end of the previous century, however, that the ultimate goal of educational supervision is to "improve the process of teaching and learning through the development of all factors affecting it and to address the difficulties faced by it, and to develop the process of teaching in relation to the objectives set out by the Ministry of Education" (Ministry of Education in Saudi Arabia, 1999a, 12). In this light, the Ministry of Education in Saudi Arabia (1999a) set out a number of goals related to educational supervision, as follows:

1. Monitoring and analysing educational practice in order to understand the circumstances surrounding it and benefit from this in dealing with key areas of the educational process;

2. Cooperating and coordinating with key authorities in order to work on educational research programmes, planning, implementing and developing educational and training programmes as well as books, curricula and teaching methods;

3. Training personnel in the field the process of self-evaluation and the evaluation of others.

4. Increasing the level of educational progress.

I consider that these objectives can be achieved through various supervisory methods and keeping up with technological developments and their use. Equally, however, the objectives of educational supervision should be flexible, advanced and be able to keep pace with the new technology. Consequently, whilst I consider that the role of the supervisor is to improve the teacher's performance and provide support when he/she needs it, there is a necessity for change. This conclusion is based on the role of technologies, including Web 2.0 tools, to facilitate the process of supporting teachers through efficient and effective communication with their supervisors (Kopcha and Alger, 2011). Freeing supervisors from the requirement to be physically present for some teacher observations, for example, might enable them to work more productively with teachers on assessment, planning, and reflection via email, online support through discussion boards, and meetings in videoconferencing as well as chat rooms. Thus, besides having supervisors giving feedback on a teacher's video recorded lesson, a field experience could be produced where reflection, communication, and effective decision-making are emphasised (Alger and Kopcha, 2009). Thus, I perceive the potential value of new technologies, and in particular the implementation of Web 2.0 tools, to provide opportunities for enhanced educational supervision, as will be argued more fully in due course.

### 2.2.4 Methods of Supervision

In order to achieve the goals of the supervisory process a number of methods must be employed. Unannounced visits to the classroom, involving monitoring teachers and looking for their errors, used to be the main method on which supervisors depended in order to achieve their goals. Taking the teacher through a number of cycles of clinical supervision dedicated to classroom instruction was the responsibility of supervisors. Because those visits had to be spread out over the semester, however, it was unusual for supervisors to observe what happened on the days before and after the observed

teaching (Alger and Kopcha, 2009). The spread of democratic ideas and the emphasis on the value of rights and abilities resulted in the emergence of new methods, revolving around positive cooperation among all parties in the educational process (Saliha, 2008). The new methods introduced include discussion meetings, both collective and individual, educational workshops, practical applied lessons, training courses and motivational seminars, which have contributed to raising the professional and academic proficiency of both supervisors and teachers. A skilled supervisor uses various methods to achieve his purpose, according to the educational situation (Alkhatib et al, 2000). Supervision is also now provided individually or in groups to teachers to improve instruction so as to benefit students. (Oliva and Pawlas, 1997). The presence of multiple methods of educational supervision thus now offers enrichment and creativity, particularly if the educational supervisors made good use of the methods in the field of education. These can be summarised in the following methods:

### *2.2.4.1 Individual methods*

**The classroom visit**

The visit to the classroom by the educational supervisor is considered a direct supervisory method and is one of the oldest methods of monitoring and evaluation used by the Ministry of Education. The classroom visit gives the opportunity for the supervisor to monitor the work of teachers, students, and the environment in which they work and the methods and tools which are used in the process of education. If the classroom visit is planned, then this is an operation that is organised and designed by the educational supervisor or the principal, or both, to see and hear everything that comes from the teacher and their students during the monitoring period. The objective of this type of visit is to use cooperative analysis and to "provide the teacher with feedback on key development areas that revolve around performance improvement which have a positive impact on the teaching and learning process" (Hussein and Awadallah, 2006, p. 44).

Thus, the visit to the classroom is seen as an important supervisory method for the improvement of the educational process and for achieving the professional growth of teachers. There are three types of classroom visit:

- A surprise visit

- A planned visit
- A requested visit (on call).

The "surprise visit" within the teacher supervision processes in Saudi Arabian education sector has become more infrequent in recent years as it follows a pattern of inspection rather than supervision, serving the teacher but not directly serving the educational process. A "planned or programmed visit" usually takes place at the beginning of the academic year (Kopcha and Alger, 2011) where the teacher tries to give his or her best performance. This type of classroom visit is more compatible with modern educational supervision. The last type of visit is the "requested visit", made at the request of the teacher or principal, who feels that there is a need for assistance or feedback on a particular area where the teacher is unable to find a solution alone.

The classroom visit meets many of the objectives of both teachers and supervisors, highlighted as the following:
- To review the record of planning, the so-called "preparation book", and to see to what extent the teacher is implementing the curriculum;
- To obtain adequate information about the school visited by the supervisor;
- To find information about the positive aspects of the teacher's work and develop them;
- To work on involving teachers in the development of the annual plan for the implementation of the curriculum;
- To contribute to the recognition of difficulties encountered in the curricula and to develop solutions for these;
- To disclose errors and difficulties faced by the teacher, whether with students or with the administration process, and develop appropriate solutions for them. (Saliha, 2008)

In order for the supervisor to achieve these objectives for the classroom visit, the supervisor should identify clear objectives for both him/herself and the teacher and he/she should follow the correct procedures before and during the visit in order to remedy errors and provide an explanation for each method of education in such a way as not to create tension, which would make the students and the teacher nervous, and thus have a negative effect on the learning process.

The 1999 Ministry of Education in Saudi Arabia practice guide (p. 60) suggests that the supervisor needs to implement certain supervisory tools during and after the classroom visit, of which an individual meeting with the teacher is one.

**Supervisory discussion meeting**

The supervisory discussion meeting defined by Almunif (1997: 111) as "a meeting which occurs between the educational supervisor after the visit to the teacher's classroom, which revolves around what took place in the class in term of activities or to carry out a consultation on some of the issues relating to the educational process, in order to improve the teachers' performance and increase his efficiency."

The supervisory discussion meeting is a type of meeting held by the educational supervisor with the teacher in private, and is where the discussion of the pros and cons of the lesson occurs. These meetings can sometimes be carried out prior to the visit to the classroom if this is requested by teacher, or they can take place at any time the educational supervisor feels the need for a discussion on certain questions concerning the teacher, general educational matters, teaching methods, learning problems, or comments related to the skills of the teacher and his/her scientific and professional knowledge. Supervisors meet teachers to encourage methods that are more efficient in specific phases of classroom procedure, such as teaching a lesson for appreciation, adopting drill lessons, developing a new process in arithmetic, and using socialised recitation (Starratt, 2008). This relates to providing assistance to the teacher, or the transfer of expertise and new experiences.

Building on evidence from research literature, we find that the supervisory discussion meeting fulfils a number of objectives for the supervisor and teacher at the same time. These are summarised below:

- Identifying the teacher in terms of who he/she is, his/her attributes, potential personal, qualifications, inclinations and hopes.

- Enlightening the teacher as to his/her talents, competencies, and capabilities and nurturing them to maximise his/her potential as well as targeting his/her weaknesses and addressing them.

- Instilling confidence in the teacher through clarifying his/her abilities and potential skills.

- Recognising teachers and their efforts in teaching the material and the follow-up of learners and their education. As a result of this, there is greater likelihood of the teacher's acceptance of the suggestions and guidance given by the supervisor. (Saliha, 2008).

Based on the observations after the supervisory discussion meeting, the supervisor may choose to implement other methods to support the teacher, such as supervisory bulletins or directed readings.

**Supervisory bulletins**

The supervisory bulletin method may be used by educational supervisors to save time and effort and communicate information and ideas that help teachers to develop and raise their proficiency. Quwaei (1993) asserts that this method is of particular importance as it is works on ongoing communication between the guiding educator who is at the centre of his work and the teachers at school, particularly those living in remote and faraway places. Quwaei (1993) uses the terms 'guidance' and 'educator' because before 1993, the supervisory method had not yet changed to the modern concept of educational supervision.

Supervisory bulletins are seen by the researcher as a form of guidance and instruction and the transmission of information and ideas which are used by the educational supervisor to guide teachers to useful information relative to the teaching or learning process. Despite the advantages of bulletins, which are released effort, time, cost and access to all teachers, one of the disadvantages is no direct contact and interactions between teachers and supervisors (Albzaz, 1975).

This method can also be used for the communication of decisions and recommendations that benefit teachers and contribute to the enrichment of their experiences and culture through circulars, proposals or views that are prepared in an orderly manner.

In order for this process to be successful the following factors should be considered:
- Coordination of the production of the newsletter
- Relevance of the subject matter
- Concise and easy-to-read information

The other and final method, which the educational supervisor can use for guiding teachers, is directed reading.

**The directed reading method**

The directed reading method is an important supervisory approach aimed to develop the competencies of teachers in service by raising interest in external reading, exchanging and buying books and directing them to deliberate and systematic self-study (Ministry of Education in Saudi Arabia, 1999a).

Directed reading is described by Saliha (2008: 97) as "a way of working on the development of the teacher information and improve the methods of teaching, which may contribute to providing solutions to some educational problems." This can also assist in the academic and behavioural development in the field of education as well as working to give teachers the skills of self-learning through the information contained in these directed readings. In order for this method to be successful, the supervisor must have the following:

- A broad knowledge of the subject matter as well as following all new material available in the field of specialism or in field of education
- Material resources for the acquisition of books and references that may be contained in directed reading, further reading and cognitive development.

### *2.2.4.2 Group methods*

It should be noted from the above that individual educational supervisors use the methods in question for some teachers but not others, but there are methods used by the supervisory group for all the teachers. These supervisory groups depend on the time or number of participants as some of them take place in the beginning of the academic year and others during the year. Most of these supervisory methods involve teachers who have the same requirements. Typical group methods mentioned in the Saudi educational literature and by the Ministry of education (Ministry of Education in Saudi Arabia, 1999a, 2007) are summarised as follows:

- Public meetings.
- Visit exchanges
- Model lessons
- Educational/teaching workshops

- Educational training courses
- Education widgets (Microteaching): intensive course for particular skills.
- Educational seminars
- Training seminars or refresher courses
- Research or educational studies

The following section will explain in detail the most important and common supervisory group methods.

**Public meetings**

A public meeting for teachers is a method commonly used in the field of educational supervision. This is confirmed by Al-Wabil (1996: 124), who stated that "conducting public meetings for educational supervisory purposes makes up around 65% of the total supervisory process, while other supervision methods include applied studies or the exchange of visits". These meetings are an important form of supervision which is necessary to demonstrate the importance of the educational supervisors meeting the subject teachers, to integrate their efforts and to gather ideas and reduce the weight of individual workloads. A public meeting is also an opportunity for both sides to interact, communicate and exchange expertise in all areas of educational activity. According to Alhabib (1996: 191), "teachers can use these public meetings as educational platforms to exchange experiences and develop a spirit of cooperation with the supervisors to improve their classes, which will lead to an enhancement in the educational process."

These general meetings consist of:

- The annual meeting at the beginning of the school year;
- Meetings during the school year.

The annual meeting at the beginning of the school year is a meeting of supervisors and teachers in a specific location, with the aim of acquainting new or transferred teachers with the supervisors and informing them of the directives, programmes and regulations for the new school year. Ultimately, it will identify the needs of the teachers through listening to them in an attempt to meet their needs as far as possible and to take this information and incorporate it in the annual supervision plan of the Department of Supervision, which is part of the Ministry of Education.

The meeting during the school year is a supplementary meeting to recap what was discussed at the beginning of the year and to follow this up, while checking the functionality of the educational process. During such a meeting, it is also possible to discuss any experiences or a subject or programme of research with the teachers concerning methods to deal with any problems they may face.

Public meetings are designed to support teachers by

- Helping teachers recognise the guidance and instructions that they can expect to receive throughout the school year;
- Based on supervisors' experience, planning tasks to be performed by individual teachers or groups of teachers in order to identify their needs and analyse their problems;
- Identifying teachers' roles in the school environment, specifically regarding what is acceptable and what is not.

Al-Habib (1996) identifies a number of conditions necessary in order to achieve the above objectives in the meetings. These are summarised as follows:

- Pre-planning meetings and with the cooperation of all participants;
- Identifying the topics and issues to be discussed;
- Choosing the appropriate time and place;
- Recording the proceedings of the meeting to allow everyone to understand them and to facilitate the process of monitoring and evaluation.

Collective or public meetings that take place between supervisors and teachers at school level or regional level facilitate the process of achieving goals related to education. These meetings allow educational supervisors to build on what they have learned from the meetings in order to enhance their examination of the educational process so that they may make improvements in it (Talib, 2004; Al-Wabil 1996). As a result, they may arrange exchange visits, establish training courses, set up workshops, and apply educational or teaching models.

**Visit exchanges**

Visit exchanges are a form of cooperative supervision, based on advance planning between the educational supervisor and the teachers of a particular school or with a group of schools. This method aims to transfer and exchange experiences among

teachers and supervisors. Saud (2002) noted that the concept of this supervisory method has been known by various names, but its aim is to improve teachers' skills and competencies in their classrooms.

As explained by Al-Khatib (2003), the success of the visits depends on certain conditions and regulations, which Saliha (2008) summarises as the following:

- To determine the purpose of the visit and for the supervisor to explain this to the teachers before the visit;
- To involve innovative teachers and new participants through multiple levels of participation;
- To ensure that the agenda that was planned during the visit is completed before moving on to any other goals or issues.

Visit exchanges, sometimes called 'peer supervision,' are a crucial part of professional development which allows teachers to amend their instructional practices and procedures to improve students' performance (Acheson and Gall, 2003). James et al. (1992: 100) considered peer supervision as "a process of professional guidance, help and growth". Therefore, I consider that the method of visit exchanges is a sound practice that gives the supervisor the opportunity to see and take advantage of the excellent work undertaken by teachers and to encourage transfer of expertise among colleagues in the same specialism. This will encourage professional growth for the teachers, making it a method that is desired by teachers as it encourages their innovatory skills and allows them to see their abilities, and is particularly useful in modern teaching methods and in the application of lesson plans.

**Model Lessons**

In this method, lessons are prepared and presented by a teacher with experience or a distinguished performance in order to implement an idea, an experiment or a way of teaching. This is described by Abdul-Hadi (2002) as a practical activity designed to illustrate an idea or a method or means of education that the educational supervisor wants to convince teachers to use by highlighting its effectiveness and importance. The supervisor should highlight the idea to a number of teachers or assign a particular teacher to convey the application of this idea to their colleagues. In order to achieve the targets of lesson or model applications the supervisor must work together with the teachers in order to:

- Take advantage of outstanding teachers and encourage them to innovate;
- Provide teachers with alternative teaching skills applying more innovative methods;
- Provide an opportunity for the supervisor to choose the ideas and their application in the teaching practice;
- Ensure cooperation and good communication between the supervisor and the teacher (Abdul-Hadi, 2002).

Therefore, I conclude that the application of lessons and models shows empirical evidence for transfer of ideas, experiences and methods of teaching offered by the supervisor during a meeting with teachers, as they offer an opportunity for teachers to understand the difference between their way of teaching and the method used by the teacher who presents ideas during a model application. It can also be considered as a key factor in encouraging teachers to use their creativity and innovation.

In order to achieve these benefits, the supervisor may apply a number of procedures in order to guide the teachers correctly, such as:
- Meeting with teachers to discuss modern methods of teaching, or the use or otherwise of teaching aids, and to convince them of the importance of a particular application;
- Good planning with the teacher candidate to convey the lesson with the goals, content, means, activities, evaluation methods and all the elements that will result in a successful lesson;
- Giving lessons in the classroom environment to show how they may be undertaken so that teachers may see a practical demonstration of how a particular method could be implemented. The teachers who deliver these typical model lessons are recognised by supervisors as excellent teachers and the teachers invited to attend may lack many skills, but it is assumed that they will be able to develop the skills they observe demonstrated in the future;
- After the demonstration, the lesson should be discussed in order to provide feedback directly, and to see any proposals and recommendations (Saliha, 2008).

Other collective supervisory methods that could be implemented include educational/teaching workshops.

**Educational/teaching workshops**

The workshop is a mutual supervisory method as it involves the collaboration of a group of teachers with an educational supervisor or a group of supervisors. These workshops are held in order to study the problems of an educational task, such as preparing an annual plan, analysing the content of the curriculum or a unit of study, or the means of facilitating innovative teaching. Atwi (2004: 94) describes this as "a method of supervision extensively practised by a group of teachers to study the problem or the work of an educational tutorial and its implementation, which can be conducted using several methods (lectures, dialogues, applications) as required by the situation." As explained by the Ministry of Education in Saudi Arabia (1999) a workshop usually takes up one working day or more in order for teachers to gain knowledge and applied skills, or to address a problem of education, regulation, or the completion of a project or educational model.

The important role of interactive supervision leads to an argument that there is need for workshop to support cooperation through group work, with the implementation of the supervision occurring through the collaboration of work between the supervisor and the teacher, improving the interaction between them. It also has a positive impact on the behaviour and attitude of the participants as it encourages timid teachers who lack confidence and gives them the ability to put forward their ideas and opinions. Working together during an educational workshop gives both teachers and supervisors opportunity to develop their professional growth and social status.

A similar supervisory effect to educational workshops is achieved by educational training courses.

**Educational Training Courses**

Educational training courses are designed to increase effectiveness in the teaching profession, and to provide teachers with new knowledge, information and skills to increase their technical competence and refine their expertise. The General Administration of Training and Scholarship of the Ministry of Education in the Kingdom states that educational training is: "A human activity that aims to bring about changes in the trainees in terms of information, skills, experiences, trends, performance rates and methods of work and behaviour" (Ministry of Education in Saudi Arabia, 1999b).

Training courses can be split into three categories, as follows:

- *Innovative courses*: these are implemented through the organisation of seminars for disseminating educational and research findings;
- *Guidance courses*: implemented for teachers transferred from one area to another to discuss the regulations and internal organisation of each area;
- *Courses to obtain higher qualifications*: these can be sub-divided into

    (a) Local courses: implemented at the level of education management, educational supervision, branch offices, and teachers that receive promotions to management positions, assistants and supervisors, to train them how to complete the tasks that they will be charged with in their new positions.

    (b) Centralised courses: implemented by universities, educational diplomas as courses for university teachers, non-educators, as well as graduate courses such as Master's and PhD courses.

Training courses are a method of effective educational supervision which work to renew the knowledge and promote the development of teachers and improve their performance through briefings on the latest methods of teaching to fulfil their training needs.

From the above presentation of the methods of individual and collective supervision, I conclude that the literature on educational supervision has encouraged the need to put these methods, in particular collective supervision, into practice because of the educational benefits that teachers will obtain through contributing to their own growth, technically and professionally. This in turn will improve the teaching and the learning process in the shortest possible time and with the least effort.

This overview thus demonstrates that methods of supervision are numerous and have been put forward as possibilities for the enhancement of the educational and supervisory field. As a result of these developments, educational supervision is aiming to bring about changes through implementing these advancements throughout the entire educational system. It needs to be noted, however, that in Saudi Arabia these strategies have been implemented in the educational practice with teachers, starting in 2004, by establishing micro-mail groups for teachers, supervisors and managers through the use of the e-mail. This is because the role of technology in promoting the

level of support in teacher supervision and the efficiency of the process was becoming increasingly appreciated (Kale, 2014).

### 2.2.5 The Role of Continuing Teacher Training in Educational Supervision in Saudi Arabia

Teaching training programmes are an integral component of educational systems in Saudi Arabia. According to the Ministry of Higher Education (2006) these programmes have improved teaching performance by evaluating standards for teacher training and ensuring that the standards meet the educational system requirements. For instance, the basic requirement for teacher training is a Bachelor's degree programme of four years duration at any of the universities in Saudi. The teaching courses in the universities follow standardised curricula and have separate departments for various subjects including Mathematics, Biology, Physics, Islamic studies and language (Arabic and English). In these courses, students are expected to select a major within the department and combine it with educational courses to gain a comprehensive understanding of their subjects.

According to the Ministry of Education in Saudi Arabia (2007) continuing teacher-training through education supervision supports the Saudi education system. The ministry has a Directorate of Teacher Training that is responsible for upgrading the skills of supervisors and teachers in supervision processes (Ministry of Education in Saudi Arabia, 2007). This is because the directorate is responsible for supervisory programmes. Branch within local education authorities are responsible for a course unit or subject, with training provided for teachers by several supervisors, according to the number of teachers in the branch area. Each branch also implements different continuing professional and development plans for its supervisors, which support the continuous training paradigm in teacher supervision. These training courses usually take less time (one day) than those in the training centres (3-5 days).

The Saudi Ministry of Education has established three types of continuous training programmes for practising teachers. These are refresher courses, in-house training and supervisory courses. Refresher courses take place at the start of the academic year in the form of group sessions. The teachers normally come in at least three weeks prior to the start of term for three to four hours a day for a total of three to five days. The supervisor is responsible for planning the sessions, arranging activities (such as

lectures, lessons and workshops), distributing readings and supporting the teaching process. The success of these programmes depends on the supervisor's experience, leadership and interpersonal skills with teachers. Therefore, measures must be set in place to ensure that the supervisors are competent to manage the programmes and support teaching training (Ministry of Education in Saudi Arabia, 2007). On the other hand, Sparks and Hirsh (1997) highlight a concern by critics that educators have adopted a passive approach to learning knowledge and wisdom from their supervisors. This concern raises the issue of supervisor training, experience and leadership in influencing teachers on quality teaching. However, supervisors are expected to take training courses on training skills to become professional trainers.

In-house training courses, generally lasting for a total of forty-five hours, focus on training teachers under unit supervisors. The supervisors plan the programmes and request trained professors and educationalists to provide advice and professional support for the courses (Abdulkareem, 2001). The difference between these and refresher courses is that the Ministry of Education defines the outlines and quality standards for the internal training courses. Moreover, the number of trainee teachers is limited, as supervisors select them based on enquiry forms distributed to all teachers of the same subject. Not every teacher who may be interested in training will be allocated a place, or released to attend training by his or her school principal (Alhajeri, 2004). Access to training is discussed further in section 2.7. For those who attend, at the end of the course, the teachers are provided with a questionnaire to help the supervisors evaluate its success (Sparks and Hirsh, 1997).

Another difference between the refresher courses and the in-house courses is that the latter require more planning and preparation in terms of time and costs on the part of supervisors because the internal courses do not use qualified staff. The in-service training courses allow principals and supervisors to enrol for full-time classes lasting four months at an education college. These classes teach subjects such as child and adolescent psychology, human relations, education evaluation, instructional design theories, curriculum methods and instructional technologies (Sparks and Hirsh, 1997). A drawback of these programmes is that they do not have any procedures for following up on the teachers and supervisors for quality control and performance improvement.

The supervisory courses were developed for training educational supervisors. These courses encourage supervisors to take up professional training during the school year by visiting teachers as part of the supervision process. After the training, the supervisors are required to report to their superiors about the supervision activities performed throughout the whole year, including conferences, lessons, and visits to classrooms, teacher visits and meetings. The supervisors' participation in the meetings is assumed to reflect their experience and competencies in managing the teachers under them. Previous reports from the Ministry of Education in Saudi Arabia (2007) show that there is a lack of accurate methods for evaluating supervisors' work and academic qualifications. Teachers apply for supervisory positions or request nominations from their districts. The ministry requires at least four years' experience as a teacher and recommendations from the principal, superintendent or subject supervisor. Thereafter, the nominated individual is required to take a proficiency test and those who pass the test are selected for interview by a committee, which make the final decision to appoint the nominee to a supervisory position.

On the other hand, cross sectional studies on teacher supervision show that the role of principals in the development of staff is relatively passive, especially in developing countries (e.g. Humod, 1998; Alamayrah, 2002; De Grauwe, 2001; Deryakulu and Olkun, 2009). Based on my experience of working for several years as a supervisor in Saudi schools (see Chapter 1, section 1.3 on my stance as a researcher), most Saudi principals leave the function of staff improvement to supervisors. Often, principals neglect their staff development needs and only consider training their teachers as a last resort. This leaves the supervisors with much of the responsibility for recognising training needs and implementing teachers' training courses. However, if this passive role of principals were altered, this could lead to improving learning and teaching performance in their schools. Greenfield (1991) contends that principals should consider school improvement courses and be informed about the role they play in school development programmes. This will improve learning and teaching performance in schools.

### 2.2.6 Practices of Educational Supervision

The system of educational supervision in KSA mandates supervisors to be committed towards overseeing the performance of teachers through continuous observation and evaluation, supporting them and joining the evaluation and following up of the

performance of the instructor and the different aspects of the learning educational operation (Al-Selmi, 2001). The outcome of the evaluation process is accountability, and the educational policy regarding teacher supervision aims at achieving this. With great emphasis on documenting teachers' meeting of criteria, evaluation is based on rating scales and summative assessments founded on civil service standards. While the processes of evaluation and supervision are related, the outcome of the processes can be significantly different. The end-result can either be improvement or accountability (Deryakulu and Olkun, 2009).

As a concept and a practice, supervision of instruction has evolved (Glickman et al., 2004; Hoy and Forsyth, 1986; Musaazi, 1982; Neagley and Evans, 1980; Oliva and Pawlas, 1997). Supervisors in the previous century had strict expectations of teachers and visited classrooms to monitor how closely the teachers obeyed instructions with teachers deviating from such instructions routinely dismissed (Oliva and Pawlas, 1997). Whilst Oliva and Pawlas complain that some school supervisors used an authoritarian approach to carry out their role they nevertheless point out that the focus of supervisors has changed from looking for deficiencies that would cause teachers dismissal to aiding teachers to deal with difficulties.

Hoy and Forsyth (1986) suggest that while assessing teachers' effectiveness may be necessary, it is not supervision of instruction. They regarded evaluation as being likely to hinder and negatively affect future attempts to improve the teaching-learning process. Consequently, they suggested the following propositions as a basis of theory and practice of supervision with the purpose of improving instruction.

1. only teachers can improve instruction themselves;
2. there is a need for teachers to have freedom in developing their unique teaching styles;
3. teaching behaviour changes necessitates social support as well as intellectual and professional stimulation;
4. coercion and a constant close supervision are unlikely to improve teaching;
5. it is likely to improve instruction in a non-threatening situation—this is achieved by not working with supervisors but with colleagues, and by instilling a sense of inquiry and experimentation in teachers (p. 4).

Hoy and Forsyth (1986) thus point out that supervisors should not primarily focus on solving an immediate problem, but study the process of teaching and learning as part of continuing experimentation and evaluation system.

The limitations of current observation and evaluation practice highlight the great need for diversifying and enhancing supervisory practices in educational supervision across Saudi Arabia.

### 2.2.7 Challenges

The purpose of supervision, therefore, is to collaborate with teachers, assist and guide them to improve instruction. There are many challenges to the performance of supervisors such as support systems in education delivery, the characteristics and practices of supervisors and the context within which supervisors work (Baffour-Awuah, 2011). Baffour-Awuah (2011) addressed five challenges that may face the practical supervision which are:

**Knowledge and experience**: researchers have proposed that supervisors should have some skills and working knowledge that enable them to provide the necessary assistance, guidance, and support to teachers, which would improve classroom practices (Glickman et al., 2004; Holland, 2002).

**Training**: another concern is whether supervisors are provided with sufficient training to perform successfully in their practice. Carron and De Grauwe (1997) questioned whether advisers, inspectors and other staff members require regular training, which they rarely receive.

**Professional support**: in addition to the training of supervisors, there is an urgent need for support materials and instruments to support practice. There is the need for databases to monitor and prepare supervision (Carron and De Grauwe, 1997). Another source that supports supervisors are bulletins, access to the internet, and journals. Manuals and supervision guides could remind supervisors about how to follow behaviour and certain practices. They also serve as a platform for supervisors to operate, thus alerting teachers of personal biases of some individual supervisors.

**Combining supervision**: with other duties. Another challenge to supervision is a situation where headteachers, as a result of their position, are financial managers, administrators, and instructional supervisors.

**Teachers' attitudes and supervisors' approaches to supervision**: another concern with regard to supervisory practices is the manner in which teachers react to supervision of instruction. If teachers, who are the main beneficiaries of instructional supervision, possess a negative attitude towards the practice, the whole process will not give the desired result.

Research into Saudi education has found that teachers wish for an alternative supervision model marked by supervisor-teacher responsibility, reciprocal, rather than subordinate supervision, trust and cooperation instead of fear, where the process becomes democratic and not authoritarian (Al-Tuwajri, 1985; Alabduljabar, 2008). Moreover, the use of varied and different supervisory activities is supported by Saudi teachers (Alabdulkareem, 2014).

The essence of supervision and supervisors' practices are related to evaluations and classroom visits. Such practices, for teachers and supervisors, are difficult to separate from supervision. Often evaluation of teachers and supervision are confused, which encumbers supervision improvement. Al-Tuwaijri (1985) points out that "Saudi supervisors generally are of the opinion that teachers feel insecure during the supervisor's classroom visit" (p. 167).

The ultimate goal of the different models and approaches of supervision is improving instruction. Every supervisory system aims to improve students' outcomes by improving instruction. As in other countries, supervision in Saudi Arabia faces many difficulties in realising its objectives. Starratt (1997) points out that, "There is no research that shows that supervision, as it is generally practised, results in substantial and sustained changes in teachers' teaching" (p. 6).

Alhammad (2000) listed the major obstacles of supervisory practices in his study as follows: (1) lack of trust between supervisors and teachers; (2) the supervisors greatly loading teachers; (3) supervisors' lack of training; (4) poor relationship between teachers and supervisors; (5) principals' lack of cooperation; (6) supervisors' office and paperwork load; and (7) the focus on the classroom visit as the only supervisory practice.

Despite implementing many models, there is still the need for more efforts and reforms. There are many common problems in school environment such as inadequate

staff development programmes, mutual suspicion and lack of trust between teachers and supervisors.

Given the shifts in contemporary education and to keep pace with innovations in education, I consider that educational supervision could benefit from adopting modern technologies, such as Web 2.0 tools, which promote communication, efficiency and effectiveness of teacher support during the supervision process. These could be used to communicate with teachers in order to reduce the difficulties encountered such as increasing the number of teachers, geographical divergence and lack of training in the development of educational supervision and the achievement of its educational objectives. This potential would, however, depend on issues of access and attitude. Given that access and positive user attitudes towards technology are the prerequisites of effective implementation of technologically driven programmes or initiatives within organisations and departments (Harris and Rea, 2009). This issues have not previously been addressed in the Saudi educational supervision context, and are among the factors investigated in this research.

The objective of this study is to explore the possibility of enhancing supervisory techniques through the use of Web 2.0 technologies. The significant challenge I faced was to adapt current educational supervisory methods for application through Web 2.0 technologies, for example, applying an interactive workshop through one of the Web 2.0 tools.

### 2.2.8 Summary

This section has discussed the evolution of the concept of supervision and the practices used by supervisors, which included inspection, guidance and supervision. Then it explored educational supervision in Saudi Arabia and discussed the objectives of supervision and the methods of the supervision, which are of two types: individual and group supervision. Moreover, it discussed the ways of training teachers in Saudi Arabia and the various practices of educational supervision.

In the next section, the Internet, Web 2.0 technologies and the ways of employing them in educational supervision will be discussed.

## 2.3 Internet Technologies in Educational Supervision

### 2.3.1 Background: from Web 1.0 to Web 2.0

The World Wide Web, popularly referred to simply as the web) is not identical with the Internet, of which the main feature is a techno-social system that enables people to interact through technological networks (Fuchs et al, 2010). The first generation of web technologies, known as Web 1.0 according to Berners-Lee (1998), could be considered the read-only web and also as a system of cognition. Its origins were as a location where businesses could disseminate information. In its early form the Web offered limited scope for user interactions or content generation; users' engagement was simply in looking for and reading information. Technologies such as TV and radio, or forums permitted communication between users, lacked effective interaction. Such tools were called Web 1.0 where users were passive consumers of content.

Internet technology for the Web has been evolving for many years until it reached the current phase where with Web 2.0 people are able to share information and documents. As such, people do not need any longer to have technological skills to share information on the Web. Moreover, Web users only need to collect information and post it online without any special permission as was the case in many instances with Web 1.0. To compensate for Web 1.0's inability of providing effective collaboration and interaction, research into employing blogs, podcasts, social networks and wikis commenced. The characterising feature of Web 2.0 is enabling users to actively partake in the process of content creation. (Koçak-Usluel and Mazman, 2009).

The second generation of the Web is called Web 2.0, or Read/Write web. O'Reilly Media publisher Dale Dougherty coined the term Web 2.0 to refer to the unorganised revolution of Internet technologies that followed the period of greatly increased technological innovations. Wilson et al. (2011, p. 2) propose a definition of the term Web 2.0:

> Web 2.0 refers to the second generation of the Web, wherein interoperable, user-centered web applications and services promote social connectedness, media and information sharing, user-created content, and collaboration among individuals and organisations.

O'Reilly lists the six principles of Web 2.0: reduction of software releases, shared intelligence, lightweight programming, Web platforms, advanced user experiences,

and mission-critical software (Musser and O'Reilly, 2006). Table 2.1 compares Web 1.0 and Web 2.0 in some features.

| Web 1.0 | Web 2.0 |
|---|---|
| Read only web | Read/ write web |
| Publishing | Participating |
| Content management | Content mashups |
| HTML, Portals | XML, RSS |
| Individual website | Wiki, blog |
| Taxonomy | Folksonomy/Tag |
| Knowledge repository | Knowledge interactivity |
| Creator defines content and design | User defines content and design |

Table 2-1: Differences between Web 1.0 and Web 2.0

The main technologies and services of web 2.0 include blogs, really simple syndication (RSS), wikis, mashups, tags, folksonomy, and tag clouds, some of which are described briefly as follows:

**Blogs** are personal webpages that allow users to interact with others in a more public forum sharing their thoughts, ideas, opinions and feelings with anyone willing to read them (Martindale and Wiley, 2005; Churchill, 2011). **Wiki** is a web page (or set of web pages) that can be easily edited by anyone who is allowed access. Unlike blogs, previous versions of wikis can be examined by a history function and can be restored by a rollback function. Wiki features are included: wiki markup language, simple site structure and navigation, simple template, supporting of multiple users, built-in search feature and simple workflow (Maged et al, 2007; Murugesan, 2007). **RSS** is an acronym, which stands for Really Simple Syndication or Rich Site Summary. RSS is a system of Internet feeds which employs various formats to present users with updates on new works such as news headlines, updated blog entries, videos, audio and other multimedia. Updated works within the Internet are published through RSS feeds in formats of specific standards. RSS documents are referred to as web feeds or channels (Stephens, 2012).

Whereas Web 1.0 offered only content management, it is possible with Web 2.0 to create a new service by combining two or more services, sources of data, functionalities, etc. to create what is known as a '**mashup**' (Maness, 2006). A common

example is the overlaying of map data with data from other sources (Mills, 2005). Thus, a Web mashup is a website or web page which incorporates services and information from different web sources. Mashups can be classified into seven categories: shopping, messaging, search, mapping, movies, mobile and sports. Mapping mashups constitute 40 per cent of all the mashups. It is easier to create mashups than to code applications one of the most important features of Web 2.0 application programming interfaces is their use to create mashups (Ritt, and Hörtler, 2008). In 2004, Thomas Vander Wal (2007) coined the term **Folksonomy** which refers to a "user-created categorical structure development with an emergent thesaurus." Vander Wal divides the definition into two types: broad and narrow folksonomy. In a narrow folksonomy, one or few people with mainly singular terms tag the object. In a broad folksonomy, many people with many tags or a combination of tags tag the same object.

Web 2.0 websites such as Flickr, Meetup, Google, blogs and wikis assist internet use by permitting users to collect and share information for public sharing (Hildreth, 2011). The main focus of this web service is on the ability of anyone to use this platform to communicate as well as find information. In other words it links people. For instance, the users could only read using Web 1.0 whereas the read/write Web 2.0 enables its users to interact as well as find information. It enables users to add their input and opinions, thus making it engaging and interactive. The read/write web transforms a website into a platform of interaction where users design and share content. Web 2.0 sites permit users to post comments and interact via text, audio and multimedia (e.g. Wiki, blogs and Facebook) whereas Web 1.0 only "displayed information" (Solomon and Schrum 2007, p.54). The only way visitors were able to interact was through sending an email to the website's customer service.

The Internet thus changed significantly due not only to the access to bigger volumes of content but also because users are able to access bigger volumes of communities and people (Crook, 2008). Web 2.0 eliminated the text-based architecture of the first generation and started utilising knowledge representation and social interaction based on multi-model representations that comprise audio (e.g. podcast), images (e.g. Instagram) and video (e.g. MySpace) or a combination of them. As such, social interaction over the Internet has changed, rendering it convenient to use dialogue and discourse without the need of text-based mediums. The technologies of the 21st

century have surpassed Web 1.0, which remained traditional in the epistemological sense and sustained by a select few authors (Dede, 2008; Nagy and Bigum, 2007). Nevertheless, Web 2.0 technologies epitomise a radical change for education, transforming from passively acquiring others' ideas to active learning experiences which enable people to investigate, create, collaborate, critique, solve problems and engender understanding (Dede and Barb, 2009, pp 1-2).

The application of Web 2.0 in education supervision for communication and collaboration is the focus of this literature review. The review will discuss the ways that Web 2.0 can be used to facilitate the supervision of teachers.

### 2.3.2 Web 2.0 characteristics/ themes

Web 2.0 is notable for certain characteristics that involve interaction among users changing and enhancing the communication value of Web 2.0 compared to Web 1.0. These themes will be discussed in depth with regard to educational supervision in this section. The section begins with an overview of the communicative potential of Web 2.0 tools based on Anderson's (2007) taxonomy. Specific tools are not, however, discussed in detail at this point, but only mentioned briefly to illustrate Anderson's categories.

In terms of the kinds of communication facilitated by Web 2.0 tools, Anderson (2007) classifies the tools of Web 2.0 as tools for 'one-to-one, one-to-many or many-to-many' conversations. *One-to-one* tools are tools to communicate between two parties, these comprise e-mails, instant messaging, short message service (SMS) and Voice over Internet Protocol (VOIP). SMS and e-mails are text sent to the email address or mobile phone of a user. Those communications, if forwarded via a mailing list, can be spread as one-to-many. Instant messaging encompasses text-based messages sent through a computer to assist make conversations in real-time with other people longer. VOIP permits users to have free Internet telephone calls service such as Skype (Freedman, 2006). Really Simple Syndication (RSS), blogs, podcasts and websites are tools which are part of *one-to-many* communication tools. RSS is a mechanism used to track website changes and to share information with other different websites or blogs. Du and Wagner (2005), meanwhile, define a blog as a 'personalized webpage, kept by the author in reverse chronological diary form' (p.2). Podcasts on the other hand are radio programmes which can be downloaded from the internet to an mp3 player, an

instrument that plays a compressed sound sequence format of audio (Pauschenwein et al., 2006). Finally, websites publish content for public consumption. The content may be static (i.e., it can only be downloaded or streamed) or dynamic (providing customised information). *Many-to-many* communication tools comprise news servers, content management systems (CMS), chats, discussion forums, games and wikis. CMS permits users to create and share content. News servers on the other hand feature news websites which deliver custom based news on the desired topic. The websites that publish text exchanges between registered users organised as threads or topics are called discussion forums. Discussion forums, however, do not permit users to have live exchanges or discussions in the form of video, audio conferencing or text as chats do. Wikis are websites that permit users to collaborate to add, edit and publish information (Freedman, 2006). It is also worth noting that blogs, although referred to above as one-to-many communication tools, could also be used collaboratively to create and share content, which would constitute a many-to-many use similar to, for example, chats and forums.
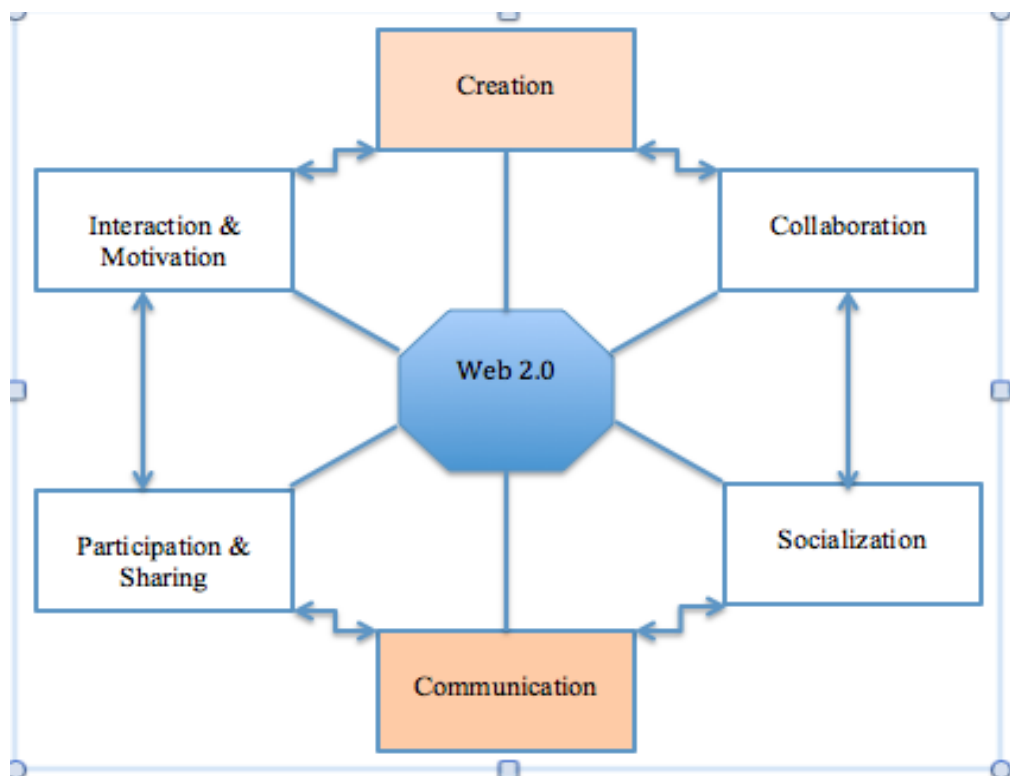


Figure 2-1: Characteristics of Web 2.0

Anderson (2007) states that Web 2.0 technologies have five characteristics, which change the style and efficiency of communication. Figure 2.1, based on Anderson, shows the characteristics of Web 2.0 that distinguish it from Web 1.0: collaboration,

interaction, sharing, creation and socialisation (Sendall et al., 2008, p. 2). The following discussion considers the key principles or features identified in literature as characteristic of Web 2.0, and their potential relevance to educational supervision. In the discussion that follows, greater emphasis will be placed on collaboration, interaction, participation and socialising, as the features that are of particular interest for the intervention curried out in this research.

*Collaboration*: Collaboration takes place when Web users employ online services to benefit from others' knowledge to develop the quality of existing information. Collaboration is defined as a sharing activity between two people or more where there is a post, a reply to that post and then the original poster's response. Web 2.0 assists collaboration through permitting Web users to edit, publish and create artefacts for peer review through the use of websites such as Google documents. Google docs is a Web 2.0 application through which users are able to share or exchange documents of different formats (Vance, 2012). Wiki is a collaborative writing tool that encourages collaboration where a group of authors can cooperate to improve the same wiki site. Wikis permit 'many-to-many' communication, while blogs mainly (thought not exclusively) support 'one-to-many' communication (Klobas, 2006).

Web 2.0 tools facilitate collaboration by permitting internet users to edit, create and publish artefacts which can be peer reviewed through the use of websites such as Google documents (Oblinger, 2008). A study conducted by Gouseti (2012) across the UK and Greece identified the collaborative role of wikis, blogs and discussion forums in four different eTwinning projects. The results of the study indicated the presence of influential factors pertinent to school context for the use of digital technologies and Web 2.0 tools. While enthusiasm for using Web 2.0 is vivid across education, the study highlighted the need for introducing practical solutions for the deployment of such tools across individual and organisational fronts (Gouseti, 2012) various platforms exist to facilitate collaboration. For instance emphasising international collaboration, the British Council's introduction of 'eLanguages' enabled the initiation of virtual environments by teachers (Gouseti, 2012). Created for students, such online platforms facilitate collaboration. The distinctive feature of 'eLanguages' enabled the congregation of partner schools through virtual interfaces across various languages. Gouseti (2012) states that this aspect not only fostered communication and understanding (as in the case of the 'UK-Germany Connection'), but also provided a

platform for various countries to promote their respective cultures (as in the case of The 'UK- German Connection' and 'Schola-21'). Through these collaborative platforms, especially through emails, chat rooms and various forums, students were provided with opportunity to exchange ideas and opinions. On similar lines, the 'Global SchoolNet', established in 1994, has more recently begun to use a range of Web 2.0 tools and helped teachers find learning partners. Apart from this, the collaborative platform created teacher-student networks to share experiences across a supervised environment (Lindsay and Davis, 2010).

A study conducted by Del Moral and Villalustre (2007) and written in Spanish, cited in Frossard et al, (2009), investigated Web 2.0 tools and the development of collaborative projects in rural schools. They stress that 2.0 tools can contribute to improve intercommunication among schools, particularly rural schools, and between schools and their social environment, to promote fluent communication with educational administration, and to promote opportunities of professional development and lifelong learning opportunities for teachers. According to the authors, the versatility of 2.0 tools, and particularly blogs, encourages collaborative work in these settings. Blogs can be used for teachers' training issues, for diffusing the activities conducted in the centre, as well as for involving teachers in telematic-based projects related to curricular subjects, etc. (Frossard et al, 2009). This means the combined use of various telecommunications, television and information technology (IT), to retrieve store, process and communicate information in a verity of audio and visual formats (European Commission, 1997). According to Edublog (http://www.edublog.com), one of the best educational uses of blogs is sharing; sharing material, links, news, promoting publication, sharing media, improving online discussion and collecting feedback. This occurs synchronously and asynchronously with time difference of response. On blogs, collaboration between two or more people takes place almost instantly, or in a few days. (Loving et al, 2007).

This collaboration could be effective in teacher-supervisor communication because both parties can use their Web tools to work with each other to achieve a common goal. This collaboration is more dynamic than Web 1.0, where e-mail attachments are the only method of collaborating between parties. Thus, Web 2.0 could provide a valuable method for supervisors and teachers to collaborate and to encourage or mentor teachers through social learning (Freedman, 2006). Teachers, for example, can

utilise such tools for sharing their analysis of texts, articles and essays, which in turn can have a positive effect on their research skills (Burden, 2010). Moreover, Hoadley and Kilner (2007) note the potential for teachers to reflect and publish comments on other people's works and enhance their communication skills through the comments and sharing of ideas. Supervisors could initiate an educational project and propose activities for each teacher. The teachers can then collaborate with their colleagues in different locations to implement the project tasks or activities (Topcu et al., 2007). Moreover, supervisors can incorporate aggregation services into collaborative websites to help the teachers in the collection and aggregation of information (Alger and Kopcha, 2009). Aggregation services are very useful because they help Internet users collect information from different internet sources and publish them in one location. Through such services, teachers can generate and publish private content from different sources. The supervisors could then access the teacher's content and then publish the information on collaborative websites for further discussion.

***Interaction and Motivation***: Interaction is defined as communication between two parties using ICT. Web 2.0 could support and increase rich interactions between others (Koçak-Usluel, and Mazman, 2009). Interaction in the school setting may be synchronous or asynchronous. Synchronous interaction allows students and teachers (or supervisors and teachers) to communicate in real time. On the other hand, asynchronous interaction allows the parties to communicate at a time that suits them, since the communication is archived for future access. The benefit of asynchronous interaction in a school setting is that supervisors, teachers and students can fit their communication into their schedules; for example, teachers can distribute assignments and coursework so that students can access them or study when they are free. Such asynchronous interaction allows teachers to concentrate their efforts on teaching during class times while marking their assessment later. Web 2.0 allows users to interact with the contents of the web such as leaving comments, live text, audio or video discussions (Weller, 2013). As an example of how schools can apply Web 2.0 tools, Ying (2011) argues that such an interaction aids students in isolated and remote areas to have access to learning materials and to get in touch with their peers. Similarly, the Australian Learning and Teaching Council (2009) refers to the possibility of teachers' interaction with students, accessing their input and their progress by the means of online publishing of their results and assignments.

Evidence shows that students in high school are becoming acquainted with Web 2.0 tools to work together for educative or social purposes (Cochrane, 2014). Information and communication technologies (ICT) are currently used to facilitate social constructivism in classroom learning, as will be described in section 2.5. The role of experience in the process of constructing knowledge among learners is used as a basis of understanding how skills and knowledge of ICT can be enhanced and applied within learning environments. This approach has shifted the focus on technologies (ICT and media) to their application in communication and collaborative learning. When used in this way ICT, and in particular Web 2.0, then becomes a tool for educators and students to interact and share experiences with more efficiency and effectiveness (Deryakulu and Olkun, 2009).

The same concepts could be applied to educational supervision. Web 2.0 provides tools for asynchronous communication by enabling teachers to communicate with their supervisors during their free time, access academic curricula and view coursework requirements. The tools also guide supervisors in creating policies, publishing them on the Web 2.0 sites and allowing teachers to share and edit the published policies. By sharing the policies and other published artefacts using ICT tools, teachers can alter the documents and produce higher quality artefacts that have been accepted collectively (Freedman, 2006). Through Web 2.0, the teachers can contribute resources available on the Internet, produce, evaluate and discuss with their colleagues while teaching (Solomon and Schrum, 2007). Supervisors can provide opportunities for teachers through Web 2.0 tools to create and edit learning artefacts and to review documents published by peers and supervisors. Web 2.0 interaction for educational supervision is thus very different from the tools used in Web 1.0. Sadaf et al (2012), for instance, reveal that mailing lists was the most common technique for interacting with many users in Web 1.0, via e-mail whereas technological developments in Web 2.0 have simplified interaction through tools such as forums and chat rooms (CCH, 2008).

***Participation and Sharing***: refers to the involvement of individual or how often they use Web technology. Participation involves the ability and perception of a Web user to use Web 2.0 services to attain their own goals, whilst being able to distribute content (audio, images, video and text) to other Web users. To understand and identify Web 2.0 use related issues, I researched studies that would inform of the reasons for their

success and of members' participation. I found research focusing on use of specific Web 2.0 applications such as wikis and blogs (Davies and Merchant, 2009; Deng and Yuen 2011; Lin, 2008; Loving et al, 2007; Ray et al, 2005). In studies on participation and interactions of students in a collaborative learning setting, there has been evidence that learning occurs. The studies focusing on the use of social networking sites reported greater bottom-up collaboration (Dron and Anderson, 2007), higher engagement (Stepanyan et al, 2007) and greater participation via social learning (Shin and Lowes, 2008). The conclusion is that Web 2.0 tools should inspire all stakeholders to participate.

Downes (2005) contended that Web 2.0 emergence is a social revolution, not a technical one, which encourages and permits participation via services and applications. New technologies have permitted users to effortlessly publish content online and get in touch with other like-minded people regardless of location. The use of tags permits categorising and finding content with ease (An, Y. and Williams, 2010).

Great attention has been paid in the literature to understanding the nature of participation in online learning. Numerous studies have tried to measure participation in online spaces, provided no definition of how participation was operationalised in the study context. Online participation has been measured through the frequency of visits to the space (Davies and Graff, 2005; Khan, 2005) or the time spent online (Karam and Dutt-Majumder, 2010). Junco (2012), in a study about students' participation on Facebook and their involvement in extra-curricular activities, studied frequency of use and participation in activities but used time to establish engagement as participation in class preparation and extra-curricular activities. Online course participation has often been researched, along with the notions of dropout or attrition (Nistor and Neubauer, 2010) since it has been argued that participation has an effect on the extent of learners' satisfaction and course retention rates (Hrastinski, 2008). Knowlton (2005) was concerned with defining participation in asynchronous discussions and introduced a five-tiered taxonomy. All the above mentioned studies suggest a variety of ways in which participation can be operationalised quantitatively and investigated in relation to other variables. However, they contribute little insight as to why or how participation enhances learning, or the antecedents of participation.

Another group of studies, however, sheds light on factors influencing the level of participation. An important component of participation is the user's daily workflow and design of applications (Lincoln, 2009). While use of Web 2.0 is often viewed in isolation from mainstream work participatory technologies are most successful when integrated into a user's regular work routine (Grote, 2012). Supervisors and teachers therefore need to accept some degree of initial discomfort in the workplace to allow Web 2.0 to become embedded, and for its benefits to be realised (Chui et al, 2009). Moreover, to encourage participation and use the input provided effectively, Web 2.0 applications need to be very well structured. Noveck (2009) makes several recommendations for encouraging effective participation, including breaking work into manageable segments and providing recognition for users who are rated highly in terms of input quality by the user community.

Participation is also affected by the networking effect of the selected Web 2.0 service. The networking effect is the effect of increasing the number of users, which has been associated with improvements in Web 2.0 services to promote their use. Qualitative studies, such as measurement of Web 2.0 user behaviour, show that the services (or tools) with a larger networking effect have higher user participation compared to those with lower networking effects (e.g. Sadaf et al, 2012). A larger networking effect occurs when a user's contribution or publication of content through blogs and other services attracts many other users, who then publish the content on their blogs or services to their friends and the process continues (King et al, 2009). Participation is also facilitated and encouraged by network bandwidth and data availability, which enable users to have access to vast data within online databases and to share it with others (Lincoln, 2009). To maximise the participation of teachers in various Web 2.0 services, it makes practical sense for supervisors to select the service with the highest networking effect. Thus supervisors should focus on existing services that already have a large networking effect rather than create a new service without any networking effect. This will encourage mass participation and help supervisors achieve their goals for helping the teachers.

*Creation*: Anyone is allowed to create and edit pages and contribute to a wiki, for example. Leuf and Cunningham (2001) pointed out that students are able to engage actively in wikis in order to create new knowledge in content creation. Blogs also are

useful for publishing information for the public and allow anybody to be a creator of information. They are a type of content creation tool.

***Socialising***: Web 2.0 encourages socialising through many social networking sites, that is applications of websites that enable users to develop a virtual/online community (CCH, 2008) such as Facebook, Twitter, LinkedIn and Myspace, as well as forums. Since the advent of Web 2.0, social networking has been in the forefront of activities that allow people to communicate with each other. Individuals use social networking sites to share content and ideas, establish new friendships and maintain existing friendships. Owen et al. (2006) note that many social networking sites assist the meeting of different users who share to a certain extent the same values, experiences, beliefs or professions. Networking sites such as LinkedIn, for example, are used by professionals who wish to create career networks as well as for sharing ideas and experiences. These professional networking sites also allow members to share information about their background and projects and to solicit for work from other members.

Web 2.0 thus supports socialisation through the networking effect and increases the social value to users. When translated into the education sector, Web 2.0 can be used to increase the social value of teachers and supervisors by creating a networking effect. Coppola et al. (2002) interviewed 20 online teachers and found that the staff/student relationship was closer online than face-to-face. Increased social value may well aid teachers to feel they know each other, by promoting the use of member profiles. Member profiles can aid teachers to learn more about each other, and as a result to feel a greater personal connection. Instant messaging facilities, for example, could help teachers feel a better sense of presence by empowering them to communicate in real-time, and to have knowledge about others who are online. Teachers can register with social networking sites to share their personal experiences through text, photographs and video, and to gain real-time access to information from other members. Finally, social networking sites produce the networking effect when new teachers join the sites. These new users increase the social value of the websites when they connect with existing teachers and build new relationships with other teachers on the Internet. For instance, when using WhatsApp, teachers could exhibit greater personal involvement and relationship with the supervisors and other teachers.

Highlighting the popularity of social media, the NMC Horizon Report (NMC, 2014) identified the age-oriented use of popular Web 2.0 tools. Whilst if identified Facebook and Google+ as popular tools among 45-54 year old age bracket, the report highlighted Twitter as a popular tool among 55-64 year old age bracket. These tools are experiencing the largest growth in the 45+ age bracket. The report indicated the popularity of YouTube across the 18-34 year old age bracket and identified entertainment and education as purposes of using the tool. Citing Reuter's validation of social media websites as the most active public engagement forum, the study highlighted other popular uses of social networking- crucial news outbreaks and educational purposes. Considering that most journalists are using the tools to spread breaking news and stories, the popularity of social media as a mass media communicative tool is apparent within the contemporary society. This suggests the potential for supervisors to use and encourage teachers to exploit this popularity of social media for educational purposes. Additionally, the report also stressed the importance of social media in education, not only for students but also for educators. Educational instructors' use of social media for sharing stories, interactive learning and teaching purposes was highlighted, in addition to the use of social media as social learning tools for training educators (NMC, 2014).

To maximise the networking effect, Burns et al. (2000) propose that teachers and supervisors should look at the existing social and professional networking groups on the Internet, rather than create an educational networking website or require teachers to register to an institutional networking site. Therefore, supervisors should identify and evaluate the networking effect of each social and professional networking Web 2.0 service prior to recommending teachers to join a particular website.

Social and professional networking sites can be used by supervisors to interact in real time with teachers and also monitor teachers' activities through the social networking sites (McLoughlin and Lee, 2008). Through sites such as Twitter, teachers can follow supervisors and keep up with proposed new techniques and teaching styles. Moreover, supervisors can communicate their views about any pedagogical developments and recommend or suggest new methods of improving teaching in classrooms (Doherty and Cooper, 2009). Professional networking sites such as LinkedIn will allow supervisors to publish content to registered teachers and monitor the teachers by observing user statuses or reading through archived conversations. Teachers will also

have access to supervisors' data and published content. This should enable the teachers to increase their confidence in the supervisor and develop a better social and professional relationship. Finally, supervisors can use the social networking sites to establish personal or one-to-one relationships with the teachers and have real-time data on the progress of the teachers through status updates on the social networking sites.

Although the networking effect has been promoted as a positive aspect of socialisation, social networking sites have the potential to lock people into a certain product or service (Hobbs, 2014). In the case of social networking sites, the main risk is locking in the teachers to the Web 2.0 service to communicate and socialise, rather than promote the educational aspects of networking. This implies that it is possible for teachers to develop misplaced motives for socialising with their colleagues, as they concentrate on increasing their social value for friendship, rather than using the sites to communicate with their peers on pedagogical matters. Therefore, caution should be applied when supervisors recommend the use of social networking sites for educational supervision.

This section has discussed the Web 1.0 as a first generation of the web, the differences between Web 1.0 and 2.0 and the characteristics/themes of Web 2.0 technology. Moreover, the section discussed the ways that Web 2.0 can be used to facilitate the supervision of teachers through these characteristics, which are collaboration, interaction and motivation, participation and sharing, and socialisation. The following section will discuss the affordances of Web 2.0 applications in education supervision in order to discover the potential value of Web 2.0 tools and platforms in education supervision.

## 2.4 The Affordances of Web 2.0 Technologies in Enhancing Educational Supervision

Whilst the previous section discussed the general characteristics of Web 2.0 which can be harnessed to enhance educational supervision, this section focuses on the features (termed "affordances") of specific web tools in order to highlight their potential role in supervisory activities. It should be noted, however, that this is a discussion of generic tools, rather than of specific applications, although some examples will be briefly mentioned. Particular applications employed in the empirical investigation of

this study are identified in Chapter Three, with detailed definitions and explanations in Appendix 8.

A number of scholars have given various definitions of the term 'affordances' over the years. The concept has evolved greatly since it was coined in 1979 by James Gibson (Gibson, 1982), and is now used in various contexts. According to Norman (1999:38), the concept of affordances was originated by James Gibson, a perceptual psychologist. Norman (1999) defines affordances as the design aspect of a particular object that suggests how that object is supposed to be used; that is, it gives a visual clue as to the object's use and function. He goes further to explain that the concept of affordances refers to both the actual and perceived properties of an object or a thing, primarily representing the fundamental properties that determine how a certain object should be used.

Examples of affordances include balls are for bouncing or throwing, plates are for pushing, and slots are for inserting things into (Norman, 1999). It can be deduced that Norman views affordances as emerging from a relationship between an individual acting on the object and the object itself. Other definitions of the term have been offered by other scholars. For instance, Gaver (1991) defines affordances as the qualities of an environment or an object, which allow a person to do or perform a given action. However, Burden and Atkinson (2008) argue that affordances and benefits could be as broad and general as to be almost worthless in terms of planning specific learning experiences. They consider that space and learning design will provide educators with a valuable instrument with which to gauge the potential value of a new technology; in other words, to ask not what the tool can do, but what participants can do with the tool. Nevertheless, the concept of affordances has gained prominence and is used in numerous fields such as cognitive psychology, industrial design, interaction design, artificial intelligence, human- computer interaction (HCI), perceptual psychology, and instructional design (Gibson, 1982; Norman, 1999).

There is no doubt that technology has changed the lives of millions of people all over the world and its impact on education is immeasurable. According to Maloney (2007) recent years have witnessed Internet technology in higher education evolving from being used mainly to communicate, distribute course materials, and enhance the educational process aimed at supporting student learning and evaluation. The

development of Web 2.0 technology has played a crucial role in enhancing the use of Internet technology for uses other than the aforementioned ones. The arrival of Web 2.0, accompanied by a plethora of affordances, has the potential to facilitate greater efficiency and effectiveness in the ways in which teaching, learning, communication, and creation of knowledge are carried out in learning institutions.

McLoughlin and Lee (2007) observe that emergence of Web 2.0 services has led to more personal and social interaction in learning, since they are based on micro-content; that is, digital content that is in small fragments and can be combined and recombined by individuals to produce new interpretations, images, and patterns. Web 2.0 technologies play a crucial role in education and more so in educational supervision by emphasising connectivity, knowledge and the sharing of ideas, active participation, and collaboration among users. Maloney (2007) argues that Web 2.0 goes beyond the downloadable/viewable content which is provided by most internet technologies; it enables users to contribute actively to the content hence shaping it.  Web 2.0 is therefore well- suited for knowledge management, collective knowledge-building, collaborative learning, social interaction, and social networking, which implies that supervisors, teachers/ instructors and course participants can be more personally and actively involved in the educational process (Greenhow et al., 2009).

For these reasons, Web 2.0 applications are potentially appropriate and useful to address the educational needs of the modern era, particularly the diverse needs of students. Since students' educational needs have to be satisfied, educational supervision is critical in helping teachers improve teaching in schools, as it emphasises the supervision of teachers' activities. Web 2.0 applications can help achieve this through the personalisation of supervision, by enhancing teachers' teaching knowledge and experience through customisation, and by providing teachers with rich and extensive collaboration and networking opportunities. What make the Web 2.0 applications unique in education are their social aspects, which have a great potential to enhance education. These social aspects support three activities or components that are characteristics of learner-centred education. They include support for social relationship and networks between people, support for social feedback, and support for conversational interaction (McLoughlin and Lee, 2007).

Ajjan and Hartshorne (2008) argue that Web 2.0 technology is helpful in strengthening teachers' reflections regarding their thinking and teaching activities. Therefore, there is great potential for collaborative learning and enhancing teachers' knowledge through educational supervision. This is because this technology presents excellent opportunities for strengthening communication and personal guidance between supervisor and teacher. This will facilitate improvement in teaching abilities of teachers and in turn teaching in schools. Teachers will, in turn, also need to extend knowledge of the use of Web 2.0 technologies to learners. They should be aware of the benefits of this technology and make adequate preparation for its use in the classroom. Various studies have shown that Web 2.0 technologies can greatly improve students' writing and learning abilities, hence transforming their role from passive to active learners (Greenhow et al., 2009, Aljumah, 2011). This technology enables learners, who in this case include teachers under educational supervision as well as school pupils, particularly with regard to their personal reflections, to become aware of certain phenomena, and engage in enhanced collaborative social interaction, which is critical for learning and teaching.

### 2.4.1 Application of Web 2.0 in Promoting Educational Supervision

In some countries, Web 2.0 technologies are combined for a wide variety of purposes in education and have already gained a certain influence in the educational sector. The eTwinning DigiSkills project (www.e-digiskills.eu) for instance, concerns the recognition of social computing tools as teaching and learning methods. Different electronic learning environments are being jointly created by students and teachers from 10 secondary schools in eight European countries (Redecker et al., 2009). The electronic supervision methods used in eSupervision may be an effective alternative to traditional approaches to teacher supervision (Kopcha, and Alger, 2011).

Researchers accept that Web 2.0 technologies can play a critical role in educational supervision (e.g. Kale, 2014) (See Appendix 8 for more information about how to apply some specific Web 2.0 tools in educational supervision). Inherent capabilities of teachers and supervisors could indicate a kind of affordance because of their awareness of the importance of the job they are doing. The affordances of supervision lie in the monitoring of education through the potential that the supervisor has, since teachers will have difficulty in assessing their own abilities. Educational supervision encompasses a wide range of activities and processes that are aimed at providing

guidance and later, feedback to teachers from an experienced supervisor. The supervisor is expected to be a facilitator who helps teachers and headteachers to reach their goals. The job position and experience of the educational supervisor could provide help and support for teachers to reach their goals. According to Kirschner et al. (2004), there are numerous benefits of efficiency and effectiveness of Web 2.0 technologies that relate to educational supervision.

The numbers and types of Web 2.0 applications are rapidly increasing, making it difficult for some educators to keep pace and understand the opportunities for their use in teaching and learning as well as in educational supervision (Cain and Fox, 2009). In this section, I seek to provide supervisors and teachers with foundational information on generic Web 2.0 tools and their potential use within educational supervision. The affordances of these tools are explained, along with some of the suggested practices for supervisors.  Web 2.0 applications may be grouped into several categories (Rainer and Cegielski, 2011). This discussion focuses on the following because of their relevance to this study:

- Wikis.
- Blogs.
- Web-based digital video tools such as YouTube.
- Social networks such as Facebook and Twitter.

It is important to highlight social, educational, and technological benefits, as they relate to the value of Web 2.0 technologies, particularly with regard to educational supervision: In the context of educational supervision. Technological affordances are defined as the reciprocal relationship between the technology itself and the user of specific Web 2.0 applications (Ajjan and Hartshorne, 2008). Technological affordances are connected with how a specific Web 2.0 application is used; that is, the usability of that particular application. Social affordances relate to how teachers' social interactions are relevant to the technological affordances. Lastly, educational affordances are concerned with whether and how a given user can enact a particular teaching behaviour with speed and ease (Kirschner et al, 2004). By exploiting all three kinds of affordances, an educational supervisor should be able to use software applications efficiently and effectively to provide supportive pedagogical knowledge to teachers (Deryakulu and Olkun, 2009).

### 2.4.2 The affordances of Wikis in Educational Supervision

A wiki refers to a website that is designed to allow individuals to add, alter or remove its content. Wikis can be accessed through web browsers and are commonly developed collaboratively by a group of people (Clinebell et al., 2012). They allow users to post content instantly and can link users into external sources for reference. According to Kuswara and Richards (2011), wikis have numerous affordances that can be applied to enhance educational activities. However, there are five major core benefits of these tools; they are *markable, discussable, versionable, editable, and accountable* (Cash, 2009). The *markable* affordance means the marking up of textual content is possible in order to add structures such as images and links. Most wikis include category and template features. The fact that wiki editors add articles to these templates and articles allows for nearly limitless freedom in the way in which authors structure wiki information. In addition, it provides a chance for a variety of interpretations regarding the organisation of information. The *discussable* affordance of wikis is that the collaboration of the editor is facilitated through a system of discussion. It is one of the most important affordances as it is interwoven into the content structure and the structural administration itself (Maloney, 2007). The namespaces in the discussion allow for social constructivism to take place. The pages in discussable wikis record the mechanisms of the decisions that control the exclusion or inclusion of information. The v*ersionable* affordance means that, (a) previous version(s) of the page used can be viewed, used, and archived. Kuswara and Richards (2011) explain that this affordance allows for collaborative authorship as the conceptual model of the wiki is based on it and it involves numerous authors; hence, there is a need for the storage of previous versions of articles so that the content is not lost. This affordance ensures that there are no fears of loss of content during editing. The *editable* affordance refers to the ability for web page content to be edited easily and quickly by any user visiting the page. The speed and ease of editing is due to the fact it has a conceptual model that separates form and content. Lastly, wikis are *accountable* because they allow the tracing of changes that have already been made to a page; tracing can be done to an IP number or user name. Therefore, this affordance allows users not to discuss the content with others if they are aware of who is responsible for that particular content (Maloney, 2007).

Educational supervision is a collaborative process and thus, can potentially be enhanced by wikis, since their affordances support collaboration (Kuswara and Richards, 2011). Wikis have been widely employed in educational supervision processes and activities, which is basically attributed to their nature of supporting collaboration. This includes sharing of information and research findings between supervisors and teachers through posts on wiki (Clinebell et al, 2012). Most wikis have notification of new content through emails, which would allow teachers to get up to date on the developments of an educational project or activity. Educational supervisors could also post information on wikis such as reference materials through links that would allow teachers to access external such as reports and journal articles on education. This in turn would enhance their knowledge and make them more effective. In this sense it appears that wikis are an appropriate way through which the process collaboration and interaction within educational supervision can be promoted. Wikis can also be used by supervisors to facilitate teachers' research and access to educational programmes, curricular, policies and pedagogy, which can be used to promote their roles in education.

Most supervisors use wikis to store documents, while others use them for documents that are group-authored (Greenhow et al, 2009). In some instances, supervisors use wikis to post rubrics, samples of teaching activities and the syllabus. While some other tools such as Virtual Learning Environments like Blackboard are restricted to teachers and students only in a particular school, wikis created by supervisors can be used by teachers more widely to discuss some educational problems and find solutions to them. This aspect is critical, as it has the potential to increase the knowledge and skills of teachers in relation to educational problems. Moreover, it enables them to discuss and possibly find solutions to these problems. The supervisor may also use the discussion among teachers in wikis to understand what improvements need to be made by the teachers in order to improve teaching. Therefore, from these discussions, he/she can guide teachers and headteachers towards overcoming the challenges that they are facing in the school, hence facilitating achievement of their goals.

### 2.4.3 Affordances of Blogs in Educational Supervision

The second set of affordances to be considered are those of blogs. The term 'blog' is a contraction of the phrase 'web log'. Polin and Light (2010) define blogs as online writing spaces that are chronological in nature and can be constructed either

individually or with the collaboration of several people. According to Edelman and Intellissek (2005) they are easily published, personal websites that serve as sources of commentary, opinion and uncensored, unfiltered sources of information on a variety of topics." (p. 2). In the context of education and also outside the classroom, blogs are in most cases written by a single individual, while other people post their comments on the blog. With regard to educational supervision and blogs that facilitate teaching and learning, the approach used is geared towards having a blog where both the supervisors and teachers can interact. In order to enhance supervision that is collaborative and instrumental in improving teaching in schools, the affordances of blogs provide a situation that is more than a conversational tool, that inspires communication and interest.

Graves (2007, p. 332) observes that blogs have numerous affordances; namely *fixity, reader input, and juxtaposition.* In relation to *fixity*, unlike other news and information media where information may be considered irrelevant to some audiences and hence discarded, blogs provide a safer environment for information and knowledge, thus preventing them from being lost as a result of political or commercial pressure. Blogs make a considerable contribution to providing space for information and knowledge for posterity and to the present generation for access and analysis; this is also done through archives and permalinks. As a result, supervision can be undertaken long after the blog was posted, thus creating an opportunity for teachers and headteachers to improve teaching in their schools.

According to Graves (2007), the second affordance of blogs is *reader input*. Graves acknowledges that blogs provide a collaborative forum for factual and detailed analysis. In essence, blogs act as a platform for dissecting and distilling knowledge, testing their credibility and reliability against each other and against already established facts in order to create a stronger basis for future credible and reliable knowledge. Basically, this affordance is a form of analysis of knowledge and experiences. The final affordance of blogs proposed by Graves (2007) is *juxtaposition*. Blogs allow for rigorous and deep analysis, a process which is facilitated by the juxtaposition that happens on blogs (Graves, 2007). Blogs, unlike other Web 2.0 applications, provide their authors with more time to check and analyse facts. As a result, supervision yields more positive results because teachers will have more time

to understand what the supervisor requires and to research and analyse teaching activities, as instructed by the supervisor.

In addition to the aforementioned affordances of blogs, there are two additional benefits; namely, journal or individual blogs and collective blogs. Polin and Light (2010) observe that some supervisors and teachers create individual blogs, which may be either private or public, where they write and post their comments on certain topics. In a collaborative educational environment, supervisors and teachers are expected to comment on the blogs of their colleagues. Blogs provide supervisors with opportunities to guide and help teachers who are faced with the challenge of creating substantial teaching activities, for several reasons (Polin and Light, 2010). It is worth noting that private individual blogs play a crucial role in providing a platform where teachers are free to reflect on their teaching activities and experiences, in addition to promoting communication between teachers and fellow teachers and also with supervisor(s). My online review of individual blogs reveals that they also serve as journals, which most supervisors feel is a more effective way of obtaining a sense of how individual teachers feel and think about teaching activities. Some teachers follow their supervisors through RSS, for example. RSS is an acronym, which stands for Really Simple Syndication or Rich Site Summary. RSS is a system of Internet feeds which employs various formats to present users with updates on new works such as news headlines, updated blog entries, videos, audio and other multimedia. Updated works within the Internet are published through RSS feeds in formats of specific standards. RSS documents are referred to as web feeds or channels (Stephens, 2012). Teachers would use RSS feeds to get updates on feedback and evaluation reports from their supervisors, or to be informed about educational projects. In addition to individual blogs, collective blogs represent another affordance of blogs. A collective blog is in most cases found on the homepage of the school and is supervisor-directed, and centralised, although teachers also have an opportunity to comment. Nelson et al. (2009) argue that the objective of most supervisors in collective blogs is to encourage teachers to generate a discussion through the posting of comments, which should be in response to the question or statement generated by the supervisor. Blogs can be used as a pre- or post-knowledge activity aimed at generating interests and/or debates among teachers, and also as a way of obtaining feedback from teachers regarding teaching activities. A collective blog is often considered appropriate because the

approach allows teachers to gather facts relating to teaching activities and discuss ways in which they can improve teaching (Polin and Light, 2010). What is more, this approach gives supervisors a chance to gauge teachers' misconceptions and knowledge on certain teaching activities. Various studies such as Iiyoshi and Kumar (2008), Yang (2009) and Blackstone et al. (2007) have indicated that most supervisors and teachers prefer collective blogs and discussion in the blogs as they are deep and wide in scope and enhance teachers' understanding of teaching activities, which in the long term is crucial to the improvement of teaching in schools. A collective blog allows teachers to participate actively in various discussions and problem-solving activities posted by the supervisor in the blog. Furthermore, a collective blog gives teachers opportunities to give a detailed, more critical, and better- informed feedback since they have sufficient time to research and respond to various issues raised by the supervisor.

### 2.4.4 Affordances of web-based digital video tools for Educational Supervision

Audio-visual technology is currently at the centre of educational supervision through Web 2.0 applications, of which YouTube is a well-known example. According to Zahn et al. (2010), Web-based digital video tools enable people to have access to video resources in ways that are constructive. Krauskopf et al (2011) argue that since the benefits of Web-based digital video are critical in educational supervision, supervisors need to integrate their supervising materials and knowledge with this technology. Web 2.0 digital video technologies can be effectively utilised as tools for supervising. They can be used to support and guide the teaching activities of teachers when they are accessing video sources in a constructivist setting (Zahn et al, 2010). However, it should be noted that these technologies yield better results in educational supervision when combined with appropriate supervising tasks and goals.

Audio-video technologies often present more challenges to both the supervisors and teachers than do other Web 2.0 technologies (Krauskopf et al, 2011). It is imperative to emphasise the need for supervisors to have adequate knowledge of how to integrate these technologies into supervision. The technological knowledge aspect should be considered as a part that is integrated into other aspects of the supervisor's relevant knowledge aspects - commonly known as content knowledge (Ajjan and Hartshorne, 2008). In addition, this integration should include teaching activities, supervision knowledge and their intersection. After the integration of all these aspects, knowledge

regarding how digital technologies and external representations can particularly support the understanding of concepts of a given teaching activity through a combination of sufficient instructional guidance and certain tasks are included. As Kirschner et al. (2004) note, numerous studies have shown that promoting technological supervision knowledge content leads to more beneficial effects and an integrative view of educational supervision with technology.

In order for the supervisors to educationally supervise and integrate digital video technology, they must first understand and perceive its affordances and then relate it to their supervision objectives when planning lessons. Essentially, supervisors should start by cognitively integrating these affordances with their knowledge of the instructional guide and given tasks (Zahn et al, 2010). Supervision planning is a complex task and therefore it is important that supervisors integrate a particular technology to a specific supervision situation. Affordances of digital video tools should change the supervision environment by increasing its quality and efficiency. As Krauskopf et al (2011) observe, digital video facilitates educational supervision in a significant way, as it affords supervisors' and teachers' access to educative videos and also serves as a resource that they can use for various academic work. It allows the posting of comments, as in blogs, on affordance with potential to enhance the effectiveness and efficiency of educational supervision (Greenhow et al, 2009). For example, supervisors can view and comment on videos uploaded by teachers of their educational activities (Lee and Lehto, 2013). In addition, it provides an exciting learning environment for individuals who prefer audio- visual communication to textual communication. Moreover, digital video tools not only allow the posting of textual comments but also video responses, in addition to allowing the uploading of videos. In addition, supervisors can download model lessons demonstrating research-based educational pedagogy for teacher and share the links through other applications such as blogs or social networks.

### 2.4.5 Affordances of Social Networks in Educational Supervision

Basically, social networking sites are intended to enhance and promote communication among individuals in a given setting or community. However, recent years have witnessed social networking sites playing a crucial role in other aspects of human life particularly education. The role of social interaction in collaborating, generating, exploring, assessing, solving problems and creating understanding in the 21st century

is phenomenal and inevitably changes the learning process from passive inflow of others idea to active collection of collective experiences (Male and Burden, 2013). While adoption of 21$^{st}$ century technologies has great potential to ensure social interaction and networking, they are not free from issues, related to safety, equity, and policies and financing, although if looked at from a positive angle, with determination and confidence, they can be overcome. Decision-makers in the school system play a key role in the active adoption of new technologies (Male and Burden, 2013).

Although social networking sites such as Facebook, Twitter, and MySpace are widely used for personal purposes, such as communication and sharing photos, they also have a role in enhancing educational supervision in the following ways: content creation, collaborative information sharing and discovery, content modification and information and knowledge aggregation, and creation of social rapport and connectivity. Maloney (2007) argues social networking sites have great potential for initiating and leading remarkable transformations in education. Although most of these technologies were innovated for commercial reasons, they have recently been integrated into educational technologies and appropriated for educational supervision purposes. Supervisors and teachers have been shown to use social networking sites to supervise, learn, teach, and communicate information regarding various educational activities (Polin and Light, 2010).

McLoughlin and Lee (2007) explain that social networking sites are simply enablers of affordances that include knowledge interaction and sharing. However, social networking sites are not adequate in themselves to facilitate educational supervision as they do not guarantee effective supervision of teachers and teaching activities. It is for this reason that there is a need for a thorough understanding and careful planning of integration of social networking sites into the educational supervision environment. Social networking sites, unlike some Web 2.0 applications, are easily and quickly accessible through computers and even mobile phones. Individuals can open their own personal accounts and have almost full control of the content in their accounts. In addition, they have control over the number and type of people who can access the account through deciding who to accept as friends, who to block from commenting, and deleting the contents and comments that they deem undesirable. Schools can have their own accounts as well. These social networking sites can act as forums through which supervisors focus on teachers and teaching activities by providing help to

teachers and headteachers to reach their goals. A good example of such an account is in Facebook, where a school has an account managed by supervisor(s) and only accessible by supervisors and teachers of the respective school. News and events can be posted in such an account. In addition, a topic can be posted on the wall of the account to allow discussion from the teachers regarding the topic.

Despite the popularity of social networking sites for personal use, their use for educational purposes has so far gained less popularity compared to other Web 2.0 technologies such as blogs and wikis (Polin and Light, 2010). Many supervisors prefer using other Web 2.0 technologies to supervise teachers and teaching activities with the aim of improving teaching in schools. There are several reasons suggested for the slow uptake of social networking sites in educational supervision. One of the reasons cited is that they sometimes have character limits, limiting the amount of words used and hence information may not be conveyed clearly. Twitter, for example, allows only 140 characters. The second limitation of these sites is that they are only accessible by the user's followers in the case of Twitter and friends in the case of Facebook. Nevertheless, the use of social networking sites such as Facebook and Twitter is gradually gaining prominence in enhancing educational supervision (Minocha, and Petre, 2012). Nelson et al. (2009, p 87) observe that social networking sites are effective in educational supervision when they are used with a high level of supervision and only target a specific audience. They can also be used to make short comments such as "Communication is important in improving teaching".

### 2.4.6 Factors to Consider in Applying Web 2.0 in Education

When employing Web 2.0 services to assist education supervision, access to tools through broadband networks should be guaranteed within schools (Campbell et al, 2011). Institutions should be contacted about the software and hardware required to assist such interaction. Moreover, there is the need to check how reliable the software and the hardware are as well as discussing the requirements for keeping the Web presentation and publication working (Attwell, 2007). Furthermore, the issues and causes, which may constrain and restrict the teachers' access to the Web in schools should be taken into account (Freedman, 2006). Consideration should also be given, for example, to issues of control, privacy, filtering and security.

According to CCH (2008) despite the increasing presence of Web 2.0 technologies and particularly free user-generated information, most professional educators or educational organisations believe in paid premium resources for securing critical information. The same source highlights credibility issues present in Web 2.0 tools and services, as professionals do not place their trust in the technology to supply services related to commentary, research and advice services. CCH claims the existence of a distinctive gap between free and premium services in relation to the trust factor and critical information and supports that while premium services thrive on this gap, an increase in the credibility of free services would push the premium services to develop and offer richer services and enhanced interfaces to distinguish and market themselves.

With respect to professionalism, an online research study conducted by CCH (2008) in August-September 2008 on 229 professionals within organisations across the Asia-Pacific region assessed the impact of Web 2.0 and user-generated information on their capacities of accessing, absorbing and using the information. The results of the study indicated that the majority of professionals used online tools to access more information on their respective industry's developments and Web 2.0 was viewed as an extension of online research services. Given the free access and ease of using such tools, professionals indicated its high accessibility and need for migrating to Web 2.0 from their current work processes. Although only 8.3% felt Web 2.0 was irrelevant to their work, professionals identified security and privacy of data as a primary barrier for Web 2.0 adoption in professional fields. Teachers and institutions have to make crucial choice whether to use the open Web 2.0 world, or to opt for bringing services within their 'walled gardens'. The "walled garden" is a term coined by former TeleCommunications, Inc. founder, John Malone to describe a closed network that limits subscribers' choices to a restricted range of content (Van Tassel, 2006). Walled garden might appeal to teachers who value control and privacy; other teachers will wish to their students to experience wider exposure and communities of practice and as a result may choose external services on purpose (Strawbridge, 2010). Walled garden can be used to create a close educational social network for educators (supervisors and teachers).

'Learning 2.0' practices by Redecker et al. (2009) points out that there is a need for a structured approach for the online and collaborative learning tools which involves

selecting the tools carefully based on students' experiences and attitudes towards social computing, learning objectives, and students' preferred interaction patterns. The tasks of Web 2.0 in educational supervision need to be transparent, relevant and targeted, with assistance, guidance and support being available from the supervisor whenever the teacher needs it. Redecker et al. contend that the role of the teacher includes being a moderator, mediator, mentor, designer and coordinator and thus the teacher's role is vital.

Because many Web 2.0 tools are open to the public, the creators of these sites do not filter the content creation of others. However, supervisors need to ensure that the appropriate filtering systems are implemented to control the content published or contributed by different teachers (Bacigalupe, 2010). Filtering online content for meaning, context and relevance is becoming very important and the availability of trusted expert aggregators and editors will aid users to deal with the enormous amount of online content (Ashley et al, 2009). Cloudmark is an example of an off-the-shelf collaborative spam filtering system. This system works by filtering email conversations in the collaborative software and identifying keywords that can be used in decision-making. Furthermore, there exist tools that permit manipulating and filtering content of RSS feeds, using search terms and keywords to find the required information. Development websites as Global Voices utilise software and people to filter, add and translate online content.

Strawbridge (2010) summarised in a table many issues and risks of Web 2.0, along with approaches to addressing them. These issues are: Data protection, Copyright and IPR, Control and Liability, Security, Reliability and availability of service, Reliability of service provider and Audit trail. The Government of the Hong Kong Special Administrative Region (2008) highlighted that the ultimate principles of application security should not be ignored or overlooked. There is a need to build security into Web 2.0 applications in the early stages of development. Before deploying applications, security processes, management oversight and controls should be in place. There is the need to conduct ongoing and periodic security risk assessments in order to identify and fix vulnerabilities. Moreover, there is the need for all application developers, management and end-users to work together to deal with such challenges in the Web 2.0 era.

An and Williams (2010) identified the best practices and tips for teaching using web 2.0 technologies. Those are, not introducing too many new technologies to students in one term, not using numerous technologies that do the same purpose, providing tutorials, examples, instruction and frequent feedback, facilitating collaborative learning as well as promoting a sense of community in the classroom before attempting public collaboration.

### 2.4.7 Summary

Web 2.0 services permit educators and supervisors to share, publish and create their constructed knowledge artefacts for social constructivism. This is defined as the process through which educators engage with each other within the socialisation activities and exchange meaningful thoughts, ideas and experiences (Campbell et al, 2011). The application of Web 2.0 in educational supervision for communication and collaboration has been a major focus of this literature review. The review has identified the main principles of Web 2.0 as collaboration, interaction and motivation, participation and sharing, and socialisation. Web 2.0 supports collaboration by allowing teachers and supervisors to create, edit and publish pedagogical artefacts for peer review using collaborative websites such as Google documents. Secondly, Web 2.0 supports interaction and motivation by providing tools for synchronous and asynchronous communication between teachers and their supervisors, and enables teachers to access archived conversations during their free time, review academic curricula and assess their progress from the supervisor. Thirdly, Web 2.0 services have the potential to promote mass participation and sharing between teachers and supervisors. The users should not have any problem accessing the tools for supervision when the services are reliable and use intelligent techniques for continuous improvement to encourage participation from teachers and the supervisors. Finally, Web 2.0 can facilitate socialisation through forums, chats and social networking websites. According to Campbell et al (2011), supervisors should recommend social and professional networking sites with the highest networking effect to guarantee participation and improve the teacher-supervisor relationship. Moreover, higher networking effects increase the shared bond between teachers and supervisors and could lead to pedagogical improvement and social skills development among teachers. This could enhance their capability and improve their exchange of knowledge.

Kopcha and Alger (2011) add that supervisors should keep up-to-date with technologies and applications.

While the contemporary educational system and supervision are evolving at rapid pace to match revolutionary technologies such as Web 2.0 tools, the practical application of Web 2.0 tools in educational supervision requires further exploration and explanation. The experiences that the educational supervisor conveys to teachers can be considered as a kind of learning. The role of Web 2.0 in this process raises questions about how learning occurs. The following section contains a brief overview of three of the best-known theories used in education: behaviourism, cognitivism and constructivism and then introduces and discusses the more recent learning theory of connectivisim, in the search to establish the best way to manage supervision and teacher learning.

### 2.5 Learning theories and use of Web 2.0

*The pipe is more important than the content within the pipe.*
*Our ability to learn what we need for tomorrow is more*
*important than what we know today"* (Siemens, 2004).

According to Mergel (1998), there are three main paradigms of learning theories: behaviourism, cognitivism and constructivism. Behaviourism explains human behaviour and establishes or determines new patterns of repetitive behaviour in individuals. This theory is based on patterns of observed behaviour and the relationship between the cause of the behavioural pattern and the effects of learned behaviour. Behaviourism holds to the unknowable nature of learning; it is impossible to figure out what happens in the mind during learning – as such, behavioural change is learning. The theory posits that discerning observed behaviour is more important than understanding the internal processes and that human behaviour is determined by a response process and simple stimulus.

On the other hand, the theory of cognitivism tries to explain the thought process that influences behaviour. Observable changes in an individual's behaviour are used to explain the cognitive processes leading to that behaviour. According to the cognitivist theory, humans' minds resemble computers; they receive data and input, keep the data and input in the short-term memory, store them in long-term memory, retrieve them when needed, and produce an output (McLeod, 2008).

Finally, the theory of constructivism is concerned with the individual's construction of the world, based on his or her experiences, perception, beliefs and knowledge. This theory explains how social interaction can influence individual behaviour. Constructivism argues when learners attempt to make sense of their experiences they consequently create knowledge. Moreover, constructivism posits that selecting and following learning actively help learners to construct meaning. Therefore constructivism is relevant in the digital age because technology is used to ensure active participation of learners in the process of learning through the use of software applications and online tools to share and exchange knowledge and experiences (Luther, 2015).

In the digital age, information is in a continuous state of creation, development, distribution and acquirement. Technology has become a paradigm that cannot be ignored within educational organisations (Courville, 2011). Technological changes are entering education at a very rapid pace and new training and educational paradigms are constantly being developed. These paradigms are influenced by the desire for flexibility in the provision of interactive learning environments for students (Iiyoshi and Kumar, 2008). Thus, connectivism has emerged as the latest learning method to use digital connections. It presents the advantages of informal learning, which can, at some point or another, meet individuals' needs. Currently, learning can take place in any location in various ways, with no limits of time (Marais, 2010).

The developer of connectivism, George Siemens, points out that connectivism is a learning theory, which is contextualised in a digital era characterised by the impact of technology on education. According to Siemens (2005, p. 1) "Learning is a process that occurs within nebulous environments of shifting core elements – not entirely under the control of individual". Further, Siemens (2006, p. 39) defines learning "as chaotic, continual, co-creation, complexity, connected specialization, continual certainty".

Connectivism describes learning as a constant process that takes place in various settings, such as societies of practice, personal networks and places of work. This theory is important in the learning processes because it supports pedagogy of leaner participation or active involvement in all learning activities.

The theory of connectivisim is based on the following principles:
1. "Learning is a collection of opinions.

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2. The learning process consists of connected information nodes or sources
3. Learning can be stored in computers and non-human objects
4. Learning occurs when the student's capacity to comprehend knowledge is greater than what the student knows
5. Learning should help students understand the decision-making process
6. The availability of timely, accurate and current knowledge is paramount to the success of the learning program" (Siemens, 2004, p. 5).

Connectivism allows teachers to shift focus from their textbooks and teaching presentation to the actual student. Knowledge is emphasised by this theory, which stresses the need to help students gather, access, synthesise and publish knowledge in print or in online media. This knowledge is no longer under the control of experts, but has been distributed and is accessible to all students. In connectivist-based learning, the role of the teacher has changed from that of providing material and presenting lectures in class to one of helping students create, publish and share knowledge using Internet-based technologies. This is unlike constructivism, which is not based on active participation and contribution of learners to the learning process and teaching methods (Campbell, et al, 2011).

In the connectivist theory, learning is regarded as a process where the role of informal information exchange greatly increases. Learning becomes "a continuous, lifelong system of network activities, embedded into other activities" (Bessenyei, 2007). Bessenyei further stated, "The motivation for gaining and contextualizing information becomes stronger if searching and evaluation become a cooperative, network activity" (p.4). Therefore, the collective knowledge anew turns into a source of individual knowledge. ''As the number of cooperative activities increases, personal social networks become the scene of informal exchange of expertise, and "communities of practice" develop.

According to Selwyn (2008) connectivists support content growth and continuous communication, which is readily facilitated by Web 2.0 technologies. Web 2.0 technologies support the connectivist learning theory because they provide teachers with tools for distributing the vast knowledge in the Internet to students in the classroom. Web 2.0 further supports the theory by providing services for collaboration, participation and sharing, interaction and motivation, and socialisation. Murphy and

Lebans (2007) posit that the technologies help teachers and supervisors promote content creation and sharing, and communication (through participation and interaction) to improve learning in classes and cognitive development in students (Redecker et al, 2009).

According to the connectivist theory, interaction takes place in a network, which Siemens (2004) defines as a number of connections between individuals' identities. These different identities are integrated into a body; thus any alteration has an effect on the entire network together with the individuals it contains (Siemens, 2004).

Hence, learning produces networks (Siemens, 2006). What happens in people's minds is the product of internal networks. Patterns of understanding are created by internal structure. Various nodes comprise the external network; such nodes can be organisations, people, websites, etc. Connecting up-to-date knowledge is the aim of the external network. Siemens (2006) highlights that learning and knowledge are processes, which take place in vague settings of unstable foundations without individual control.

For this reason, connectivism proposes designing instruction should be substituted with designing ecologies. Siemens describes ecology as an unceasingly evolving system. Such a system offers the learner the control to investigate aims outlined by that learner (Giesbrecht, 2007). Connectivism adds to the value of an effective education process because it is based on networks that are in continuous interaction with each other.

In accordance with the postulates of connectivism on the learning environment or ecology, synchronous and asynchronous tools are indispensable as extensions of interactive course environments (Sadaf et al, 2012). Those tools are blogs, RSS, wikis, etc. Nardi et al. (2004) describe a blog as a social networking tool that permits the sharing of information among individuals. Blogs can be collaborative platforms in which individuals discuss, and create text and meaning (Richardson 2006). Thus, it promotes a manner of thinking which is greater than the learners' isolated experiences.

The online tools discussed previously belong now to Web 2.0, which assists a socially-connected Web where everyone has the ability to edit and add to information

(Anderson, 2007). Moreover, Mason and Rennie (2007, p.198) argue that users of Web 2.0 are "less passive receivers of information and more active co-creators of content"

Online interactivity supported Web 2.0 tools are limitless and keep coming out daily. The express improvements in social networking along with the open source movement permit free sharing of information and establish the foundation of e-learning 2.0, along with its embedment in activity, network, and self-organisation (Darrow, 2009).

### 2.5.1 Connectivism and Supervision

Educational systems require new supervisory approaches in order to bridge the gap between the old and new approaches (Ministry of Education in Saudi Arabia, 2007). One of the aims of this study is to make suggestions as to the use of Web 2.0 to facilitate and enhance the relationship between supervisors and teachers.

First, I will discuss how connectivism principles can be used as criteria for the relationship between supervisors and teachers along with the transmission of knowledge between them. In principle, the interaction between the supervisor and the teacher shows that the learning is a collection of opinions where the supervisor and teacher share each other's ideas and opinions to aid them in their experience. Furthermore, the learning process between supervisor and teacher consists of connected information nodes or sources where they exchange information and sources. Also, they can store their findings and suggestions in computers and non-human objects, which make it very easy to retrieve them at any time. Moreover, they benefit from each other, as they are still open to new methods and suggestions and so can keep with the latest methods. Moreover, the process of decision-making for teachers and supervisors is seen as a learning process for them. For instance, choosing a suitable approach for teaching is considered a kind of decision-making that proves that the teacher and supervisor are still learning through the decisions they take.

The availability of timely, accurate and current knowledge is paramount to the success of the learning programme (Siemens, 2004). Learners in the digital age are no longer dependant on their own knowledge acquisition, storage and retrieval but depend on the connected learning that comes through interaction with different sources of knowledge (Brindley et al., 2009). For this reason, it would be beneficial for supervisors to collaborate with teachers by incorporating Web 2.0 applications. Therefore, by using Web 2.0, teachers and supervisors can promote collaborative learning. Technology has

brought a great deal of information that supervisors and teachers can access to promote effectiveness in supervision and learning; it is a source of social interdependence that can offer them many advantages through its careful integration into their work. Web 2.0 gives supervisors a platform for interaction with teachers and other supervisors even in the absence of face-to-face meetings. Teachers are able to access the expertise of varied supervisors, with Web 2.0 providing a channel through which the supervisory and training process can be maintained continuously process. Internet technology also gives supervisors a means of sharing the findings of their studies with both local teachers and supervisors and others anywhere in the world.

Siemens (2002) classifies four stages of learner-learner interaction. These stages are: communication, collaboration, cooperation and community. It is interesting to note that the same stages apply to teacher-supervisor interactions. As for the phase of communication, the teacher and supervisor talk and discuss common teaching ideas and any educational concerns. In collaboration, the teacher and supervisor share ideas and work together in a loose environment. Cooperation entails the teacher and supervisor doing things together, but each with their own purpose. As for community, the teacher and supervisor do their best to achieve a common purpose.

Through the benefits of social bookmarking, it becomes very easy for supervisors to share their findings and information with teachers regardless of distance. Social bookmarking is a method for user to store, tag and share links through the Internet. Users can then access these links from any computer anywhere anytime.

 This facilitates the carrying out of multiple searches, as information can easily be shared among connections to provide materials for the study process. The use of Web 2.0 technologies therefore links perfectly with social theories of learning as it provides for social networking with collaborative tools that enhance the accessing of knowledge by supervisors and teachers. The Internet thereby becomes an interactive and engaging learning platform for both supervisors and teachers. It promotes discussions that help teachers to benefit from contact with one another.

Supervision provides a platform through which learning not only involves teachers' ability to convey information but also gives them the ability to facilitate and guide learning while at the same time designing learning environments, which meet the needs of digital learning.

With a connectivist approach, the application of knowledge in supervision and in teacher development helps supervisors to recognise knowledge as an actual connection through the knowledge of where, when, and why instead of concentrating on how, and what and when to supervise. This approach is necessary for the digital era, which is bringing about dramatic changes in the importance of content knowledge (Sahin, 2012). Teaching is currently in need of teachers and learners possessing the required critical ability for Internet content (Kop, 2011). Consequently, learners conversant with the Internet are in a better position to establish networks of personal learning and teaching. By doing so, it is easier for them to prepare to confront the emerging demands of new learning and teaching approaches.

Through the principles of connectivity, the supervisor can lead his or her team into the visualisation of common goals working through means ends and ways to achieve them in a rational manner (Ministry of Education in Saudi Arabia, 2007). Web 2.0 technologies provide a practical platform through which the varied rationality of individuals can be accessed in order to influence the participation of teachers using particular philosophies for the achievement of common goals (Bell, 2010). The development of competences through the provision of Web 2.0 technologies helps teachers formulate ways of enhancing the achievement of personal goals with the aim of meeting the collective goals of their schools (Lau, 2010). This alignment of individual goals with the school vision can help the community to prepare to face the future (Courville, 2011).

### 2.5.2 Summary

Connectivism emerges as a neutrally-motivated learning process and with provision of the appropriate environment; teachers and supervisors can use technology to access the variety of information on the Internet and present their ideas and learn from virtual communities of teachers and supervisors. However, teachers and supervisors are still considered as learners and so this theory can develop the approach of acquisition of knowledge by depending on the criteria of Siemens' theory.

The following section will offer a new approach to educational supervision, drawing on connectivist learning theory and the affordances of Web 2.0 technologies presented earlier, as a framework to be trialled and evaluated in the empirical part of this study.

## 2.6 A new approach to the practice of educational supervision

The literature reviewed above suggests that effective supervision can be facilitated and enhanced by using various types of on-line supervisory approaches when working with teachers and principals in virtual spaces, with the potential for positive impact on students indirectly. Selecting the most effective on-line intervention will be an important factor in effective supervision, with specific attention paid to collaborative and non-directive supervisory behaviours. Online supervision like face-to-face supervision aims to harmonise organisational goals and teachers' needs with the ultimate aim of benefiting student learning. Achieving this will require some restructuring and adaptation of supervisory tasks. Provision of on-line assistance to teachers has the potential to support the group development, professional development, curriculum development, and action research activities, which in turn can enhance pedagogical effectiveness (Cano and Garcia, 2013).

This implies a substantial change in educational supervision models that have traditionally been applied in Saudi and all over the world. A study conducted by Burden (2012) identified the significant role of three major affordances of Collaboration, Participation and Practice and Knowledge Construction in teacher learning through Web 2.0 technologies and highlighted the positive impact on teachers' learning, thinking, practices and professional development. With recommendations to highlight the potential of digital technologies in learning and extending the adaptation of social construction of knowledge along with individual acquisition, the study highlighted the importance of digital technologies in education. In contrast, Vrettaros et al. (2009) in Greece reported the negative views of adult educators towards Web 2.0 tools and services. However, the study progressed towards highlighting the need of spread of the capabilities of web tools and services in education, and placed emphasis on gaining competences through the use of tools and services. The need for introducing training sessions for educators on web tools and services was highlighted in the study. Apart from stressing the need for training, the study reflected the ease of adopting Web 2.0 tools and services, claiming that educators who are not trained in ICTs can easily adopt or approach Web 2.0 tools and services.

Reflecting on the need for training, another study conducted in the health science and practice education across universities in the UK by Ward et al. (2009) stressed the need for developing and adapting to Web 2.0 technologies. With the study results showing

low use of the technology blogs (44%) and wikis (28%), the study identified barriers to technology adoption. Low student maturity, poor organisational climate, and gap between academic and personal online activity frequency were considered as potential barriers. The study concluded with the need to change attitudes and culture towards adoption of Web 2.0 tools and services.

Supervision does not seem to have implemented Web 2.0 technologies effectively as yet. I consider that Web 2.0 can create opportunities for educational supervisors to become more involved and engaged with teachers in various supervisory activities. However, the question is: Are supervisors and teachers ready to adopt these new interactive digital technologies in the context of supervision? This study is an attempt to answer this question. However, I propose the following strategies to improve the functions of supervisors to implement Web 2.0 in educational supervision. Toward a framework for practice of Web 2.0 technologies in Educational supervision, at the end this section, the implementation of some Web 2.0 technologies will be discussed, showing practical steps for each application, providing a basis for carrying out effective supervision by using some Web 2.0 applications. Table 2.2 summarizes the characteristics and affordances of Web 2.0 technologies, gives examples of applications and explains how these can function in educational supervision.

| Web 2.0 | Applications | | | | Affordances | Good supervision |
|---|---|---|---|---|---|---|
| | Wikis | Social | YouTube | Blogs | | |
| Collaboration | √ | | | | • Markable.<br>• Discussable.<br>• Versionable.<br>• Editable.<br>• Accountable. | • Creation of wiki by supervisor.<br>• Invite teachers.<br>• Harness knowledge.<br>• Improve the quality of available information.<br>•  Build the content and administrative structure.<br>• Interpret text.<br>• Solving some educational problems.<br>• Reflect and publish comments from teachers.<br>• Collection and aggregation.<br>• The content can be edited easily and quickly by supervisors and teachers.<br>• Filtering system to control the content published.<br>• Discuss educational problems and find solutions.<br>• Tracking changes that have been made to a page by supervisors or teachers.<br>• Guide teachers and headteachers towards overcoming challenges. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | • Supervisors and teachers can view, use and archive previous versions. |
| Interaction and motivation | √ | √ | | √ | • Synchronous interaction (real time)<br>• Asynchronous interaction. | • Communication between supervisors and teacher in real time can take place in a social network.<br>• Communication between supervisors, teachers or peers at a suitable time can take place in blogs and wikis.<br>• The supervisor can distribute information that teachers can access to read and response when they are free.  The supervisor can also track teachers through conversations and publication of their experiences and policies.<br>• Teachers can contribute resources available on the Internet, produce, evaluate and have discussions with their colleagues. |
| Participation and sharing | | | | √ | √ | • Fixity.<br>• Reader input.<br>• Juxtaposition. | • Creation of blogs by supervisor and teachers.<br>• Provision of information and knowledge from supervisor or teachers.<br>• Access and analysis through archives and permalinks.<br>•  Analysing and summarising knowledge, testing their creditability and reliability against each other in order to create a stronger basis for future credible and reliable knowledge. |

| | | | | | | Journal<br>* Individual blog<br>(private or public). | • The supervisor can provide some teaching activities that will give more time to understand what is required and to do more research and analysis.<br><br>• Blogs can serves as journal.<br>• Teachers and supervisors can write and post comments on certain topics on their colleagues' blogs.<br>• Supervisor can guide and help teachers who are faced with the challenges of creating substantial teaching activities.<br>• Promoting communication between teachers and fellow teachers and also with supervisors.<br><br>• Collective blogs can be found on the homepage of the Ministry of Education portal for example, which gathers together all supervisors' blogs and teachers also have the opportunity to comment as well.<br>• The supervisor produces statements or questions by supervisor to generate a discussion among the teachers.<br>• Obtain feedback.<br>• Allow teachers to participate actively in various discussion and problem-solving activities posted by the supervisor in the blog. |
|---|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | • Teachers can raise an educational problem they have faced with their students and have a discussion to find a solution. The supervisor can act as organiser. |
| | | | | | * Collective blog. | • Support and guide teachers' activities when teachers access video resources (YouTube). <br> • Supervisor or teachers can indicate or link lectures or other activities to share with others. <br> • Supervisor or teachers can download typical lessons. <br> • It is easy to create a special channel on YouTube. |
| | | | | | • Educative video and enabling textual comments. <br> • Allow uploading video as a response. | |

| Socialisation | | √ | | | • Knowledge interaction and sharing.<br>• Easily and quickly accessible.<br>• Popularity.<br>• Interact in real time | • Recommending professional networking. LinkedIn is most suitable for supervisor and teachers. Twitter is suitable as well.<br>• Supervisor and teachers can open personal accounts, as can schools.<br>• Interact in real time with teachers and also monitor the teachers' activities.<br>• Teachers can follow supervisors and keep up with new techniques and teaching styles.<br>• Communicate teachers' views about any pedagogical development and recommend or suggest new methods of improving teaching in the classroom.<br>• Providing help to teachers and headteachers.<br>• Posting news and events.<br>• Topics can be posted on the wall of the account to allow discussion among the teachers.<br>• Enhance the relationship between supervisor and teachers by treating them as friends.<br>• Sharing personal experiences or ideas through text, photographs and video, as well as chat. |
| --- | --- | --- | --- | --- | --- | --- |

| | | | | | • Increase the social value when new teachers connect with a group of the supervisor's teachers and build new relationships with other teachers (one-to-one relationships). |
|---|---|---|---|---|---|

Table 2-2: Summary of the affordances of Web 2.0 technologies in educational supervision

Figure 2.2 is an example of how supervisors can introduce Twitter and use it to promote the efficiency of educational supervision.



Using Twitter in Educational supervision based on the Lawns, University of Hull 2014

Figure 2-2: Using Twitter in Educational Supervision

**2.7 Introducing Technological Innovation**

**2.7.1 Models and theories of factors influencing adoption**

Previous research suggests that even when technology resources are available, teachers are slow to use them (Cuban et al., 2004; Wells and Lewis, 2006; Bayerl, 2008). This observation has attracted the attention of researchers to the effort to understand the factors that influence the adoption of innovations in general and technology in particular in educational contexts. Such efforts have drawn on a number of models and themes, some developed outside the educational field, which have been applied in a variety of national and international contexts.

One early model that has been widely used is the Technology Adoption Model (TAM) (Davis et al., 1989), adapted from the Theory of Planned Behaviour (TPB) (Azjen and Fishbein, 1980), which suggests that attitude predicts intentions, and that these in turn predict behaviours. The TAM views attitude towards use of a technology as a function of perceptions of its usefulness and ease of use, both of which are influenced by external variables. The factors are unspecified in the model, but Davis et al. (1989) suggest they include factors such as training and user support. The model has been applied and verified in such contexts as website acceptance (Heijden, 2003), visual learning (Teo et al., 2003), the World Wide Web (Venkatesh et al., 2003) and Indian college students' Internet use (Fusilier and Durlabhji, 2005).

A more elaborate explanation is offered by Innovation Diffusion Theory (IDT) (Rogers, 1995) which refers not specifically to technology, but to any kind of innovation, an innovation being defined as "any idea, practice or object perceived as new by an individual or other unit of adoption" (Rogers, 1995, p11) while diffusion is the communication of an idea or practice over time among members of a social system (Rogers, 2003). Rogers (1995) explains innovation diffusion in terms of a five-stage decision process, from knowledge (the initial awareness of the existence of the innovation, which might be consciously sought out due to a perceived need, or presented by external sources through persuasion and the initial decision, to implementation and, finally, confirmation of the decision. Rogers argued that persuasion and the initial decision are influenced by perceived characteristics of the innovation itself and its relative advantage compared with the status quo or the other available options; its compatibility with existing values, experience and potential needs, its complexity, the opportunity to test it (termed 'testability') and the visibility

of the results (termed 'observability'). These five characteristics have been found to explain up to 87% of the variance in the rate of adoption (Rogers, 1995). Building on this influential work, Moore and Benbasat (1991) added two further factors: voluntariness – the degree to which the adoption is seen as a voluntary choice rather than imposed – and image – the perception that adoption will enhance the adopter's image and status. The validity of the IDT has been supported in a variety of educational and other contexts, including adoption of IT in instruction (Surry, 1997), adoption of technology in Saudi workplaces (Al-Ghatani, 2003), diffusion of Web-based distance education (Li, 2004), use of IT by higher education staff (Ushuel et al., 2005) adoption of e-services in Saudi Arabia (Al Ghaith, 2010) and acceptance of an online database in an Iranian university (Nazari et al, 2013).

Another perspective on innovation diffusion (Dearing, 2004) sees acceptance as a function of perceptions of the innovation itself, such as how easy it is to use, belief that credible, influential others (such as superiors) support the innovation – because people receive information and influence via social networks and imitate others (Valente, 2005), and perception of the innovation's comparative value relative to alternatives. With specific reference to technology acceptance in educational contexts, Zhao et al. (2002) found that acceptance is influenced by the characteristics of the innovator (the teacher), of the technology itself (including distance from available resources and from current practices) and of the institutional context, including technical and human infrastructure and organisational culture. Building on this model with other colleagues (Frank et al., 2004) Zhao subsequently found that the most important teacher characteristics influencing technology acceptance were technical competence and social capital. Social capital refers to the acquisition of resources such as information, ideas and support through relationships with other people (Grootaert et al., 2004), or as Frank et al. (2004, p. 13) described, transmission of resources form one person to another through "interaction that is not formally mandated". In view of the importance of social capital, it is suggested that it can be used by change agents as a tool to encourage the implementation of innovations (Frank et al., 2004; Bayerl, 2008). Through such influences, acceptance of innovation eventually reaches a critical mass – a point where the number of adopters is sufficient for the diffusion to become self-sustaining (Rogers, 2003).

While IDT and its variants focus on characteristics of the innovation and its adoption, another perspective, Task-Technology Fit (TTF) theory (Goodhue and Thompson, 1995) focuses on the purpose for which the use of the new technology is contemplated. The assumption is that prospective adopters evaluate the objective characteristics of a new technology in the light of specific purposes (D'Ambra and Wilson, 2004). A good fit results in a positive evaluation, which in turn predicts higher usage of the technology (Chae, 2005). Such a perspective, albeit different in emphasis from TAM and IDT, shares certain characteristics with them in that the evaluation of TTF can be linked to ideas of perceived usefulness in TAM and of relative advantage and compatibility in IDT.

The last model to be considered here is the Decomposed Theory of Planned Behaviour (DTPB) in which the originators, Taylor and Todd (1995) combined elements of the TAM, TPB and IDT in order to explain more clearly the antecedents of attitude, the role of social influences and the influences of the potential adopter's perception of his/her ability to control the relevant behaviour (see Figure 2.3).

```
┌──────────────────┐
│    Usefulness    │────────┐
└──────────────────┘        │
                            │      ┌──────────────────┐
┌──────────────────┐        └─────▶│                  │
│  Compatibility   │─────────────▶ │     Attitude     │───┐
└──────────────────┘        ┌─────▶│                  │   │
                            │      └──────────────────┘   │
┌──────────────────┐        │                             │
│    Ease of Use   │────────┘                             │
└──────────────────┘                                      │
                                                          │
                                                          │    ┌──────────────┐         ┌──────────────┐
┌──────────────────┐                                      └───▶│              │         │              │
│  Peer Influence  │────────┐                                  │  Behavioural │────────▶│   Behaviour  │
└──────────────────┘        │      ┌──────────────────┐   ┌───▶│   Intention  │         │              │
                            └─────▶│    Subjective    │   │    │              │         │              │
┌──────────────────┐        ┌─────▶│      Norms       │───┘    └──────────────┘         └──────────────┘
│     Superior     │────────┘      └──────────────────┘
│    Influence     │
└──────────────────┘

┌──────────────────┐
│   Self-efficacy  │────────┐
└──────────────────┘        │      ┌──────────────────┐
                            └─────▶│                  │
┌──────────────────┐        ┌─────▶│    Perceived     │───┐
│    Technology    │────────┘      │    Behaviour     │   │
└──────────────────┘        ┌─────▶│                  │───┘
                            │      └──────────────────┘
┌──────────────────┐        │
│     Resources    │────────┘
└──────────────────┘
```
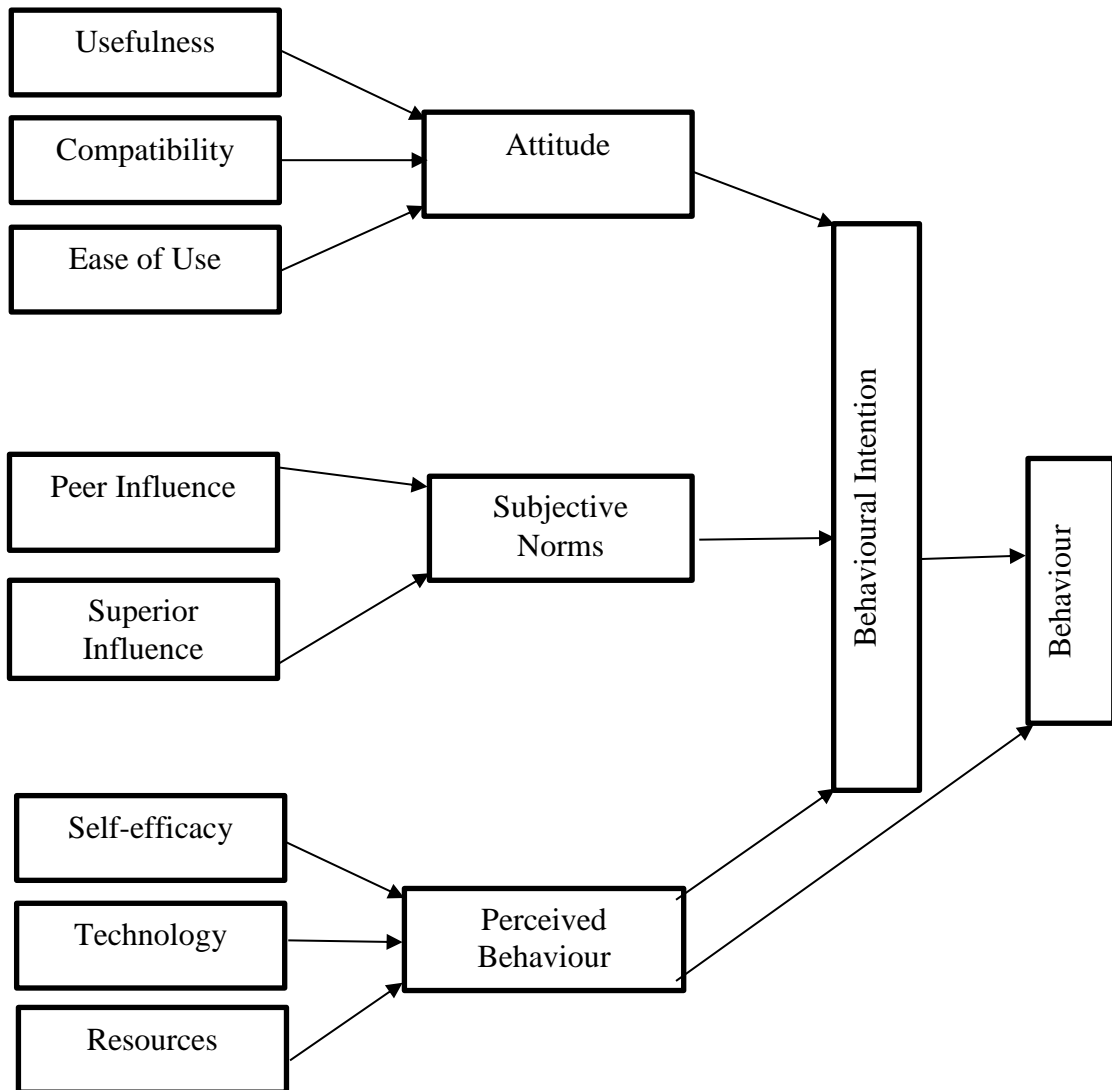
Figure 2-3: Decomposed Theory of Planned Behaviour (Source: adapted from Al-Hudaithy, 2009)

It can be seen that the DTBP contains situational variables, which are not made explicit in the TAM or IDT. It also identifies social pressures, not present in the TAM and IDT but alluded to by Dearing (2004) and Frank et al. (2004). It can be suggested that this may be particularly relevant in the Saudi context, given the close-knit nature of Saudi society and the importance of social relations (Alhudaithy, 2009).

Whilst all of these models shed useful light on the personal, social and technology-related factors that affect the ease and speed with which an innovation is adopted, they do not, however, explain the change process itself or how to lead and manage change. This is the subject of the next sub-section.

### 2.7.2 Leading and facilitating change

Whilst the models introduced in the previous section concern the specific factors that may influence an industrial organisation to adopt a new technology or other innovation, other writers have discussed change processes more broadly. In the context of educational leadership, for example, Fullan (2001, 2002) identifies five central characteristics for leading complex change, as follows:

- Moral Purpose- a desire for positive impact
- Understanding of Change- including its complexity and fact that it entails reculturing
- Relationship Building- laying the foundation for cultural shift through building relationships among people with diverse backgrounds and experience
- Creating and Sharing Knowledge- which also involves creation of a facilitating environment for change if the environment remains unchanged
- Coherence Making- ensuring that all the elements involved in the change work together, rather than competing.

A problem often encountered by would-be leaders and managers of change is resistance. While this is often perceived as a problem of individuals, Sim (2011) suggests that resistance may more usefully be viewed as a feature of the change process and of the change itself, encompassing systemic resistance, as well as behavioural resistance due to the lack of knowledge or skill needed to implement the change. In this respect, prescriptions for overcoming resistance suggested by Fullan and Hargreaves (1992) are suggested. They advise that change needs top-level support. At the same time, teachers also need to feel ownership in respect to the change, rather than perceiving it as having been imposed from above. It should be in tune with their values, and teachers' fears and anxieties should be recognised and addressed. It needs to be recognised that change is not a single, instantaneous event, but a process that takes time. Moreover, ongoing support should be provided.

A common theme which links Fullan's work, directly or by implication, with the models and theories introduced in the previous section, is the importance of training and support, through a process of continuing professional development (CPD), which has been argued to be essential for school change (Sywelem and Mitte, 2013). In terms of the acceptance/diffusion models presented earlier, CPD activities can facilitate

teachers' technical competence and sense of self-efficacy to deal with the change (Madden and Mitchell, 1993; Day and Sachs, 2004), reducing perceptions of its complexity; they may demonstrate the relative change usefulness and compatibility of the innovation; they provide opportunities for trialability and observability; and they demonstrate superiors' acceptance of and commitment to change. In terms of Fullan's (2001, 2002) recommendations for change leadership, CPD can demonstrate the change agent's moral purpose, contribute in building relationships and facilitate the creation and sharing of knowledge. It can help to overcome resistance by addressing teachers' fears and involving than in the change, helping them to develop a sense of ownership.

CPD is particularly salient to the present study for two reasons. First, the study concerns the introduction of new technologies. Previous research reports teachers' lack of technology usage and skills, attributed to a digital divide teachers raised in a traditional education system before the advent of recent technologies are "digital immigrants" (Prensky, 2001) who may be uncomfortable with digital tools. The findings of the Speak Up Project (Speak Up, 2011) suggest that this is a continuing problem. The second reason is that, in the Saudi context, despite the availability of various kinds of in-service training, as reported previously in this chapter, concerns have frequently been expressed that the training is insufficient or inappropriate to compensate inadequacies in initial teacher training (Alsharari, 2010). There have been criticisms that CPD programmes are not informed by the participation of intended recipients and so may lack relevance (Colbert et al., 2008). Moreover, in practice access to CPD is denied because school principals are reluctant to release teachers due to difficulty covering their lessons (Alhajeri, 2004). Thus, there have been claims of a lack of support especially for new teachers (Musalam, 2003) confirmed empirically in a survey of Saudi teachers by Sywelem and Witte (2013). Enhancement of teacher supervision by using Web 2.0 tools to increase the frequency of communication could help to alleviate this problem, but raises the question of teachers' and supervisors' confidence and competence to use the technology. In this respect, evidence shows that PD courses can be effective in changing attitudes towards technology. Cheung (2013) in Singapore found that CPD gave teachers a broader perspective on technology use and changed their perception of it from "difficult" to "easier". Machado et al (2011)

report increased confidence with technology and more favourable attitude towards it after PD, as did Shahmohammadi (2014).

Such training could take a variety of forms, planned or incidental, formal or informal (Fraser et al, 2007). The approach that has been found useful in computer related learning is through communication of practice (Singh and Richards, 2006; Kim and Merriam, 2010) based on the idea that learning is a social practice that takes place through interaction. Such an approach enables participants to collaborate in creating and sharing knowledge, consistent with Fullan's (2001, 2002) advice for managing change, to exploit social capital (Frank et al, 2004; Bayerl, 2008) and to be influenced by subjective norms (peer and supervisor influence) consistent with the DTPB as well as to experience the trialability and observability of an innovation, consistent with IDT.

The evidence presented in this chapter regarding the importance of attitude in the adoption of new technologies, the personal and contextual factors influencing such attitudes and the importance of involving participants in change, with particular to CPD, gives particular salience to this study, in which current use and attitudes of supervisors and teachers towards the potential use of Web 2.0 tools in supervision are explored and a training intervention is carried out with the aim of enhancing participants' skills, confidence and attitudes towards such a proposal.

### 2.8 Summary

The discussion leads to the conclusion that technology has the potential to make a great positive impact on supervision. As has been demonstrated in this chapter, Web 2.0 technologies such as wikis, blogs, and web-based digital video and social networks potentially provide a platform for enhanced educational supervision. In particular, educational supervision can become easier, more effective, more efficient and more comprehensive in terms of quality. Teachers can take individual guidance from the supervisor, thus enhancing their individual abilities and capacities to teach.

From the discussion, it can be gathered that the affordances of Web 2.0 technologies are critical in making educational supervision teacher-centred and efficient. The supervisor understands which aspects of teaching a specific teacher needs to improve and can provide help accordingly. Thus, these technologies become beneficial, not only to the supervisor but also to teachers, institutions, and the society as a whole.

They also make educational supervision knowledge-centred, as they ensure that teaching and teaching activities in schools include thinking techniques and skills. Moreover, these technologies are assessment-centred as they emphasise mainly the formative evaluation of teachers, which aims to provide feedback, information, and motivation to both supervisors and teachers. Lastly, they provide an environment where supervisors can meet teachers easily and quickly, support their work, and can foster a good relationship between them. Ultimately, educational supervision that is based on the affordances offered by Web 2.0 technologies can ensure that teachers and headteachers reach their goals. Hence, there is a great possibility that application of Web 2.0 will find success in educational supervision because of its potential effectiveness. Therefore, it is desirable for supervisors and teachers to be familiar with the affordances of Web 2.0 technology.

However, change is not an instantaneous or simple process; the willingness and ability of teachers and supervisors to accept the proposed new approach of Web 2.0 facilitated supervision will depend on a range of factors, related to the technology itself, personal characteristics and contextual variables, which need to be understood and managed as part of the change process. This study explores such factors in the Saudi educational supervision context, and investigates the possibility of enhancing Web 2.0 skills, demonstrating the affordances of Web 2.0 and developing favourable attitudes towards its potential, through training. The methods used to accomplish these objectives are explained in the next chapter.

**CHAPTER 3: METHODOLOGY AND RESEARCH DESIGN**

### 3.1 Introduction

This study aims to identify how supervisors can use Web 2.0 technologies in order to communicate with teachers, to identify ways of using those technologies in educational supervision and to design a framework that could assist teachers and supervisors in recognising and using the affordances of such tools.

To address these aims, the following research questions were investigated:

1. To what extent do supervisors and teachers understand the term/concept Web 2.0?

2. To what extent do supervisors and teachers currently use Web 2.0 technologies for supervision?

3. To what extent are supervisors and teachers familiar and confident with the mentioned Web 2.0 tools?

4. To what extent can activities undertaken by supervisors and teachers with Web 2.0 technologies support or enhance supervision?

5. To what extent can participants recognise and use the affordances of Web 2.0 tools for supervision?

To address these questions a small-scale four-stage development programme was run with groups of teachers and supervisors with the evaluation of that process making use of a mixed method approach to data collection. In the first stage interviews were held with seven supervisors and seven teachers, in order to explore the possibility of application, to build a picture and to enable me to become acquainted with data collection and analysis procedures and techniques. In the second stage, data was collected from 23 supervisors by focus group and questionnaire regarding the current usage of Web 2.0 technology in educational supervision and to examine how such technologies could facilitate supervisors' work. In stages three and four, data was collected from thirty teachers through a pre-survey, followed by a Web 2.0 training programme and post-survey. The objectives in these stages were to study teachers' usage of Web 2.0 technology and to evaluate the effect of the training programme in helping them recognise and use the affordances of Web 2.0 tools for supervision.

While the literature review provided an overview of concepts that support the study's aims, this chapter provides the necessary foundation for conducting the research study.

This is achieved through exploring and evaluating research philosophies, designs, approaches, data collection methods and data analysis. Consequently, each section of this chapter seeks to justify the use of a particular method or concept to achieve the study's aims.

### 3.2 Research Philosophies

Research philosophy connects the theoretical and practical implications of conducting and managing the research project (Saunders et al, 2009). Positivism and interpretivism are two dominant research philosophies, where the "positivist" approach states that all genuine knowledge is based on sensory experience and can be advanced only through observations and experiments, whilst the "interpretivist" approach holds that the social world can only be understood from the points of view of individuals who are part of the ongoing action being explored (Cohen et al., 2011). To elaborate, a positivistic approach to educational research needs to be associated with methods that result in the collection of quantitative data and testing of hypotheses, such as data from questionnaires and hard facts from experimental work. In contrast, interpretivists look for understanding of how people construct meaning and interpret the world in which they live. Such a philosophical stance tends to be associated with such methods as interviews and participant observation (Opie, 2004). The research philosophy adopted defines the epistemological, ontological and methodological aspects for executing the research study (Guba and Lincoln, 1994; Saunders et al, 2009).

In this study, neither a positivist nor an interpretivist approach alone was considered to meet the needs of the research. On the one hand, the research concerned the technical affordances of Web 2.0 tools, and issues of availability and access, which could be regarded as having an objective existence independent of the observer, and capable of being measured. On the other hand, the research also concerned supervisors' and teachers' attitudes and experiences, which would be subjective and to some extent socially constructed, and could only be understood through interaction with the participants. For this reason, a pragmatic approach involving mixed methods was adopted as appropriate to the needs of the research. There are various dimensions in which the use of Web 2.0 technology can be examined in the educational supervision context, however, so it is important to understand that there are two parties involved as key participants in the evaluation process: the supervisors and the teachers. The

main objectives of the research process are to establish the extent to which this technology has been understood, the capability that these two parties have in understanding it (which has necessitated training activities as part of the data collection process), and the "nature of being" of Web 2.0 technology with respect to educational supervision.

In this light, this study has found it important to use the two philosophical approaches that seek to unearth the above-mentioned dimensions of Web 2.0 technology in the context of educational supervision. First, the enquiry sought to evaluate key issues in the epistemology of Web 2.0 technology in educational supervision. Epistemology involves knowledge acquisition or the extent of a concept that can be understood (Bonjour, 2002). The initial stages of the enquiry sought, therefore, to establish the extent to which the technologies and services associated with Web 2.0 technology are known by the participants. The factors that determine the extent of knowledge acquisition in this context will include social and cultural differences, age, generational gaps, technological accessibility, population, and developed vs. developing world among others. The second philosophical approach that this study has found important is the ontology of Web 2.0 technology in educational supervision. Ontology is concerned with the "nature of being" (Kriegel, 2011). The ontological dimension of this study seeks to examine the "nature of being" of Web 2.0 technology in the context of educational supervision, as has been indicated above. The ontological dimension will focus on the existence of Web 2.0 technology in educational supervision and related fields including socialising, interaction, communication, information, ideas, collaboration, and sharing.

In this study it is important for the reader to know and understand ontology and epistemology in order to justify the work. Herr and Anderson (2005) consider that the positionality of the researcher is the key to establishing the ethics, epistemology and methodology of the research. Thus, the researcher is required to perform specific tasks:

- To form a clear vision of the nature of the world when conducting the research as a practitioner, and to set it in the context of existing scientific debate.
- To describe the principles of the knowledge of concern to this research, whilst admitting the 'knowledge and nature of the relationship between the knower and what can be known' (Moore, 2005, p.106) then, to develop the practical task of what the researcher will do, through his understanding of the world as applied to

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the current research.

### 3.2.1 Epistemological Issues

Learning is a continuous process, and through the process of learning, people acquire or construct new knowledge; this knowledge is evaluated implicitly or explicitly (Hofer, 2000). Research on beliefs about knowledge has become an important field of inquiry in educational research (Hofer & Pintrich, 1997). Crotty's (1998: 3) defined epistemology as "the theory of knowledge embedded in the theoretical perspective and thereby in the methodology" (quoted in Marsh and Stoker, 2010).

The epistemology of Web 2.0 technology, which has been established as the technology behind social media, can be examined from a number of perspectives. This thesis is built on an epistemology rooted in connectivism, which was shown in Chapter Two to be relevant to the application of Web 2.0 tools. Siemens (2005) argues that knowledge is advanced and transformed by the contributions of those connected to particular networks, which are in turn connected to other networks (collective intelligence). The interconnectedness of people through the Internet allows for the learning that occurs overall to be greater than the learning of each individual connected (the "wisdom of crowds"—Surowiecki, 2004). For Siemens, it is more important to be connected to the "right" nodes to "catch" new knowledge than to be outside the network with "old" knowledge, or connected to networks that are less "useful". According to him, "Nodes that successfully acquire greater profile will be more successful at acquiring additional connections" (Siemens, 2005: 6). Thus knowledge is constantly shifting and changing. Recognizing patterns within the chaos of shifting knowledge is a core skill to be learned, as is recognizing the networks of connections that matter (Siemens, 2005). However, researchers have identified a number of key issues that determine the extent to which knowledge acquisition with regard to Web 2.0 technology takes place. They are discussed in the following subsections.

#### 3.2.1.1 Social and Cultural Issues

In the evaluation of social and cultural issues, previous research has established that different users of Web 2.0 technology from different cultures have different behaviours, which determine significantly the extent to which the technology can be known to or understood by them (Smit, 2012). Smit based his analysis on Hofstede's Cultural model, which employs several dimensions in the analysis of culture and social behaviour (Piepenburg, 2011). Hofstede (1980, 1991) suggested that cultures could be

understood in terms of their scores on four dimensions: power distance (*the existence and acceptance of inequalities in power and status*); uncertainty avoidance (*the extent to which a society tolerates uncertainty and ambiguity*); individualism vs collectivism (*the extent to which members of a society think and act individually in their own interest or that of their immediate family*) or are more influenced by ties to a wider social group) and masculinity vs femininity (*the orientation towards "masculine" values such as assertiveness, or "feminine" values such as harmony*). At that stage of his research Hofstede characterised the Arab world as high in power distance and uncertainty avoidance, and collectivist. This might suggest that in such a culture, acceptance of an innovation might be influenced by the support or censure of higher authority; a change might be viewed with suspicion, especially if it appeared to reflect departure from established norms, and acceptance might be strongly influenced by the attitudes and behaviour of others. Although his findings and conclusions have been challenged Hofstede's theory is a way of gaining a suitable understanding of a culture of a particular country of the world. Following Hofstede, a subsequent study based on Chinese Confucian Theory revealed a fifth dimension referred to as long-term orientation, which describes the extent to which people have a dynamic, future-oriented perspective (long-term orientation – LTO) rather than a focus on the past and present (short-term orientation – STO) (Chinese Culture Connection, 1987). Hofstede (1990) adopted this Eastern cultural dimension as the fifth work-related cultural dimension in his book, *Cultures and organizations: Software of the mind*. Hofstede (2001) renamed this cultural dimension as Long-Term Orientation (LTO). Recently published scores for Saudi Arabia (Hofstede, 2016) are consistent with the original scores for the Arab world, e.g high in uncertainty avoidance and power distance, moderately masculine and low on individualism. Moreover, Saudi Arabia scored low on long-term orientation. Low scores on this dimension imply normative thinking. A preference for time-honoured traditions and a focus on quick results rather than long=term planning (Hofstede, 2016). Such values again, might pose a challenge for the adoption of new technologies and methods, and if innovations were adopted (perhaps under pressure of government policy) it is likely that users attitude toward them would be influenced by how quick and easy they were to master, and how quickly they perceived positive outcomes (the role of such factors in acceptance and adoption of innovations was discussed in section 2.7). In analysing the use of social media by different cultures, the study by Smit (2012) established a number of perspectives from

which the extent of knowledge acquisition with regard to Web 2.0 technology can be analysed. First is the aspect of adoption speed of new technology within a society. He claims that being the first has advantages over being later, as being first affords the opportunity to… dominate the market and try new things which could gain popularity and value (e.g. Twitter).

 Al-Ghaith (2010) pointed out that there are significant factors which affect technology adoption in Saudi Arabia which are privacy, complexity, Internet quality and its relative advantage. Rogers (1995) explains that innovations in technology are passed from one culture to another across channels within the social system. Different social and cultural backgrounds have been associated with different levels of adoption speed, which can also be referred to as the speed with which an individual or group understands the various dimensions of Web 2.0 technology. The new technology could play a pivotal role in helping educational supervisors and teachers to develop their work and enhance communication between the two parties; hence, understanding the social and cultural issues could help in determining the speed of technology adoption. Al-Gahtani et al. (2007) examined the Unified Theory of Acceptance and Use of Technology (UTAUT) in Saudi Arabia, a non-western-culture country. The study they undertook tested moderating effects of a number of variables such as age, gender, and experience. The study indirectly tackled the effects of culture or country and found that they are important moderators in technology acceptance.

Moreover, uncertainty avoidance has been a key determinant of adoption speed, with countries that have low scores having been established to adopt Web 2.0 technology faster than countries that score higher. Furthermore, a study by Alamri et al (2014) demonstrated that the cultural characteristics of Saudi Arabian users are similar to Hofstede's 1980 analysis for the Arab world and can be applied to personalised e-learning in Saudi Arabia. This means that the concept of "learning new things" (Smit, 2012), which is associated with uncertainty and the subsequent varying adoption, is instrumental in understanding Web 2.0 technology. This would be instrumental in educational supervision since, having established the different cultural or social backgrounds from which members of the teaching or supervision teams come, adoption speeds can be evaluated and enhanced accordingly.

The business dimension has become another important cultural perspective from which the understanding of social behaviour with regard to social media can be examined. In various cultures, business relationships are based on the social relationships that already exist between the business partners (Ribière et al, 2010). In many cultures, people prefer to do business with people that they already know, as opposed to strangers (Hooker, 2008) and in such circumstances would prefer to do business based on a physical or face-to-face relationship, meaning that he or she would not need to use a social network relationship. This would tend to reduce use of social networks and so there would be less knowledge of Web 2.0 technology. In Saudi Arabia, traditionally, strong emphasis is placed on personal relationships, creating a preference for face-to-face contact (Katz, 2007). This is also applicable in the context of educational supervision, in the sense that physical social relationships between supervisors and teachers have been found through a training programme to determine the extent to which Web 2.0 technology can be understood (Winters et al., 2012).

Different cultures have different tendencies in using social media in the workplace. For instance, the United States has registered the highest number of social media users in the work place (above 75 per cent) while Belgium has registered the lowest (below 40 per cent) (Smit, 2012 ). A factor in some countries, like China, is that the use of social media is restricted (Hossain and Aydin, 2011). Moreover, from the comparison of differences between German and Chinese users it was found that the Chinese social media users have a lower tendency to use online social media for existing contracts with the aim to supplement their real life than do German users (White et al., 2011). Because of such differences of opportunity and culture, the various technologies and services offered by Web 2.0 technology are better understood in some countries or regions than in others. In Saudi Arabia, the take up of social media has been rapid, although in some areas it is still limited by deficiencies of infrastructure (Alebaikan, 2010). An important point in the context of Saudi Arabia is that this tendency towards social media helps to provide an opportunity to exchange experiences with others. In addition, this can be applied to educational supervision in order to exchange knowledge between supervisors and teachers through Web 2.0 applications.

Language is another socio-cultural dimension with which the extent to which Web 2.0 technologies can be known needs to be examined. English is known to be the most popular language in major social networks, including Facebook, Twitter, Wiki, blog

and YouTube among others (Harrison and Thomas, 2009). For example, it would be difficult for someone who does not understand English to translate. This is the reason why countries such as China use different applications, which are aligned with their language. The extent to which such basic services are understood is, therefore, important in the determination of the extent to which the entire Web 2.0 technology can be understood by people involved in educational supervision.

### 3.2.1.2 Age

Another perspective that can be used in the determination of the extent of knowledge and its acquisition with regard to Web 2.0 technology is the age of users. Users within diverse age brackets have different tendencies in the use of the technology, as well as differing in the extent to which they are familiar with it. This has been established in some previous studies as a key determinant of the extent to which technologies can be understood across ages. For instance, younger people (between 18 and 29) have been established as the group that is most familiar with social media, with about 83 percent of the population in that age bracket in the United States using social networks. On the contrary, only 33 per cent of people aged 65 years and older have been found to be using social networks in the US (Zickuhr and Madden, 2012).   The use of social networks, such as Facebook, Google plus, Blogs, YouTube, and Twitter has been on the rise over the last few years across the world. For instance, 65 percent of adult Internet users are also users of these networks in the United States as at 2012, up from 61 per cent in the previous year (Zickuhr and Madden, 2012). For this reason, it was considered necessary in this study to incorporate the age variable as part of the fundamental methodology in the evaluation of the epistemology of Web 2.0 technology.

It is important to appreciate that the variance that has been established across age differences in the United States can also be reflected across other countries and regions and is important in the evaluation of the entire knowledge acquisition process in the context of educational supervision. It is also, in this light, important to consider the diverse age groups that exist in both teacher and supervisor segments of the research cohort, including both old and young Internet users. For that reason, age emerges as important, as will be reflected in the discussion of other aspects of this study in the forthcoming sections, since it appeared as a key epistemological issue in both pre-training and post-training surveys.

### 3.2.1.3 Generational Gap and Influences

Technology in the twenty-first century has been associated with immense and numerous dynamics, with cyberspace changing not only with regard to the social networks that are coming up and altering the popularity of others but also as a result of age differences between digital world populations (Koschei, 2013). Edge (2014) divided school leaders and teachers into three generations which are: Baby Boomers (1946–65), Generation X (1966–80) and Generation Y (1981–2003). Over the last several decades researches appear to be predicated upon two assumptions: (1) that each generational cohort brings collective attributes, attitudes and aspirations to their work and the workplace; and (2) that developing a better understanding of both the individual cohorts and the outcomes of the generational mix will support both individual and organisational efforts to recruit, develop and retain each generation of workers. Those within generation Y, for example, have grown up with the technology as part of their daily lives, which means that its influence within that population is stronger than in the older generations, who have had to learn the technology in otherwise challenging situations. In his article Prensky (2001) wrote about a singularity and claimed that the current education system is not suitable for the new generation of students. Prensky provided some facts and figures to support his arguments such as that students spent less than 5000 hours in their lives reading, but over 10000 hours playing games, 20000 hours watching TV, and digital cell phones and sending email. Nonetheless, the critics of the Prensky's dichotomy argue that it is complex and focuses more on attitude as opposed to age. Moreover, the BBC in February 2016 is reported a new annual survey tracking children's media behaviour which suggests young people are spending more time online than watching television for the first time. The average time spent online is now three hours per day, compared with 2.1 hours watching television. Some studies provide contradictory evidence such as Deal (2007); Gentry et al. (2011); Kunreuther (2003) that suggests little or no difference between how generations experience, interact with and influence the workplace. Much of the generation at work (GAW) research remains monocultural or focused within a single country. As generational attributes, at least historically, are linked to the shared social experiences of a cohort's development, these may be inherently nationalistic in nature and may create a challenge in global urban centres where teachers and, at times, leaders are from various countries. This creates possible tensions and challenges in the application of the evidence (Edge, 2014).

The familiarity older generations can be said to have with regard to the Web 2.0 technology, just it is with the Internet, can generally be considered to be lower than that of the Y generation, which denotes a major technological gap resulting from the generational gap (Crosman, 2008). This, as a result, may become an important epistemological issue in the study of Web 2.0 technology, and is even more relevant in the context of educational supervision. In the educational realm, a diverse set of generations exist, from the baby boomers to Generation X, to Generation Y, with even younger generations, such as Generation Z, being expected to join in. It becomes important, therefore, to examine the technological gap in an effort to determine the potential impacts it may have on knowledge acquisition, while at the same time trying to answer the research question. While the popular western typology referred of generations to above may not apply to Saudi Arabia, due to differences in historical background and technological development, nevertheless, there are likely to be inter-generational differences caused by the social changes of the last three decades. Examples include the expansion and upgrading of education, changes in the opportunities available to women for education and careers, and the spread of communications technologies, including their comparatively recent use in schools. Consequently, I make the conclusion that different generations are likely to adopt technology differently; it is safe to assume that younger generations are more likely to adopt Web 2.0 technology as they are more likely to have experience of different technologies as compared to older generations. As a consequence the research intends to investigate and determine if there are different outcomes, which are associated with age.

### 3.2.1.4 Technological Accessibility and Location

It is important to appreciate that Web 2.0 technology is dependent on access to the Internet as well as a wide range of other technologies. However, there are various regions in which Internet accessibility is a problem, especially in the developing world. One would compare the accessibility of Internet and associated technologies in the United States, where the Internet backbone is located, to that in Africa, where some countries have not yet been able to acquire the necessary infrastructure (such as fibre optic cabling) to secure rapid Internet access (UNESCO, 2011). As a result, a great disparity exists between the developed and the developing world, which is one of the

reasons why social media have a significantly higher number of users in the developed world than in the developing world.

This means that the acquisition of knowledge with regard to Web 2.0 technology and associated services, such as podcasts, RSS newsfeeds, tweets, and blogs among others, is likely to be slow. Some of these services and technologies are fundamental to the general use of Web 2.0 technology. In this light, the extent to which Web 2.0 technology is known in the developing world is significantly low including Saudi Arabia. This is notwithstanding the fact that educational supervision, which has been taken to the global level, has to take place even in these developing countries. As a result, the accessibility of Web 2.0 technology, the Internet, and the diverse locations in which educational supervisors and teachers are located are important epistemological issues in this research.

In this study I will adopt an epistemology that assumes that within Saudi Arabia aspects such as social and cultural issues might have impact on web 2.0 adoption, along with age and generational gap and influence, as well as technology accessibility and location. Older supervisors and teachers might be less accepting of web 2.0 due to their lesser familiarity with new technology. However, it should be noted that new technologies are available in Saudi Arabia without significant restriction (e.g. YouTube, Twitter, Facebook etc.) hence technology accessibility might not be a major issue but factors such as infrastructure and internet speed might impact on technology acceptance. The next section will discuss some ontological issues in this study.

### 3.2.2 Ontological Issues

Jacquette (2002) defines ontology as a branch of metaphysics dealing with the nature of being. Ontology is concerned with the "nature of being" of something or its existence in a given context. In social research, "ontological assumptions are those surrounding the nature of the subject matter of the research, namely the social world" (Hitchcock and Hughes, 1989, p19). Ontology can have objective and subjective dimensions, according to the degree to which a phenomenon is regarding as having an independent, absolute existence, or is socially constructed. In Saudi Arabia, as a collectivist culture, it can be suggested that many aspects of social reality are constructed through socialisation in the family and tribe. In this sense, perceptions of Web 2.0 technology and tools could be shaped by collective values and norms of

behaviour. It is important to recognise, also, the impact of religion, which means that concepts such as effectiveness, usability or advantage will be interpreted in the light of compatibility or conflict with Islamic values thus, while such issues in some societies might be viewed as relative. The product of individual judgement, in Saudi Arabia, such judgements are likely to be framed in the light of social and religious attitudes related to the use to which technology is put, the content read or posted and the influence on the user. As has been established earlier in this study, Web 2.0 technology has been associated with a number of themes, including interaction, participation (sharing), collaboration, and socialising. Each of these themes can be associated with a different ontological perspective, which is important to examine and discuss in the context of educational supervision in an effort to answer the research questions. In the evaluation of the nature of being or the existence of Web 2.0 technology in the context of educational supervision, this study examines three key dimensions of this technology: its effectiveness, the measurability of its effectiveness, and its actionable potential. In this evaluation, four major themes (interaction, collaboration, sharing and participation) are taken into account, which is done in the following subsections.

### 3.2.2.1 The Effectiveness of Web 2.0 Technology

One of the ways in which Web 2.0 technology can be ontologically examined is through its effectiveness, in achieving the goals for which it is being used, which would determine the extent to which it exists in the areas within which it is being examined, specifically, educational supervision. It is generally agreed that, in light of the above-discussed dimensions of knowledge with regard to Web 2.0 technology, it does actually exist in the sense that technology and tools are available and known in Saudi society. However, its reality is different for each participant, depending on the above discussed factors, including socio-cultural issues, the age factor, generational influences, and technological accessibility of the internet, not to mention the location in terms of developed versus developing countries. This perceived reality, which is shaped by these factors, can be used as a foundation on which the effectiveness of Web 2.0 technology in meeting the needs of teachers and supervisors in educational supervision can be based. Consequently, it is an important component of this research to examine the most common ontological perceptions of the participants in relation to

the effectiveness of Web 2.0 technologies (and, equally, to ensure my ontology does not obscure the possible ontology of other participants).

As has been established in the first chapter, this study involved training sessions in Stages Three and Four of the study, within which teachers and supervisors had learning objectives to accomplish on various Web 2.0 technology subjects. In this regard, the extent to which they comprehend the existence of Web 2.0 technology can be used as a key measure of its effectiveness. This is a key reason why this study included a post-survey data collection process, which necessitated the participation of the participants who had been trained.

The existence and effectiveness of Web 2.0 technology are important so as to be able to measure the effectiveness of the training and to evaluate in the context of the interactions (the extent to which participants can interact before and after the training, after knowing the affordances of Web 2.0 technology), collaboration (the various ways and tasks in which they collaborate before and after the training, after knowing affordances of Web 2.0 technology), sharing (the information that they are able to share before and after the training, after knowing the affordances of Web 2.0 technology) and participation (the extent to which they have been driven towards participating in the various educational supervision tasks before and after the Web 2.0 technology training, after knowing the affordances of Web 2.0 technology). It would be evident that, after the training and knowing the effective applications of Web 2.0 technology, for supporting and enhancing educational supervision. The effectiveness of Web 2.0 technology will have been realised, based on the four themes discussed above, meaning that the existence (ontology) of Web 2.0 technology has been effectively examined.

### 3.2.2.2 Measurability of the Effectiveness of Web 2.0 Technology

As indicated above, the training session in which participants learned about this technology had the goal of developing the research cohorts understanding of the existence of Web 2.0 technology as the fundamental idea behind the ontology of Web 2.0 technology. This, therefore, makes measurability a key issue. With regard to measurability, this study focuses on evaluating the extent to which the research objectives have been or will be accomplished. The objectives set are based on the four themes of Web 2.0 technology discussed above: interaction, socialising, collaboration

and participation. In this study, the way participating teachers and educational supervisors interact with each other and with Web 2.0 technologies was investigated with reference to specific applications representing the four dimensions of Internet tools discussed in Chapter Two. These included blogs (Blogger), Wikis, digital video (YouTube) and social media (Google +, Twitter, Facebook, WhatsApp). If communication and interactions take place faster and more easily after using these tools, then the interaction goals have been accomplished.

Socialising was examined in terms of to what extent better and stronger social and inter-personal relationships between supervisors and teachers are facilitated by on Facebook, WhatsApp and Twitter, among other social networks, after using them. Collaboration was another measurability issue, which concerns the impact of social networks on educational supervision tasks in terms of speed (efficiency), benefits gained from supervisors and peers, the level of satisfaction, and communication and coordination of tasks. Finally, participation involved measuring the extent to which information was shared and ideas raised after training compared to before to the Web 2.0 technology training. These dimensions were instrumental in the evaluation of the existence of Web 2.0 technology in educational supervision.

### *3.2.2.3 Actionable Potential*

It is important to appreciate that there are various elements of Web 2.0 technology without which it cannot function in any field, including within educational supervision. These elements form the core of the technology and determine the extent to which it, as well as its associated services, can be practical or can truly exist within educational supervision tasks. Such elements include the applicable hardware (computers, smart phones, mobile tablets) and software (mobile apps, social media apps, games) and Web 2.0 services, such as podcasts and RSS newsfeeds. The ontological evaluation, therefore, has to take into account the extent to which participants are familiar with these elements. This evaluation determined the actionable potential of Web 2.0 technology in the context of educational supervision.

### 3.2.3 Conclusions regarding epistemological and ontological issues

From the above discussion it can be concluded that the first stages of this study are seeking to establish whether anticipated epistemological and ontological assumptions are justified when exploring the perceptions of participants. An easy assumption to

make would be that participants in the planned development stages of the study would mirror other practitioner groups from previous research. Axiologically, however, whilst the participants in this study are most likely to have similar perspectives as they live within a society with overt religious and social mores they are most likely to also have differing epistemological and ontological stances in relation to Web 2.0 technologies. Thus the development phases of this study are contingent upon an examination of participant epistemology and ontology through data collection to be conducted in Stages One to Three.

### 3.2.4 Research Philosophy – Summary:

From the above understanding of research philosophies, there are three reasons behind the research philosophy:

- *Why I want to know it (*aims of research),
- *What I want to know (*questions of research), and
- *How I can get what I want to know (*methods of data collection) (Elmabruk, 2009).

The reason I *want to know* is that the insight gained from this study may not only advance supervision practice, but may also add to knowledge through providing a better understanding of the advantages of these technologies with regard to the quality of supervision. Consequently, how can I, as a supervisor and researcher, support and enhance communication between supervisors and teachers in using Web 2.0 technologies? In practical terms, how can I systematise and introduce appropriate Web 2.0 tools into the educational supervision process, which might support and enhance activities undertaken by supervisors and teachers?

To answer the question *what I want to know,* the aims of the research are:

- To evaluate the teachers and supervisors' level of awareness of the concept of Web 2.0 technologies.
- To identify how supervisors may use Web 2.0 technologies in order to communicate with teachers.
- To identify the current use of Web 2.0 technologies among teachers and supervisors.
- To identify ways of using Web 2.0 technologies in educational supervision.

- To examine what the possibilities for using Web 2.0 technologies in educational supervision might be.
- From the outcomes of this work, to design a framework that could assist teachers and supervisors to recognise and use the affordances of Web 2.0 tools in promoting the quality of education supervision.

The question *how can get what I want to know?* can be answered by an understanding of research methodology, which as explained by Wellington (2000), is the activity of choosing and justifying research methods. Research methods consists of a set of techniques used in specific areas of research activity (Frankfort-Nachmias and Nachmias, 2000). There is no right or wrong, but the researcher should use the most appropriate methods available, given the research questions posed. Knoll (1987) points out that, whilst research methodology can be adapted to suit the topic under exploration it is the research purpose that dictates the choice of methods. Hence, this study involved mixed methods as the means of collecting data. This involved a participatory approach that, in the context of this research, has necessitated the use of Pre-Survey and Post-Survey data collection. Training was a subsequent key element of the research process, which contributed significantly to the data

### 3.3 Research Design

Research design is the coherent framework that enables the appropriate data collection and analysis. While the research design provides the blueprint for the research study and ensures that the research does not deviate from the set objectives, it also ensures that the study is economical (Iacobucci and Churchill, 2009). Welman and Kruger (2001) highlight that the research design is the plan or strategy which is used to acquire participants or subjects, and how to collect certain types of data from them so as to arrive at conclusions about the initial research question. The three common types of research designs are exploratory research, descriptive research and causal research. Each of these designs is unique and guides the researcher in achieving the purpose of the study. The various research designs and their uses have been explored and outlined in Iacobucci and Churchill's (2009) description of various research designs represented in Figure 3.1.
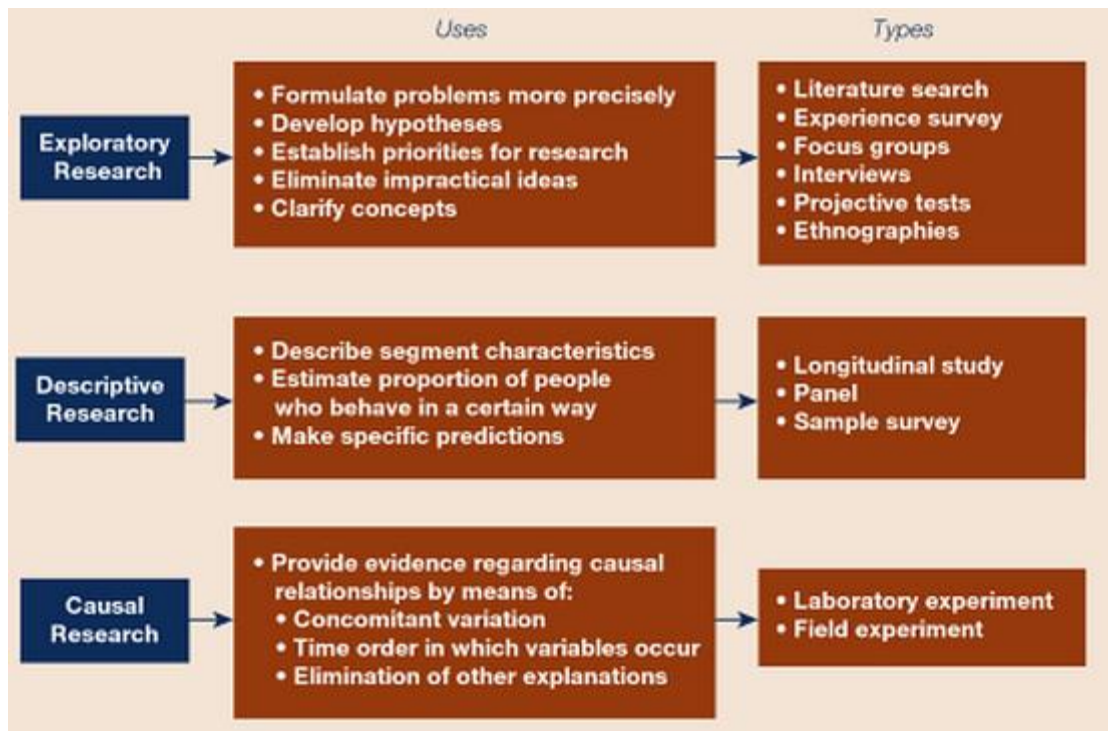
Figure 3-1: Types of research design. Source: Iacobucci and Churchill (2009, p.60)
Considering that the current study aims at exploring the compatibility of Web 2.0 technology and its tools in educational supervision, describing the opinions of teachers and supervisors regarding the implementation of the technology in educational supervision, and assessing the causal relationship between Web 2.0 technology and its tools and educational supervision, the current study follows a combined research design, which integrates exploratory, descriptive and causal designs.

The research design aims at establishing the extent to which Web 2.0 technology has been understood, the capability of participants to understand and, subsequently, use it as a key component in educational supervision (which necessitated training activities as part of the data collection process).

### 3.4 Research Approaches
Based on the research design, the research approach lays the foundation for collecting the data for the research study. Two common research approaches, qualitative and quantitative are commonly accepted as important approaches in achieving research objectives (Saunders *et al*, 2009). According to Huberman and Miles (2002) and Blaxter et al. (2001), collected data can be classified as "qualitative" if they come in the form of words and express individuals, situations, or circumstances surrounding a phenomenon, whereas they are regarded as "quantitative" if they are presented in the

form of numbers, counts or measurements that seek to give precision to a set of observations. Denzin and Lincoln (2000) claim that both qualitative and quantitative approaches can be applied appropriately to any research philosophy. Table 3.1 presents the main differences between quantitative and qualitative approaches, as suggested by Lincoln and Guba, 1985; Patton, 2002.

| qualitative research | quantitative research |
| --- | --- |
| Interpretivist | Positivists |
| Research process is inductive. | Research process is deductive. |
| Exploratory nature | Casual and relationship measurement |
| Thematic analysis | Statistical analysis |
| Subjective analysis | Objective analysis |
| Understanding and description | Hypothesis testing |
| Texts | Numbers |
| Generalization to context | Generalization to theory |
| Uses a relatively small sample | Uses a relatively large sample |

Table 3-1: Characteristics of Qualitative and Quantitative Approaches

### 3.4.1 Qualitative

Qualitative research is an approach sitting within the phenomenological paradigm, which involves some form of interaction between the individual and the researcher or the situation under research (Collis and Hussey, 2003). Morgan and Smircich (1980) highlight that qualitative research as not a set of techniques so much as an approach, and its suitability, like that of quantitative research, is determined by the research questions being asked and the phenomena to be studied. Moreover, Kirk and Miller (1986) stated that the qualitative approach to research follows four steps: invention, discovery, interpretation, and explanation. Methods of qualitative design typically include: 1) research analysis of administrative records; 2) case study, which provides descriptive data of the subject being studied; 3) meta-analysis, which is designed to

analyse the statistical results from diverse previous research; 4) focus group discussion, which allows the researcher to bring a number of informants who serve the issue of investigation; and 5) detailed interviews in the form of semi-structured, structured or unstructured design (Silverman, 2000; Welman and Kruger, 2001).

Qualitative research focuses on the nature of socially constructed reality, and the close relationship between the researcher and the field. The main advantage of qualitative research is that it permits researchers to collect real, genuine and unique data and thus they can make comprehensive examination of a topic. Studying individuals in their natural setting could be difficult without qualitative methods.

Qualitative research, however, also has several disadvantages (Creswell, 1998). For instance, a) it is time-consuming to deal with all stages of data collection (organisation and analysis of data); b) collecting data could be costly; c) researcher bias is likely that can occur at any time including planning, data collection, or interpretation. Furthermore, qualitative research in a human or social science study might lack clear guidelines or an outline, thus rendering the study difficult to design, conducted or evaluated (Creswell, 1998). In addition, other views of qualitative research focus on likely design constraints, for instance, being influenced by individuals' 'own accounts of their attitudes, motivations and behaviour' (Hakim, 2000).

Table 3.2 shows Creswell's (2007) overview of five qualitative research approaches.

| Types of Qualitative Research |
|---|
| According to Creswell (2007) there are five main approaches to Qualitative data Analysis. These are: |
| **Biography**: the study of an individual and her or his experiences as told to the researcher or found in documents and archival material. |
| **Phenomenology**: emphasise the meaning of an experiences for a number of individuals. |
| **Grounded theory**: is to generate or discover a theory, an abstract analytical schema of a phenomenon that relates to a particular situation. Grounded theory is an iterative process by which the analyst becomes more and more grounded in the data and develops increasingly richer concepts and models of how the phenomenon being studied really works. |
| **Ethnography**: helps understand the social world from the vantage point of those residing in it. Ethnographies provide understanding of what's going on' of those who inhabit a range of naturally occurring settings. |

> **Case study**: is an exploration of a 'bounded system' or a case (or multiple cases) over time through detailed, in depth data collection involving multiple sources of information rich in context.

Table 3-2: Types of qualitative research approaches (Creswell, 2007)

Web 2.0 is considered a new technology worldwide and specifically in Saudi Arabia; however little is known about technology acceptance in the context of Saudi Arabia. To gather initial knowledge about web 2.0 a qualitative methodology allowed me to create a rich picture to clarify and understand participants' experiences and perceptions of using Web 2.0 technologies in the supervision process, by gathering qualitative evidence from supervisors and teachers. Perceptions, impressions, and opinions can be collected by qualitative data. Furthermore, all responses of participants during the experiment were examined and investigated to observe their enthusiasm and interaction with these tools. Data gathered from the qualitative methodology in the context of Saudi Arabia informed the construction of subsequent questions with the quantitative approach (as explained next).

### 3.4.2 Quantitative

A quantitative approach aims at confirming the hypotheses of a study and quantifies the variation in the research participants. The obtained data is numerical in nature and the instruments used in this approach follow a rigid style (Mack et al, 2005). In this study, I aimed to investigate how Web 2.0 technologies can be used to enhance the educational supervision of teachers in Saudi Arabia.

The aims of the quantitative aspect of this study were to:

- Identify the affordances of Web 2.0 tools for supervision in order to design a framework that could assist teachers and supervisors to become more aware of the affordances of the tools so that they could use them to their full potential.
- Identify the benefits of using Web 2.0 technologies in supervision through participants' learning experience with Web 2.0 tools.

To achieve these aims, the following initial hypotheses were examined:

*Hypothesis 1:* Web 2.0 technologies have many high quality affordances, which have a great potential to enhance educational supervision work.

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*Hypothesis 2:* Using Web 2.0 technologies will have effects on teachers (Performance, knowledge, motivation, collaboration and communication, etc.)

The two hypotheses were based on the main research questions of the study.

While the quantitative approach provides objective results, it fails to integrate the subjective and subtle aspects or opinions of participants involved the research study. Considering this, a third approach called mixed methodology has received wide attention (Creswell and Plano Clark, 2007). As the name suggests, a mixed methodological approach integrates quantitative and qualitative approaches and guides the researcher to achieve the objectives (Teddlie and Tashakkori, 2009). The following section elaborates on the mixed-methods approach used in the study.

### 3.4.3 Mixed Methods Approach

Using mixed method strategies means using one or many techniques in order to "get closer to producing a convincing argument" (Creswell, 2009, p3). Mixed method research exists in between the qualitative and quantitative approaches because "it incorporates elements of both the qualitative and the quantitative approach" (Creswell, 2009, p4).

Mixed methods researchers use different methods to collect and analyse data rather than using just one way. According to Creswell (2009), the purpose of mixed methods is to utilise both qualitative and quantitative methods in the same study. Creswell (2009, p14) points out that since "all methods have limitations, the biases inherent in any single method could be neutralised by other methods." Thus, it leverages different methodologies' strengths and weaknesses and permits triangulation by producing corresponding data (Mays and Pope, 1995). The results can be used together to strengthen each other. Considering that the current study has its foundation in a combined research design a mixed-methodological approach is appropriate for the study. The main purpose of the mixed-methodological approach is to achieve triangulation. "Triangulation is commonly used to refer to the process of obtaining information on a subject from three or more independent sources" (McNiff, 1991, p. 84)

By definition, triangulation is the combination of different methods (Flick, 2002). Neuman (1997) claims that a combination of multiple methods of research can be

useful in some studies. There are five purposes behind the combination of methods in a single study (Greene et al., 1989): 1) where convergence of results is desired; 2) where overlapping and different facets of a phenomenon may surface from complementary methods; 3) where use in sequence allows the first method to help inform the second; 4) where fresh perspectives and contradiction emerge; 5) where using multiple types of methods adds scope to the study. All five purposes apply within this research.

> Triangulation techniques in social sciences attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint and, in doing so by making use of both quantitative and qualitative data (Cohen et al., 2000: 233).

Major problems of qualitative research are reliability, validity and generalisation of the findings (Lincoln and Guba 1995). Reliability is the possible replication of a given study by other researchers and the extent to which independent researchers can reach similar conclusions from the data and theory employed, whilst validity refers to the extent to which the research methods in practice collect what they are intended to collect. One of the commonly recommended ways for improving the reliability and validity of qualitative research is by implementing triangulation.

For this reason, this study aims at achieving triangulation by combining multiple methods of data collection from qualitative and quantitative perspectives. Hopkins (1993) stated that 'Each data source gives information of a different type which usually serves to complement and provide a check on the others' (p.155). The interaction among the three areas of this research (knowledge, skills and attitudes) justifies the use of triangulation. By triangulating multiple sources of data, multiple data collection and interpretation techniques and a variety of theoretical constructs, the researcher's bias is minimized, which contributes to the internal validity of the study. Triangulation techniques are specifically appropriate to this study because they are effective in analysing both complex and simple data.

In this study on the use of Web 2.0 technology, information was gathered from supervisors of the technology as well as teachers who use the technology in educational supervision because of the nature of the study, it was necessary to create a new framework (Figure 2.2 and table 2.2). So that I could efficiently evaluate the data and generate effective recommendations relating to the adoption of Web 2.0

technologies, triangulation was applied in order to combine and contrast both quantitative and qualitative research methods.

The number of methods used depends on the nature of the research as well as the type of data being collected. There are various methods, and each method of data collection takes a different perspective (Denscombe, 2003: 132). Using more than one method gives the researcher a multifaceted view of the research topic, which provides much more detail on the topic than one single method; it may be necessary for the researcher to view things from different perspectives in order to better understand the research (Saunders et al., 2009).

According to Creswell (2009), the purpose of mixed methods is to intertwine both qualitative and quantitative methods in one study in order to combine their effects. In my research, I used a quantitative survey design. I did this because:

1. It was important to gather information from supervisors of Web 2.0 technology so that I could effectively evaluate their current use of the technology at work.

2. The supervisors' perceptions would be instrumental in building a framework for the use of Web 2.0 technologies in an educational setting.

3. Both during and after the training programme, it was important that the quantitative data was measured with regard to several different aspects such as current use, awareness, familiarity, confidence, effective and the affordances of Web 2.0 tools.

Jones (2000) challenged the integration of quantitative and qualitative results because they follow two different paradigms (positivism and interpretivism) and have different theoretical backgrounds. According to Jones (2000), varying results may lead to several problems in the triangulation of the two methods. However, according to Kaplan and Duchan (1988), the mixed methods approach generates vigorous insights, which are not possible when one single research approach is employed.

The above methodological discussion thus explains and justifies my research design, so I will now discuss the implementation approach and techniques.

### 3.5 Setting and sample selection

The Office of Education in Southern Riyadh in Saudi Arabia was chosen as the research setting. The office consists of 700 teachers who work in K-1 in 75 primary

schools. There are 43 supervisors specialising in various subjects, who oversee approximately 3,000 teachers. This Office was chosen as the research setting as it is my place of employment as a supervisor.

The sample was divided into two kinds of participants. The first were educational supervisors. Seven were interviewed in stage one (pilot) then a further sample participated in the focus group and survey (Appendices 4 and 5). Ten supervisors, my colleagues, were selected through opportunistic sampling for the focus group interview. Twenty-three supervisors constituted the survey sample. The second set of the participants were teachers. Seven participated in stage one. For the remaining three stages, thirty teachers were nominated by the supervisors who participated in the focus group to participate in this study and attend the training course; this is considered purposive sampling due to the suitability of such participants to the context of the study. It should be noted that all participants were approached on a voluntary basis, i.e. they had the right to accept or reject participation. They were given the chance to withdraw from the study at any given time and assured of confidentiality and anonymity. All invited participants completed the study and none of them asked to withdraw or declined participation (see 3.11. Ethical considerations). Some meetings were held to gather information and prepare for the training course. Table 3.2 presents participants, methods, and sample size in each stage in this study.

| Stage | Participants | Method | Sample size |
|---|---|---|---|
| Stage one September 2011 | Supervisors | Interview | 7 supervisors |
| | Teachers | | 7 teachers |
| Stage two March 2013 | Supervisors | Focus group | 10 supervisors |
| | | Survey | 23 supervisors |
| Stage three March 2013 | Teachers | Pre survey | 30 teachers |
| Stage four March 2013 to July 2013 | Teachers | Post survey | 30 teachers |
| | | Survey questionnaire | 30 teachers |

Table 3-3: The research sample

Documents with relevant data were obtained from the Ministry of Education; Administration of Education in Riyadh and Office of Education in Southern Riyadh for stage 4. For the professional training programmes (See section 3.9.4 and Appendix

1), a presentation was prepared which included some exercises and personal invitations were given to all teachers to attend the training course.

In stage one, interview methods with 7 teachers and 7 supervisors aimed at assessing the level of knowledge (awareness) possessed by educational supervisors and teachers regarding the concept of Web 2.0 technology and its tools (Appendix 4). The second stage aimed at collecting supervisors' insights on effective supervision and application of Web 2.0 technology to develop and improve supervisory work. Ten supervisors constituted the sample in this stage and they were divided into two focus groups (Appendix 5). Furthermore, to add value to the data, a questionnaire was supplied to the 23 supervisors (Appendix 6). In stage three, data were collected from the teachers (30 teachers) related to teachers' current use of Web 2.0 technology, and perceptions of the applicability of Web 2.0 technology in supervision. In stage four, the questionnaire used in stage 3 was supplied to the same teachers after the intervention to measure the effect of the training programme. Additionally, another questionnaire (Appendix 7) was supplied to the same teachers who participated at the end of the empirical study to ascertain the extent of participants' recognition of the effectiveness and the affordances of Web 2.0 technology and its tools for supervision. On the other hand, to encourage teachers in stage four to become active during the programme and afterwards (monitoring time), I promised them that they would be awarded gain certificates and letters of recognition from the Ministry of Education. Informed consent was obtained orally and the teachers were assured of anonymity and privacy.

The next section will discuss in details the tools was used to gather data interview and focus group as tools in qualitative research and the questionnaire, which is the most commonly used tool in quantitative research.

### 3.6 Data Collection

Data can be collected from numerous sources, using a variety of research methods. Choice of research methodology and particular methods is often influenced by context, objectives, the number and kind of people who implement the study, and the time and money available to the research (McNeill, 1990; Bell, 1991). To achieve the research objectives, a mixed methodology, which integrated quantitative and qualitative data, was used and included exploratory study (interviews with supervisors and teachers), current web 2.0 usage (focus group and questionnaire for supervisors), a pre survey

questionnaire (before a training course) and Post survey questionnaire (after a training course) with teachers. Furthermore, I observed and discussed teachers' contributions on tools that were applied in the study (e.g. wiki, googledocs, and blogs).

This section provides a detailed description of the qualitative and qualitative methods used. Three qualitative research methods will be discussed, namely: interview, focus group and monitoring, which were combined to facilitate the gathering of relevant data. A quantitative method, the use of a questionnaire, review of some advantages and disadvantages of using a questionnaire, as well as an account of how it was developed and piloted, will also be discussed.

### 3.6.1 Qualitative data collection
The use of interview and focus group used in the study will be discussed in detail.

#### *3.6.1.1 The Interview Method*
An interview is an exchange of views between two or more people regarding a topic of mutual interest, allowing expression of a point of view and discussion of interpretations (Cohen *et al.*, 2011). Cohen *et al.* state that interviews could serve three purposes: firstly, they could be used as the main source of gathering information directly related to the research objectives. Secondly, they could be employed to check hypotheses or to propose new ones, or as an illustrative device to help recognise variables and relationships. Thirdly, they could be used in conjunction with other methods. In my research, I used interviews to gather information and data for answering the research questions (see below).

There are three types of interviews: semi-structured, structured and unstructured. In the structured interview, also known as a standardised interview, the questions are closed-ended, and the sequence in which they are raised is the same for every interview. The purpose of this approach is to make sure that each interviewee is presented with exactly the same questions in the same order. This kind of interview is easier to analyse and more objective, albeit not flexible (Frankfort Nachmias and Nachmias, 2000). The unstructured interview includes open-ended questions, which can vary or be modified in accordance with the respondent's beliefs, intelligence or understanding. Whilst consuming much effort and time as well as being more difficult to analyse, it is flexible and can be used to investigate issues in more depth (Kidder and Judd, 1986). The semi-structured interview contains both closed-ended and open-

ended questions, and not all questions are formulated or designed in advance. It carries a number of the advantages of both structured and unstructured interviews (Kidder and Judd, 1986). The semi-structured interview is a flexible method that permits new questions to be brought up during the interview according to what the interviewee says, and offers the interviewer an opportunity to search for further information.

In this study, individual semi-structured interviews were conducted. Interviews with teachers and supervisors took place in September 2011 to identify the level of knowledge (awareness) the teachers and educational supervisors had about the concept of Web 2.0 technologies and their tools. The interviews also aimed to ascertain teachers and educational supervisors' perspectives about their experiences of using Web 2.0 to communicate with their colleagues and supervisors along with any suggestions about using Web 2.0 technology in educational supervision.

### 3.6.1.2 Focus Group Interviews

A focus group is not merely about getting people to talk together. Rather, it is a particular type of group in terms of size, composition, purpose and procedures, which leads through interaction to outcomes and data (Cohen *et al.*, 2011). The purpose of such an interview is to gather information, listen and to identify how people think or feel about particular issues (Krueger and Casey, 2000). A focus group can create an environment that encourages participants to share their perceptions and points of view without pressure. Researchers can highlight patterns and trends from group discussion, which might lead to careful and methodical analysis (Krueger and Casey, 2000). Cohen et al. (2011) stress that focus groups are useful for: developing themes, topics, and schedules for subsequent interviews and/or questionnaires.

Krueger and Casey (2000) identified characteristics of focus groups:
1. a focus group comprises a limited number of people where everyone has the opportunity to share their vision;
2. participants should possess similar characteristics, so that the researcher can achieve the purpose of the study;
3. the aim of the focus group is to collect qualitative data, which interests the researcher typically to discover the scope of people's opinions across various groups;
4. focus groups should have a focused discussion;

5. focus groups should aid in understanding the topic of interest.

The purpose of the focus groups in Stage 2 of this study with educational supervisors (Appendix 4) was to provide an in depth exploration of Web 2.0 technology. Focus group interviews were conducted with two groups of supervisors and the number of supervisors in each group was five. The focus group interviews were recorded to facilitate data analysis. The objective of this stage was to understand how Web 2.0 technologies could develop and improve the supervisor's work. Hence, it sought to gain insights into supervisors' perceptions of effective supervision and how Web 2.0 technologies can contribute to the development and improvement of supervisory work. The emphasis was on the supervisors' opinions as to whether or not online technologies can enhance supervision work. At the end of this stage, a summary of this experience, incorporating the views of participants, was compiled and this information was presented to participants with the intention that they could benefit from it and expand it in the future.

### 3.6.2 Quantitative data collection

Survey studies are the most common types of quantitative data collection methods and the discussion addresses the design, validation, piloting and execution of the questionnaire that was used in Stages 3 and 4 of this study.

### 3.6.2.1 Questionnaire

According to Brown (2001), questionnaires are:

> Any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers (p. 6)

Denscombe (1998) maintains an advantage of using questionnaires is that they are economical, i.e. yielding large datasets at minimum processing cost. Questionnaires are also a quick method of obtaining information from a large number of respondents (Cohen et al., 2011). They are also considered to be less subject to bias caused by interviewer subjectivity and responses can be anonymous if deemed desirable (Bell, 1991).

On the other hand, there are certain disadvantages to the use of questionnaires. These can be low response rates, not yielding true reflections of respondents'

thoughts, limited range of answers, and inability to correct misunderstandings or check incomplete answers (Oppenheim, 1992, p. 102). To avoid these issues, I enlisted the help of a colleague selected for his many years of experience in educational supervision and his interest in educational technology and training to monitor the survey process. He was present during the training programme to provide technical and administrative support, and while participants were completing the online survey, he was a hand to answer questions and ensure participants understood how to complete and submit the survey. The role of the colleague was to ensure that all research methods and procedures were followed during the research. This is important in ensuring that the results are authentic and reliable. Aspects of validity and reliability are discussed in a later in this section.

**Designing the Questionnaire:**

The questionnaire was developed based on: first, the effectiveness and the affordances of Web 2.0 tools; second, review of questionnaires reported by relevant studies such as Aljumah (2011), Vrettaros et al. (2009), Coutinho and Bottentuit (2008), Castaneda (2008), Vaughan et al. (2011), Rosendale (2009) and Zakaria et al. (2010); and third, my own experience as an educational supervisor within the Saudi setting, and as a user of the Web 2.0 for professional development purposes. The questionnaire used a 5-point scale, which is in a horizontal format. For instance, 'excellent, very good, good, poor and terrible' scales were used to assess the extent of participants' knowledge of familiarity with using Web 2.0 tools and 'very confident, confident, somewhat confident, not so confident and not at all confident' scales were used to assess the extent of participants' confidence in using Web 2.0 tools. The questionnaire was developed in English, and then translated into Arabic as accurately as possible (Appendixes 5 and 6); translation was checked a native Arabic speaker, fluent in English, who worked a professional translator. The questionnaire was created on a public questionnaire hosting website (www.surveymonkey.com) post checking the validity, reliability and the process of pilot testing.

**Validity of the Questionnaire**

Validity refers to whether a study measures or examines what it claims to measure or examine. Validity can be examined in a variety of ways. Three types of validity are evaluated in this research: construct validity, face validity and content validity (Burns, 2000). Whilst construct validity was checked by ensuring that research constructs

were applied properly, i.e. understood and used in concordance with the relevant literature, face validity was established by ensuring the measures of the questionnaire, which are the questionnaire items themselves, reflected the concepts being measured (by experts in the field). This was achieved by evaluating the correlation between variables of the research. Content validity is closely linked with face validity and relates to subjective judgements (of the researcher) in selecting and formulating questionnaire items, which mirror the research goals (Burns, 2000; Neuman, 2000). Furthermore, I approached and consulted experts in the field (three) along with my supervisors who validated the questionnaire. This further ensured that the instrument was valid and reflected the main aims and research questions of the study. Based on recommendations from these contributors, modifications were made accordingly to the wording of certain items, with the aim of improving face validity.

**Reliability of the Questionnaire**

Reliability refers to how consistent a measuring device is. Neuman (2000: 164) stated, that "reliability means consistency". Therefore, if the same measure is repeated under the same or similar conditions, the results will be the same. Oppenheim (1992: 144) stressed that "reliability refers to the purity and consistency of a measure, to repeatability, to the probability of the same result again if the measure were to be duplicated". Thus, the reliability of a measuring instrument is the degree of consistency with which it measures the construct or phenomenon of interest. The Cronbach's alpha test was used to determine the reliability of the questionnaire. Specifically, the reliability was measured for the scales familiarity, confidence (supervisors and teachers, at two times for teachers), affordances and experience for the additional questionnaire for teachers). By looking at the values of Cronbach's alpha it can be seen that all scales are considered relatively high in reliability and that items are highly consistent with each other. The lowest reliability was generated for familiarity among teachers (pre intervention) with a consistency of 69% (see table below).

| Scale | Supervisor | Teacher Pre survey | Teacher Post survey |
|---|---|---|---|
| Familiarity (5) | 0.879 | 0.690 | 0.773 |
| Confidence (5) | 0.859 | 0.779 | 0.828 |
| Knowing the affordance of Web 2.0 (12) | | 0.794 | |
| Teachers' learning experience  (19) | | 0.868 | |

Table 3-4: Scales' reliability among supervisors and teachers

The questionnaire used to collect primary data in Stage 2 was designed with a purpose of obtaining well-defined responses from supervisors in Saudi Arabia, studying the reality of Web 2.0 technology and practices and their prospective application, the current method of supervisory communication and methods used by the teachers. The online survey addressed questions related to: i) supervisors and supervision: supervisors' current use of Web 2.0 technology for supervision; ii) Web 2.0 technology applicability: identifying whether Web 2.0 technology can support and enhance communication between supervisors and teachers, and identifying activities undertaken by supervisors using the technologies to support or enhance supervision and general perceptions. Apart from the closed ended questions addressing the above mentioned themes, the questionnaire contained three open questions.

In stage 3, I formulated the supervisors' questionnaire items to collect relevant data from teachers' current use of Web 2.0 technology, and applicability of Web 2.0 technology (before intervention). Then the questionnaire used in stage 3 was supplied to the same teachers in stage 4 (after intervention) to measure the impact of the training programme. Also, an additional questionnaire was designed to collect other information from teachers in stage 4. This questionnaire aimed at discovering: a) teachers' viewpoint regarding Web 2.0 technology and its tools after becoming familiar with the effectiveness and the affordances of Web 2.0 tools; this part of the questionnaire contained 12 items, b) teachers' personal assessment of their experience with Web 2.0 technology and its tools; this part of the questionnaire contained 19 items (see Scales' reliability above).

**Questionnaire piloting**

The purpose of piloting is to pre-test the reliability and validity of the data collection instruments and avoid any sort of ambiguity in any of the items (Gall et al. 1996). Ambiguity in the questionnaire wording can deter respondents from answering specific questions, or from returning the questionnaire at all (Cohen et al., 2011). To reduce this risk, a small-scale pilot study was applied with the help of 10 experienced Saudi teachers who were familiar with the use of Web 2.0 technologies, in order to check items for suitable wording and, as a result, improve validity.

Results obtained from the pilot study enabled the researcher to restructure the concepts of the study and include a number of items related to the research questions and objectives. The main themes of the questionnaire (before intervention) were as follows:

1. Understanding of teachers and supervisors about Web 2.0
2. The level of use of Web 2.0 among teachers and supervisors
3. The role of Web 2.0 technologies in supporting education supervision
4. The views of supervisors and teachers on the use of Web 2.0 technologies in education supervision

### 3.6.3 Execution of Research Intervention

Given that a training intervention was included in the study to assess the impact of a training programme on Web 2.0 technology's applicability two surveys were conducted in the study identified as pre-survey and post-survey. Survey execution in the study thus involved two phases. Each of these phases is discussed below.

### *3.6.3.1 Pre-Survey (Before training course):*

The survey was designed with the aim of finding out demographic information, how often teachers met their supervisors each year (formally and informally), the communication approach between teachers and supervisors, their familiarity with the tools they would be trained to use and how confident they were about using them, the way they received information and feedback from supervisors, and their opinion about implementing Web 2.0 technology in education and supervision. The findings of the pre-survey will be discussed in the findings chapter.

As indicated earlier, the research process involved a participatory research approach that integrated all the focus groups into the data collection process in an effort to enhance knowledge acquisition, having established the various factors that influence it. It is important to appreciate the complexity associated with the technology. For that reason, it is necessary to reiterate that the study sought to educate the participants on these tools and services in an effort to establish the extent to which the technology can be known (epistemology) and the nature of its existence (ontology). This is what necessitated use of a participatory approach in the implementation of the research intervention.

Prior to the inception of the training project, the supervisors and teachers involved in the research process (both in answering questions in the online questionnaire and in the training course) were expected to have different levels of knowledge with regard to Web 2.0 technology, owing to their diverse social media use and experience backgrounds. This was an important factor to consider in the development of the training objectives that the training course was intended to accomplish. The teacher participants were made aware of the training course requirements, participated in the development of the course objectives, and had schedules that fitted their daily professional and personal activities, in an effort to make sure that the objectives were accomplished to the fullest extent achievable.

**Monitoring**

In this study the term monitoring means following up the teachers' responses through the tools used, Blogs, Google + and WhatsApp (Appendix 8) while encouraging teachers who were inactive. At this stage, the training course had begun and it was important to evaluate the progress of the teachers with regard to the use of the tools that had been identified (Blogs, Google + and WhatsApp) in an effort to establish how well they were becoming familiar with them. In other words, the monitoring process involved the evaluation and improvement of the knowledge acquisition process. As has been indicated above, a set of training objectives was decided. In this light, the progressive evaluation of the extent of participants' achievement was important in order to make sure that any problems arising were dealt with before they escalated. If the goals that were set were being accomplished as expected, the training course moved to the next training phase.

It was, however, expected that various problems and issues would come up in the knowledge acquisition process, owing to the various epistemological issues that have been raised above. In this regard, my monitoring process involved continued identification of these issues, after which they were dealt with alongside other training activities. The issues that were identified were broadcasted in the social networks identified, including Google + and WhatsApp as well as the identified blogs in order to make sure that this information reached the entire research group.

The teachers, after reading about these issues, were expected to give their responses, which were analysed and responded to accordingly, to make sure that knowledge

acquisition moved smoothly. Participation, in this regard, was enhanced by motivating the teachers to log more responses in the social networks on any arising issues and making the learning process inclusive of all parties, including the researcher.

**Monitoring protocol**

Monitoring involved a set of processes. I raised a particular problem, for example, encountered by one teacher through his blog and Google +, with a subsequent discussion with teachers focusing on finding out solutions for this problem. I monitored all contents provided through Web 2.0 tools by teachers in this way and analysed the contents and the teachers' responses. The monitoring process lasted for about five months, during which communication with teachers was more or less daily, through the use of WhatsApp, email, Google+ and blogs. The participating teachers contributed through sending broadcasts in various forms such as texts, links, or chatting. I, in turn, encouraged all teachers to contribute, participate and comment on the posts of fellow teachers in order for all to gain benefit. Evidence of monitoring is presented in the next chapter.

**Teacher contribution**

I asked the following question on my blog:

"Based on your experience in dealing with students, how can you possibly improve the attainment of students who face learning difficulties?"

In order to get better participation from all the members of the sample, the link was sent to WhatsApp, mailing group and Google+. The responses to the question were excellent, as everyone showed a great deal of expertise in their response. The responses were then collected and compiled to form an educational bulletin, which I published on Wiki.

### 3.6.3.2 Post survey (After training course):

The training course (Appendix 3) had focused on arming the participants with knowledge on Web 2.0 technology as a way to enhance educational supervision. The first priority was given to Web 2.0 technology knowledge acquisition and then to its positive relationships with educational supervision. When the training process was complete, and all training objectives had been accomplished as expected, the post survey was administered.

This questionnaire aimed to find out:

1. The teachers' points of view regarding Web 2.0 technologies after becoming familiar with the Web 2.0 tools; this part of the questionnaire contained 13 statements.
2. Their assessment of their experience with Web 2.0 technologies; this part of the questionnaire contained 19 statements.

The findings at this point will be reported in detail in the findings chapter. After the training course, I was interested in examining the various points of view that the teachers had with regard to Web 2.0 technology as well as all other related dimensions learned in the course. This was especially salient after the groups that were researched had familiarized themselves with the presentations of Web 2.0 technology as offered by the training team – the perspectives presented form an integral part of the findings collected.

Having established the various points of view that were presented by the teachers, it was also important for me to analyse the experiences that the teachers had during the training sessions, based on the opinions they expressed in the post-survey. These were analysed from two points of view. First, they were analysed in terms of the Web 2.0 technology tools and services on which they were presented (Blogs, Google + and WhatsApp), which formed a platform of communication between the teachers and the researcher. Secondly, they were analysed based on how effectively participants used these tools, which reflected the extent of knowledge they acquired.

### 3.7 Project Execution

The discussion on the execution of the research intervention was achieved through the application of research procedures, which are explained in this section of the research. Data from educational supervisors and teachers in Saudi Arabia was collected between 2011 and 2013, which is collectively represented across four stages (see Table 3.2, above).

Figure 3.3 indicates the four stages of the data collection process. The following figure shows the research layout, a model that provided a framework to build understanding, clarity and insight regarding the applicability of Web 2.0 technology in educational supervision for improving teachers and supervisors' professional practice.

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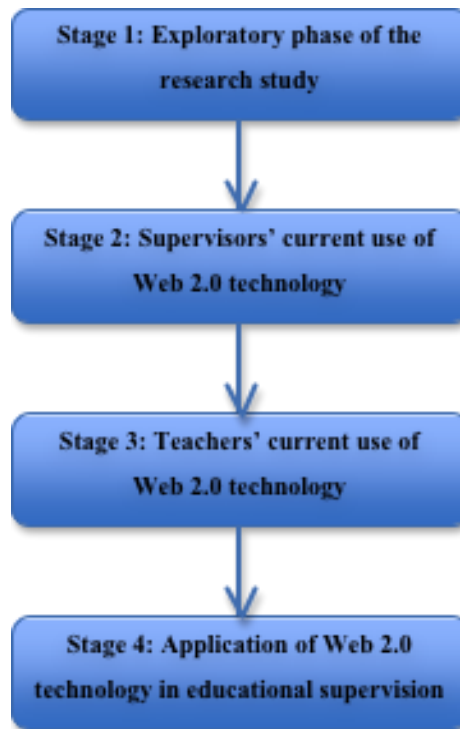
Figure 3-2: Research Stages

□ Stage 1 was the exploratory phase of the research study

□ Stage 2 investigated supervisors' current confidence and familiarity with, and use of Web 2.0 technology

□ Stage 3 explored teachers' current confidence and familiarity with, and use of Web 2.0 technology

□ Stage 4 focused on the applicative transition of Web 2.0 technology in educational supervision

Project execution across each stage, especially the data collection process is covered in the following sections.

### 3.7.1 Stage 1 - Exploratory phase of the research study

A pilot study, carried out in September 2011, explored the possibility of applying Web 2.0 technology in educational supervision. This stage sought to answer the first research question, which was, *to what extent do supervisors and teachers understand the term/concept of Web 2.0 technology?* This pilot study was to explore supervisors' and teachers' understanding of the concepts of Web 2.0 technology, helping me to develop a framework for the later stages and providing experience in the procedures and techniques of data collection and analysis required for the study. Primary data was

collected using the semi structured interview method. The following questions served as a guide for collecting data via the semi-structured interview:

1. What do you know about Web 2.0 technology?

2. What do you know about Web 2.0 technology tools?

3. What do you know about the following tools: Facebook, YouTube, blog, Twitter, Wiki, and Skype? Please give a brief definition of each tool.

4. Do you think that these tools can be useful in enhancing communication between teachers and supervisors, and in educational supervision in general? Explain please?

5. Do you have any suggestions as to how to employ those tools (Web 2.0) in educational supervision and how to enhance communication between teachers and supervisors?

Stage 1 laid the foundation for the next phase of the research study, stage 2.

### 3.7.2 Stage 2 - Supervisors' current supervisory practices, and understanding use and perceptions of Web 2.0 technology

In stage 2 data from supervisors was collected through focus groups and a questionnaire conducted in the second semester, 2012 (18 months after stage 1 of the research study). This stage sought to answer the research questions: *To what extent do supervisors currently use Web 2.0 technologies for supervision? To what extent are supervisors familiar and confident with Web 2.0 tools?* And *to what extent can Web 2.0 tools support and enhance communication between supervisors and teachers?* Data in this stage was collected with a dual objective. The first objective was to assess supervisors' use of Web 2.0 technology and its tools in educational supervision, and the second objective was to understand the potential applicability of Web 2.0 technology in developing and improving supervisors' work. Insights into supervisors' perceptions pertinent to effective supervision and application of Web 2.0 technology were obtained to develop and improve supervisory work.

The focus group discussions aimed at collecting in-depth open-ended views from the supervisors. A total of twelve questions was use as a guide in fulfilling the objectives of this stage. The questions were divided into five parts: Background knowledge, Current use of Web 2.0 technology and its tools, Provision of Web 2.0 technology in educational supervision, Obstacles and Possible solutions, and the future vision.

The link for the online questionnaire was sent to 43 supervisors working in the South educational supervision centre in Riyadh. Completed valid questionnaires were received from 23 supervisors. The second stage of the research study thus was aimed at assessing supervisors' current use of and perceptions towards Web 2.0 technology and its tools. Primary data from the supervisors was collected through a survey questionnaire, which consisted of 18 questions (see Appendix 5) divided across four axes, which are outlined as follows:

1. Demographic data

2. Current supervisory practices used by the educational supervisors

3. Knowledge of and confidence with Web 2.0 tools

4. Web 2.0 technology and educational supervision, including:

- Using the internet in education
- Current exploiting of Web 2.0 technology in education
- Looking to the future

### 3.7.3 Stage 3 - Teachers' current use understanding and perceptions of Web 2.0 technology

The next stage of the research study, stage 3, was carried out in the second semester, 2012, with the objective of assessing teachers' current use of Web 2.0 technology. This stage sought to answer the research questions: *To what extent do teachers currently use Web 2.0 technologies for supervision? To what extent are teachers confident and familiar with Web 2.0 tools?* And *to what extent can Web 2.0 tools support and enhance communication between supervisors and teachers?* Primary data from the teachers was collected through a questionnaire. The questionnaire previously used to collect supervisors' opinions was modified in this stage, to collect relevant data from the teachers related to teachers' current use of Web 2.0 technology, and perceptions of the applicability of Web 2.0 technology. An important concern in this stage was to ascertain whether a plan of intervention – using Web 2.0 technology – could be successfully implemented in traditional supervision or not. Thirty teachers responded to the questionnaire.

The third stage of the research study aimed at assessing teachers' current use and perceptions towards of Web 2.0 technology and its tools. Primary data from the teachers was collected through survey questionnaire, which constituted, which

consisted of 18 questions (see Appendix 5) divided across four axes, which are outlined as follows:

1. Demographic data

2. Current supervisory practices used by the educational supervisors

3. Knowledge of and confidence with Web 2.0 tools

4. Web 2.0 technology and educational supervision, including:

- Using the internet in education

- Current exploiting of Web 2.0 technology in education

- Looking to the future

### 3.7.4 Stage 4 – Application of Web 2.0 technology in educational supervision

The final stage of the research study, stage 4, extended from September 2012 to June 2013. This stage sought to answer the research questions: *To what extent can activities undertaken by supervisors and teachers with Web 2.0 technologies support or enhance supervision?* and *to what extent can participants recognise and use Web 2.0 tools for supervision?* The thirty teachers who participated in stage 3 were involved in this stage, and were engaged in a series of processes including pre-survey, training programme, implementation, and communication; post-survey and monitoring (see Appendixes 4,5,and 6).

I designed the training programme focusing on blogs, wikis, Twitter, YouTube, and Googledocs. The blogs and wiki components were units designed by Washington ACTA, which were freely available on the Internet, and which I translated into Arabic. For the other tools, I designed the materials myself, based on my experience, Arabic sources, and the outcomes of the earlier research stages. The training programme was estimated to be around 12 hours and was carried out over four hours per day. The role, aims, requirements, activities and procedures of the training programme was explained to the teachers in the first session. A number of approaches were provided to assist teachers in expanding their understanding and potential application of Web 2.0 technology and its tools. A monitoring process was followed and teachers' responses through the tools that were used (Blogs, Google+ and WhatsApp) were assessed and teachers that were inactive were encouraged to enhance their participation. The monitoring process involved thus focused on evaluation and improvement of the knowledge acquisition process.

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The five months' empirical research study focused on the practical application of Web 2.0 technology in educational supervision. Additionally, to assess the impact of training programme and Web 2.0 technology's applicability among the teachers, the questionnaire used in stage 3 was supplied to the teachers after the intervention. The pre and post training results were compared to measure the impact of the training on Web 2.0 technology's application. Also, additional questionnaire designed also aimed at discovering: a) teachers' viewpoint regarding Web 2.0 technology and its tools after becoming familiar with the effective and the affordances of Web 2.0 tools; this questionnaire contained 12 items, b) teachers' personal assessment of their experience with Web 2.0 technology and its tools; this part of the questionnaire contained 19 items.

### 3.7.4.1 Managing stage 4

Training took place in the computer lab of a private school. An experienced colleague was asked to assist in delivering the course and monitoring activities. At the beginning of the training course, teachers were asked to fill in an online questionnaire regarding their awareness of Web 2.0 technologies, use of Web 2.0 technologies and type of communications with their supervisors. They were encouraged to review their own activity levels and recent use of some tools such as YouTube, Twitter and Facebook in their personal lives. Also, they were encouraged to indicate to what extent they were happy with their supervisors and supervision in general. The first stage in implementing this project was to provide the teachers with a detailed overview of the empirical study, including an introduction to Web 2.0. The project was presented, the timing was defined and tasks to be performed were explained during the semester. A number of approaches were provided to assist teachers in expanding their understanding of Web 2.0 technologies and its potential application.

Personal accounts in Google for all teachers to use in this project were created. Then in a computer lab, teachers were shown a Google + for the researcher, how to use it and how to find and invite people to their circle. Participants created their own accounts and added each other. Moreover, the participants were shown how to create a sample blog. Teachers were then taught how to design their own blog on Blogger.com, a popular and easy-to-use free blog provider. Once the teachers had completed their blog, they were instructed to write their first blog entry, a self-introduction. They posted these on my main blog under the title, "Introduce Yourself".

The implementation of the project consisted of four stages: a) overview, awareness of Web 2.0 and training programme on Web 2.0; b) communication tools used through the empirical study; c) contributions 1 and 2 involving questions from the researcher and responses from teachers; and d) evaluation and review by questionnaire (See Figure 3.4).
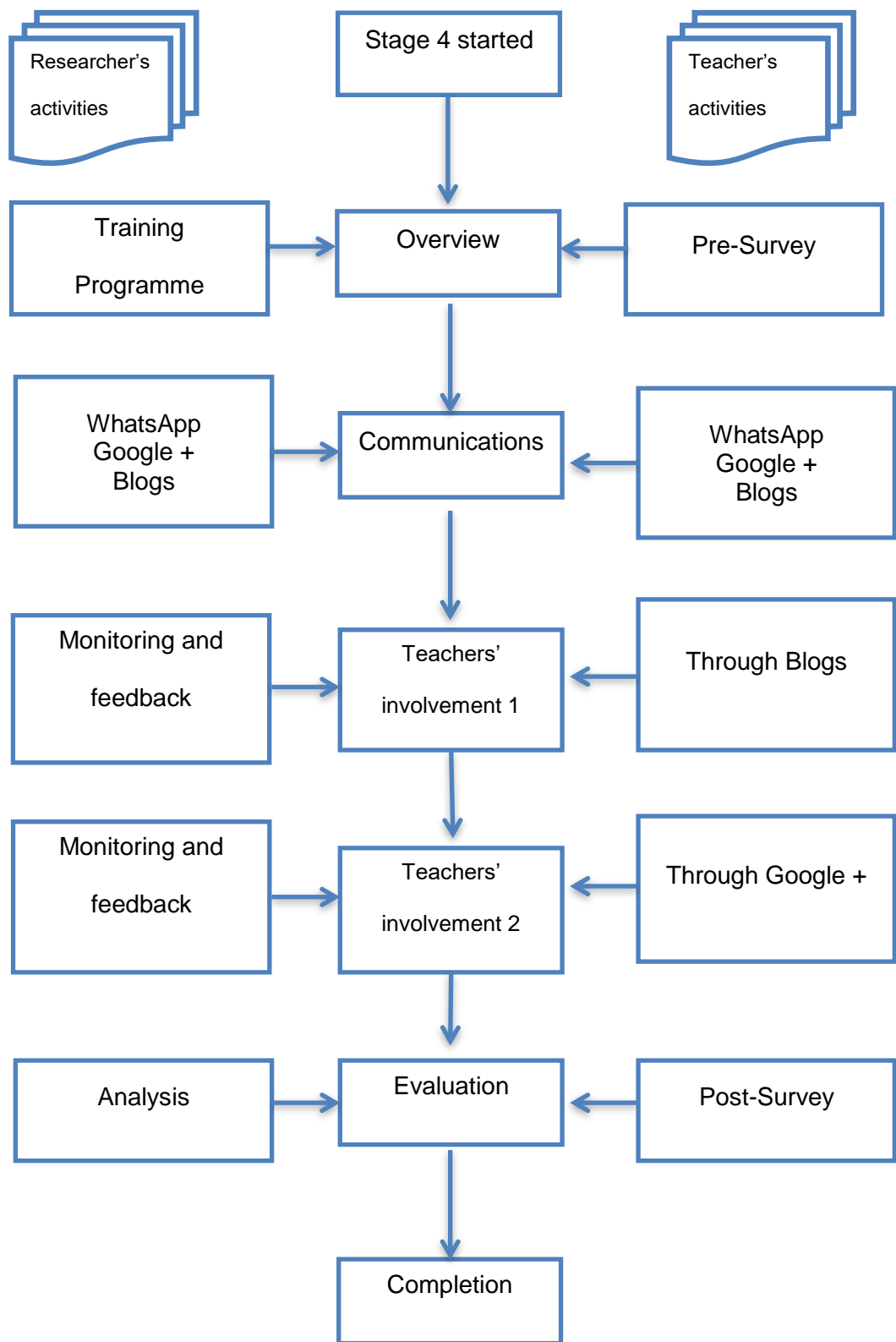
Figure 3-3: Stage 4 procedure and activities for the researcher and participants (teachers)

While the research layout provided a necessary framework for conducting the current study, the research questions, methods, participants and purposes for each research stage are indicated in the following table 3.2:

| Questions | Research stage | Methods | Participants | Purposes | Questions guide |
|---|---|---|---|---|---|
| • *To what extent do supervisors and teachers understand the term/concept Web 2.0?* | Research stage one | Semi-structured interview | Supervisors and Teachers | • The main aim is assessing the level of knowledge (awareness) possessed by the educational supervisors and teachers regarding the concept of Web 2.0 technology and its tools.<br>• To increase the understanding of the subject, both practically and theoretically.<br>• To help highlight the problem of the study.<br>• To determine the types of sources and methods of collecting and analysing data.<br>• To identify the deficiencies in the study question and objectives proposed. | • What do you know about Web 2.0 technology?<br>• What do you know about Web 2.0 technology tools?<br>• What do you know about the following tools: Facebook, YouTube, blog, Twitter, Wiki, and Skype? Please give a brief definition of each tool.<br>• Do you think that these tools can be useful in enhancing communication between teachers and supervisors, and in educational supervision in general? Explain please?<br>• Do you have any suggestions as to how to employ those tools (Web 2.0) in educational supervision and how to enhance communication between teachers and supervisors? |

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| Questions | Research stage | Methods | Participants | Purposes | Questions guide |
|---|---|---|---|---|---|
| • *To what extent do supervisors currently use Web 2.0 technologies for supervision?*<br>• *To what extent are supervisors familiar and confident with the mentioned Web 2.0 tools?* | Research stage two | Focus group and Questionnaire | Supervisors | • To identify how supervisors can use Web 2.0 technology and its tools in order to communicate with teachers.<br>• To present supervisors' knowledge of Web 2.0 technology and its tools, in order to ascertain the views of the participants' supervisors in the group about their current use of Web 2.0 technology at work.<br>• To find out the educational supervisors' views and perceptions about the provision of Web 2.0 technology and its tools in educational supervision.<br>• It exposes some difficulties that faced supervisors in implementing Web 2.0 technology in practice.<br>• To express a series of suggestions that may contribute to overcoming the difficulties and to the provision of this technology in educational supervision, from the standpoint of supervisors. | ***Focus group***<br>• What do you know about Web 2.0 technology?<br>• What do you know about the tools of Web 2.0 technology?<br>• What do you know about the following tools: YouTube, blogs, Google documents, Twitter and Wiki? Give a brief definition of each tool.<br>• What do you think about providing Web 2.0 technology in educational supervision?<br>• Do you think that these tools could contribute to improving communication between supervisors and teachers and to improving educational supervision in general? How?<br>• What are your perceptions about the usefulness of Web 2.0 technology employment in educational supervision?<br>• How can Web 2.0 technology contribute to the improvement of educational supervision?<br>• What are the obstacles and challenges that may limit adopting the employment of Web 2.0 technology in educational supervision?<br>• What are the changes that we need, in the technology itself, or in the ways that Web 2.0 is being used in educational supervision?<br>• What are the strategies for the deployment and adoption of this innovation in education and educational supervision? |

| | | | | | *Questionnaire* |
|---|---|---|---|---|---|
| | | | | | 1. Demographic data: (Age group, What is your highest professional/academic qualification?, How many years supervising experience do you hold?, Do you use the Internet at home?, With what devices do you use the Internet?, How often do you use the Internet (hours per week)?, Have you ever received training for the use of this Web 2.0 tools?) <br> 2. Current supervisory practices used by the educational supervisors: (Indicate how often you work with a teacher (formally/Informally) to support or help?, What are the communication approaches between you and your teachers?) <br> 3. Knowledge and confidence in Web 2.0 tools: <br> 4. Web 2.0 technology and educational supervision, including: (Indicate your familiarity with the following websites/tools you use: Twitter, YouTube, Blogs, Wikis, Google docs?, Indicate your confidence in using the following websites/tools: Twitter, YouTube, Blogs, Wikis, Google docs?, <br><br> • Using the internet in education: (Do you have any idea of how to use the Internet in education and educational supervision? <br> • Current exploiting of Web 2.0 technology in education (Do you use the Internet in educational supervision? How?) <br> • Looking to the future (What do you think of employing Web 2.0 tools and its services in education and educational supervision?, Do you think that Web 2.0 tools are supposed to be used in the process of educational supervision?) |

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| Questions | Research stage | Methods | Participants | Purposes | Questions guide |
|---|---|---|---|---|---|
| • *To what extent do teachers currently use Web 2.0 technologies for supervision?*<br><br>• *To what extent are teachers familiar and confident with the mentioned Web 2.0 tools?* | Research stage three | Questionnaire (Pre-survey) | Teachers | • The main object in this stage was to study the current usage of Web 2.0 technology by teachers.<br>• To identify ways of using Web 2.0 technology and its tools in educational supervision.<br>• To find out whether the plan of intervention-using Web 2.0 technology, could be successfully implemented in a traditional supervision.<br>• To find out the teachers' views and perceptions about the provision of Web 2.0 technology and its tools in educational supervision.<br>• It exposes some difficulties that faced supervisors in implementing Web 2.0 technology in practice.<br>• To expresses a series of suggestions that may contribute to overcoming the difficulties and to the provision of this technology in educational supervision, from the standpoint of teachers. | 1. Internet (hours per week)?, Have you ever received training for the use of this Web 2.0 tools?)<br>2. Current supervisory practices used by the educational supervisors: (Indicate how often you work with a teacher (formally/Informally) to support or help?, What are the communication approaches between you and your teachers?)<br>3. Knowledge and confidence in Web 2.0 tools:<br>4. Web 2.0 technology and educational supervision, including: (Indicate your familiarity with the following websites/tools you use: Twitter, YouTube, Blogs, Wikis, Google docs?, Indicate your confidence in using the following websites/tools: Twitter, YouTube, Blogs, Wikis, Google docs?,<br><br>• Using the internet in education: (Do you have any idea of how to use the Internet in education and educational supervision?<br>• Current exploiting of Web 2.0 technology in education (Do you use the Internet in educational supervision? How?)<br>• Looking to the future (What do you think of employing Web 2.0 tools and its services in education and educational supervision? Do you think that Web 2.0 tools are supposed to be used in the process of educational supervision?) |

| Questions | Research stage | Methods | Participants | Purposes | Questions guide |
|---|---|---|---|---|---|
| • *To what extent can activities undertaken by supervisors and teachers with Web 2.0 technologies support or enhance supervision?*<br><br>• *To what extent can participants recognise and use the affordances of Web 2.0 tools for supervision?* | Research stage four | An empirical study by using (Twitter, YouTube, Blogs, wikis and GoogleDocs and | Teachers | • To examine the possibility of using Web 2.0 technology and its tools in educational supervision.<br>• To design a framework that could assist teachers and supervisors to recognise and use the effective and affordances of Web 2.0 technology and its tools.<br>• To find out the extent to which participants can recognise and use the affordances of Web 2.0 technology and its tools for supervision. | **Post-survey**<br>*Measuring the Impact of Training*<br><br>1. Knowledge and confidence in Web 2.0 tools:<br>2. Web 2.0 technology and educational supervision, including: (Indicate your familiarity with the following websites/tools you use: Twitter, YouTube, Blogs, Wikis, Google docs?, Indicate your confidence in using the following websites/tools: Twitter, YouTube, Blogs, Wikis, Google docs?,<br>*Web 2.0 technology and its tools' affordances*<br>• 12 items about teachers' understanding and their perceptions about the affordances of Web 2.0 technology and its tools.<br>• 19 items about evaluating the learning experience of the teachers with Web 2.0 technology and its tools. |

Table 3-5: Tabular representations of research questions, methods, participants and purposes for each research stage

### 3.8 Ethical considerations:

The issue of ethics in educational research is investigated in many studies. The Department of Education in Hull University published a booklet which provides guidance on implementing ethical considerations and describes some practical solutions. The Ethical Approval committee was informed after completing several steps (Appendix 3). First of all, the distribution of participant information sheets and signed consent forms is compulsory in any academic research process. In this research, the consent of the teachers, supervisors and the Ministry of Education was obtained (see Appendixes 9 and 10). Informed consent was successfully obtained and it was made clear that participation was voluntary. In addition, participants were given the assurance that their identity would be protected and privacy would be maintained during the publication of the research. In other words, participants would not be referred to by name and no information is given by which they could be identified or views expressed be traced to a specific individual. Thus, the responses of the participants are considered without any reference to their personal information (Babbie, 2009).

With an understanding that this research was not concerned with investigating individuals' potential or observing their performance, but exploring how coaching can help or enhance their knowledge and exchange knowledge and experiences by using Web 2.0 applications, only the opinions of the participants played a crucial role. Additionally, the teachers were identified with abbreviations such as T1, T2, and T3 and so on and supervisors were identified as ES to maintain anonymity.

Another concern was that, because the participants were deeply involved in the process, not only by using reactive methods for the research, but also in their professional capacity as teachers (Altrichter et al., 1993; Hacohen and Zimran, 1999), it was important that the relationship between the researcher and participants was based on mutual trust. Otherwise the quality of the data collected would be impaired. McNiff et al. (2003) describe the power relationship in education research as 'educative influence'; in other words, the position of power in research is used purposely with the aim of influencing other people's lives in an educative way. They do not see the power relationship as coercive, they see it as positive, helping people "to learn and grow freely". In this situation, my responsibility as the researcher was to build trust by ensuring ethical practice at each stage of the research process. The most

important action was to obtain the consent of all participants to use the data provided by them. I assured them that we shared the same concerns and aspiration. Also it was made clear that they would be allowed to withdraw from the research at any stage without suffering any consequences.

In addition, since this research used visual, online methods, it was important to consider the ethical implications of such practice (Wiles et al., 2012). Sharf (1999) for instance, recommends that explicit permission should always be sought for use of material posted online. For example, the person who posted a message should be contacted and asked for explicit permission when a researcher opens message boards. Therefore, I asked for explicit permission from all participants.  They were also informed about submissions of pictures of themselves and regulations governing such submissions and assured that in use of any screen shots, their identities would be disguised. Participants generated the data on the site and thus their consent to share was sought prior to participation. I facilitated online discussions through tools (Google+, WhatsApp, wiki and blogs) and actively contributed to them and I encouraged participants to participate and exchange knowledge.

As for the online questionnaire, I selected online survey tools such as "Survey Monkey" to give participants freedom to decline the survey or further surveys from my email. Moreover, I chose the option of not collecting IP addresses and then the data was stored in private Survey Monkey accounts, thus ensuring the confidentiality of the data. The front page was the information sheet and it was followed by a consent form.  Due to the nature of this study, using electronic method, websites and applications, I made sure that teachers created a separate account (Email, blog account, Twitter account, Google +, and WhatsApp group) for the purpose of the study only. In addition, I only used private accounts and websites (Educational supervision wiki, Blogs) and I invited the participants by sending the questionnaire link to their email and via WhatsApp group. As such, I restricted the access to users' profiles, emails and opinions to me only.

For the future, we agreed that would keep our groups and all tools we used after the research time and participants would be provided with a copy of the results of the study. The data will be stored in my computer for three years for validation and

enquiry, after which, it will be deleted to maintain the confidentiality and anonymity of the participants.

### 3.9 Summary

This chapter discussed the methodology or research approach adopted in answering the research questions. In making sure that the questions are completely and comprehensively answered, a series of research activities were conducted as the most appropriate approach for answering the research questions related to the use of Web 2.0 technologies in educational supervision. Participants are actively involved in the research process as members of the research team and an integral part of the research process. As a result, they tend to develop deep insights into the research topics, on which they might have important views, views that may count and enhance the reliability and validity of the findings that are established (Fletcher et al, 2010).

This chapter provided a description of the research philosophies, design, and approaches, setting, and data collection methods and how I managed the study. Considering the extent to which the technologies were understood or could be known, this study has identified the epistemology of Web 2.0 technology as a key element, which is focused on the acquisition of knowledge. It was important also to evaluate the existence of Web 2.0 technologies in educational supervision, thereby necessitating the identification of various ontological issues associated with Web 2.0 technology. Epistemological and ontological issues were both greatly instrumental in this methodology and facilitated the examination of participants' learning in the entire research process. This established the research philosophy of the current study and laid the foundation for carrying out the research study.

The comprehensiveness of the research philosophy necessitated the need for a combined research design where the study adopted exploratory, explanatory and causal designs to achieve the objectives. Accordingly, a mixed-methods research approach was adopted, which integrated qualitative and quantitative methodological approaches in order to achieve triangulation and so increase confidence in the validity of the findings.

Qualitative methods were used to answer most of the research questions, whilst a survey method, one of the primary quantitative methods was used to address two questions. The use of questionnaires was discussed, with a review of some advantages

and disadvantages of using them, as well as an account of how they were designed, piloted and executed. Moreover, validity and reliability were discussed, in terms of construct validity, face validity and content validity.

This research approach made it possible for participatory methods to be used in the collection of data during Stage 4, the training course, which involved the participation of teachers and presentation of their contributions to better understand them. In subsequent chapters, the results obtained by this research approach will be discussed.

The final stage of the research process thus engaged groups of teachers who were taken through a training programme. A monitoring process was employed, which involved teachers in making responses to issues raised and enhanced their interest in trying to improve the knowledge acquisition process. This comprehensive approach was aimed at, first, making sure that all views relevant to the research questions were collected and documented. They were therefore discussed within the research group, with the guidance of the researcher in an effort to create a deeper understanding not only of the issues raised for all parties but also of the technology in question for the focus groups. The contributions were analysed and reported to the social networks used and, as indicated earlier, the responses were then collected and compiled to form an educational bulletin, which I published on Wiki.

This chapter has presented the research philosophy adopted in this study; it further explained the different methodology and methods used to achieve the research questions. The next chapter will present the research findings and analysis structured by the different stages of the study. Each phase will be analysed separately using qualitative and quantitative data analysis tools.

# CHAPTER 4: FINDINGS AND ANALYSIS

This study aimed:

- To evaluate the teachers and supervisors' level of awareness of the concept of Web 2.0 technologies.

- To identify supervisors and teachers' familiarity and confidence with the mentioned Web 2.0 tools.

- To identify the current use of Web 2.0 technologies among teachers and supervisors.

- To examine what the possibilities for using Web 2.0 technologies in educational supervision might be.

- From the outcomes of this work, to design a framework that could assist teachers and supervisors to recognise and use the affordances of Web 2.0 tools in promoting the quality of education supervision.

As indicated in Chapter 3, discussion was conducted and data collected in the native language of the participants, Arabic. The findings are presented in this chapter in line with the project execution, which as explained in section 3.9 was conducted in four stages.

## 4.1 Stage 1 – The exploratory research: the concept of Web 2.0

This stage was carried out in September 2011 with a pilot study aimed at assessing the level of knowledge (awareness) possessed by educational supervisors and teachers regarding the concept of Web 2.0 technology and its tools. The objectives of this pilot stage were:

- To increase the understanding of the subject, both practically and theoretically.
- To help highlight the problem of the study.
- To determine the types of sources and methods of collecting and analysing data.
- To identify the deficiencies in the study question and objectives proposed.

Based on the aforementioned assumptions and previous literature on Web 2.0 technology, along with aid from my supervisor, interviews with a number of teachers and supervisors were conducted in this stage. The samples for this pilot stage comprised seven teachers and seven educational supervisors.  Purposive sampling was

used to select the relevant samples. A selective approach based on the criteria of ease of access and my rapport and good relationship with the participants was applied and informed consent was obtained to record the interviews and use the information for current research purposes only. Additionally, the sample included various academic disciplines of supervisors and teachers to allow for different perspectives and experiences. Apart from variety in academic disciplines, I ensured variety in the sample's work experience. Thus, variety in the sample was ensured as represented in Table 4.1

Table 4.1 shows the profile of the study sample, consisting of teachers and educational supervisors.

| Supervisor no. | Years of service in educational supervision | Subject | Teacher no. | Years of service in teaching | Subject |
|---|---|---|---|---|---|
| ES1 | 10 | Art | T1 | 18 | Science |
| ES2 | 11 | Foundation Stage | T2 | 15 | Mathematics |
| ES3 | 8 | Arabic Language | T3 | 22 | History |
| ES4 | 12 | Foundation Stage | T4 | 10 | Arabic language |
| ES5 | 3 | Biology | T5 | 9 | Arabic language |
| ES6 | 2 | Computer | T6 | 13 | Mathematics |
| ES7 | 8 | Mathematics | T7 | 6 | Mathematics |

Table 4-1: Profile of pilot study sample

As mentioned earlier, Table 4.1 reflects the presence of diversity in the study sample across the academic disciplines and work experience in their current jobs. This variety of subjects is necessary to amalgamate the opinions across the diverse groups and, in due course, to apply the results more widely in a practical manner. The exploratory stage consists of five subheadings, which will present supervisors' and teachers' findings and analysis.

### 4.1.1 Knowledge of the concept of Web 2.0:

This section reports the findings generated regarding the information generated by asking participants what they know about Web 2.0 technology. The findings are reported separately for supervisors and teachers.

**Supervisors**

Three out of the seven educational supervisors admitted that they did not know the meaning of the term Web 2.0 technology, while two of the seven gave a simple and concise definition, one indicating that *it was a social network*, while the other considered it to be *an upgraded version of Web 1.0 with more tools and services to increase interaction*. On the other hand, the sixth educational supervisor (ES6) presented a good definition of Web 2.0:

> *Web 2.0 technology is a technology that relies on the involvement of the user in manipulating the content of the site, meaning that the electronic site becomes dynamic and not static, relying on a particular input from a person or body.*

The seventh educational supervisor (ES7) presented the definition of Web 2.0 technology: "*Web 2.0 applications are based on technology that allows the user to interact and share information.*"

**Teachers**

Four out of the seven teachers explicitly stated that they had no knowledge of Web 2.0, while two teachers answered incorrectly; one stated that "*Web 2.0 is used to access information without barriers*" and the other stated, "*It is a tool to transfer images and videos over the Internet*". Teacher number three (T3) stated, "*It is a tool used for social networking and sharing experiences*".

Based on the responses from the teachers and the educational supervisors, it can be generally deduced that the first assumption, which refers to the lack of awareness of the term Web 2.0 technology among teachers and supervisors, was correct. This analysis highlighted the need for me to be more careful when drafting the questionnaire and interview questions for the main study. For example, due to the lack of awareness I had to adjust the questions (focus group and questionnaire) to suit low awareness; that led me not to ask them questions about web 2.0 tools that are not common or they were not aware of.

### 4.1.2 Knowledge of Web 2.0 tools:

This section provides analysis of participants' answers after being asked, What do you know about Web 2.0 technology tools? The findings are reported separately for supervisors and teachers.

- **Supervisors**

Four educational supervisors claimed that they did not have any knowledge of Web 2.0 technology and its tools, while one of the remaining three listed a number of tools such as *Facebook, blogs, Wikipedia, and others*. Educational supervisor number five (ES5) defined Web 2.0 technology and its tools as "*enhanced tools that simplify the interaction with the web*", while educational supervisor number seven (ES7) defined Web 2.0 technology and its tools as "*simple tools that do not need highly skilled programming, which are available for everyone, such as blogs and others*".

- **Teachers**

Four out of the seven teachers indicated that they had no knowledge of what Web 2.0 technology and its tools were, while teacher number four (T4) defined them as "*the majority of social networking sites and blogs*". Moreover, teacher number two (T2) defined Web 2.0 technology and its tools as *Facebook, Twitter and Skype*; similarly, teacher number three (T3) added '*YouTube*' to the list.

Based on the above responses, it can be concluded that both teachers and educational supervisors' knowledge of Web 2.0 technology and its tools was limited. They identified some of the technology and its tools, which are explicitly listed in the next question.

### 4.1.3 Identifying Web 2.0 tools

This section provides analysis of participants' answers after being asked, What do you know about the following tools: Facebook, YouTube, blog, Twitter, Wiki, and Skype? Please give a brief definition of each tool. The findings are reported separately for each tool for supervisors and teachers.

- **Supervisors**

**Facebook**: six out of the seven educational supervisors managed to provide a good definition of Facebook and they indicated that they used it.

**YouTube**: six of the educational supervisors managed to provide a good definition of YouTube and they indicated that they used it.

**Blogs**: four educational supervisors managed to provide a good definition while three had no information or knowledge about blogs. For instance, ES6 defined blogs as *"a special website that you can add your interest and your memories"*.

**Twitter**: five educational supervisors managed to provide a good definition, while two of them did not have any knowledge of Twitter. For example, ES7 defined Twitter as follows: "*Twitter is an application you find friends and read their tweets and you can chat with them*". ES3 defined Twitter as *"an application where you find famous people".*

**Wiki**: two educational supervisors supplied good definitions of a Wiki. For instance, ES5 defined a wiki as *"a website that depends on the users and anyone can add any information".* In contrast; five of them were unaware of the tool called wiki.

**Skype**: five of the educational supervisors provided good definitions of Skype, while two of them did not know what it was.

From the responses of the supervisors, the following information can be extracted. Among the interviewed supervisors, all of them had used or knew about Facebook and YouTube, while two of them were familiar with Skype and Twitter. It was apparent that blogs and Wikis were not common knowledge amongst supervisors. This analysis suggested I should include more about Web 2.0 technology and its tools for future interviews and questionnaires.

- **Teachers**

**Facebook**: all teachers managed to provide good definition of Facebook and were current users of it.

**YouTube**: all teachers managed to supply good definition of YouTube and used it regularly.

**Blogs**: five teachers presented a good definition of blogs, while two of them were unaware of their definition.

**Twitter**: all teachers managed to give a good definition of Twitter.

**Wiki**: two teachers provided a good definition of a Wiki, while five did not know what it was.

**Skype**: six teachers effectively defined Skype.

Based on the above responses, it is clear that the majority of teachers were familiar with Facebook, YouTube, Twitter, blogs and Skype, although only two Web 2.0

technologies, Facebook and YouTube were reportedly commonly used among teachers. Conversely ten out of 14 supervisors and teachers were unaware of the wiki. However, it is clear that there were limitations and gaps in their knowledge regarding Web 2.0 tools, especially tools such as Wikis. The responses from this question highlighted the reason for lack of use of Wiki; the monopolistic presence of English language across the wikis and lack of availability of content in the Arabic language emerged as a perceived barrier, resulting in low participation and usage. For instance, T4 reported that "*on Wikipedia you cannot find confidential information and through the researcher tracking and comparing with English language*". Also, when in 2013 Asfar, an e-journal, posed the question, "Why does Arabic Wikipedia still lag behind?' it concluded that the reason was that only 3% of the content on Wikipedia was written in Arabic. While Asfar referred only to Wikipedia, it makes a valid general point supported in the comments of some participants in this study; that for users who may have no- or only rudimentary- knowledge of English, shortage of materials in their native language is an impediment to wider exploitation of technologies. However, it could be argued that as more Saudi users become proficient with Web 2.0 tools, they could create their own Arabic-language content. Indeed, this study provided an opportunity for them to learn to do so.

### 4.1.4 The possibility of taking advantage of Web 2.0 tool technology in the communication and exchanging of ideas between teachers and educational supervisors

This section provides analysis of participants' answers after being asked for the possibility of taking advantage of Web 2.0 tool technology in the communication and exchanging of ideas between teachers and educational supervisors. The findings are reported separately for supervisors and teachers.

- **Supervisors**

Six supervisors confirmed that they thought they could benefit from using Web 2.0 technology and its tools when communicating and exchanging ideas and experiences between teachers and educational supervisors. They also elucidated its heightened importance, particularly in this era of fast-paced technological evolution. For instance, ES3 advocated providing an incentive to those who employed these varied types of tools in their work, be it teachers or educational supervisors. Moreover, the supervisor emphasisemphasised the need for training teachers and educational supervisors on the

various methods of using these tools. However, educational supervisor number four (ES4) indicated, *"It would be impractical to use such tools, when the majority of supervisors and teachers have no knowledge of them".* This confirmed the existence of traditional supervisors who are reluctant to change; in fact their high perceptions of difficulty and sense that they were not ready or adequately equipped for this technological change is visible through this statement.

- **Teachers**

Six teachers expressed a belief that they could benefit from using Web 2.0 technology and its tools when communicating and exchanging ideas and experiences between teachers and educational supervisors and vice versa. Affirmative words such as 'yes' and 'of course' were widely used, although teacher number six (T6) was more cautious, saying 'perhaps' when answering this question.

This indicated that teachers were highly aware of Web 2.0 technology and its tools' potential value and they exhibited a positive view about employing such tools in communication and in exchanging experiences between supervisors and teachers. More information on the same will be highlighted in the last question.

### 4.1.5 Proposals on how to employ Web 2.0 technologies in educational supervision

This section provides analysis of participants' answers after being asked: Do you have any suggestions as to how to employ those tools (Web 2.0) in educational supervision and how to enhance communication between teachers and supervisors? The findings are reported separately for each tool, for supervisors and teachers.

- **The Educational Supervisors' Views**

The educational supervisors presented a series of proposals on how to take advantage of Web 2.0 technology and its tools in education supervision. The following table outlines the various views held by the supervisors.

| Views | Supervisors |
|---|---|
| Holding workshops | ES7, ES3 and ES4 |
| Data transfer, circulars and decisions | ES6, ES3, ES2 and ES4 |

| | |
|---|---|
| Ideal lessons through YouTube | ES1, ES2, ES3, ES4, ES5, ES6, and ES7 |
| Communicating with schools, educational departments, Ministry of Education, universities and educators through Web 2.0 technology and its tools. Those tools could be used to communicate with international bodies in order to benefit from their expertise and experience | ES7 and ES5 |
| Benefit of Web 2.0 technology and its tools in training teachers from a distance | ES7, ES3, ES6 and ES4 |
| Benefit of Web 2.0 technology and its tools in opinion polls | ES1, ES2 and ES4 |
| Creating Facebook pages for supervisors and educators in order to communicate with teachers | ES2, ES3, ES4 and ES6 |
| Benefits of Web 2.0 technology and its tools in the preparation of educational awareness programmes to develop teachers' skills and talents in teaching | ES7 |
| Spreading the culture of these tools among decision makers in education. | ES3 |
| Encouraging teachers to use these tools with the understanding that they can achieve advancement in their careers | ES7, ES3 and ES4 |
| Providing material and moral support to supervisors and teachers to use the tools provided | ES4 |
| Increasing computer provisions in schools so that these tools are more accessible to teachers | ES1, ES2, ES3, ES4, ES5, ES6, and ES7 |
| Using Twitter to send news and urgent proposals | ES2, ES3 and ES7 |
| Using Wikis for the purpose of discussing common themes | ES5 |
| Allowing the teachers to take part in developing action codes | ES2 |

Table 4-2: Supervisors' views on how to benefit from Web 2.0

The supervisors expressed great enthusiasm towards learning on aspects relating to employing the technical tools of Web 2.0 in educational supervision. They stressed the importance of the study and desired to have a manual that would enable them to use each tool indicated in the current study. They also expressed the desire to acquire a copy of this study after its conclusion. However, one of the educational supervisors (ES4) was sceptical about the employment of Web 2.0 technology stating that, "*there are more than enough tools available already, and that supervisors and teachers have no knowledge of these tools. Nevertheless, a manual of information on Web 2.0 technology and its tools and the applicability of this technology were supplied to all supervisors*".

- **The teachers' views**

The teachers provided a range of suggestions as to how Web 2.0 technology should be implemented in education and supervision, as follows:

| Views | Teachers |
|---|---|
| Particular pages should be created on social networking sites to enable supervision of educational institutes and for the educational supervisors to monitor and share experiences or solve any problems that teachers may have to achieve effective decision-making and problem solving skills | T1, T3, T4 and T5 |
| Web 2.0 technology and its tools should be applied to provide a range of training courses for supervisors and teachers on concepts such as employing Web 2.0 in educational supervision | T1, T2, T3, T4, T5, T6 and T7 |
| Customised channels on YouTube could be employed to view model lessons or share international experiences | T1, T2, T3, T4, T5, T6 and T7 |
| Meetings for educational supervisors and teachers or administrators should be facilitated through enhanced use of Skype, which would mean that the teachers would not have to leave the schools to attend such meetings | T3 and T5 |

Table 4-3: Teachers' views on implementing Web 2.0

The results obtained provided invaluable information that helped in the construction of data-gathering instruments used for subsequent stages of this study. The next section will describe the second stage, which investigated the actual status of supervisors' use of Web 2.0 technology and its tools in educational supervision, and their understanding

of the applicative ability of Web 2.0 technology in developing and improving supervisors' work.

### 4.2 Stage 2 - Supervisors' current use of Web 2.0 technology

The second stage was applied 18 months later and aimed at collecting supervisors' insights on effective supervision and application of Web 2.0 technology to develop and improve supervisory work. Data in this stage was collected through two primary methods: focus group and questionnaire. The purpose of the focus group was an in-depth exploration of Web 2.0 technology and its tools from the supervisors' perspective. Ten supervisors constituted the sample in this stage and they were divided into two focus groups. With a dual objective, the current research stage aimed at obtaining: a) supervisors' knowledge of Web 2.0 technology and its tools, and their reports and views about their current use of Web 2.0 tools at work, and b) educational supervisors' views and perceptions about the provision of Web 2.0 technology and its tools in educational supervision. Apart from achieving these objectives, the second stage aimed at discerning the difficulties/challenges that supervisors faced during the practical implementation of Web 2.0 technology and its tools. Finally, suggestions/recommendations were elicited for overcoming the said difficulties and promoting the active deployment of this technology in educational supervision.

With an intention of adding value to the data collected from focus group discussions and achieving triangulation, a questionnaire was designed and supplied to the supervisors. Twenty three supervisors responded to the questionnaire. The questionnaire aimed at:

a) expanding and understanding supervisors' perspective of Web 2.0 technology and practices,

b) studying the reality of supervisors' use of Web 2.0 technology and practices,

c) identifying the current method of communication with the teachers, and

d) identifying the supervisory methods used by the supervisors.

Detailed findings from the online survey are presented in this section. The survey addressed questions related to: a) supervisors and supervision: supervisors' current use of Web 2.0 technology and its tools for supervision, b) Web 2.0 technology applicability: whether Web 2.0 technology and its tools can support and enhance communication between supervisors and teachers, and whether activities undertaken

by supervisors with Web 2.0 technology and its tools can support or enhance supervision and general perceptions. In addition to closed questions the questionnaire contained three open questions.

A 23 out of 43 response rate was achieved in accordance with the research procedures described in Chapter 3. Closed-ended questions were analysed using Microsoft Excel. The data was coded and converted to percentages and frequencies to extract relevant information regarding the set objectives. Simple descriptive analysis was used to reveal the sample's characteristics and to answer specific research questions. Descriptive analysis included frequencies and percentages for each categorical variable. The three open-ended questions were analysed across two phases. In the first phase, the responses for each of the three questions were written in another document. Secondly, each response was closely analysed by comparing questions and grouping similar responses. Some supervisors answered by providing single word answers such as yes, perhaps, little, important … etc., which were unhelpful since they failed to meet the criteria of open-ended questions. This might be explained by Frankfort-Nachmias and Nachmias' (2000) assertion that people usually prefer ticking boxes rather than writing answers. Nevertheless, these responses were considered to add value to the study, despite the fact that open-ended questions did not have a high response rate.

Each of these two primary methods (focus group and questionnaire) is discussed in detail in the next sub-section.

### 4.2.1 Focus Groups

In a focus group discussion, a simple narrative description is often necessary and appropriate (Stewart et al, 2006). Moreover, the most frequently used analysis procedure with focus groups involves a transcription of the discussion and a summary of the extracted conclusions (Stewart et al, 2006). To ensure effective analysis, the focus group discussions were transcribed in Arabic and then translated to English. The transcription is divided into five sections, which are background knowledge, current use of Web 2.0 tools, provision of Web 2.0 technology in educational supervision, obstacles and possible solutions and future vision. Each of these sections is reported in turn below.

### *4.2.1.1 Background knowledge:*

While measuring the educational supervisors' knowledge of Web 2.0 technology and its tools was a functional objective, the primary objectives of this stage were to:  a) motivate the supervisors in the group, b) help them to organise and arrange their thoughts, c) form a full concept of Web 2.0 technology and its tools, and d) exchange information and knowledge among the members of the group as a prelude. These objectives were ensured while motivating the supervisors to contribute their ideas and encouraging them to form new opinions and ideas.

From this perspective, the questions that were discussed were as follows:

- What do you know about Web 2.0 technology?
- What do you know about the tools of Web 2.0 technology?
- What do you know about the following tools: YouTube, blogs, Google documents, Twitter? Give a brief definition of each tool.

The amount of information varied across the members. While some supervisors provided extensive information and saw themselves as competent users of these tools, some of them had adequate knowledge, some had basic information regarding the tools and others had little information and presented an incomplete picture. The results obtained from the background checking provided results, which were almost similar to the deductions/reflections from the first stage - the exploratory study.

The supervisors provided varied definitions of Web 2.0 technology. Each supervisor interpreted Web 2.0 technology based on the collected knowledge and experiences; some provided clear definition, consistent with the definitions outlined in the theoretical framework of this study. Examples included the following:

| Views | Supervisors |
|---|---|
| Sites, services, and applications that have a set of properties that qualifies them to be dubbed this title. It can also be called read–write web | ES1 |
| It is second generation Internet sites and services such as blogs and YouTube … It is also pages that enable its visitor to edit, and allow others to view and search them | ES3 |
| Tools and computer applications that increase communication between users. It appears to shift the work from large organisations and institutions to individuals ... to configure a database for users to build relationships with the desired community … | ES9 |

Table 4-4: Supervisors' definitions of Web 2.0

When asked to list the tools of Web 2.0 technology, the supervisors managed to list multiple tools and presented brief definitions of each tool. Emphasis was placed on the five tools (YouTube, Wiki, Twitter, Google documents, blogs) since I identified these for the purposes of this study as reflecting a range of popularity with supervisors and teachers, and representing the four dimensions of Web 2.0 tools discussed in section 2.4. These were therefore the ones to be used with teachers during the practical application stage of this study.

After gaining insight on supervisors' knowledge about Web 2.0 technology and its tools, this section was summarised for the participants in the groups and served as a prelude for the transition to the next step.

### 4.2.1.2 Current use of Web 2.0 tools

In order to ascertain the views of the supervisors regarding their current use of Web 2.0 tools at work, two questions were asked:

- How do you currently use Web 2.0 technology in your work?

- Why do you use/not use Web 2.0 tools in your work?

Seven out of the ten participants in the groups claimed that they did not use Web 2.0 tools in educational supervision, but three of them highlighted their use of these tools for personal purposes. Examples include the following:

| Views | Supervisors |
|---|---|
| Yes, I use Web 2.0 tools personally, not for supervisory work | ES2 |
| I use them for social networking | ES3 |
| I use some of the tools in personal matters | ES4 |

Table 4-5: Supervisors' use of Web 2.0

When questioned about the reason/purpose for usage or non-usage of the technology, supervisor ES7 claimed, "*I use Web 2.0 for its importance and for being a kind of new, free of restriction media, as well as for being a way to provide ID*."

Supervisor ES8 stated, "*Because it enables me to contact teachers quickly and easily*."

Supervisor ES6 felt that it was time to use the tools and stated, "*I think it's time to use these tools in educational supervision because it carries enormous potential, which may help facilitate the work of the educational supervisor*."

The supervisors that did not use Web 2.0 technology and its tools revealed certain reasons for which is outlined under the title, "Obstacles", in a later section (see section 4.2.1.4).

### *4.2.1.3 Perception of supervisors about the introduction of Web 2.0 technology in educational supervision:*

To determine the potential introduction of Web 2.0 technology in educational supervision, four questions were asked with the aim of revealing the educational supervisors' views and perceptions about the introduction of Web 2.0 technology in educational supervision. The questions were:

- What do you think about providing Web 2.0 technology in educational supervision?

- Do you think that these tools could contribute to improving communication between supervisors and teachers and to improving educational supervision in general? How?

- What are your perceptions about the usefulness of Web 2.0 technology employment in educational supervision?

- How can Web 2.0 technology contribute to the improvement of educational supervision?

The supervisors expressed great enthusiasm toward obtaining and using the tools in educational supervision. All of the group members agreed that Web 2.0 technology would contribute significantly for towards the improvement of

educational supervision and its methods, and facilitate effective communication with teachers. This result indicates that the supervisors were aware of the potential of Web 2.0 technologies. Below are some of the statements to validate this assertion:

| Views | Supervisors |
|---|---|
| Web 2.0 technology is very important because the task of educational supervision is to support the teachers. It can be considered as a communication channel and container of knowledge | ES2 |
| Web 2.0 technology would provide the educational supervisor with many services that enable him to work smoothly and easily | ES3 |
| It will be a substitute for using paper and thereby save paper | ES10 |
| I think it will make a quantum leap | ES5 |
| I expect that it will be great because of the widespread use of computers and smart phones, and the ease of connection to the Internet almost everywhere | ES1 |

Table 4-6: Supervisors' views on Web 2.0 in supervision

While enthusiasm was the dominant expression across the discussions, views were also expressed that the successful use of this technology would necessitate some controls, conditions, and the need for overcoming obstacles that the implementation may face (the obstacles will be reviewed in the next section). For example, supervisor ES2 claimed that, "*The technology is nothing but a vessel, more important is what's in it*". The supervisor felt that the content was most important. Another supervisor ES8 believed that, "*It should be mandatory for all supervisors.*"

It should be noted that despite the low use of Web 2.0, supervisors still explained that they thought this technology could be useful in educational supervision. This is due to the belief that any new technology in general could help them in their work if it is applied correctly. This will be elaborated further in the discussion chapter.

### *4.2.1.4 Obstacles:*

Sometimes new experiments and modern technologies meet certain difficulties and obstacles that discourage their use, and make those dreams and ambitions difficult

to implement in practice. These obstacles might be human related, administrative or technical. In order to detect the obstacles that may face the application and the activation of Web 2.0 technology and its use in educational supervision, the following question was asked:

- What are the obstacles and challenges that may limit adopting the employment of Web 2.0 technology in educational supervision?

The following lines summarise the opinions of the participants in the groups.

Six of the participants believed that the non-use of technology is mainly due to lack of ability to fully apply the technology in schools. For example participant ES3 stated that non-use is mainly due to "*ignorance of the ability to employ technology properly*" (ES3).

Five supervisors believed that poor Internet access and sometimes even unavailability is a major cause for non-use of technology. For example participant ES10 explained that "*schools still have poor internet access and availability and therefore new technologies could be useless until such problems are fixed*".

Four participants indicated that administrative decision is a major obstacle prohibits the application of web 2.0 in educational supervision. For example participant ES4 suggested, "*Administrative decision is the main obstacle, for resisting change is not easy*" (ES4).

Four participants attributed the obstacles to the ignorance of teachers, supervisors and decision makers about this technology and these tools; for example participant ES7 said, "*The first obstacle is the educators' ignorance with this technology for they are old and traditional; they like handling paper, in addition to the old age of some supervisors and their non-acceptance of the technology*" (ES7).

Three participants believed that the senior management was not keeping pace with new developments and technologies, for example participant ES5 stated that this is due to "*resistance to change and lack of encouragement from the senior management for these initiatives and lack of legislation and regulations for such use*" (ES5).

Two participants believed that the technology would provide them with extra work and it would affect the services they provided. For example participant ES6 stated that the technology "*would negatively affect the provided services of supervisors*".

### *4.2.1.5 Possible solutions and the future vision:*

In order to determine the various means of overcoming difficulties and identifying the important strategies for deployment and adoption of the Web 2.0 technology and its tools in educational supervision, two questions were asked:

- What are the changes that we need, in the technology itself, or in the ways that Web 2.0 is being used in educational supervision?

- What are the strategies for the deployment and adoption of this innovation in education and educational supervision?

Participants expressed a series of suggestions for steps that they thought could effectively address the challenges and contribute to overcoming the difficulties and provision of advanced technology as an integral part in educational supervision. The following are crucial suggestions extracted from the discussions. These suggestions are listed because they were commonly discussed and agreed upon by the participants, i.e. suggestions that achieved general consensus:

1. Continuous training of field personnel consisting of teachers and supervisors.
2. Involving ideas from the young population in the decision-making process.
3. External scholarships, exchange of visits with developed countries, and examining experiments and studies in this area.
4. Creating Arabic versions, software and applications of the used content.
5. Equipping schools and education departments with the required devices and tools.
6. Improving connectivity speed and access of the Internet.
7. Provision of programs and ongoing technical support.
8. Introducing Web 2.0 technology as an integrated project by the Ministry of Education and circulating it to the Department of Education, with the provision of an appropriate training programme across all categories.
9. Being fully prepared for the application of this innovation.
10. Attracting experts in this field to train workers.
11. Providing material support and motivating the users.
12. Convincing the officials of its importance.

13. Distributing modern equipment to all workers.

14. Providing schools with educational bulletins about Web 2.0 technology and its tools, its importance, and how to extract benefits from it.

These suggestions will be reflected on in detail in Chapter Five, in the light of the literature.

### 4.2.2 Questionnaire

After collecting the data from ten supervisors by focus group, further data was collected from 23 supervisors who responded to this questionnaire. The questionnaire aimed at:

a) obtaining a wide picture about supervisors' demographic data,

b) understanding supervisors' perspective of Web 2.0 technology and practices,

c) studying the reality of supervisors' use of Web 2.0 technology and practices,

d) identifying the current method of communication with the teachers, and

e) identifying the supervisory methods used.

The data was collected through a survey questionnaire, which consisted of 18 questions (see Appendix 5) distributed across four subheadings, which are, demographic information; The Current Supervisory Practices; Familiarity and Confidence in Web 2.0 Tools Use; Web 2.0 Technology and Educational Supervision including Internet Use in Education and Educational Supervision, The Current Implementation of Web 2.0 Technology in Educational Supervision and an Outlook for the Future.

#### *4.2.2.1 Demographic information:*

The survey in this stage of the study began with four questions, which elicited educational supervisors' demographic data such as age, qualification, and number of years of experience in educational supervision. In addition, the supervisors were asked whether they used the Internet at home and whether they had previously received training courses on the implementation of Web 2.0 technology in educational supervision.

This information was intended to procure an overview of the participants' current stance from a demographic and Web 2.0 technology and training perspective. These

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aspects constituted independent variables for iterative analysis on the rationale that previous literature (see section 3.2) suggested such factors might influence take-up of technologies. Demographic information allowed me to attend to background information that might help in understanding participants' views and answers. Using appropriate statistical tests, I aimed to understand different background information might influence participants' familiarity and confidence with Web 2.0 discussed in section 4.2.2.3. Demographic data were analysed for frequencies and percentages. The data are presented in detail in Tables 4.7 to 4.15.

An analysis of the data indicated that more than 50% of the participants were aged between 41 and 50 years and about 43% were aged between 30 and 40 years (Table 4.7).

| Age group | | |
|---|---|---|
| **Answer options** | **Response percent** | **Response count** |
| 20–30 years | 0.0% | 0 |
| 31–40 years | 43.5% | 10 |
| 41–50 years | 52.2% | 12 |
| Over 50 years | 4.3% | 1 |
| *Total* | | **23** |

Table 4-7: Distribution of respondents in Stage 2 by age groups

The presence of a large number of supervisors in the above 30 age bracket was to be expected, given that an educational supervisor receives the designation 'educational supervisor' only after at least five years of service in teaching.

Table 4.8 shows the distribution of supervisors on the basis of the highest obtained qualification. It is to be noted that all the educational supervisors' held a Bachelor degree or above, a Bachelor's degree being the minimum requirement for educational supervision

| What is your highest professional/academic qualification? | | |
|---|---|---|
| **Answer options** | **Response percent** | **Response count** |
| Diploma | 0.0% | 0 |
| Bachelor of Education Degree | 56.5% | 13 |
| Bachelor of Arts/Science | 0.0% | 0 |
| Postgraduate | 43.5% | 10 |
| *Total* | | **23** |

Table 4-8: Distribution of respondents in Stage 2 by qualification

It can also be noted from Table 4.8 that 56.5% of the educational supervisors held a Bachelor's degree, and 43.5% held a post-graduate degree.

Regarding supervisors' experience in educational supervision, Table 4.9 shows that more than one-third of the participants (34.8%) had experience in educational supervision from 11 to 15 years. 26% of supervisors had experience in educational supervision ranging from 1 to 5 years.

| How many years supervising experience do you hold? | | |
|---|---|---|
| **Answer options** | **Response percent** | **Response count** |
| 1–5 years | 26.1% | 6 |
| 6–10 years | 17.4% | 4 |
| 11–15 years | 34.8% | 8 |
| 16–20 years | 8.7% | 2 |
| Over 20 years | 13.0% | 3 |
| *Total* | | **23** |

Table 4-9: Distribution of respondents in Stage 2 by supervising experience

Table 4.10 shows that all the educational supervisors used the Internet at home.

| Do you use the Internet at home? | | |
|---|---|---|
| **Answer options** | **Response percent** | **Response count** |
| Yes | 100.0% | 23 |
| No | 0.0% | 0 |
| *Total* | | **23** |

Table 4-10: Distribution of respondents in Stage 2 by Internet use

Table 4.11 shows the types of devices supervisors owned. It is to be noted that more than 95% of educational supervisors had laptops especially for using and surfing the Internet. This was expected given the distribution of laptops to educational supervisors to be used for work purposes. The data also reflected that 78.3% of educational supervisors browsed the Internet using their own mobile phones.

| With what devices do you use the Internet? | | |
| --- | --- | --- |
| **Answer options** | **Response percent** | **Response count** |
| Desktop | 52.2% | 12 |
| Laptop | 95.7% | 22 |
| Mobile phone | 78.3% | 18 |

Table 4-11: Type of devices used by respondents in Stage 2 for Internet access

Table 4.12 shows that about 50% of educational supervisors used the internet for more than 16 hours a week.

| How often do you use the Internet (hours per week)? | | |
| --- | --- | --- |
| **Answer options** | **Response percent** | **Response count** |
| 1–5 per week | 17.4% | 4 |
| 6–10 per week | 26.1% | 6 |
| 11–15 per week | 8.7% | 2 |
| 16+ per week | 47.8% | 11 |
| *Total* | | **23** |

Table 4-12: Scale of Internet use by respondents in Stage 2 (hours per week)

With respect to training on Web 2.0 technology and its tools, 18 of the 23 educational supervisors (78.3%) had not received any training on Web 2.0 technology (Table 4.13).

| Have you ever received training for the use of this Web 2.0 tools? | | |
| --- | --- | --- |
| **Answer options** | **Response percent** | **Response count** |
| Yes | 21.7% | 5 |
| No | 78.3% | 18 |
| *Total* | | **23** |

Table 4-13: Previous training experience of respondents in Stage 2

### 4.2.2.2 The Current Supervisory Practices:

The survey included two questions on the number of meetings, both formal and informal between the educational supervisors and the teachers during the school year. The outcome of the survey aimed at: a) studying the reality of current supervisory practices, and b) providing information that might inform subsequent training and recommendation on how Web 2.0 might be used to assist, support and improve the relationship between the educational supervisors and the teachers. The results are represented in Table 4.14.

| | Indicate how often you work with a teacher (formally) to support or help? | | Indicate how often you work with a teacher (informally) to support or help? | |
|---|---|---|---|---|
| Answer options | Response percent | Response count | Response percent | Response count |
| Not at all | 0.0% | 0 | 26.1% | 6 |
| Once each year | 17.4% | 4 | 39.1% | 9 |
| 2–4 times per year | 65.2% | 15 | 17.4% | 4 |
| 5–7 times per year | 0.0% | 0 | 4.3% | 1 |
| More than 7 times each year | 17.4% | 4 | 13.0% | 3 |
| *Total* | | **23** | *Total* | **23** |

Table 4-14: Number of meetings held by Stage 2 respondents for support or help

From the above table, it is clear that more than 65% of educational supervisors met formally with the teachers 2–4 times per year, while more than a quarter of participants (26%) did not meet informally with teachers outside working hours at all. In addition, about 40% of the supervisors met informally with the teachers only once a year.

The various communication approaches between the supervisors and teachers represented the various supervisory methods and this was identified in the survey.

Table 4.15 highlights methods used by educational supervisors to provide feedback for teachers whom they supervised.

| What are the communication approaches between you and your teachers? | | |
|---|---|---|
| **Answer options** | **Response percent** | **Response count** |
| Visiting in school | 81.8% | 18 |
| Email | 59.1% | 13 |
| Mobile | 77.3% | 17 |
| SMS | 68.2% | 15 |
| By school telephone | 36.4% | 8 |
| Social network tools | 18.2% | 4 |
| Other: please specify | 13.5% | 3 |
| Other (please specify) | | 3 |
| **Other (please specify)** | | 1. WhatsApp<br>2. WhatsApp<br>3. WhatsApp |

Table 4-15: Communicating approaches used by Stage 2 respondents

Communication between supervisors and teachers via school visits emerged as the primary mode of communication, highlighting the dependence of 82% of educational supervisors on school visits. 77% of the supervisors used mobile phone to communicate with the teachers via direct calling, followed by communication via school telephones, which 68% used to communicate with the teachers. 60% of the supervisors used email and generally there was very little usage of social network services such as Facebook and Twitter evident among the supervisors. In contrast, however, three of the participants indicated that they used WhatsApp for communicating with teachers.

### *4.2.2.3 Familiarity and Confidence in Web 2.0 Tools Use*

To identify the extent of educational supervisors' awareness of Web 2.0 tools and their confidence in active deployment of these tools, five applications, namely, Twitter, YouTube, Facebook, Blogs, Google documents were selected based on their popularity and reported heightened use across the global population. Hart (2013), the founder of the Centre for Learning and Performance Technologies, compiled the list

of the first ten tools from a survey that included 500 learning professionals from 48 countries; the list included 100 tools for learning in 2013. Four of the five tools I selected above were from the top ten in her list.

A 5-point scale was used to measure the extent of supervisors' knowledge/familiarity: excellent, very good, good, poor, and terrible.

Similarly another 5-point scale was used to measure the extent of supervisors' confidence in using the five tools: very confident, confident, somewhat confident, not so confident and not at all confident.

| Indicate your familiarity with the following websites/tools you use | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Answer options | Excellent | | Very good | | Good | | Poor | | Terrible | | Response count |
| | N | % | N | % | N | % | N | % | N | % | |
| Twitter | 12 | 52.2 | 2 | 8.7 | 6 | 26.1 | 2 | 8.7 | 1 | 4.3 | 23 |
| YouTube | 15 | 65.2 | 3 | 13 | 4 | 17.4 | 0 | 0 | 1 | 4.3 | 23 |
| Blogs | 6 | 26.1 | 2 | 8.7 | 5 | 21.7 | 6 | 26.1 | 4 | 17.4 | 23 |
| Wikis | 4 | 17.4 | 3 | 13 | 3 | 13 | 8 | 34.8 | 5 | 21.7 | 23 |
| Google docs | 7 | 30.4 | 4 | 17.4 | 5 | 21.7 | 3 | 13 | 4 | 17.4 | 23 |
| Total | | | | | | | | | | | 23 |
| Indicate your confidence in using the following websites/tools | | | | | | | | | | | |
| Answer options | Very confident | | Confident | | Somewhat confident | | Not so confident | | Not at all | | Response count |
| | N | % | N | % | N | % | N | % | N | % | |
| Twitter | 11 | 47.8 | 4 | 17.4 | 4 | 17.4 | 3 | 13 | 1 | 4.3 | 23 |
| YouTube | 11 | 47.8 | 5 | 21.7 | 5 | 21.7 | 0 | 0 | 2 | 8.7 | 23 |
| Blogs | 5 | 21.7 | 4 | 17.4 | 7 | 30.4 | 6 | 26.1 | 1 | 4.3 | 23 |
| Wikis | 3 | 13 | 4 | 17.4 | 6 | 26.1 | 6 | 26.1 | 4 | 17.4 | 23 |
| Google docs | 5 | 21.7 | 3 | 13 | 10 | 43.5 | 3 | 13 | 2 | 8.7 | 23 |
| Total | | | | | | | | | | | 23 |

Table 4-16: Familiarity and confidence level of Stage 2 respondents

The results of supervisors' knowledge/familiarity and confidence are indicated in Table 4.16.

From the above table, it is clear that the majority of supervisors rated their percentage of knowledge as good or better for YouTube, Twitter and Google docs, (22, 20, and 16 respectively) while fewer reported good knowledge of Blogs and Wiki (13, 10 respectively). I arrived at these numbers by including participants who scored in the first three categories of (excellent, very good, good), calculated their total number and considered them as familiar users of these tools. For instance, in Table 4.16 users of YouTube scored 22 which is adding the numbers of those who are excellent users (15), very good users (3) and good users (4). Thus, the total number reached is 22.

In terms of confidence, the results in Table 4.16 indicate educational supervisors' reasonably high confidence levels in using both YouTube and Twitter (16, 15), but not full confidence in using Google docs, with only ten educational supervisors indicating any level of confidence with this tool. Meanwhile, a lack of confidence was clearly visible in the case of Wikis and Blogs usage (10, 7) respectively. I arrived at these numbers by including participants who scored in the first two categories (very confident, confident), calculated their total number and considered them as confident users of these tools. For instance, in Table 4.16, 16 participants were rated as confident users of YouTube, adding the numbers of those who are claimed to be very confident users (11) and confident users (5).

**Effect of Demographic variables on Familiarity and confidence:**

The significant effects of demographic variables were examined by non-parametric tests called Kruskal-Wallis and Mann-Whitney U test. Kruskal-Wallis is used when there is an independent variable with three or more levels and an ordinal dependent variable (familiarity and confidence) while a Mann-Whitney U tests measures the effect of an independent variable of two levels. The three independent variables comprised group age, qualification, and years of experience in educational supervision. The effects of these variables were tested on the dependent variables, which are the overall scores of familiarity with web 2.0 tools and confidence level in using web 2.0 tools (two dependent variables). Findings showed no significant effect of any of the demographic variables ($p>0.05$) on familiarity with Web 2.0 tools and participants' level of confidence in using these tools (see Appendix 11-1).

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**Spearman's rho correlation:**

I was interested in determining the correlation between the familiarity of supervisors with using web 2.0 tools and their level of confidence in using these tools. The familiarity with each tool was correlated with the confidence with that tool and others. Overall there were five items/tools examined for familiarity and confidence. Furthermore, an average score was created for each of the two variables by adding scores in all items and dividing them by the total number of items within each of the scales. Hence two average variables were created, one for the overall familiarity and the other for the overall confidence. To test the correlation between the two variables I used Spearman's rho correlation coefficient. This test determines whether or not a significant correlation exists and whether it is negative or positive. The coefficient shows the size of the correlation (small, medium or large) while the significance of the score is indicated by an alpha level smaller than 5% (Field, 2009). According to Field (2009), Spearman's correlation coefficient 'is a non-parametric statistic and so can be used when the data have violated parametric assumptions, such as non-normally distributed data' (p. 179).

Initially, a correlation matrix was produced through SPSS between familiarity items and confidence items (Table 4.17). Spearman's rho correlation produced a number of significant outcomes.  An overview of Spearman's correlation coefficients in Table 4.17 indicates a positive and significant relationship between participants' familiarity with most of the tools and their confidence in using. For example, familiarity with Twitter was found to be significantly correlated with confidence in using Twitter rho (23) =0.824, p=0.000.

When combining the scores of familiarity items and the confidence items (by creating an average) a strong positive correlation was found between both, indicating that the more familiar participants are with the Web 2.0 tools the more confident they are in using them (and the opposite is also true). The correlation coefficient was found to be significant at rho (23) =0.824, p=0.000 (Table 4.18)

**Correlations**

| | | Familiarity-Twitter | Familiarity-YouTube | Familiarity-Blogs | Familiarity-Wikis | Familiarity-Googledocs | Confidence-Twitter | Confidence-YouTube | Confidence-Blogs | Confidence-Wikis | Confidence-Googledocs |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Spearman's rho** | Familiarity-Twitter | 1.000 | | | | | | | | | |
| | Familiarity-YouTube | .540** | 1.000 | | | | | | | | |
| | Familiarity-Blogs | .621** | .669** | 1.000 | | | | | | | |
| | Familiarity-Wikis | .537** | .726** | .855** | 1.000 | | | | | | |
| | Familiarity-Googledocs | .580** | .617** | .525* | .611** | 1.000 | | | | | |
| | Confidence-Twitter | .824** | .350 | .428* | .379 | .350 | 1.000 | | | | |
| | Confidence-YouTube | .626** | .656** | .560** | .547** | .333 | .786** | 1.000 | | | |
| | Confidence-Blogs | .483* | .468* | .757** | .804** | .422* | .456* | .515* | 1.000 | | |
| | Confidence-Wikis | .671** | .429* | .679** | .791** | .457* | .685** | .606** | .833** | 1.000 | |
| | Confidence-Googledocs | .606** | .507* | .505* | .501* | .810** | .358 | .396 | .386 | .448* | 1.000 |

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 4-17: Spearman's Correlation coefficient between familiarity and confidence of using Web 2.0 tools.

Correlations

| | | | Familiarity | Confidence |
|---|---|---|---|---|
| Spearman's rho | Familiarity | Correlation Coefficient | 1.000 | .824** |
| | | Sig. (2-tailed) | . | .000 |
| | | N | 23 | 23 |
| | Confidence | Correlation Coefficient | .824** | 1.000 |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 23 | 23 |

** Correlation is significant at the 0.01 level (2-tailed).

Table 4-18: Spearman's correlation coefficient between familiarity and confidence

#### *4.2.2.4 Web 2.0 Technology and Educational Supervision*

To measure the reality of Internet use in general, and to measure the reality of the current use of Web 2.0 technology and its tools, in addition to the future prospect and possibility of implementing this modern technology in educational supervision on a wide and large scale, the survey in Stage 2 included three open questions.

Before reviewing the results, it should be noted that some supervisors confused using computers and implementing Web 2.0 technology and its tools, as referring to some special software used to organise educational supervision in Saudi Arabia, e.g. Noor software (Noor software is an electronic portal that is mandatory for all educational supervisors, on which they set out their daily and annual plans. Their visits' results are viewed by administrators, who take advantage of the software by extracting specific statistics). This clarification is important to distinguish between compulsory programs and other Internet tools which can help to communicate with teachers. However, using Noor software does not mean using the Internet in this study, because it is unavailable for teachers and it is not a communication platform. This misunderstanding clearly highlighted the need for training and increased awareness on the fundamentals involved in Web 2.0 technology and its tools.

*The three aspects are as follows:*

#### *1. Internet Use in Education and Educational Supervision*

The following open-ended question was asked in order to ascertain the employability of Internet in education and educational supervision: *Do you have any idea of how to use the Internet in education and educational supervision?*

Supervisors' answers to this question reflected clear awareness regarding Internet usage and most supervisors believed in its advantages in educational supervision. Only three of the 23 educational supervisors did not use the Internet in educational supervision. This is considered a low rate (13%), while most supervisors (87%) used it for educational supervision, predominantly through Noor software and in a few cases using Web 2.0 tools. The following table highlights the supervisors that used the Internet for these purposes.

| Purpose | Supervisors |
|---|---|
| Use the Internet for educational supervision through Noor Software | 20 supervisors |
| Use the Internet for educational supervision through Web 2.0 Tools | ES13, ES9, ES8, ES17 and ES3 |

Table 4-19: Purposes of Internet use

The following direct quotations symbolise the use of Internet for educational supervision through Noor software and Web 2.0 tools. Supervisor ES1: "*Yes, I use the electronic supervision software (Noor), and the Gate of Knowledge, in addition to Educational Supervisor Blogs, emails, Messenger, websites, and specialisation forums.*"

Educational supervisor ES3: "*I sometimes use applications such as WhatsApp and text messaging.*"

Educational supervisor ES6: "*Yes, I use the Internet for plans registration and to search for educational publications.*"

Educational supervisor ES17 used the Internet "*to view school activities and teachers through the websites of schools.*"

*2. The Current Implementation of Web 2.0 Technology in Educational Supervision*

The survey included another open-ended question to gauge the reality of supervisors' current use of Web 2.0 technology and its tools in educational supervision: *Do you use Web 2.0 and its tools in educational supervision? How?* In practice, answers overlapped with those of the previous question.

Ten supervisors reported that they did not currently use Web 2.0 tools for supervision purposes and that they did not have the least idea about using Web 2.0 tools in educational supervision, which highlighted the immediate need for training. This was

consistent with the previous results of the focus group, where supervisor ES17 claimed, "*Training is the best solution to illustrate how to employ these techniques in educational supervision.*"

However, the few supervisors who already reported using Web 2.0 technology and its tools in educational supervision elaborated on this theme. An example was ES7 who answered in detail, saying:

> *The applications for these tools in terms of professional support for teachers are too many, like using YouTube channels to share experiences and experiments, in addition to providing some successful models and explaining some teaching skills and information technology and communication applications. Add to that the use of Wikis in the enrichment of knowledge or in editing shared documents or enriching shared topics, etc. as well as using podcasts to deliver summaries of discussions, dialogues, lectures, workshops, or sections of seminars and conferences, etc.*

> *Also, there is a technique named Webinar for conferences that any teacher can participate in, and attend any conference in the world that provides this service locally or remotely, in addition to implementing Google docs in shared editing between teachers and/or supervisors to formulate shared documents, be it working papers or researches or brochures or other …*

> *Also it's possible to employ Twitter Tweets in delivering important messages, either informative or other types of messages, as well as in Facebook, and so on and so forth.*

> *In addition, it's possible to employ Blogs in many applications, for example, in directed readings in which they can summarize books or useful and important topics and direct them to teachers.*

### 3. An Outlook for the Future

The survey in Stage 2 also included another open-ended question for the purpose of understanding participants' opinions in employing Web 2.0 technology and its tools in terms of educational supervision. The following question was asked to obtain this information: *What do you think of employing Web 2.0 tools and its services in education and educational supervision?*

Their answers were based on their expectations, beliefs and desires to use the technology in educational supervision. The answers obtained are detailed below:

Twenty-two of the 23 participants used phrases such as "*excellent*", "*it will be useful for all employees*", "*absolutely, any new technology in education would have many advantages*", "*essential*", "*great and effective*", "*important, feasible, effective, and fun*", "*I see this technique achieves accuracy and speed*", "*I think it will make a quantum leap in educational supervision, in addition to cancelling several routine measures*", "*an important factor for educational supervisors and teachers, it removes the barriers between the teacher and the supervisor, saving time and effort*" to emphasise the importance of employing Web 2.0 technology and its tools in education and educational supervision

Furthermore, the last question of the survey: *Do you think that Web 2.0 tools are supposed to be used in the process of educational supervision,* aimed at identifying the applicability of use of Web 2.0 technology and its tools in education and educational supervision. As can be seen from Figure 4.1, 93 % of the supervisors declared themselves in favour of the use of these tools in supervision process. They were aware that the benefits of these technologies in other applications could be transferred into teacher supervision programmes.

The answers shown in the following diagram (Figure 4.1) indicate supervisors' belief regarding the importance of Web 2.0 tools in educational supervision.
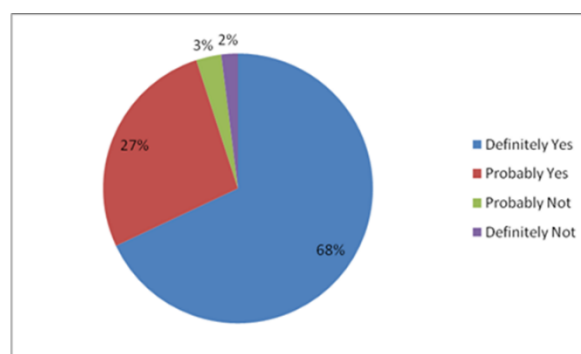


Figure 4-1: The applicability of Web 2.0 tools in educational supervision

### 4.3 Stage 3 – Teachers' current use of Web 2.0 technology

Stage Three was carried out in the second semester, 2012, with the objective of assessing teachers' current use of Web 2.0 technology. Primary data from the teachers was collected through a questionnaire. The questionnaire previously used to collect

supervisors' opinions was modified in this stage to collect relevant data from the teachers related to their current use of Web 2.0 technology, and their perceptions on the applicability of Web 2.0 technology. An important concern in this stage was to ascertain whether a plan of intervention – using Web 2.0 technology – could be successfully implemented in traditional supervision or not. Thirty teachers responded to the questionnaire, as explained in the sampling section in the methodology chapter.

The third stage of the research study was thus aimed at assessing teachers' current use of Web 2.0 technology and its tools. Primary data from the teachers was collected through a survey questionnaire, which consisted of 18 questions (see Appendix 6) distributed across four subheadings, which are outlined as follows:

1. Demographic data

2. Current supervisory practices used by the educational supervisors from the point of view of teachers.

3. Familiarity and confidence in Web 2.0 tools

4. Web 2.0 technology and educational supervision, including:

- Using the internet in education

- Current exploiting of Web 2.0 technology in education

- Looking to the future

The questionnaire sought to establish:

a) teachers' perspective of Web 2.0 technology and practices,

 b) teachers' use of Web 2.0 technology and practices,

c) the current method of communication with the supervisors, and

d) the supervisory methods used by the supervisors.

Detailed findings from the online survey are presented in this section. The survey addressed questions related to: a) supervisors and supervision: teachers' currently use Web 2.0 technology and its tools for supervision, b) Web 2.0 technology applicability: whether Web 2.0 technology and its tools can support and enhance communication between supervisors and teachers and whether activities undertaken by supervisors with Web 2.0 technology and its tools can support or enhance supervision. In addition to closed questions the questionnaire contained three open questions. Closed-ended questions were analysed using Microsoft Excel. The data was converted to percentages and frequencies to extract relevant information regarding the set objectives. Simple

descriptive analysis was used to reveal the sample's characteristics and to answer specific research questions. Descriptive analysis included frequencies and percentages for each categorical variable. The three open-ended questions were analysed across two phases. In the first phase, the responses for each of the three questions were written in another document. Secondly, each response was closely analysed by comparing questions and grouping similar responses.

### 4.3.1.1 Demographic information

The survey began with four questions aimed at collecting preliminary demographic data such as age, qualification, and number of years of experience in education, and whether the teachers used the Internet at home or had previously received training courses on the implementation of Web 2.0 technology in education. Following the same rationale that was given earlier for presenting supervisors' demographic information (section 4.2), this information was intended to gain an overview of teachers' current position in regard to Web 2.0 technology and the potential training perspective. These aspects constituted independent variables for further analysis (see section 4.3.3).

The data indicated, that more than half (53%) of the teachers belonged to the 31-40 years age bracket, and 30% of them were between 41 and 50 years. There were no teachers above the age of 50 years (Table 4.19).

| Select your age group. | | |
|---|---|---|
| Answer options | Response percent | Response count |
| 20–30 years | 16.7% | 5 |
| 31–40 years | 53.3% | 16 |
| 41–50 years | 30.0% | 9 |
| Over 50 years | 0.0% | 0 |
| Total | | 30 |

Table 4-20: Distribution of respondents by age groups

Table 4.20 shows the distribution of the teachers based on their highest academic qualification. All the teachers held a Bachelor's degree or above, reflecting the fact that this is the minimum requirement for obtaining a teaching post.

| What is your highest professional/academic qualification? | | |
|---|---|---|
| Answer options | Response percent | Response count |
| Diploma | 0.0% | 0 |
| Bachelor of Education Degree | 80.0% | 24 |
| Bachelor of Arts/Science | 3.3% | 1 |
| Postgraduate | 16.7% | 5 |
| Total | | 30 |

Table 4-21: Distribution of respondents by qualification

From Table 4.20 it is clear that 83% of the teachers held a Bachelor qualification, and about 17% of the teachers held a postgraduate qualification.

Regarding experience in education, Table 4.21 shows that more than one third of participants (33.3%) had from 11 to 15 years' experience in education. 26.7% of the teachers had between 6 and 10 years' experience in education. This indicated that a large proportion of teachers had good experience in education.

| How many years teaching experience do you hold? | | |
|---|---|---|
| Answer options | Response percent | Response count |
| 1–5 years | 13.3% | 4 |
| 6–10 years | 26.7% | 8 |
| 11–15 years | 33.3% | 10 |
| 16–20 years | 10.0% | 3 |
| Over 20 years | 16.7% | 5 |
| Total | | 30 |

Table 4-22: Distribution of respondents by teaching experience

Table 4.22 shows that all teachers used the Internet at home. This aspect reflected: a) the awareness of teachers regarding the importance of the technology and, b) their attachment towards the Internet, given their daily use of the technology.

| Do you use the Internet at home? | | |
|---|---|---|
| Answer options | Response percent | Response count |
| Yes | 100.0% | 30 |
| No | 0.0% | 0 |
| Total | | 30 |

Table 4-23: Distribution of respondents by Internet use

Table 4.23 shows the various types of devices owned by the teachers. The table indicates that 93% of the teachers had laptops specifically for Internet browsing. From the table, it also appears that 75.9% of teachers browsed the Internet from their mobile phones. This fact confirms that mobile devices have become accessible to everyone and demonstrates the penetration of smart devices across all classes of society, including teachers.

| With what devices do you use the Internet? | | |
|---|---|---|
| Answer options | Response percent | Response count |
| Desktop | 24.1% | 7 |
| Laptop | 93.1% | 27 |
| Mobile Phone | 75.9% | 22 |
| Others: (please specify) | 10.3% | 3 |
| Other (please specify) | | 3 |
| Number | Other (please specify) | Categories |
| 1 | IPad | |
| 2 | IPad | |
| 3 | IPad | |

Table 4-24: Type of devices used for Internet access

Table 4.24 shows the average hours of using the Internet per week; it is evident that teachers did not spend many hours browsing the Internet.

| How often do you use the Internet (hours per week)? | | |
|---|---|---|
| Answer options | Response percent | Response count |
| 1–5 | 26.7% | 8 |
| 6–10 | 36.7% | 11 |
| 11–15 | 16.7% | 5 |
| 16+ | 20.0% | 6 |
| Total | | 30 |

Table 4-25: Scale of Internet use (hours per week)

None of the teachers involved in the study had received any training course on Web 2.0 technology (Table 4.25). This indicated the novelty of Web 2.0 technology to the teachers.

| Answer options | Response percent | Response count |
|---|---|---|
| Yes | 0.0% | 0 |
| No | 100.0% | 30 |
| Total | 30 | 30 |

Table 4-26: Previous training on Web 2.0 technology

### *4.3.1.2 The Current Supervisory Practices by the Supervisors*

To study current supervisory practices, the survey included two questions about the number of meetings, both formal and informal, between the teachers and the educational supervisors during the academic year. Apart from assessing the current perceived reality, the survey aimed at providing assistance and support, and improving relationship between supervisors and teachers. Table 4.26 represents the results.

| Indicate how often supervisors work with you (formally) to support or help? | | | Indicate how often supervisors work with you (informally) to support or help? | |
|---|---|---|---|---|
| Answer options | Response percent | Response count | Response percent | Response count |
| Not at all | 0.0% | 0 | 70.0% | 21 |
| Once each year | 36.7% | 11 | 6.7% | 2 |
| 2–4 times per year | 63.3% | 19 | 23.3% | 7 |
| 5–7 times per year | 0.0% | 0 | 0.0% | 0 |
| More than 7 times each year | 0.0% | 0 | 0.0% | 0 |
| Total | 100% | 30 | 100% | 30 |

Table 4-27: Number of meetings for support or help

From the above table, the following information pertinent to supervisory practice in relation to meetings can be obtained. It is clear that 63.3% of the teachers met their educational supervisors formally 2–4 times per year, while about 37% of the participants met them once a year. With respect to informal meetings, 70% of the teachers confirmed that they did not meet the supervisors outside official working hours at all, while 23% of teachers indicated that they met the supervisors outside official working hours about 2–4 times a year.

Table 4.27 shows the varied ways in which the teachers received feedback from supervisors.

| What are the communication approaches between you and your supervisors? | | |
|---|---|---|
| Answer options | Response percent | Response count |
| Visiting in school | 96.7% | 29 |
| Email | 13.3% | 4 |
| Mobile | 23.3% | 7 |
| SMS | 13.3% | 4 |
| By school telephone | 16.7% | 5 |
| Social network tools | 6.7% | 2 |
| Others: please specify | 6.7% | 2 |
| Other (please specify) | | 2 |
| Other (please specify) | | 1. Facebook<br>2. Official meetings and training programmes |

Table 4-28: Communication approaches

Communication between teachers and supervisors via school visits emerged as the primary mode of communication, given the affirmation of 96.7% of teachers who claimed that they received feedback from their supervisors through formal meetings after the classroom visit. In addition, 23% of the teachers claimed to receive direct calls from the educational supervisor on their mobile phones; 16.7% of them claimed to receive calls from their supervisors on the school's telephone line; 13.3% of the teachers claimed to receive emails from their supervisors. The survey clearly highlighted the use of traditional supervisory methods by supervisors from short meetings after classrooms visits, and through training programmes or public meetings or even asking the teacher to visit the supervisor in his office when necessary, as pointed out by one teacher. With respect to the low level of social networking use by teachers this indicated the novelty of some Web 2.0 tools for them.

*4.3.1.3 Familiarity and Confidence in Web 2.0 Tools*

To identify teachers' awareness of Web 2.0 tools and the extent of their confidence in using the tools, five applications namely, Twitter, YouTube, Facebook, Blogs and Google docs were aptly chosen.

The following 5-point scale was used to measure the extent of teachers' knowledge/familiarity: excellent, very good, good, poor, and terrible.

The following 5-point scale was used to measure the extent of teachers' confidence in using the five tools: very confidant, confident, somewhat confident, not so confident, and not at all confident. Table 4.28 presents the results.

| Indicate your familiarity with the following websites/tools you use | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Answer options | Excellent | | Very good | | Good | | Poor | | Terrible | | Response count |
| | N | % | N | % | N | % | N | % | N | % | |
| Twitter | 8 | 26.7 | 8 | 26.7 | 10 | 33.3 | 2 | 6.7 | 2 | 6.7 | 30 |
| YouTube | 11 | 36.7 | 11 | 36.7 | 7 | 23.3 | 1 | 3.3 | 0 | 0 | 30 |
| Blogs | 0 | 0 | 2 | 6.7 | 4 | 13.3 | 14 | 46.7 | 10 | 33.3 | 30 |
| Wikis | 0 | 0 | 0 | 0 | 2 | 6.7 | 11 | 36.7 | 17 | 56.7 | 30 |
| Google docs | 2 | 6.7 | 2 | 6.7 | 5 | 16.7 | 9 | 30 | 12 | 40 | 30 |
| Total | | | | | | | | | | | 30 |
| Indicate your confidence in using the following websites/tools | | | | | | | | | | | |
| Answer options | Very confident | | Confident | | Somewhat confident | | Not so confident | | Not at all | | Response count |
| | N | % | N | % | N | % | N | % | N | % | |
| Twitter | 6 | 20 | 12 | 40 | 7 | 23.3 | 3 | 10 | 2 | 6.7 | 30 |
| YouTube | 7 | 23.3 | 10 | 33.3 | 9 | 30 | 2 | 6.7 | 2 | 6.7 | 30 |
| Blogs | 0 | 0 | 2 | 6.7 | 4 | 13.3 | 17 | 56.7 | 7 | 23.3 | 30 |
| Wikis | 0 | 0 | 0 | 0 | 5 | 16.7 | 15 | 50 | 10 | 33.3 | 30 |
| Google docs | 3 | 10 | 4 | 13.3 | 5 | 16.7 | 8 | 26.7 | 10 | 33.3 | 30 |
| Total | | | | | | | | | | | 30 |

Table 4-29: Familiarity and confidence of use

From the above table it is clear that teachers had high levels of knowledge for YouTube and Twitter with 29 and 26 respectively rating their familiarity as good or better, whereas less familiarity was evident for Wiki, Blogs and Google docs where 28, 24 and 21 respectively rated their familiarity as poor or terrible.

In terms of confidence, the results in Table 4.28 show that teachers were confident enough in using both YouTube and Twitter, while showing lack of confidence in using Wikis, Blogs, and Google docs with 25, 24 and 18 respectively reporting little or no confidence.

**Effect of Demographic variables on Familiarity and confidence:**

Similar to the supervisors' section, the significant effects of demographic variables were examined using non-parametric tests called Kruskal-Wallis and Mann-Whitney U tests. The three independent variables comprised age group, qualification, and years of experience in educational supervision and the dependent variables were familiarity with Web 2.0 tools and confidence in Web 2.0 tools (overall scores). Again, the findings showed no significant effect of any of the demographic variables ($p > 0.05$) on familiarity with Web 2.0 tools and participants' level of confidence in using these tools (see Appendix 11-2).

**4.3.2 Web 2.0 Technology and Educational Supervision**

In order to ascertain: a) the reality of Internet use in general by the teachers, b) teachers' current use of Web 2.0 technology in educational supervision, and c) the future prospect and the possibility of employing this technology in education and educational supervision on a wide scale, a survey with three open-ended questions was conducted. The following sections provide details on the findings from the three open-ended questions.

*1. Internet Use in General in Education*

To identify teachers' Internet use in education and to measure the extent of their use in education, the following question was asked to the teachers: *Do you use the Internet in education (teaching and learning), and how?*

Teachers' responses to this question reflected a good level of Internet use and most teachers believed in taking advantage of the Internet in teaching and learning; although only 22 of 30 teachers used the internet in teaching and learning. There were several

ways in which the teachers used the Internet. The following table reflects the teachers' purposes for using the Internet.

| Purpose | Teachers |
|---|---|
| Use the Internet in education by searching for ready-made PowerPoint presentations on the Internet. | T6, T7, T9, T11, T15 and T30 |
| Use the Internet in education by searching for the preparation of lessons and ready-made lessons on YouTube. | T6, T20, T24 and T25 |

Table 4-30: Teachers' purposes for using the Internet

The following direct quotations of the teachers symbolise their use of the Internet in education:

T3: "*Yes, by asking the experts questions on the Internet and benefiting from their opinions.*"

T18: "*Yes, by searching for educational resources that serve the lesson, and collecting them from forums.*"

T22: "*Yes, by viewing what is new in specialisation and visiting different websites.*"

T28: "*Yes, through the use of electronic courses and other means available and displaying them in the classroom.*"

### 2. Current Employment of Web 2.0 Technology in Educational supervision

The survey included another open-ended question to ascertain the reality of teachers' current use of Web 2.0 technologies in educational supervision. The question was: *Do you have any idea of how to use Web 2.0 in education and educational supervision?* and 21 teachers reported that they did not have any idea of using Web 2.0 technology and its tools in education or educational supervision. This confirms a high necessity for training and educating the teachers on how they could take advantage of the tools in education.

### 3. An Outlook to the Future

In order to comprehend teachers' opinions on employing Web 2.0 technology and its tools in terms of educational supervision, the survey included another open-ended question. The question asked was: *What do you think of employing Web 2.0 tools and services in education and educational supervision?*

The responses obtained are outlined in detail below: eighteen of the 30 participants used phrases such as "*it will be an excellent experience*", "*perfect*", "*very cool and I will try to use it in the future*", "*it is required to keep up with development,*" "*it is excellent, and facilitates the meeting between the supervisor and the teacher, and there is freedom to express an opinion*", (I interpret this to mean that teachers can discuss the supervisors' comments through Web 2.0 tools as a way of direct deliberation) "*I guess it would be very effective if used properly*".

While some teachers highlighted the need for first-hand experience before expressing their opinions on the usefulness of employing Web 2.0 technology and its tools, others did not know whether it would be useful, and some teachers expressed the need for training to ensure successful adoption and use of Web 2.0 technology and its tools.

The survey ended with a final question to identify the applicability of use Web 2.0 technology and its tools in education and educational supervision. The question asked was: *Do you think Web 2.0 tools are supposed to be used in the process of educational supervision?*

As can be seen from Figure 4.2, 93 % of the teachers affirmed that they supported of the use of these tools in supervision process. They perceived that those technologies' benefits in other applications could be transferred into teacher supervision programmes.

The responses obtained are illustrated in the following diagram (Figure 4.2), which indicates teachers' belief regarding the applicability of Web 2.0 tools in educational supervision.
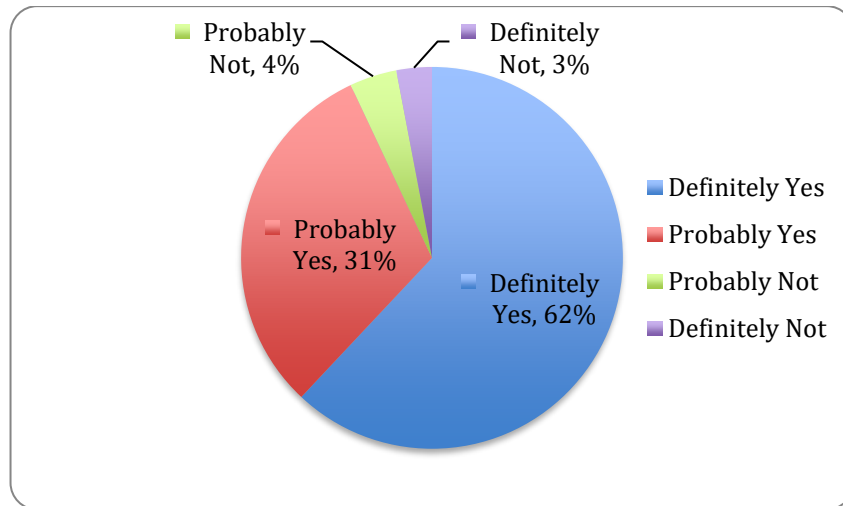
Figure 4-2: Applicability of Web 2.0 tools in the supervision process

## 4.4 Stage 4 -Transition to using Web 2.0 technologies in Educational supervision

The main aim of this stage was to ascertain the transition to Web 2.0 technology in educational supervision. This stage began with discussing the pre-survey of the sample of thirty teachers that participated in Stage 3. The sample was exposed to a training programme (intervention), designed by Jean Kent in Washington ACTE for Web 2.0 Tools Pre-Conference Workshop (Appendix 2) for blogs and wikis. Training programme content was attached and with respect to other Web 2.0 tools, a personalised and customised training course was designed and many materials for understanding the tools, such as YouTube, knowledge from peers' exchange and individual assistance, were effectively included in the programme. The training programme, delivered by me, included many steps as explained in the setting and sample selection in Chapter Three. Additionally, the empirical procedure will be discussed in detail in the next section.

The questionnaire used in stage 3 was supplied to the same teachers after the intervention to measure the effect of the training programme. Based on the statistical analysis that followed, conclusions were drawn regarding the factors' significance, considering the facilitation of Web 2.0 tools and services in learning, and how these factors affect the supervisory activities. Finally the correlation between these factors was examined.

When I personally assessed teachers' communication, it was evident that some tools such as WhatsApp and Twitter were becoming common among teachers. However,

Blogs, Google + and WhatsApp were the tools used in this study. Further studies can include these applicable tools and assess the importance of these tools in educational supervision.

Additionally, another questionnaire (Appendix 7) was designed for all participants at the end of the empirical study to ascertain the extent of participants' recognition of the effective and the affordances of Web 2.0 technology and its tools for supervision. The assessment criteria were based on how useful teachers found Web 2.0 collaborative tools and services, on how the teachers felt about the relationship with the supervisor and what the benefits were of using Web 2.0 technology and its tools for the acquisition of knowledge and new skills that can improve the teacher's performance.

### 4.4.1 Getting started

After training the teachers on Web 2.0 technology and its tools, a five month application experience followed, during which teachers created blogs and wikis to publish their experiences, while WhatsApp and Google plus were used for communication between myself and teachers.

The use of the various tools was as follows:

1. Creating an email address only for study purposes for each teacher on Google Mail.

2. Creating groups on WhatsApp (Figure 4.3)



Figure 4-3: Teachers' WhatApp Group

3. Create a Blog for study purposes only. Explanation on how to create Blogs on Google Blogger was provided for each teacher. In addition, a video explaining how to create a private Blog was shared.

After creating Blogs, each teacher was asked to fill the forms of his Blog, such as personal information, and choose his desired themes.

4. Each teacher created his own account on Google Plus, and was asked to add the participant researcher and teachers in the experiment (Figure 4.4), and then each teacher continued adding personal information and sending requests in addition to creating groups.



Figure 4-4: Teachers' GooglePlus

5. Getting the discussion started on organising the work and getting to know each other through introducing oneself on WhatsApp groups (Figure 4.5)

Figure 4-5: WhatsApp Groups

### 4.4.1.1 Participants' Reflective Blogs and Wikis

My Blog functioned as the main Blog and acted as the most important functionality in posts and in the communication between participants. The practical application was introduced by requesting the participants to contribute by answering the following question: *Through your experience in education how can lazy students be helped out?*

To channel a discussion, a discussion link was sent to teachers using other tools (Google Plus, WhatsApp groups, emails).

Most participants responded to this question highlighting their Web 2.0 tools usage experiences in an excellent manner (Figure 4.6).

Figure 4-6: Participants' Reflective Blogs

Some of the participants confirmed that they had benefited from the comments and experiences of colleagues, such as T9, who commented as follows, *"The colleagues covered almost all aspects, and I admit that I have benefited from all of the replies."*

Analysing the responses of the content was not a primary goal for the current study. However, the primary goal for this research was to activate the participants and encourage participation in the Blogs, in addition to commenting on the subject matter and exchanging experiences between the participants.

I noticed that some teachers were active, enriching their blogs with educational topics, links and video sharing.
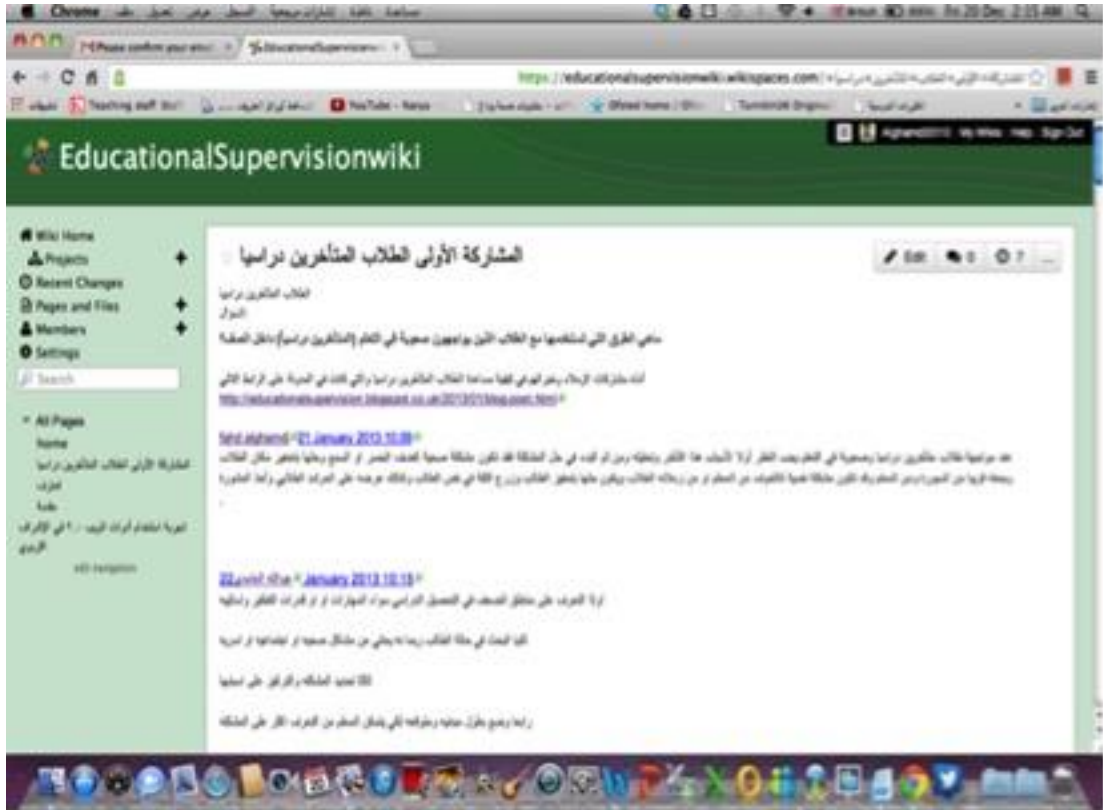
Figure 4-7: Participants' Reflective Wiki

After collecting the responses of the participant teachers, the educational supervision's Wiki was activated, which I created for study purposes. Links were sent to teachers urging them to participate and activate and enrich the Wiki page (Figure 4.7).

### *4.4.1.2 Participants' Reflective Google Plus*

All the participating teachers created personal accounts on Google Plus. The application began by viewing my account and adding him/her in the Friends Circle, and then adding and introducing each other, in addition to publishing posts and sharing friends.

I created a private circle, and named it the Web 2.0 Group, and added the participant teachers in the circle (Figure 4.8).

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Figure 4-8: Web 2.0 Group Circle on Google +

Many educational links were also sent, including useful educational videos. I urged the participants to be active and to search for friends using this service, in addition to establishing relationships and friendships, and creating communication circles with specialists in education.

I also created a public community entitled "Using Web 2.0 Technology in Education" as in Figure 4.9, and invited teachers and many friends.
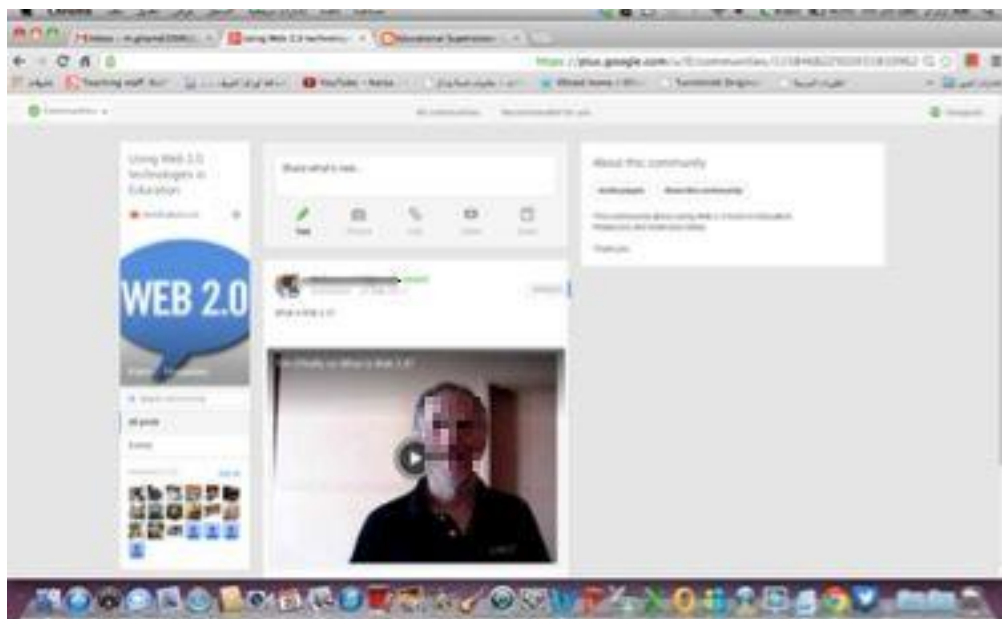


Figure 4-9: Creating a public community titled: (Using Web 2.0 in Education)

The aim of this association was to gather people with common interests. People interested in employing Web 2.0 technology in education were successfully integrated in one single platform, to benefit from their experiences, and to give the participant teachers a chance to question the specialists directly, also expanding their knowledge in this arena.

The next section will present the findings and analysis from the pre and post survey of teachers, which aimed to measure the impact of the training programme and examine whether participants' familiarity and confidence changed on account of the training programme.

### 4.4.2 Findings and Analysis

#### 4.4.2.1 Post survey for teachers

- **Measuring the Impact of Training**

To measure the impact of the training programme and to measure the extent of teachers gaining benefit from the training programme, the survey questionnaire used in Stage 3 was reapplied. The initial data obtained from the survey is excluded, given its redundancy.

Table 4.30 shows the differences in the level of knowledge of Web 2.0 technology and its tools identified in the question, namely, Twitter, YouTube, Blogs, Wikis, Google docs.

| Indication of teachers' familiarity with the following websites/tools use | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Answer options** | **Excellent** | | **Very good** | | **Good** | | **Poor** | | **Terrible** | | **N** |
| | **Pre** | **Post** | **Pre** | **Post** | **Pre** | **Post** | **Pre** | **Post** | **Pre** | **Post** | |
| Twitter | 8 26.7% | 13 43.3% | 8 26.7% | 13 43.3% | 10 33.3% | 4 13.3% | 2 6.7% | 0 0% | 2 6.7% | 0 0% | 30 |
| YouTube | 11 36.7% | 15 50% | 11 36.7% | 9 30% | 7 23.3% | 6 20% | 1 3.3% | 0 0% | 0 0% | 0 0% | 30 |
| Blogs | 0 0% | 2 6.7% | 2 6.7% | 7 23.3% | 4 13.3% | 11 36.7% | 14 46.7% | 10 33.3% | 10 33.3% | 0 | 30 |
| Wikis | 0 0% | 0 0% | 0 0% | 4 13.3% | 2 6.7% | 11 36.7% | 11 36.7% | 7 33.3% | 17 56.7% | 8 26.7% | 30 |

| Google docs | 2 6.7% | 1 3.3% | 2 6.7% | 6 20% | 5 16.7% | 13 43.3% | 9 30% | 5 16.7% | 12 40% | 5 16.7% | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Total* | | | | | | | | | | | **30** |

Table 4-31: Teachers' familiarity with Web 2.0 tools

From the above table, it can be seen that the level of knowledge among teachers at a familiarity level, increased across all the tools, and the level of awareness increased in the use of Twitter and YouTube (excellent, very good, good) to 100%. The level of awareness also increased from 20% to almost 67% in the case of Blogs and from 7% to 50% in the case of Wiki. As for Google docs, the level of awareness increased from 30% to 67%.

In terms of the level of confidence, a general improvement among the participants after the training programme was evident. As shown in Table 4.31, the level of confidence in the use of Twitter (very confident, confident, and somewhat confident) increased from 83% to 97%, while confidence in YouTube increased from 87% to 97%.

| **Indication of teachers' confidence in using the following websites/tools** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Answer options** | **Very confident** | | **Confident** | | **Somewhat confident** | | **Not so confident** | | **Not at all** | | **N** |
| | Pre | Post | Pre | Post | Pre | Post | Pre | Post | Pre | Post | |
| Twitter | 6 20% | 14 46.7% | 12 40% | 9 30% | 7 23.3% | 6 20% | 3 10% | 1 3.3% | 2 6.7% | 0 0% | 30 |
| YouTube | 7 23.3% | 12 40% | 10 33.3% | 12 40% | 9 30% | 5 16.7% | 2 6.7% | 1 3.3% | 2 6.7% | 0 0% | 30 |
| Blogs | 0 0% | 0 0% | 2 0% | 7 23.3% | 4 13.3% | 12 40% | 17 56.7% | 7 23.3% | 7 23.3% | 4 13.3% | 30 |
| Wikis | 0 0% | 0 0% | 0 0% | 4 13.3% | 5 16.7% | 11 36.7% | 15 30% | 9 30% | 10 33.3% | 6 20% | 30 |
| Google Docs | 3 10% | 0 0% | 4 13.3% | 7 23.3% | 5 16.7% | 12 40% | 8 26.7% | 8 26.7% | 10 33.3% | 3 10% | 30 |
| *Total* | | | | | | | | | | | **30** |

Table 4-32: Teachers' confidence in using Web 2.0 tools

Additionally, the level of confidence in the use of Blogs increased from 20% to 67%, while in Wiki and Google docs, where the confidence level respectively increased from 17% to 50% and from 40% to 63%.

The above study results marked an increase in the level of awareness and confidence in Web 2.0 technology and its tools among teachers. To add further value and gain practical insights, the Wilcoxon test was used to examine whether participants' familiarity and confidence changed on account of the training programme. The Wilcoxon test compared the familiarity and confidence before and after the training programme to determine the presence of any significant change (see Appendix 11-2).

Table 4.32 shows the results of the Wilcoxon test for familiarity.

| Familiarity of tools | Mean | Std. deviation | Ranks | | | | Z | Asymp Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|
| | | | | N | Mean Rank | Sum of Ranks | | |
| Twitter (before training) Twitter (after training) | 3.60 4.30 | 1.162 0.702 | Negative Ranks Positive Ranks Ties Total | 3 14 13 30 | 6.00 9.64 | 18.00 135.00 | -2.861 | .004 |
| YouTube (before training) YouTube (after training) | 4.07 4.30 | 0.868 0.794 | Negative Ranks Positive Ranks Ties Total | 7 11 12 30 | 8.57 10.09 | 60.00 111.00 | -1.149 | .251 |
| Blogs (before training) Blogs (after training) | 1.93 3.03 | 1.933 0.927 | Negative Ranks Positive Ranks Ties Total | 1 20 9 30 | 5.50 11.28 | 5.50 225.50 | -3.908 | .000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Wikis (before training)<br>Wikis (after training) | 1.50<br>2.37 | 0.629<br>1.033 | Negative Ranks<br>Positive Ranks<br>Ties<br>Total | 2<br>18<br>10<br>30 | 6.50<br>10.94 | 13.00<br>197.00 | -<br>3.535 | .000 |
| Google docs (before training)<br>Google docs (after training) | 2.10<br>2.77 | 1.213<br>1.072 | Negative Ranks<br>Positive Ranks<br>Ties<br>Total | 6<br>15<br>9<br>30 | 9.17<br>11.73 | 55.00<br>176.00 | -<br>2.135 | .033 |

Table 4-33: The results of Wilcoxon test for familiarity

The results in Table 4.32 indicate that participants' familiarity was significantly affected by the training programme. Z values look negative (-) because of the way in which I coded the groups: I coded (before training) with (1) and after training with (2). Overall there was a significant difference between familiarities with Twitter (Z=-2.86, p=0.004 ), Blogs (Z=-3.908 ,p=251 ),Wiki (Z=-3.535 ,p=0.000 )and Google Docs(Z=-2.135 ,p=0.033 ) before  and after the Training programme, however the only insignificant result was found to be familiarity with YouTube (Z=-1.149, p=0.251).

Table 4.33 shows the results of Wilcoxon test with respect to participants' confidence in using Web 2.0 technology and its tools.

Wilcoxon test 'is the non-parametric equivalent of the independent t-test' (Field, 2009, p. 540). When the assumptions for parametric test are violated, the Wilcoxon signed-rank test can be used where the dependent t-test is inappropriate. The test is used to compare two groups of scores of the same participants. This can take place when investigating any scores changes from one time point to another, or when there is more than one condition for individuals.

| Confidence of using tools | Mean | Std. deviation | Ranks | N | Mean Rank | Sum of Ranks | Z | Asymp Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|
| Twitter (before training) | 3.57 | 1.135 | Negative Ranks | 6 | 9.17 | 55.00 | -2.400 | .016 |
| Twitter (after training) | 4.20 | 0.886 | Positive Ranks | 16 | 12.38 | 198.00 | | |
| | | | Ties | 8 | | | | |
| | | | Total | 30 | | | | |
| YouTube (before training) | 3.60 | 1.132 | Negative Ranks | 6 | 10.17 | 61.00 | -2.230 | .026 |
| YouTube (after training) | 4.17 | 0.833 | Positive Ranks | 16 | 12.00 | 192.00 | | |
| | | | Ties | 8 | | | | |
| | | | Total | 30 | | | | |
| Blogs (before training) | 2.03 | 0.808 | Negative Ranks | 5 | 7.00 | 35.00 | -3.070 | .002 |
| Blogs (after training) | 2.73 | 0.980 | Positive Ranks | 17 | 12.82 | 218.00 | | |
| | | | Ties | 8 | | | | |
| | | | Total | 30 | | | | |
| Wikis (before training) | 1.83 | 0.698 | Negative Ranks | 5 | 7.90 | 39.50 | -2.513 | .002 |
| Wikis (after training) | 2.43 | 0.971 | Positive Ranks | 15 | 11.37 | 170.50 | | |
| | | | Ties | 10 | | | | |
| | | | Total | 30 | | | | |
| Google docs (before training) | 2.40 | 1.354 | Negative Ranks | 8 | 12.69 | 101.50 | -1.130 | .259 |
| Google docs (after training) | 2.77 | 0.935 | Positive Ranks | 15 | 11.63 | 174.50 | | |
| | | | Ties | 7 | | | | |
| | | | Total | 30 | | | | |

Table 4-34: The results of Wilcoxon test for confidence

The results indicated that participants' confidence was significantly affected by the training programme. Overall there was a significant difference between confidence with Twitter (Z=-2.40, p=0.016), YouTube (Z=-2.23, p=0.026), Blogs (Z=-3.07, p=0.002), and Wiki (Z=-2.513, p=0.002) before and after the Training programme,

however the only insignificant result was found to confidence with Google Docs (Z=-1.130, p=0.259).

The above findings reveal an increase in knowledge and confidence levels. The presence of increased confidence is further indicated in responses to two of the open questions as follows:

* *Do you have any idea of how to use these tools in education and educational supervision?*

New responses confirmed the success of the training programme; here are some of the quotations:

T1: *"This training programme opened new horizons for me and made me think seriously of converting from normal personal use to specialised use, by viewing the experts' blogs and communicating with them on Facebook and other communication methods."*

T3: *"This training programme made me think of employing the Internet and Web 2.0 tools in teaching and communicating with the experts in specialisation and teaching methods."*

T9: *"This training programme made me realise that when supervisors participate in some of the forums they will write about their experiences and visits, or have their own websites, blogs, and channels on YouTube."*

T12: *"Through the training programme there was a benefit from learning these tools."*

T15: *"This course that I received gave me the chance to employ the Internet in my work field and take advantage of the available applications. I learned in this course how one can take advantage of them."*

T17: *"Yes, you can benefit from this technology in the domains of communication, transferring experiences, and implementing training programmes."*

T27: *"WhatsApp can be used by creating groups of teachers managed by the educational supervisor."*

To ascertain the opinions of teachers regarding employing Web 2.0 technology and its tools in education and educational supervision after receiving the training programme, many changes in the phrases, words and enthusiasm of all of the teachers about employing this technology in education and educational supervision can be observed in their responses to the following question:

*\* What do you think of employing Web 2.0 tools in education and educational supervision?* Here are some of the quotations:

T9: *"Certainly, it will be very useful when we practise it in the proper ways. I suggest that the Ministry of Education adopts the launch of an integrated project and trains the teachers on it."*

T15: *"Of course it is very important and will give more benefit to teachers by giving them the chance to participate in the specialised blogs and exchange experiences with colleagues and educational supervisors."*

T22: *"An excellent idea. It needs support in addition to being spread among teachers and learners."*

T24: *"It is important and I think it will make a quantum leap in educational supervision."*

T29: *"It is excellent. It helps communication between the teacher and the educational supervisor and the exchange of experiences. It also helps the teacher in explaining and bringing the information."*

### 4.4.3 Finding and analysis of Web 2.0 technology and its tools' affordances:

A survey questionnaire which was shared with the thirty teachers aimed at discovering: a) Teachers' viewpoint regarding Web 2.0 technology and its tools after becoming familiar with the high quality affordances of Web 2.0 tools; this part of the questionnaire contained 12 items, b) teachers' personal assessment of their experience with Web 2.0 technology and its tools; this part of the questionnaire contained 19 items. The findings of the survey questionnaire are represented in Tables 4.34 to 4.39. After the training course, I was interested in examining the various viewpoints of the teachers in regard to Web 2.0 technology and its tools, as well as other related dimensions learned from this course. This was especially salient after the research groups had familiarised themselves with the presentations of Web 2.0 technology and its tools as offered by me – the perspectives presented formed an integral part of the collected findings.

In this section, the collected data was analysed using the Statistical Package for the Social Sciences SPSS (version 20). In order to perform a proper statistical analysis, a sample size of minimum 30 is deemed safe (Cohen et al., 2000). The following

sections evaluate the effective and affordances of Web 2.0 technology and its tools from a statistical perspective.

### *4.4.3.1 Affordances and teacher experience evaluation*

To understand teachers' perceptions towards affordances of Web 2.0 technology and its tools, means, were computed. This mean was employed to understand whether teachers agree or disagree on questions 1 and 2. Question 1 revolved around teachers' perceptions of the affordances of Web 2.0 technology and its tools, and their benefits for educational supervision and teaching. Question 2 explains their learning experiences with Web 2.0 technology and its tools.

Question 1 contained 12 items. The answers to these items revealed in detail respondents' understanding and their perceptions about the affordances of Web 2.0 technology and its tools. Table 4.34 shows the results of frequencies and the mean of each item.

| N | Item | S. Disagree | Disagree | Neutral | Agree | S. Agree | Mean | Rank |
|---|------|-------------|----------|---------|-------|----------|------|------|
| 1 | Enhance cooperative/ collaborative work. | 0 0% | 0 0% | 3 10% | 12 40% | 15 50% | 4.40 | 5 |
| 2 | Promote learning opportunities that facilitate teachers' use of technology to learn and to communicate. | 0 0% | 0 0% | 1 3.3% | 15 50% | 14 46.7% | 4.43 | 3 |
| 3 | Promote teachers' participation in the teaching process. | 0 0% | 1 3.3% | 4 13.3% | 18 60% | 7 23.3% | 4.03 | 10 |
| 4 | Promote critical thinking and enhance the emergence of new ideas. | 0 0% | 1 3.3% | 4 13.3% | 14 46.7% | 11 36.7% | 4.17 | 9 |
| 5 | Increase teachers' motivation. | 0 0% | 2 6.7% | 5 16.7% | 13 43.3% | 10 33.3% | 4.03 | 11 |
| 6 | Promote knowledge sharing. | 0 0% | 0 0% | 1 3.3% | 15 50% | 14 46.7% | 4.43 | 4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 7 | Develop teachers' technology capabilities which are important in the information-rich and global society we live in. | 0 0% | 0 0% | 0 0% | 12 40% | 18 60% | 4.60 | 1 |
| 8 | If correctly used by supervisors, they can be an excellent strategy in the supervising and teaching process. | 0 0% | 0 0% | 4 13.3% | 10 33.3% | 16 53.3% | 4.40 | 6 |
| 9 | Demand new technology capabilities and skills in supervisors' and teachers' professional repertoire. | 0 0% | 2 6.7% | 3 10% | 10 33.3% | 15 50% | 4.27 | 8 |
| 10 | If correctly used, can promote collaborative knowledge construction. | 0 0% | 0 0% | 3 10% | 15 50% | 12 40% | 4.30 | 7 |
| 11 | If correctly used, they can enhance the emergence of e-supervisor. | 1 3.3% | 3 10% | 4 13.3% | 12 40% | 10 33.3% | 3.90 | 12 |
| 12 | Enhance peer communication. | 0 0% | 1 3.3% | 0 0% | 12 40% | 17 56.7% | 4.50 | 2 |
| | TOTAL | | | | | | 4.2889 | |

Table 4-35: frequencies and means of teachers' understanding and their perceptions about the affordances of Web 2.0

Table 4.35 clearly reflects teachers view that affordances Web 2.0 technology was important for the development of the technological skills, enhancing communication, knowledge sharing and improving collaboration. It was interesting that item 11, "If correctly used, they can enhance the emergence of e-supervisor". However, it is reasonable to assure if the earlier affordances promoted it, then would almost certainly have an important impact on facilitating supervisors-teachers' activity. These results did indicate that all participants were significantly inclined towards a collective agreement across all twelve items. Thus, the alternative hypothesis: *Web 2.0 technologies have many high quality affordances, which have a great potential to enhance educational supervision work was accepted.*

Question 2 contained 19 indicators, which evaluated the learning experience of the participants with Web 2.0 technology and its tools. Table 4.35 illustrates all items along with the total variable, which reflected high and significant results.

| N | Item | S. Disagree | Disagree | Neutral | Agree | S. Agree | Mean | Rank |
|---|------|-------------|----------|---------|-------|----------|------|------|
| 1 | Was irrelevant for my professional development. | 0 0% | 8 26.7% | 4 13.3% | 10 33.3% | 8 26.7% | 3.60 | 19 |
| 2 | Opened new ideas for my future teaching activities. | 0 0% | 0 0% | 4 13.3% | 13 43.3% | 13 43.3% | 4.30 | 4 |
| 3 | Was very motivating. | 0 0% | 0 0% | 6 20% | 13 43.3% | 11 36.7% | 4.17 | 10 |
| 4 | Was an added value for my professional education? | 0 0% | 0 0% | 3 10% | 16 53.3% | 11 36.7% | 4.27 | 7 |
| 5 | Will help me to prepare more interesting classes for my pupils. | 1 3.3% | 3 10% | 4 13.3% | 13 43.3% | 9 30% | 3.87 | 17 |
| 6 | Are easy to implement in future classes. | 1 3.3% | 4 13.3% | 2 6.7% | 16 53.3% | 7 23.3% | 3.80 | 18 |
| 7 | Can offer different and more stimulating learning activities. | 0 0% | 0 0% | 4 13.3% | 13 43.3% | 13 43.3% | 4.30 | 5 |
| 8 | Will help me to prepare technology capable students. | 0 0% | 3 10% | 3 10% | 11 36.7% | 13 43.3% | 4.13 | 12 |
| 9 | Made me confident with ICT. | 0 0% | 1 3.3% | 2 6.7% | 11 36.7 | 16 53.3% | 4.40 | 3 |
| 10 | Helped me reflect on my own learning experience and the experience of others. | 0 0% | 3 10% | 2 6.7% | 18 60% | 7 23.3% | 3.97 | 15 |
| 11 | Increase interest and motivation. | 0 0% | 1 3.3% | 2 6.7% | 18 60% | 9 30% | 4.17 | 11 |
| 12 | Increase involvement. | 0 0% | 0 0% | 4 13.3% | 15 50% | 11 36.7% | 4.23 | 9 |
| 13 | Increase competitiveness. | 0 | 2 | 6 | 13 | 9 | 3.97 | 16 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 0% | 6.7% | 20% | 43.3% | 30% | | |
| 14 | Facilitate communication and collaboration among team members. | 0<br>0% | 0<br>0% | 2<br>6.7% | 13<br>43.3% | 15<br>50% | 4.43 | 1 |
| 15 | Facilitate communication and collaboration among different teams. | 0<br>0% | 0<br>0% | 2<br>6.7% | 13<br>43.3% | 15<br>50% | 4.43 | 2 |
| 16 | Provide me with quick feedback from my supervisor and peers. | 0<br>0% | 1<br>3.3% | 4<br>13.3% | 11<br>36.7% | 14<br>46.7% | 4.27 | 8 |
| 17 | Provide me with quick answers for my questions. | 0<br>0% | 0<br>0% | 4<br>13.3% | 13<br>43.3% | 13<br>43.3% | 4.30 | 6 |
| 18 | Help make me feel that the supervisor is more like a friend. | 0<br>0% | 2<br>6.7% | 5<br>16.7% | 11<br>36.7% | 12<br>40% | 4.10 | 13 |
| 19 | Help make me share the same concern. | 0<br>0% | 0<br>0% | 8<br>26.7% | 13<br>43.3% | 9<br>30% | 4.03 | 14 |
| | **TOTAL** | | | | | | 4.1439 | |

Table 4-36: frequencies and means of evaluating the learning experience of the teachers with Web 2.0 technology and its tools.

From Table 4.36, it is clear that, items number 14 and 15: "Facilitate communication and collaboration among team members", "Facilitate communication and collaboration among different teams" were the strongest among the 19 items (mean = 4.43) and items 9 'Made me confident with ICT' (mean=4.40), followed by items 2, 7 and 17 respectively: "Opened new ideas for my future teaching activities"; "Can offer different and more stimulating learning activities"; "Provide me with quick answers for my questions" showed high means (mean = 4.30). However, item 1 reflected the lowest mean (3.60).

These findings strongly support the alternative hypothesis: *Using Web 2.0 technologies will have effects on teachers (Performance, knowledge, motivation, collaboration and communication, etc.)*

### 4.4.3.2 The effect of Web 2.0 affordances on teacher experience

- **Correlations and Regression:**

Correlation and regression analyses were conducted to identify the relationship between the independent variable (Web 2.0 affordances) and dependent variable (teachers' learning experience) and to establish the best predictors of Web 2.0 technology and its tools. The level of significance was set at $p<0.05$ for all statistical tests. Bryman (2012) claims that,

> Exploring relationships between variables means searching for evidence that the variation in one variable coincides with variation in another variable (2012: p. 339)

According to Field (2009), regression analysis is:

> A way of predicting an outcome variable from one variable (sample regression) or several predictor variables (multiple regression) (p. 198)

In this part, the existence of a relationship between knowing the effectiveness and affordances of Web 2.0 technology and its tools, and improving teachers' attitude through their learning experience was assumed to be significantly present. However, Spearman's correlation coefficient was applied to indicate the strength and direction of the relationship between variables (positive or negative). The Spearman's correlation coefficient in Table 4.37 indicates the presence of a positive and significant relationship ($r=0.655$; $p<0.001$) between knowing the high quality applications affordances and teachers' attitude towards using Web 2.0 technology and its tools. Using nonparametric statistical tests, demographic variables were found to have no significant effects on participants' perceptions of the affordances and their attitude towards using web 2.0 technology through their learning experience.

**Correlations**

|  |  |  | Affordances | Experience |
|---|---|---|---|---|
| Spearman's rho | Affordances | Correlation Coefficient | 1.000 | .655[**] |
|  |  | Sig. (2-tailed) | . | .000 |
|  |  | N | 30 | 30 |
|  | Experience | Correlation Coefficient | .655[**] | 1.000 |
|  |  | Sig. (2-tailed) | .000 | . |
|  |  | N | 30 | 30 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-37: Spearman's correlation coefficient between Affordances and Experience

Spearman's correlation coefficient (r) between affordances and experience to explore the influence of knowing about the high quality affordances of Web 2.0 technology and its tools on the teachers' attitude toward using Web 2.0 through their learning, a simple linear regression was run to understand this effect (Table 4.38).

| Model | R | R square | Adjusted R square | Std. error of the estimate |
|---|---|---|---|---|
| 1 | .723[a] | .523 | .506 | .31601 |

Table 4-38: Coefficient of determination

a. Predictors: (Constant), affordances

With coefficient of determination $R^2 = 52\%$, the finding indicated a strong effect of the affordances variable on the teachers' attitude toward using Web 2.0 through their learning. A regression analysis was conducted as indicated in Table 4.39 to further understand this relationship.

| Model |  | Sum of squares | df | Mean square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 3.065 | 1 | 3.065 | 30.691 | .000[b] |
|  | Residual | 2.796 | 28 | .100 |  |  |
|  | Total | 5.861 | 29 |  |  |  |

Table 4-39: ANOVA[a]

The results established the significance of the regression model since the ANOVA test validated the same (F=30.69, p<0.001). ANOVA is used in regression analysis to confirm whether or not the regression model significantly fits the data. The aim of the ANOVA here is not to find difference between three groups or more (based on the general meaning of this test). It is often used in regression analysis where we expect linear association between the dependent variable and the independent variable (McDonald, 2014).

To identify which items were more influential of the affordances of Web 2.0 technology and its tools on teachers' learning experience, a stepwise multiple regression was conducted to understand this effect (Table 4.40). Items 4 and 8, "Facilitate communication and collaboration among team members"; and "Help make me feel that the supervisor is more like a friend" were significant. Thus, it can be concluded that teachers' experience is explained through the following two items as indicated in the following table.

| Model | | Unstandardized coefficients | | Standardized coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 2 | (Constant) | 1.339 | .422 | | 3.172 | .004 |
| | Facilitate communication and collaboration among team members | .369 | .066 | .649 | 5.602 | .000 |
| | Help make me feel that the supervisor is more like a friend | .288 | .072 | .464 | 4.001 | .000 |

Table 4-40: Coefficients[a]

### 4.5 Summary:

The findings of my study reveal that the success of implementing Web 2.0 platforms and tools in education supervision depends on the attitudes and experiences of both teachers and supervisors in the use of these technologies. The gathered data reveal that more than 50% of teachers and supervisors who participated in the study demonstrated support for the implementation of Web 2.0 in education supervision. This is regardless

of the fact that more than 60% of the participants of the study did not use Web 2.0 actively in promoting collaboration, communication, running meetings and enhancing participation and support in teacher education. The education programme and intervention on the implementation of Web 2.0 technology revealed that teachers require adequate training, so that they can gain skills and knowledge on the future application of Web 2.0 tools to enhance the processes and programmes of education supervision.

**CHAPTER 5: DISCUSSION**

On the basis of the findings and analysis of the research results, this chapter presents a detailed and analytical discussion of the implications of the findings for the research questions and the aims of the study. In addition to the findings of the study, the discussion refers to the theoretical evidence on the topic and makes connections with the literature in order to present a comprehensive and reliable discussion upon which the inferences of the study will be based. The study was conducted in order to determine how supervisors can implement Web 2.0 technologies to enhance or facilitate the process of supervision with the teachers. This includes the use of these technologies to enhance collaboration and communication between teachers and their supervisors. The discussion within this chapter will focus on using the research findings to inform supervisors and teachers how they could apply various platforms within the Web 2.0 technology paradigm to meet the objectives and goals of the supervision process. The discussion will focus on each of the four stages through which data was gathered, so that the findings can be interpreted accurately with the goal of responding to the research questions.

### 5.1 Stage 1: Discussion of the Exploratory Research Findings

The exploratory research focused on determining the extent to which teachers and supervisors understood Web 2.0 technologies and their application, both in the general and educational setting. In order to understand the meaning of the findings, the discussion will focus on the level of understanding of Web 2.0 technologies among each of the two groups of participants and use theoretical evidence to present a logical discussion and argument. The discussion will be focused on the implications of the findings on the use of Web 2.0 technologies by teachers and supervisors to enhance communication, interaction and the exchange of experiences and insights on the learning process.

### 5.1.1 Supervisors

The findings of the study reveal that only a little over 50% of the supervisors claimed knowledge of Web 2.0 technologies and were able to demonstrate the fact by providing a concise and clear definition of Web 2.0, although it is possible that some who could not define Web 2.0 had background understanding of their applications. The four supervisors who were able to define Web 2.0 technologies showed an understanding of the key characteristics: communication, interaction, coordination and collaboration.

The characteristics identified are consistent with those previously identified by, for example, Anderson (2007), Sendall et al., (2008) and Lindsay and Davis (2010). These are among the features that could be exploited to enhance educational supervision by facilitating information sharing (Churchill, 2011), reporting and monitoring (Kirschner et al, 2004), construction of knowledge (Luther, 2015) and active engagement of learners, creating synergies, which transcend individuals' isolated experiences (Richardson, 2006). Recognition of such capabilities, it could be argued, corresponds to the first step, Knowledge, in the IDT decision making process and could contribute in the perception of relative advantage of the new tools and technologies (Rogers, 1995; Warford (2005). It is through these capabilities that supervisors might perceive the potential of these technologies to enhance the efficiency and effectiveness of teacher supervision processes.

However, four of the supervisors interviewed had not reached that stage and showed for example, difficulty distinguishing between tools and technologies, given that Web 2.0 tools are subsets or platforms of the larger Web 2.0 system of technologies. Only one supervisor was able to give specific examples of Web 2.0 tools with detailed understanding of their design properties and areas of application.

Nevertheless, although not all so knowledgeable, other supervisors could identify various Web 2.0 tools and had some prior experience or knowledge on their use, not in supervision, but for other applications, such as social networking and communication. The popularity of Facebook and YouTube, for example, was consistent with statistical evidence on the usage of the Web 2.0 tools, which indicates that Facebook and YouTube are among the leading social networks and video share platforms (Deryakulu and Olkun, 2009). The supervisors may have used Facebook for social networking, but it was evident that the idea that it could be applied in teacher supervision was exciting to them.

Six of the seven expressed a perception that Web 2.0 technologies could potentially be beneficial in communication and collaboration processes during teacher supervision. The views of the supervisors on the application or implementation of Web 2.0 technologies within educational settings, especially in teacher supervision, are promising, indicating that they would consider or were already considering using them to promote teacher supervision processes and activities. Literature suggests that

attitudes are good predictors of behavioural intentions, which in turn predict behaviours (Ajzen and Fishbein, 1980; Taylor and Todd, 1995), so the favourable perceptions expressed by supervisors bode well for their potential willingness to try implementing Web 2.0 tools in supervision. Moreover, users who have a positive attitude on the application of Web 2.0 tools are more likely to gain more skills, knowledge and experience with ease and use the tools in a more effective manner (Kopcha and Alger, 2011).

The fact that Web 2.0 technologies are diverse and have many functions means that they are effective tools that would promote convenience and efficiency in communication, holding meetings, workshops and mentorship within the teacher supervision framework. The views of the supervisors, for example on the use of web 2.0 technologies to communicate with departments, schools and teachers within the educational system reveal an awareness of the correspondence between Web 2.0 tools and specific relevant task requirements, or task technology fit (Goodhue, and Thompson, 1995). Such positive evaluations are a good predictor of higher utilisation (Chae, 2005). These technologies could therefore reshape the future of teacher supervision within Saudi Arabia. The specific benefits and applications of Web 2.0 technologies in education supervision include arranging for meetings between supervisors and teachers, long distance training and mentorship, talent teaching and promoting the implementation of educational programmes, such as educational awareness (Sadaf et al, 2012).

### 5.1.2 Teachers

The findings of the exploratory study indicate that the knowledge of teachers on Web 2.0 technologies was slightly lower than that of their supervisors. This could be attributed to a wide range of factors, including their level of experience in the use of technology within both general and educational settings and divergent attitudes towards the use of technology in educational processes and activities. Teachers' lack of technology skills has been reported in the literature by, for example, Prensky (2001), who characterised teachers as "digital immigrants" who were used to traditional educational systems and were not comfortable with digital technologies. The findings of the Speak Up project (Speak Up, 2011) ten years after Prensky's claim, revealed the same problem. In Saudi Arabia, it has been claimed that teachers' colleges have not kept pace with technology in preparing teachers (Alsharari, 2010) and despite the

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intention of the King Abdullah project (Tatweer, 2010) it is reported that Saudi teachers often lack support and opportunity for CPD (Alhajeri, 2004; Sywelem, and Mitte, 2013). Like teachers, supervisors, by virtue of age and education, are not digital natives but may have more time and opportunity for CPD. This is, however, a finding that warrants further investigation. It has been claimed that the level of knowledge on the use of Web 2.0 technologies reveals the extent into which they appeal to the user (Kale, 2014). However, knowledge of a specific technology is often influenced by the user's actual experience of using or applying the technology (Deryakulu and Olkun, 2009). Regardless of the different levels of awareness of Web 2.0 between teachers and supervisors, it is evident that there were gaps in the knowledge, suggesting a need for creating more awareness or training on Web 2.0 technologies before its tools can be applied effectively in the process of teacher supervision. This is because, as indicated previously, knowledge and awareness of the existence and potential of an innovation is the first step in the decision to adopt it (Rogers, 1995) and a way of creating the favourable perceptions mentioned by Dearing (2004) as one of the key factors in innovation adoption. Creating and sharing knowledge is a pre-requisite for change (Fullan, 2001). Moreover, training could contribute to the social pressure for change by reflecting "subjective norms" (particularly superiors' influence) in line with the DTPB (Taylor and Todd, 1995) and contribute to the creation of a "critical mass" of adopters, the number required for an innovation diffusion to become self-sustaining (Rogers, 2003).

The fact that four out of the seven teachers in this study claimed no knowledge of Web 2.0 tools and could not define them affirms the assumption of the study that knowledge of these tools and technologies is limited within Saudi Arabia. This means that especially in the light of the aspirations of the King Abdullah project, it is up to the stakeholders within the government and the education system to ensure that there is increased awareness of Web 2.0 technologies and their potential for application in educational activities, such as teacher supervision. Stakeholders should invest in programmes that promote the use of technology within the education system in order to facilitate collaboration and communication among teachers, supervisors and administrators (Kopcha and Alger, 2011). Such communication would facilitate both the exchange of ideas, knowledge and experience, as well as relationship building between teachers and their supervisors, making the latter a more accessible and

effective resource than under the current arrangements (Acheson and Gall, 2003). However, achieving these potential benefits will require the availability of facilitating resources. By provision of such resources, stakeholders would not only remove practical obstacles and create a more facilitating environment for change (Fullan and Hargreaves, 1992) but also demonstrate high-level acceptance by influential members of the adopting society (Dearing, 2004; Valente, 1995).

The fact that all teachers identified the most popular Web 2.0 tools does not necessarily indicate that they were ready to apply them in educational processes, including communication and holding distance meetings with their supervisors. The exploratory study indicates that high levels of knowledge of teachers on Web 2.0 technologies, such as Facebook, YouTube and Twitter, is attributed to their experience of using them in social networking and sharing of documents or videos. The study points to the need for influencing teachers to transfer the application of Web 2.0 technologies into educational activities. This would involve the implementation of programmes that are meant to create awareness and change the attitudes of people on the use of technologies in formal activities, such as education.

From the study, it is apparent that teachers who participated in Stage 1 were optimistic about the use of Web 2.0 technologies to enhance communication and exchange of experiences or ideas with their supervisors. This reveals that regardless of their limited experience in the use of these technologies within the educational setting, they could see the potential for the benefits of these technologies in other applications such as supporting teacher supervision programmes (see Table 4.3). The positive view of teachers about the application of Web 2.0 technologies in supervision could influence the manner in which teachers and their supervisors interacted in the future. The suggestions of teachers and their views on the use of Web 2.0 technologies indicate that they were well trained and motivated, and would prefer and implement these technologies in engaging with their supervisors, as opposed to the use of traditional teacher supervision methods.

### 5.2 Stage 2: Discussion on the Supervisor's Current use of Web 2.0

The extent to which supervisors and teachers currently use Web 2.0 technologies in teacher supervision can be used to indicate whether the use of these technologies is comprehensive or well formulated in order to determine if there are possible

challenges. The use of focus group interviews and questionnaires in this stage of the study indicates the potential of applying Web 2.0 technologies in enhancing teacher supervision. The discussion within this section will analyse, interpret and present arguments on the findings of the focus groups and questionnaires separately, before drawing conclusions on how they address of the research questions.

### 5.2.1 Focus Groups

The views of the supervisors within the focus groups revealed that they had different levels of understanding of what Web 2.0 technologies entail, reflecting their divergent experiences and information on these technologies. Even those who had not applied the Web 2.0 technologies in supervision had some level of understanding of what they are. This suggests that the popularity of these technologies within the education system is increasing, especially among supervisors. This in turn indicates that the inevitable challenges that would be experienced in the process of adopting web 2.0 technologies in teacher supervision could be overcome.

The supervisors who provided accurate definitions of Web 2.0 technologies must have dedicated their time to learn, apply and define their benefits, regardless of whether they are used in teacher supervision or other work related processes. The focus groups indicate that even if the supervisors applied various Web 2.0 tools for social networking, personal matters and other activities that are not related to teacher supervision, they were able to imagine the benefits that these tools would bring into the activities of supervision, such as arranging meetings, gathering information and long distance meetings.

Because most supervisors within the focus groups had prior knowledge or experience of the use of Web 2.0 technologies, their enthusiasm for their use for teacher supervision was not surprising. They all agreed that Web 2.0 technologies will have a positive impact on the methods of teacher supervision. The fact that they had perceived Web 2.0 as likely to bring improvements implies that they had perhaps identified problems with the existing supervisory methods, which they thought would be solved or overcome through the adoption and implementation of these technologies to supervise teachers. Perceived need is one of the factors that contribute to the search for information about and interest in innovation and the perception of an innovation's relative advantage compared to the status quo (Rogers, 1995). In the Saudi context, for

example, the limited, infrequent and formal contact between supervisors and supervisees is not conducive to relationship building or to promptly addressing teachers' needs and concerns, especially given the geographical distances involved, the unreliability of the postal system and the time taken up with bureaucratic procedures and lines of communication. One of the benefits that the supervisors could obtain through the use of Web 2.0 technologies in supervision is efficiency in communicating with teachers and arranging for teacher-supervisor meetings.

During the focus group interviews, the supervisors used a variety of words, such as "working smoothly and easily" and the "Internet is almost everywhere." However, the main point they tried to bring forth is that the Web 2.0 technologies will promote the effectiveness of teacher supervision through efficient communication and coordination among all players, including school administrators and stakeholders within the various departments of the education system. The finding that all supervisors agreed that there are obstacles that must be addressed before realising successful application of Web 2.0 technologies in teacher supervision reveals that they were ready to participate in the paradigm shift of the teacher supervision process.

Theoretical frameworks on the implementation of new technologies within organisational systems reveal that there is need to design, adopt and implement specific controls, such as policies and rules that govern the use of technological resources (Park, 2013). Without these controls, the desired efficiency and organisation of the use of technology cannot be realised (Luther, 2015). Therefore, the use of Web 2.0 technologies in teacher supervision will be effective if it is guided by specific conditions, which prevent the violation of work ethics and protocols. For instance, conditions for protecting private data or information within online platforms, such as social media must be defined and safeguarded (Kopcha and Alger, 2011).

Supervisors recognised a number of obstacles that would face the implementation of Web 2.0 technologies in teacher supervision, which have so far limited their use. These included alleged intransigence on the part of policy makers and administrators, poor infrastructure in some areas and lack of necessary knowledge and competence in teacher supervision. Because of these obstacles, there is no policy framework or conditions that govern the use of the technologies among teachers and their supervisors. That is, there are as yet no official, centrally mandated initiatives or

official guidelines for the use of technology in supervision. In Saudi Arabia's tightly centralised education system, it is difficult to implement new ideas without official authorisation or even a mandatory requirement from above. Whilst teacher quality and professional development are purportedly a priority of the King Abdullah project for educational reform (Tatweer, 2010) and moreover, another concern of the project is the provision and encouragement of the latest technologies throughout the education system, many aspects of policy under the project are "still in development" (Tatweer, 2011). Hence, the traditional methods and systems of interaction during teacher supervision activities are still being applied.

The supervisors cited administrative decision as one of the obstacles that hinder the process of change from the traditional methods of teacher supervision to the implementation and use of Web 2.0 technologies. This obstacle is consistent with the literature, where it is claimed that administrative decisions on allocation of resources and management of technology hinder the adoption and implementation of technology in many organisations (Park, 2013). Resistance to change among administrators and poor prioritisation in the allocation of resources have also been claimed to play a role in hindering successful implementation of change that is related to the adoption of new technologies within organisations (Deryakulu and Olkun, 2009).

Even if some supervisors attributed the obstacles of implementing Web 2.0 technologies to the ignorance of decision makers, teachers and supervisors, there is a perception that the main problem is resistance to change and lack of a proper guiding leadership framework to implement the change. This is, however, only one side of the picture. The ambitious aspirations of the King Abdullah project suggest a high level commitment to change, and as noted previously, the positive attitudes of supervisors and teachers toward the potential application of Web 2.0 are also encouraging. Knowledge of the importance of technology in enhancing educational activities is not new, because it is one of the highly studied and published areas among scholars within the education sector (e.g. Sadaf et al, 2012). However, change is a slow and complex process (Fullan, 2001). The Saudi authorities have shown "moral purpose" (Fullan, 2001) that is, the desire to bring positive improvement. Oberholster (2014) finds that there is a preference towards face-to face communication and that participation increases willingness to accept the change by using Web 2.0 technologies. However, change also involves a culture shift and coherence among all the elements involved

(Fullan, 2002), which are not so easily achieved. The widespread acceptance and rapid spread of technology in Saudi society (Cochrane, 2014), however, suggest that the cultural shift is underway. The only training that users will need is on the application of specific tools and platforms to enhance education, such as communication between supervisors and teachers via social media networks. This is so because the design and implementation of the actual systems is the work of technical experts, such as designers and software engineers.

The participants of the focus groups cited lack of encouragement from school administration to adopt and implement Web 2.0 technologies in teacher supervision. This may give the impression that policy-makers and administrators are unwilling to align school activities with the changing technological environment. This may be true in some cases, but the truth is probably more complex, related to resource constraints in some settings, institutional factors such as prolonged, bureaucratic decision-making processes, lack of autonomy at local level and lack of relevant knowledge (Sim, 2011). This means that teachers and supervisors have limited support, in terms of technological resources and training programmes, which would promote the success of implementing Web 2.0 technologies in supervising teachers. There are many possible solutions, which could be used to overcome the resistance to change and promote the implementation of Web 2.0 technologies in educational processes. For example, financial or other incentives could be provided for adopters, which would strengthen the perception that credible and influential others support the innovation (Dearing, 2004; Valente, 1995)) and enhance the perception that adoption would confer status and enhance the adopter's image (Moore and Benbasat, 1991). Another option would be to make Web 2.0 use compulsory as was done for the Noor system currently used in educational supervision. Resistance might also be overcome through CPD programmes that give participants ownership of the change (Fullan and Hargreaves, 1992) and provide opportunities for peer learning in communities of practice (Singh and Richards, 2006; Kim and Merriam, 2010). However, these or other solutions adopted by policy makers and school administrators should be supported by empirical evidence on their application within school settings. This is because the same technologies are applied in other sectors, but there are specific tools and platforms that are unique to the industry or sector within which various technologies are applied.

### 5.2.2 Questionnaire

The demographic characteristics of the participants, which were collected by the survey questionnaire, reveal that supervisors had adequate experience in educational processes, as most of them had several years working within the education sector. On the basis of the experience of the supervisors, the data that was gathered from them, from the focus groups and survey questionnaires are an important input to inferences on the adoption and implementation of Web 2.0 technologies in teacher supervision, particularly when triangulated with the views of teachers and taken in conjunction with findings from other stages of the study.

Information on the current supervisory practices (Tables 4.14 and 4.15) represents an important aspect of the survey because it sheds light on the extent to which supervisors have used and are prepared to use Web 2.0 technologies to supervise teachers. It also enables inferences to be drawn as to how Web 2.0 technologies could be used to enhance specific practices, such as communication between teachers and their supervisors. Even though 10 out of 23 of the respondents indicated that the current practices support relationships in teacher supervision, the data suggest that communication between teachers and supervisors for the purposes of support, training and mentorship are infrequent.

The questionnaire survey revealed that 6 out of 23 of the participants did not meet with the teachers they supervise in informal settings, but teacher supervision was strictly during working hours confined to formal visits of an inspectoral nature, which could be as infrequent as once in a year. Supervisors have a rigid schedule of school work and it is difficult to contact them outside these hours. As noted previously, this means that relationship building is inhibited. This is a matter of concern, given the importance of relationship building for managing change (Fullan, 2001; 2002), Moreover, there is evidence in the specific context of computer technology in education, that one of the key determinants is social capital (Frank et al, 2004; Bayerl, 2008) in the sense of transmission of resources (including information) through "interaction that is not formally mandated" (Frank et al, 2004, p13). More frequent and informal contact between teachers and supervisors could be an important component of such social capital. By facilitating such contact, Web 2.0 technologies could potentially be used to revolutionise the teacher supervision process. Referring to the typology of training proposed by Fraser et al. (2007) it could be argued that Web 2.0 tools could facilitate

both planned and incidental informal training and mentoring, by enabling both internet networking and speedy response to queries and problems. Through the use of Web 2.0 technologies, both teachers and their supervisors could overcome geographical and other boundaries, which limit the number of times they meet each year. Web 2.0 tools could facilitate communication as and when needed without the difficulties of travel in Saudi Arabia and without disruption of the school timetable, one of the factors which currently makes school principals reluctant to support teachers' CPD (Alhajeri, 2004; Musalam, 2003; Sywelem and Mitte, 2013). Specific applications, such as videoconferencing, would allow teachers to meet frequently with their supervisors and therefore receive the support that they need in a more efficient and effective manner. Obviously, however, this would depend on the availability of the technology to both teachers and supervisors, whether at their homes or places of work. Trialability of technological infrastructure came third in importance among factors for adoption identified by Zhao et al., 2002) and technical facilitation is one of the components of perceived behavioural control proposed by Taylor and Todd, 1995) in their Decomposed Theory of Planned Behaviour (DTPB). In practice all the supervisors and teachers surveyed in stage 2 and 3 of this research reported that they had Internet access at home, and used the Internet frequently, although some supervisors suggested that poor or unavailable Internet connection in some areas could be an inhibitor to use of Web 2.0 tools. Al-Ghaith et al., (2010) similarly identified poor quality of Internet connection as an obstacle to take-up of e-services in Saudi Arabia. Nevertheless, Internet penetration in Saudi Arabia is high and rapidly growing (Cochrane, 2014). This, together with the government commitment to investment in computer technologies in educational settings, (Tatweer, 2010, 2011) suggests that possibility of wider use of Web 2.0 tools in the future.

Currently, according to the questionnaire survey, school visits are the main method through which teachers and their supervisors communicate. This means that the meetings and communication processes in teacher supervision are limited by both time and location. The design of Web 2.0 technologies is aimed at overcoming limitations of communication processes. From the fact that social network services were rarely used by supervisors and teachers in the supervisory process, although they used them for personal purposes and claimed familiarity and confidence with them, however, it is evident that major milestones need to be achieved before the Web 2.0 technologies

are implemented successfully in the processes of teacher supervision. The future of teacher supervision should benefit from the efficiency, cost effectiveness and convenience of Web 2.0 technologies, such as WhatsApp, Twitter and Facebook to enhance the effectiveness of teacher supervision and meet the goals and objectives of the supervision programmes.

The participants of the survey indicated that they had more confidence in the use of YouTube, Google docs and Twitter than Blogs and Wikis in the process of teacher supervision. This could be attributed to their experience with the use of these technologies, the nature of their work and attitudes toward application of technology in the teacher-supervisor relationship. The kind of Web 2.0 tool that individuals prefer in work related endeavours is defined by the kind of job they do, in addition to personal preferences (Park, 2013). Nonetheless, it is recommended that users seek to utilise the benefits of a wide range of technologies in promoting both their work related and social encounters (Sadaf et al, 2012). In the case of teacher supervision, it is important that both teachers and their supervisors agree on the preferred tools through which they would communicate and interact, so that differences in preferences on technology would not hinder the success of implementing these technologies in supervision processes.

This would also require administrative commitment and support, such as has previously been given to the use of Noor software. Users are motivated to use applications that match their level of skill and knowledge (Deryakulu and Olkun, 2009). This means that stakeholders within the Saudi Arabia education system need to understand the importance of aligning the current systems with emerging technologies and support such technologies with relevant training, as they did for Noor, in order to reap the benefits of the new technological tools in education.

### 5.2.3 Future Outlook

Promotion of favourable attitudes to the use of technology in teacher supervision and educational activities is one of the main milestones needed for successful implementation of Web 2.0 technologies in the future of teacher supervision within Saudi Arabia. This would necessitate provision of resources and support programmes, such as scholarships and workshops, to promote change. In theory at least such activities already form part of the existing policy of CPD in education (Abdulkareem,

2001; Ministry of Education in Saudi Arabia, 2007). However, there have been criticisms that CPD programmes are not informed by the participation of intended recipients and so may lack relevance (Colbert et al., 2008), while a lack of sustained professional support has also been reported (Menas, 2009). Given some supervisors' perception of a lack of administrative support for change, despite the rhetoric of education policy in recent years, it will be important for change to be led by those who have a proper understanding of the complexity of change (Fullan, 2002) and to involve teachers and supervisors in the planning of programmes that meet their needs. More importantly, customisations of applications, such as the coding of software in Arabic and the associated endeavours will promote the success of the desired change. In order to change the attitudes of users on technology, they must be able to attain adequate motivation and support (Sadaf et al, 2012). For this reason the participants of the focus groups and survey indicated that policy makers and administrators need to play a leading role in planning and allocating resources to execute programmes, which will motivate the adoption and embracing of Web 2.0 technologies.

Since more than 80% of participants of the questionnaire survey thought, based on their experience of them in other contexts, that Web 2.0 applications should be used in the supervision of teachers, it seems that they have already perceived the relative advantage of such tools and compatibility with their needs and reached an initial decision regarding their adoption, consistent with Rogers (1995) and Warford (2005). In order to achieve actual implementation and eventual confirmation of the adoption decision, however, there is a need to support them through effective design and implementation of change programmes. In terms of IDT (Rogers, 1995) such programmes could address concerns about the complexity of the new tools and methods, and provide opportunities for trialability and observability. Since learning is a social process and teachers' use of technology has been found to be influenced by support and collaboration with colleagues, such programmes could not only increase participants' technical self-efficacy but also provide peer influence (Taylor and Todd, 1995) within a community of practice (Singh and Richards, 2006; Kim and Merriam, 2010) promoting adoption by the "late majority" and even "laggards" (Rogers, 1995, 2003). Such programmes should be funded well and should include initiatives that promote exchange of innovative ideas and insights on how effectively Web 2.0 technologies could be used to enhance the process of interaction between teachers and

their supervisors. The focus groups and survey questionnaire played a significant role in indicating the current situation in the use of technology to support and promote teacher supervision. On the basis of these data sources and questionnaire, it is evident that regardless of the low level of application of Web 2.0 technologies in teacher supervision, both teachers and supervisors were optimistic that these technologies would enhance the supervision process. The low frequency with which supervisors meet and communicate with the teachers they supervise and the geographical limitations of the current methods could be overcome through the adoption and implementation of Web 2.0 technologies.

### 5.3 Stage 3:  Discussion on Teachers' Current use of Web 2.0

After the focus groups and survey questionnaire survey with the supervisors, several conclusions were drawn on their current use of Web 2.0 in teacher supervision as discussed in the above sections. Since the interaction between the teachers and their supervisors in the supervision process defines the effectiveness of application of Web 2.0, it was necessary also to determine the current use of Web 2.0 technologies by teachers. This is important because a comparative analysis of the extent into which the two parties of the teacher supervision process use Web 2.0 will reflect the future outlook for the possible application of Web 2.0 to facilitate the interaction between teachers and their supervisors. This section discusses the demographic data on the education of teachers and the patterns of current use of the Internet and Web 2.0 technologies. The views of teachers on the supervisory practices and their confidence on application of Web 2.0 in education supervision are also discussed.

#### 5.3.1 Demographic Data

Demographic data was deemed important in the research process, especially in the collection and analysis of data on teachers, because it indicates their level of education and experience in the teaching profession. The level of education defines the level of knowledge and skills that the teachers currently hold and their relevance towards application of technology in education processes, including supervision. The level of experience of the teachers is also important in determining their level of awareness of the application of Web 2.0 in educational activities.

From the findings of the study, it is evident that the teachers were all well-educated, because they held at least a Bachelor's degree, which under government regulations is

now a requirement for their profession (Ministry of Higher Education, 2006). Their training in education means that they had a comprehensive experience in education processes and therefore were able to reflect how application of Web 2.0 technologies would be translated into the education system, and specifically teacher supervision activities. The research findings reveal that most teachers fell into the 31-40 years of age bracket. This suggests that they were reasonably experienced as teachers and trained under one of the more recent, upgraded systems of teacher preparation in universities or teachers' colleges, where they might be expected to have had some exposure to technology, although unlike the current generation of trainee teachers, they were unlikely to be "digital natives" (Prensky, 2001). Teachers had a lower level of experience than their supervisors, which is to be expected because of the higher academic and experience needs for the supervisory role.

The data on the teachers' application of the Internet are specifically relevant for the purpose of this study. This is because the patterns of Internet use define the attitudes of users and the rate at which they use it for daily activities, both personal and professional (Lincoln, 2009). From the study findings, it became apparent that all of the teachers who participated in the study had access to the Internet and used it at their homes for their daily needs. This is in line with the telecommunication surveys that reveal high penetration of Internet networks within Saudi Arabia (Cochrane, 2014). It can therefore be concluded that there is sufficient technological infrastructure to support application of technology in education.

Since all the teachers had the Internet in their homes, it is reasonable to conclude that they were aware of the importance of technology in facilitating communication and access to information within the contemporary society. Access and positive user attitudes towards technology are the prerequisites of effective implementation of technologically driven programmes or initiatives within organisations and departments (Harris and Rea, 2009). The attachment of the teachers towards the Internet indicates that they had used at least one of the Web 2.0 tools for communication purposes, whether personal or professional. The rate of usage of the Internet among the teachers also indicates that with the right training, they will be able to adopt and implement Web 2.0 tools in education supervision, especially in enhancing communication and interaction with their supervisors.

Demographic data on the kind of devices that teachers used to access the Internet revealed that there was a promise of positive change and implementation of Web 2.0 technologies in education supervision. Since more than 90% of the teachers had laptop computers and more than 75% used mobile devices to access the Internet, it is evident that communication via the internet is popular within Saudi Arabia and is considered the most efficient was of connecting with others in the social and professional engagements. Accessibility of mobile devices defines the level at which they are used for communication purposes (Campbell, et al, 2011). Accessibility specifically indicates that application of the Internet in education supervision is feasible, which will play a role in overcoming the challenges of using the existing teacher supervision methods.

### 5.3.2 Supervisory Practices

The data collection process for this study was focused on determining the number of meetings that occurred between the teachers and their supervisors and the methods that they used to hold these meetings. This was considered a useful indicator of whether there is a potential problem that Web 2.0 technologies would potentially help to alleviate by facilitating better communication, more frequent contact, frequent meetings and enhanced support among teachers and supervisors during the education supervision process.

The responses of teachers on the current supervisory practices confirmed supervisors' reports of infrequent formal meetings in supervisors' offices premises or in the school, rather than using online based communication platforms. This is regardless of the fact that all teachers had access to the Internet in their homes and the majority of them could access it via mobile devices. Given that teacher supervision, like all aspects of education in Saudi Arabia, is very much a top-down process, this seems likely to be due to the obstacles on the part of supervisors (lack of knowledge, resistance to change) or higher authorities (e.g commitment to the Noor system, lack of a clearly articulated policy) rather than any unwillingness on the part of teachers (although they may have been unaware of or given no thought to this possibility). From these findings, it is evident that there is under utilisation of technology, and specifically Web 2.0 tools in the process of education supervision.

The findings reveal that 96.7% of the teachers had to rely on the school visits of their supervisors in order to engage with them comprehensively. Since most of these school

meetings occurred between 2 and 4 times in a year, it can be concluded that the current methods in teacher education were inadequate in the level of communication and support that occurred between teachers and their supervisors. Such infrequent meetings in which the supervisor was cast in the role of inspector as much as advisor, would not be conducive to building supportive relationships, to addressing teachers' worries and difficulties promptly or to enabling the supervisor to act as a change agent (Fullan, 2002) or as a resource in teachers' social capital (Frank et al., 2004). The data suggest that contact between supervisors and supervisees is insufficient in quantity and frequency and inadequate in quality to meet all of the objectives of supervision declared by Saudi educationists, including planning, induction, feedback and support (Almughidi, 2000), improving the educational climate and teachers' morale, and developing professional growth and leadership (Nashwan and Jamil, (2004). The role of Web 2.0 technologies in promoting communication and active engagement, regardless of distance or geographical barriers suggests that, if they are successfully implemented, they would revolutionise the teacher supervision processes. Web 2.0 technologies play a crucial role in personal and professional communication processes because they allow people to engage with each other across online platforms (Vance, 2012). The application of Web 2.0 tools in education supervision will also reduce the cost of travelling, since the supervisors will not always have to travel to schools to meet with their teachers.

The fact that some teachers used the school telephone to communicate with their supervisors shows a lack of convenience in the current methods of supervision. Use of the school telephone would be available only during specified hours, and might not afford privacy. Mobile telephones were more frequently used, but might be subject to limitations of network coverage and high cost. In contrast, web 2.0 technologies provide convenience because they are not limited by time and space (Park, 2013). This is because Web 2.0 provides access to a wide range of online platforms, which offer users the capability of arranging online meetings within a virtual paradigm (Sarrafzadeh et al, 2010).

### 5.3.3 Familiarity with and Confidence in Web 2.0

The research findings revealed that the confidence of the teachers was inclined towards application of YouTube and Twitter, because most teachers had more experience and access to these Web 2.0 technologies. For instance, the confidence of the teachers

towards application of Twitter is related to the fact that it is a popular social networking site. It is evident, therefore, that application of Web 2.0 technologies among the teachers was mainly for social or personal purposes, as opposed to their use in professional communication, such as in their interaction with supervisors.

The fact that the teachers had limited familiarity with application of Google docs discloses that they had not engaged in the exchange of research, reports and other materials with the supervisors via this Web 2.0 tool. From the findings of the study it is indicative that the success of implementation of Web 2.0 in education supervision will be determined by the extent to which the confidence of the teachers with some of the Web 2.0 tools would be enhanced. If users have limited confidence in using a specific technology or application, they are more likely to resist change and programmes that advocate its use (Huang and Behara, 2007). However, this can be overcome through training and encouraging positive attitudes towards application of specific technologies (Sarrafzadeh et al, 2010). Furthermore, confidence on using Web 2.0 could help to increase participation' willingness to accept the change (Oberholster, 2014).

The low confidence with Blogs among teachers could be attributed to the fact that most of them are based on personal opinions of the authors (Vance, 2012). The Web 2.0 tools that should be adopted in the education supervision should be relevant to the needs of both teachers and supervisors in reducing the cost of communication and meetings, enhancing collaboration, promoting efficiency and convenience and increasing the rate of meetings or interaction in the education supervision process. The confidence of teachers in application of wikis represented in this study should be improved, because they are likely to find this Web 2.0 tool important in the exchange of educational materials.

The high confidence of teachers in application of YouTube reveals the potential to adopt and implement video and other multimedia in communication between teachers and supervisors. For example, supervisors could create new material, such as video film of model lessons and upload it for teachers to access, thereby facilitating the spread of best practice. Video based online media, such as videoconferencing have revolutionised business processes, in terms of breaking distance barriers and reducing costs (Sarrafzadeh et al, 2010). The same benefits should therefore be experienced in

the teacher supervision processes through the adoption and implementation of Web 2.0 technologies to conduct virtual meetings. Through Web 2.0 technologies, the annual meetings between teachers and their supervisors is likely to increase exponentially from the current 2-4 meetings to more than 20 meetings. This will evidently promote the ability of teachers and supervisors to achieve the objectives of education supervision efficiently and effectively.

### 5.3.4 Web 2.0 in Educational Supervision

Through application of open-ended questions, the research was able to ascertain the the current use of Web 2.0 tools by teachers in the supervision process and the determination of future potential of Web 2.0 in education processes. The survey of the general use of the Internet among teachers revealed that it was apparently popular with them. Because the Internet has numerous uses and applications, dedicating it to a specific and professional area of application requires effort and investment of resources for change management and training (Huang and Behara, 2007). Since 22 of the 30 teachers who participated in the survey used the Internet for other educational processes, it can be suggested that they are likely to find Web 2.0 technologies useful in teacher supervision processes. From the survey, it is clear that the adoption and use of the Internet in education processes is gaining ground within Saudi Arabia. The challenge that faces stakeholders is to enable teachers to adopt specific Web 2.0 tools in the education supervision activities, as opposed to the general use of the Internet.

According to the survey findings, the main use of the Internet by teachers was to gather educational material and to prepare for lessons. This means that the teachers used the basic browser applications and access to the Internet processes. The research did not find any use of specific Web 2.0 technologies by teachers, such as engaging with students, their colleagues and administrators. In this sense, it is evident that the experience of teachers in application of Web 2.0 tools in communication is currently not sufficient. Therefore the success of the change programme in the adoption and implementation of Web 2.0 in education would require dedicated training, planning and designing policies and procedures to guide application of these technologies among teachers and supervisors.

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### 5.3.5 Future Outlook

Application of technology among teachers, both in professional and personal engagements is not something new, as evidenced by the fact that they have access to the Internet in homes and in school. The popularity of mobile devices among teachers indicates that the future outlook of Web 2.0 in education supervision is promising. The teachers will be able to use these technologies to overcome the geographical barriers that characterise the current education supervisor methods, reduce costs and be able to engage with their supervisors without the limitations of time. Since the teachers consider Web 2.0 technologies as an effective way to communicate and meet with their supervisors, it is apparent that they already have positive attitudes, which will shape the success of the future implementation programs of Web 2.0 in education supervision.

The confidence of the teachers with specific Web 2.0 tools is related to the frequency with which they currently use them. The evidence of an association, of course, does not indicate the direction of the relationship, and two explanations are possible, which may operate individually or together. One is that teachers' confidence denotes a perception of self-efficacy, which is part of perceived behavioural control, which is seen in the DTPB (Taylor and Todd, 1995) as an antecedent of behaviour, both directly and through the mediation of intention. Conversely, it could be argued, consistent with the Innovation Diffusion Theory (IDT) (Rogers, 1995) that more frequent use of an innovation gives increased opportunity for trialability and observability, enabling the user to develop increased mastery of the technology and experience its benefits. Thus, the two processes could be mutually reinforcing. The role of policy makers, school administrators and departmental heads in promoting application of Web 2.0 in teacher supervision remains relevant. This is due to the role of policy makers in making decisions regarding the allocation of resources in the implementation of change from the current methods of teacher supervision to application of Web 2.0 tools. School administrators and departmental heads would have a key role in facilitating the implementation process but given the centralisation of the Saudi education system, this is likely to be in their capacity of implementing policies and frameworks set at regional or national level, rather than through personal initiative on their part. Nevertheless, given their potential importance as change agents (Virgilio and Virgilio 2001) as well as gatekeepers to school resources, it would be important to secure their engagement

and understanding, in order to ensure efficiency and effectiveness in Web 2.0 based teacher supervision processes.

### 5.4 Stage 4: Discussion of Transition to Web 2.0 in Teacher Supervision

The first three stages of the research process reveal that the foundation for the implementation of Web 2.0 technologies in education supervision is already set. This is depicted by several observations and findings that were made during the study. This includes the positive attitudes of both supervisors and teachers toward the contribution of Web 2.0 in education supervision and the high level access to the Internet and mobile devices. The participation of all stakeholders within the education system in the process of implementing change from the current methods of teacher supervision to Web 2.0 is therefore required. The fourth stage of the study was therefore focused on using the findings of the first three stages of the study to implement an intervention for transition into Web 2.0 technologies in teacher education. The nature of the training was described in Sections 3.9.4 and 3.10, while screen shots derived from the training activities are displayed in Appendix 2. The intervention was aimed at determining whether the Web 2.0 technologies would be used in facilitating teacher supervision processes, which was the main goal of the study.

### 5.4.1 Impact of Training

The training intervention revealed that the level of knowledge among the various Web 2.0 tools and their application in educational supervision increased significantly. The excellent score in the application of YouTube and Twitter among the teachers is attributed to their prior knowledge, skills, experience and understanding on how they are used for various purposes including communication processes. The rate at which the awareness of teachers increased after the intervention or training programme, such as from 20% to 67% in application of blogs, reveals the importance of training in promoting the success of implementing Web 2.0 technologies in education training. Regardless of the low level of confidence that the teachers had demonstrated on blogs during stage 3 of the study, it is evident that they were now able to understand that these tools, like the others, could be implemented successfully in the sharing of ideas and experiences in the education supervision activities or programmes.

The pre- and post- the training survey was an effective tool in measuring the change of confidence of teachers in various Web 2.0 tools because it used objective criteria

and reliable methods of determining the impact of training on the views and attitudes of teachers on Web 2.0 tools. For example Mochedo et al. (2004) found training to increase teachers' confidence with and attitude towards technology; similarly, in Iran Shahmohammadi (2014) reported improved attitudes and learning outcomes after training. Nevertheless, while training may make trainees aware of the possibilities of Web 2.0 tools in educational supervision, and improve their technical competence to use these tools, this in itself would not mean implementation will necessarily be possible or smooth. As the literature review in Chapter 2 indicated, the successful diffusion of an innovation depends on multiple interacting factors including top-level support, resources, adopter characteristics, communication structure, the social system culture and effective change leadership able to create coherence among all the parties and elements involved (Fullan, 2002; Watford, 2005). It has already been acknowledged that in the Saudi context, policy issues, the entrenchment of the Noor program, and uneven distribution of resources, among other factors, still stand as obstacles, although they may be alleviated as the King Abdullah (Tatweer) project progresses. The point is that nevertheless, training programmes would help to overcome at least some of the current problems: lack of awareness, lack of technical proficiency and confidence with some applications, resistance to change. It is worth reiterating that change is a complex and lengthy process. Nevertheless, the findings provide evidence of the benefits that can be achieved through training as one part of this process. Because of the educational programme, the teachers were now aware of the various ways in which Web 2.0 technologies could be used to promote their interaction, communication and relationship with their supervisors. They considered Web 2.0 technologies as the prerequisites for an enhanced level of support from the supervisors. The teachers were convinced that the technologies would allow them to increase the number of meetings and engagement with the supervisors on annual basis. The findings of the research are congruent with extant evidence that training programmes during the implementation of new technologies are significantly effective in influencing the users to accept change and implement it in their professional activities (Huang and Behara, 2007; Oberholster, 2014).

### 5.4.2 Initiating the Implementation of Web 2.0 in Education Supervision

The actual implementation of Web 2.0 in education supervision should be initiated soon after the teachers are trained on how to use various tools. This is demonstrated

by the intervention of the study, which revealed that after the teachers were trained on how to use four main tools: WhatsApp, Wikis, Google Plus and Blogs, they were ready for the actual implementation process. The intervention that was used in the study was practical and valid because actual groups were used and Web 2.0 tools were applied by the teachers for the purposes related to education only. The actual implementation of the Web 2.0 technologies in teacher supervision should involve the creation of blogs that are dedicated for the sharing of ideas and experiences in education among teachers and supervisors. This demonstrates the role of Web 2.0 in facilitating communication and interaction during the teacher supervision process.

The implementation of the Web 2.0 in teacher supervision should also start with the initiation discussions on various Web 2.0 tools, including applications such as WhatsApp. These discussions should be limited to content that is related to the teaching process. Such discussions could allow teachers and supervisors to exchange their challenges and how they would effectively overcome them. In this manner, the supervisors would be able to provide adequate support to the teachers they supervise, including guidance on the various teaching pedagogies and how they are effectively applied to promote the education process.

Reflective blogs are an effective way of initiating Web 2.0 technologies in education supervision because they allow teachers to reflect upon their experiences and share insights. The success of the Web 2.0 technologies will, however, be achieved only if teachers and supervisors are encouraged to contribute or participate. The level of participation in the implementation of new technologies defines the ability of users to accept them and apply them actively in solving problems (Huang and Behara, 2007). During the initiation of Web 2.0 implementation, the participants were encouraged to share with others their views on how the technologies improved the teacher supervision process. In accordance to their responses, it is evident that Web 2.0 technologies can be used successfully in promoting the achievement of the goals of teacher supervision.

The reflections of participants on Wikis and Blogs showed they benefited significantly from the replies of others on the questions posted on these Web 2.0 tools. This is due to the fact that sharing of information within teams allows them to solve problems in the most creative and innovative manner. The initiation of the implementation process

was characterised by gradual increase in the level of participation among participants in application of the Web 2.0 tools that were involved in the study process. The success of the initiating and implementing Web 2.0 during the study can be translated to the actual application of these technologies in teacher supervision within the Saudi Arabian education system. The dedication or commitment of stakeholders in the implementation of these technologies in teacher supervision will increase the chance of their successful implementation.

The reflections of the participants on Google Plus included personal accounts on its ease of use and how it enhanced their experiences in sharing insights on teaching processes. The participants were enthusiastic to add new acquaintances to their Friends Circles. This demonstrates that the attitudes of the participants on Web 2.0 were improving significantly. This is further demonstrated by the fact that the participants sent several links, most of which contained educational materials and videos. My role in encouraging participants to share educational material through Web 2.0 is congruent to the role of stakeholders within the educational system in facilitating the implementation of these technologies in education supervision.

The initiation of the implementation process for Web 2.0 technologies should also begin through the launch of public online communities with titles related to application of Web 2.0 tools in education supervision. Several teachers and supervisors should be invited into these communities. This is important because Web 2.0 technologies are effective in gathering people who have similar interests (Vance, 2012). The supervisors and teachers who have an interest of using Web 2.0 technologies would be identified through such online communities. This would allow the stakeholders to target more supervisors and teachers and at the same time evaluate the success of the implementation process.

### 5.4.3 Evaluation of Teacher Experiences with Web 2.0 Tools

The study revealed that teachers considered application of Web 2.0 technologies in teacher supervision crucial after they were able to apply various tools practically. This was further promoted by the fact that the teachers found the Web 2.0 tools to be affordable or cost effective. They also saved on costs related to communication and the traditional methods of teacher supervision, where supervisors had to meet with the teachers face-to-face. Through application of technology, communication processes

become cheap, efficient, convenient and effective (Carmichael et al., 2011). From the results of the research, it is evident that once the teachers and supervisors accept and appreciate the significance of Web 2.0 technologies in education supervision, the success of implementing these technologies is guaranteed.

### 5.4.4 Future Outlook

It is evident from the study that regardless of some negative perceptions that exist among some teachers on the application of Web 2.0 technologies in teacher supervision, the success of their implementation is imminent. This is depicted by the reality that most teachers who participated in the training programme in stage 4 of this study showed significant change of attitudes and perceptions on the role of Web 2.0 in transforming the process of education supervision. The findings of the intervention in stage 4 of the study reveal that training is the most important aspect of implementing the application of Web 2.0 in education supervision.

The initiation of the implementation process for Web 2.0 is also equally important because it is at this stage that the attitudes of teachers and supervisors toward these technologies are changed. This means that the future implementation of Web 2.0 technologies in education supervision within Saudi Arabian schools should focus on the achieving affordances of the new technology and training of teachers. Training in application of new technology is the most effective way of motivating users and empowering them to gain from the application of technologically driven process in work activities. Policy makers and school administrators should therefore dedicate adequate resources to the training process, in order to achieve success in implementing Web 2.0 in education supervision.

### 5.5 Conclusion

From the discussion of findings of the study, it can be concluded that Web 2.0 technologies could be applied successfully in promoting the education supervision of teachers. The initial understanding of the Web 2.0 concept among supervisors and teachers was inadequate. This is due to lack of adequate prior knowledge and experience in application of these technologies in educational processes. Moreover, the current use of Web 2.0 technologies in teacher supervision was inadequate. The research revealed that supervisors and teachers depend on the traditional methods of teacher supervision, which occurred in offices and therefore forced supervisors to

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travel to schools for the supervision process. The teachers and supervisors, however, appreciated the fact that the adoption and implementation of Web 2.0 tools in education supervision would enhance the process by promoting communication, exchange of experiences and insights on education and the roles of teachers in promoting learning.

A wide range of Web 2.0 technologies are applicable in the education process. The training programme that was applied to determine the potential of success in the implementation of Web 2.0 in education supervision, revealed that proper initiation of the implementation process and commitment towards training will define the success of the programme. The initiation of the implementation process should involve the creation of communities within various Web 2.0 tools, within which both teachers and their supervisors would share insights on the effectiveness of these tools in enhancing the supervision process. In this way, supervisors and teachers would be encouraged to use Web 2.0 technologies and start to apply them in education supervision. Effective implementation of these technologies would be achieved if prior negative attitudes are overcome and teachers encouraged to be enthusiastic in the sharing of information on education pedagogies and other aspects of learning.

## CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Exploratory Research

The exploratory research stage of the research involved a pilot study, which revealed that teachers and supervisors held different levels of awareness of the tools and platforms of the Web 2.0 technology. The exploratory study involved supervisors and teachers, whose working experience in different disciplines of education ranged between 6 and 22 years. This reveals that the participants of the study had adequate experience to warrant their involvement in a research on the implementation or application of Web 2.0 platforms and tools in the processes and activities associated with education supervision. The findings of the study revealed that 14 out of 23 supervisors had no knowledge of Web 2.0 platforms and tools or their application in education supervision processes. On the basis of the data analysis and discussion, it was concluded that lack of awareness of Web 2.0 tools among these supervisors meant that there is need to enhance both the understanding and ability to use Web 2.0 among supervisors within Saudi Arabia. This would be achieved through collaborative efforts by stakeholders of the education system, including the government and school administrators. This is desirable, due to the benefits that are associated with Web 2.0, such as enhancing the quality and efficiency of the supervision process.

According to the findings of the exploratory research, 57.1% of teachers did not have knowledge or understanding of the concept of Web 2.0 platforms and tools. This figure is higher than that of the supervisors who had no knowledge of Web 2.0. The discussion of these findings highlighted the need for the government and other stakeholders within the education system to focus more on programmes, such as training initiatives, which would help teachers to have more awareness and skills on the use of Web 2.0 to facilitate communication and enhance the efficiency of meetings with their supervision. This would enable them to get adequate support and mentorship from the supervisors, and therefore provide high quality education to students in Saudi Arabia. During the initial stages of the study, it was assumed that the knowledge that teachers within Saudi Arabia had of Web 2.0 in supervision process was not adequate. This assumption was one of the main motivators of the study. The findings of the study confirmed this assumption.

Knowledge and understanding of the various Web 2.0 tools among educational supervisors within Saudi Arabia was limited but some of those who participated in the

study were able to list the common Web 2.0 tools, such as blogs, Facebook and Gmail. After the analysis of these findings, it became apparent this knowledge is related to the vast experience that the supervisors have on educational processes and the role of technology to facilitate supervision and the quality of education. In general, the level of knowledge of both teachers and educational supervisors on Web 2.0 was deficient but promising. This means that successful adoption and execution of Web 2.0 led learning activities in the future of Saudi Arabia education system is possible, as long as the recommendations outlined later sections in this chapter are implemented.

In terms of the popularity of the various Web 2.0 platforms or tools that teachers and supervisors identified include, Facebook, YouTube, Blogs, Twitter, Wikis and Skype. The teachers and supervisors appreciated the fact that it is possible to practically include these tools as the main facilitating platforms for teacher supervision. For instance, the meetings and communication processes and exchanges between the educational supervisors and the teachers they supervise would be more efficient and effective if they were held across video chatting applications within Skype and YouTube. The findings from the study reflected that all teachers and supervisors were able to give accurate or close to accurate definitions of video supported Web 2.0 tools this suggests that they were thinking on how meetings of the education supervision process could be enhanced in terms of convenience and frequency. The willingness of the teachers and the supervisors to accept and adopt Web 2.0 in organising and executing meetings further reveals that the future of technology in Saudi Arabia's education systems, especially on the supervision process, is promising. This should act as the motivation of stakeholders to commit resources to ensure the realisation of this agenda.

Most of the teachers and supervisors that were involved in the exploratory study confirmed the benefits that they expected to gain from the Web 2.0 tools during supervision activities. These benefits matched with the theoretical frameworks that were explored in the literature review stage of the study. For instance, the views of teachers and supervisors on the benefits of Web 2.0 that they can utilise include holding workshops, data transfer, decision making and circulars, ideal and virtual lessons and communication with schools across Saudi Arabia with more efficiency and convenience.

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## 6.2 Current Use of Web 2.0 Technology by Supervisors and Teachers

In the second stage of the study, data on the current use of Web 2.0 by supervisors was gathered and analysed with the goal of determining how it would influence the future adoption of these tools by the supervisors and possible challenges. This was achieved through an online survey, which revealed the applicability and the rate of use of the Web 2.0 tools by these supervisors. Focus groups were also used as an effective way of determining the current use of the Web 2.0 tools by supervisors. The background knowledge of some of the supervisors and teachers on Web 2.0 and education supervision demonstrated that currently, they were not applying these tools adequately in enhancing education supervision processes and activities. Most uses of Web 2.0 by the teachers and supervisors who took part in the study were on a personal basis, rather than for professional activities, such as education supervision. They included social networking and personal communication processes. Nonetheless, the study indicated that the ability of the participants to use these tools in personal communication means that they would also be able to use them to enhance collaboration, communication and the quality of the education supervision process.

Even though the current usage of Web 2.0 platforms was for personal matters, all the teachers and supervisors perceived that they would enhance effectiveness and efficiency in communication among them and the level of support that the supervisors offered the teachers. This is due to the role of Web 2.0 as effective communication channels or efficient carriers of knowledge among people, whether on personal or professional levels (Schulte et al, 2014). Furthermore, the teachers and supervisors who were recruited for the study showed their optimism that if Web 2.0 tools were adopted in the education processes, they would allow them to work with ease and efficiency. Specific responses from the participants, such as that Web 2.0 will result in a "quantum leap" in how education supervision is conducted, further reveal that regardless of the low level of current use of these tools, they could be adopted significantly by both teachers and supervisors in the Saudi Arabian education supervision processes. This is also related to the current widespread usage of mobile devices and applications and widespread access to the Internet within Saudi Arabia (Kovalik et al., 2014).

During the study, several obstacles were identified by the participants to explain the current low level of using Web 2.0 technologies or tools in enhancing the educational

supervision process. In summary, administrative decisions by policy makers within Saudi education system were considered by the participants as the main obstacle that causes the current low level of usage of Web 2.0 in facilitating the process and quality of education supervision. This means that policy makers' failure to provide a framework for the adoption of Web 2.0 tool and standards or policies of their application contributes significantly to the low level of adoption. The lack of specific legislation or regulations on the use of technology within the Saudi education system was also considered another main obstacle that explains the current low level of usage of Web 2.0 by both teachers and their supervisors. Other factors that contribute to the low usage of technology in education processes are attributed to ignorance or lack of adequate skills among stakeholders within the education system (Carmichael et al., 2011).

The study findings on the supervisory practices in the Saudi Arabian schools reveal the challenges that are associated with the current usage of Web 2.0 to enhance the quality of teacher supervision. Among the participating supervisors, 15 out of 23 indicated that they met with teachers between 2 and 4 times annually for official supervision process. In addition, 6 out of 23 supervisors indicated that they did not work with teachers in an informal capacity to support them. This reveals that the current usage of Web 2.0 among supervisors and teachers does not adequately enhance both formal and informal support in the teacher supervision activities. Web 2.0 tools are designed to promote prompt and regular communication in both formal and informal capacities. Lack of adequate utilisation of these tools by teachers and supervisors in the current educational supervision processes calls for decision making and implementation of change that will promote the use of the Web 2.0 tools in the future.

A majority (19 out of 23) of supervisors indicated that they executed their supervision roles by visiting schools. School telephones were also popularly used in communication during the supervision processes, as opposed to the use of Web 2.0 tools. The current state of the use of Web 2.0 tools by supervisors reveals inefficiencies in communication and the quality of supervision, which could effectively be overcome through the application of Web 2.0 to promote supervision. Furthermore, the confidence of teachers and supervisors in the role of Web 2.0 in education supervision

seems to be limited regardless of their optimism that these tools will enhance their future supervision processes.

The study results indicated that all of teachers had access to the Internet and use it in their homes. This includes access via mobile devices and computers. Regardless of the appealing use of the Internet, 96.7% of teachers indicated that their interaction with supervisors was achieved through school visits. This demonstrates that teachers within Saudi Arabia do not employ Web 2.0 to actively communicate or interact with their supervisors. The normal meetings and training programmes that they conduct with supervisors do not involve Web 2.0 tools. This depicts the need to change the rate of current usage of Web 2.0 among teachers in order to enable them to gain from the associated benefits, such as increased quality and efficiency of education supervision processes.

The research also indicated that most participating teachers commonly used the Internet for the purpose of gathering information that is related to their teaching roles. The rare use of Web 2.0 in education supervision by these teachers shows that they are yet to gain from the associated benefits, which the research showed that they were aware of. Therefore, barriers, such as lack of solid policy to guide the use of Web 2.0 in teacher education are related to the limited adoption of these tools by teachers in Saudi Arabia. The necessity for the implementation of comprehensive training programmes for teachers was indicated by the findings of the investigation, which showed that the majority of the interviewed teachers had no idea or knowledge on the use of Web 2.0 platforms in educational supervision processes.

### 6.3 Transition to use of Web 2.0 in Education Supervision

Through a training intervention, the transition into Web 2.0 by teachers and supervisors was tested during the final stage of the study. The impact of training on the participants was tested with the goal of determining the propensity of successful adoption and implementation of Web 2.0 platforms and tools in the supervision of teachers within Saudi Arabia. After the training intervention, it was found that the level of confidence among teachers in the use of various Web 2.0 tools in the supervision process increased significantly. This shows promising findings that if the schools initiate training programmes in the process of adopting and applying Web 2.0

platforms in the education supervision, there are high changes of adoption rates among teachers and supervisors.

The level of confidence in the use of Twitter and YouTube increased more after the training intervention as compared to other platforms. This could be attributed to prior application of these tools in social interaction processes among the teachers. The confidence of users of specific technological tools also increases when they find them relevant and applicable in achieving the desired goals, such as increased communication and collaboration processes (Schulte et al. 2014). Therefore, the findings of the research indicate that teachers are confident that if Web 2.0 platforms and tools are employed effectively, they will allow them to interact more frequently and efficiently with their supervisors, which would enhance the quality of educational supervision.

As the familiarity of teachers about various Web 2.0 tools increased, they become more skilled and motivated to employ them in communication processes that are associated with the education supervision. On the basis of this observation, the focus of training teachers should be aimed at enhancing their general familiarity with the Web 2.0 tools before demonstrating how they would use them to enhance communication and collaboration with their supervisors. Training is necessary in promoting the success of a new technology, such as Web 2.0 platforms, because it allows learners to gain more skills and knowledge on specialised use upon their personalised use of such technological applications (Daher and Lazarevic, 2014).

The training intervention was successful because it allowed the participating teachers to acquire skills and knowledge on the various aspects of Web 2.0, including creating personal accounts, creating groups, chatting within groups and creating blogs that are dedicated to educational purposes only. Training should also entail imparting knowledge and skills that are related to the ethical and legal aspects of new technology innovations. This includes security and privacy of users and the messages they pass across the Internet (Carmichael et al., 2011). After the training exercises, the views of teachers on the efficiency and effectiveness of Web 2.0 and their role in promoting the quality of education supervision were gathered.

The teachers were confident that Web 2.0 tools would allow them to collaborate or cooperate effectively with their supervisors. Such uses include collaborative efforts in

arranging meetings, online interactions and communicating on issues related to the execution of the curriculum and teaching pedagogies. The participants of the training intervention also revealed that Web 2.0 would allow them to have increased access to learning opportunities. For instance, they would be able to engage in discussions and seminar with supervisors and other teachers, regardless of their location (Kovalik et al., 2014). Furthermore, teachers argued that their participation in teaching activities would be enhanced if schools adopted Web 2.0 tools. This reveals that these tools are the prerequisites for increased quality of education and the effectiveness of the learning activities within schools. The other benefits that teachers indicated that they would gain from Web 2.0 include the following.

- The ability of becoming more innovative in the teaching and education supervision process due to the role of Web 2.0 platforms in sharing or exchanging ideas among participants.
- Having a higher level of motivation, in both the supervision and education activities, leading to an increased quality of education, due to the efficiency and effectiveness that is accorded by Web 2.0 communication processes
- Promoting the sharing of experiences, knowledge and skills among teachers and supervisors
- Enhanced technology skills, which will make teachers global professionals and able to utilise the opportunities that characterise the modern information-rich society
- Web 2.0 tools are advantageous because they enhance communication among peers and with supervisors
- Barriers, such as geographical distance would be overcome, leading to cost effective and efficient education supervision processes

After the training intervention, the participating teachers indicated that it enhanced their motivation and allowed them to develop new insights on the future trends of education and teacher supervision. This means if schools initiate the Web 2.0 technologies and innovations and training programmes, they will add value to the professional experience of teachers and make them more encouraged to provide high quality education. The involvement of other stakeholders of the teacher supervision process, such as school administrators in the supervision process will also be enhanced

through the implementation of Web 2.0 driven communication processes (Daher and Lazarevic, 2014).

According to the data emanating from the research, the attitudes, background knowledge and experiences held by teachers and supervisors play a critical role in determining the success of adopting Web 2.0 platforms and tools in supervision of Saudi Arabian teachers. The participation of teachers in the training intervention enhanced their motivation, optimism and attitudes on various Web 2.0 tools, making them more confident that efforts to implement them within schools in Saudi Arabia would be successful.

## 6.4 Future Outlook

There were some negative perceptions among teachers on the application of specific Web 2.0 platforms, such as Facebook in enhancing supervision process. These perceptions were however changed by the participation of teachers in the training intervention of the study. From the study, it is evident that the success of the process and programmes of implementing Web 2.0 in the education supervision of Saudi Arabia schools depends on the effectiveness of training processes. There are, however, other considerations that must be borne in mind by stakeholders, including the design of an effective framework and initiatives, which will encourage administrators within schools to dedicate resources for successful implementation of supportive technologies and networks. Additionally, collaborative literacy is essential for the success of such projects and not only the technological issues but also socio-cultural factors in relation to school collaboration should be given careful attention (Gouseti, 2014). The collaboration of all stakeholders within the Saudi Arabia education system will define the future success of the Web 2.0 technologies as it pertains to their successful application in educational supervision.

## 6.5 Contribution

The research I conducted through this study contributes to the existing research literature on the application of Web 2.0 tools in education supervision processes within Saudi Arabia. According to the review of literature, there are gaps in the existing literature on the challenges and effective strategies of implementing Web 2.0 tools to enhance collaboration among teachers and supervisors within Saudi Arabian education system. In the pursuit of the research objectives, I gathered, analysed and presented

data and information on the topic to partially fill gaps in the existing literature and to act as a guideline for the efforts of stakeholders to implement Web 2.0 tools in enhancing education supervision processes.

The first-hand information and data that I gathered from supervisors and teachers on their experiences in the use of Web 2.0 platforms and tools in education supervision presents a view of the current situation of implementing technology within the Saudi Arabian education system. Through my research, I was able to indicate that there are more challenges than may to first appear, to the implementation of modern technologies to enhance educational processes, such as teacher supervision. My research indicates the need for increased commitment of resources to promote training and education among teachers and supervisors in order to embrace technology in overcoming the challenges of using the traditional methods of teacher supervision.

My research also indicated the specific Web 2.0 tools that are appropriately applicable for teacher supervision processes. Therefore, the findings of my research indicate the specific areas of focus in the efforts of adopting new technological tools within schools in the pursuit of education supervision objectives. My research contributes to the making of informed decisions in the adoption and implementation of change programmes within Saudi education system, which pertains to the use of technology to enhance communication among teachers, school administrators and supervisors. More importantly, my research demonstrates to teachers that if they commit their efforts, they can acquire effective skills and knowledge of using new technology to enhance support and exchange of experiences and knowledge on teaching processes, including educational pedagogies.

The training intervention that I used during my investigation is a contribution to the research methodology in education. The design of the training intervention and its role in indicating how effective training programmes for teachers could be implemented indicates the contribution of my investigation in research designs of future studies on the topic. The training intervention that I employed during my study has not been employed by previous studies in the education system. This indicates that future researchers may wish to consider research interventions that would indicate whether actual programmes in implementing technology in education could be successful or

not. It is through such methodology that researchers can identify challenges and present recommendations of overcoming them.

### 6.6 Recommendations

On the basis of the suggestions of the participants of the study, findings of the literature search and the discussion on Web 2.0 in education supervision, the following recommendations are provided to the stakeholders within the Saudi education system.

### 6.6.1 Teachers and Supervisors

There is a need for continuous training processes, which involves both teachers and supervisors with a goal of enhancing their skills and knowledge, and promoting positive attitudes on the use of Web 2.0 platforms and tools to enhance the quality and efficiency of education supervision. It is therefore the role of stakeholders to focus training resources in order to design, adopt and implement a wide range of training opportunities, such as workshops, discussion forums, presentations and seminars among teachers and supervisors on Web 2.0 tools.

### 6.6.2 Policy Makers in the Education Sector

Resistance to change were identified as one of the challenges that limit the policy making and the designing of regulatory frameworks that are associated with the application of technology in Saudi schools. For this reason, it is recommended that new policy makers should be encouraged among people in Saudi about technology and education. This would involve the design of the curriculum with a goal of promoting new views about technology, especially Web 2.0 tools, which are increasingly becoming important in professional and educational applications.

Policy makers within the Saudi education system thus should officially introduce Web 2.0 and design a framework for its adoption and replacement of the traditional methods of education supervision. This will set a foundation upon which frameworks for teacher and supervisor training programmes would be implemented. Policies that provide for technical support and ongoing training initiatives on Web 2.0 should also be established by policy makers. This is crucial for creating new and positive ideologies and views on the use of Web 2.0 in enhancing education supervision activities.

### 6.6.3 School Administrators

School administrators and stakeholders within the Saudi education system should ensure that schools are equipped with systems and technologies that would make the use of Web 2.0 possible or feasible. This will encourage usage, learning and gaining of experience on their use in education processes, including teacher supervision. Schools should invest in computing systems, Internet and intranet services, in addition to mobile devices for teachers in order to encourage the use of Web 2.0 in education supervision.

### 6.6.4 The Government

Formal preparations for the adoption and implementation of an integrated project on the implementation of Web 2.0 in the Saudi Arabian teacher supervision activities should be initiated. This includes the allocation of adequate resources by the government to enhance Internet connectivity, access to devices and training among supervisors and teachers. This will allow schools to be ready for the future application of the Web 2.0 innovations to increase the quality of teacher supervision process.

On the basis of the benefits that Web 2.0 would present the Saudi Arabian education system, the government should play the leading role in initiating and supporting the implementation of these tools in a wide range of educational processes including teacher education. This includes the role of the government in funding technological initiatives within the education sector, including supporting infrastructure and Internet network. The role of the government should, however, be played in collaboration with other stakeholders.

### 6.7 Limitations

Like all research studies, the current study has certain limitations, which are listed below:

1. The sample of the study participants was limited to teachers and supervisors. Other players within the Saudi education system, such as policy makers, school administrator and heads of the educational agencies were not involved in the study surveys and training interventions.

2. The timing of the research is another aspect of the limitations of the study. This is because regardless of the findings on the implementation of Web 2.0 technologies in education supervision, there is no existing policy frameworks

or standards and procedures that support the use of various Web 2.0 tool in education supervision within Saudi Arabia

3. Due to the lack of previous studies, as far as I am aware, in employing Web 2.0 technologies in educational supervision, the task was more difficult to conduct the research and arrive at conclusions.

4. The lack of an exact definition for Web 2.0 technologies makes the term sometimes more broad and other times narrower. It is narrower when the term is treated only as a single tool.

5. Moreover, another limitation of the study concerns the evolution of technology, in that the rapidly evolving technology and the growing availability of different tools caused the researcher difficulty in choosing the tools for the research.

6. Another limitation of the study includes survey concerns such as validity, bias, reliability and response rate. Because of the relatively new topic, instruments with guaranteed validity and reliability results do not exist. I applied general rules of survey creation and data collection to help ensure validity, reliability and control of bias.

7. Some of the Web 2.0 tools that were investigated in the study, such as Facebook are mainly designed to promote social networking and informal communication processes. The research methodology that was employed in the study did not create comprehensive data on how the use of social networking tools would be translated into professional use in order to effectively enhance educational supervision processes within Saudi Arabia.

### 6.8 Suggestions for Further Research

Further research on the impact of language barriers on the success of implementing new technological applications on the education system is recommended. This recommendation is based on past literature on the topic that indicates that in order to overcome language barriers related to the use of Web 2.0 platforms in education supervision processes, software designers, developers and engineers should create Arabic versions and options of these platforms. This will encourage players within the education system in Saudi Arabia to adopt them and apply them for professional engagements, collaboration and communication (Luther, 2015). Researchers should therefore conduct studies to determine if new software designs would overcome the

challenges associated with the implementation of technology in educational processes, such as teacher supervision.

Further research on the effectiveness of the strategies of overcoming geographical barriers in education supervision, such as increasing Internet connectivity, is recommended. The reviewed literature within this study maintained that the speed and connectivity of the existing intranet and Internet systems within Saudi schools should be enhanced. This will make the application of video based Web 2.0 tools, such as YouTube and Skype feasible. In this way, virtual meetings among teachers and supervisions would be encouraged and supported (Luther, 2015). However, there are gaps in literature on the specific strategies through which communication efficiencies and increased frequency of supportive meetings among teachers and supervisors would be achieved.

Researchers and other interested parties in the application of technology in Saudi Arabian schools should provide adequate evidence to convince officials, policy makers and administrators within the education system to support the implementation of Web 2.0 platforms and tools in supervision processes. This will ensure that adequate funding and regulation of projects that promote the adoption of Web 2.0 innovations are achieved. The support of officials will also ensure that teachers and supervisors are provided with modern technology and equipment to support their use of Web 2.0 tools in promoting the quality of education supervision.

Schools within Saudi Arabia should also be provided with educational bulletins related and research evidence on the role of technology, especially Web 2.0 platforms in enhancing collaborative efforts and enhancing communication among players within the Saudi education system. The modern media and technology companies should also support further research on the effectiveness of various Web 2.0 tools and the benefits of using them in educational processes. It is through this that new and positive views on Web 2.0 and other technologies will be instilled within the Saudi society.

Future research efforts on the evolution of Web 2.0 technologies and legal and ethical aspects of technology, such as security should be implemented. This is to ensure that changes in technology and their implications on its use within the education system are realised. In return, challenges, such as the barriers of implementing new innovations in education supervision, would be overcome. The specific areas that

future research on Web 2.0 tool on teacher supervision include the design of training programmes and policies on effective use of these tools.

Further research on the determinants of an ideal or effective training programme that will motivate teachers and change their attitudes towards innovative technologies in supervision processes is recommended. The role of policy makers in the education system within Saudi Arabia and how effectively this role is played in promoting new technology initiatives should also attract research efforts. These recommendations are based on the gaps identified in the literature research and review on this topic.

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**The Study Setting: Saudi Arabia**



Figure 2.2:  Map of Saudi Arabia (Ministry of Economy and Planning 2009)

Saudi Arabia is located in the Arabian Peninsula between Africa, Asia and Europe and is approximately 2,250,000 square kilometres. It is strategically located near the Suez Canal, the country borders Jordan, Kuwait, Iraq, Bahrain, Qatar, the United Arab Emirates, Yemen and Oman (see figure 1). It is also referred to as the birthplace of the Islamic religion and a symbol of strength for hosting the religion's most sacred shrine (Ministry of Culture and Information [MCI] 2006). According to 1974 statistics from the Central Department of Statistics (2011), Saudi had over 7 million people, which had increased to 16.9 million in 1992. By 2010, the department estimated the population to over 27.1 million, of which 69 percent comprised Saudi nationals. Out of this population, 50.9 percent were male while 49.1 percent were female.  The statistics also report that currently, fifty percent of the total population is below the age of twenty (MCI, 2011). This section reviews literature on education supervision and its application in Saudi Arabia.

According to the Ministry of Culture and Information (2006), the government controls educational policies in the country. This ensures that the syllabus, curriculum and textbooks are standardised and identical for all schools all over the country. The ministry reports that the government controls the administration of education through the Ministry of Education and the Ministry of Higher Education. These ministries provide the main services for education administration, but smaller government agencies provide education services.

The Ministry of Culture and Information (2006) also reports that the administration of education is centralised through the Ministry of Education. The curriculum department

in the ministry is responsible for providing standardised curricula as well as preparing textbooks for all subjects. The curriculum department specifies that there should be at least one textbook for every subject in each grade in all public and private schools. The curriculum is split into a two-semester academic year. Each semester is eighteen weeks. The first sixteen weeks are designed for teaching and learning while the remaining two weeks are for examinations. The students refer to textbooks for revision, as do the examiners for setting the exam questions. Assignments are also part of the curriculum and comprise forty percent of the final grade, while the examinations are sixty percent of the grade. Presently, the education curriculum has been revised so that students can be assessed at primary level instead of sitting for their examinations during their final year.

The education system makes learning compulsory for children between six and fifteen years old. This system is classified into four levels: pre-elementary, elementary, intermediate and secondary level. Children under four years old enter the pre-elementary level for two-years prior to commencing their elementary studies.

The elementary level provides foundation education for a total of six years. Elementary school semesters are divided into two semesters of 17 weeks each, including the two-week examination period. Students at this level are normally exempted from examinations but undergo regular assessments. The curriculum is the same for all schools, but boys and girls learn separately. The third level is intermediate. Students at this level are between twelve and fourteen years old (similar to grades 7-9 of the British education system). Similar to the elementary level, the semesters are divided into two per year and consist of 15+2 semesters each. The English language is compulsory for all students, who are required to pass the Intermediate School Certificate examinations prior to entry into secondary school.

Finally, secondary school lasts three years and caters to students above fifteen years. It comprises regular and vocational education. Students in regular secondary schools study general curricula in the first year then for the remaining two years choose from one of the majors, Administration & Social Science, Natural Science, and Shariah & Arabic Studies. There are between 26 to 33 class periods per week, depending on the major, each of which is forty-five minutes in length. Vocational and technical secondary education teaches students vocational skills in industrial, commercial and agricultural courses lasting three years (Ministry of Higher Education, 2006)

**Appendix 2**



**WEB 2.0 WORKSHOP :: ACCOUNTS**

**Workshop Accounts Cheat Sheet**
This handout will help you keep track of the accounts and web addresses you'll be setting up for the blogs & wikis you create today.

**Google Account**
User Name: _____ (Email address)
Password: _____

**Blogger (http://www.blogger.com)** (Free Blog Service)
Blog URL:
http://_____.blogspot.com User Name:
Same as your Google Account
Password: Same as your Google Account

**WetPaint Wiki (http://www.wetpaint.com)** (Free Wiki Service) Wiki
URL: http://_____.wetpaint.com User Name:
_____
Password: _____

**Workshop Web Site**
**http://wa-acte.blogspot.com**
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**BLOGS :: INTRODUCTION**

**Workshop Part 1 Description, Goals, and Outcomes** This part of the workshop will give you a general understanding of blogs and how they can be used effectively in the classroom. You'll create and configure a blog using Blogger.com, a free blogging service on the Web.
**Goals:**
9 Provide an overview of blogging and its use in education.
9 Create, configure and post messages to a course blog.
**Outcomes:**
Upon completion of this workshop, you will be able to: 9 Create and configure a blog.

9 Add a variety of content to your blog including text, images, videos, links, RSS feeds for related topical web sites, lists of links, etc.

9 Develop one or two ideas for using blogs in your classroom.

**Agenda**

I.

Introduction / Blogs in Education

II.

Create and configure a blog

III.

Add, edit, delete postings and enhance blog

**What is a blog?**

A Blog is a web site that is usually maintained by one person and is updated regularly. It is arranged in reverse chronological order and may contain links, images, videos, and writing.

**BLOGS :: INTRODUCTION**

**How can blogs be used by teachers?**

9 Class web site

9 Class announcements

9 Provide supplementary content resources

**How can blogs be used by students?**

9 Tool for thought processing (See workshop web site for ideas) 9 Journal for student writing / reflection

9 ePortfolio of student work

**BLOGS :: BLOGGER QUICK START**

**Blogger Basics**

These instructions will help you to quickly create a basic blog. Create your Google account first (if necessary) and then go to http://www.blogger.com/start to

create your blog.

1. Sign-in to Blogger with your Google account user name (email address) and password.

2. Click on the orange **CONTINUE** arrow and give your blog a title and an address (URL); and in the Word Verification box, type in the letters you see.

Note:

a. The blog address must be unique (no two URLs can be the same) and you can check the availability by clicking on the "**Check Availability**"

link. You might have to think of an alternative address.

b. The address you enter can't have spaces but you can use dashes so **Accounting at Renton High School** would need to be entered as **Accounting-at-RHS**.
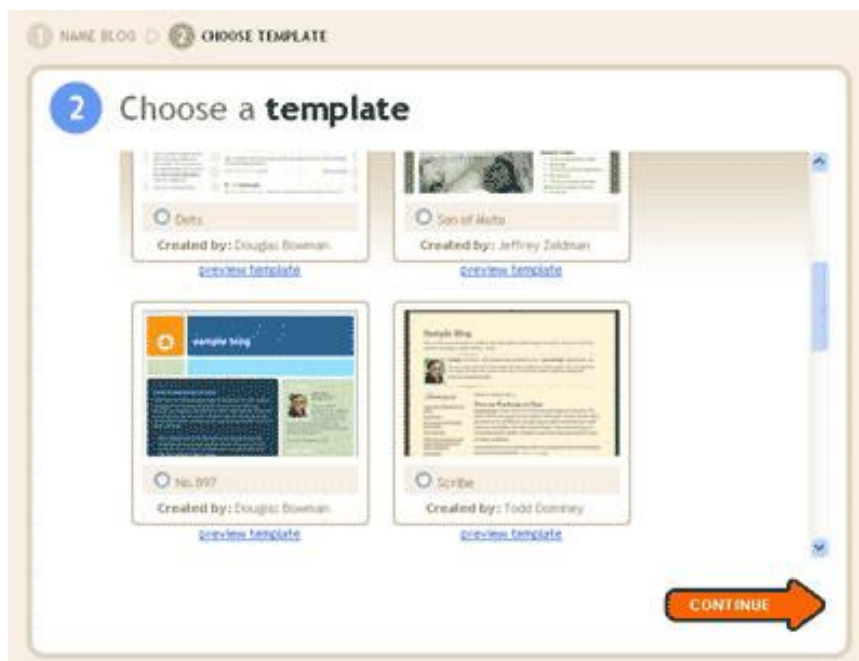
**BLOGS :: BLOGGER QUICK START**

3. Next, choose a template. You can select a different template later on. Click on the orange **CONTINUE** arrow.

4. You should see a page that says your blog has been created. Click the orange **START BLOGGING** arrow to write your first post.

5. The posting screen looks a lot like a blank email message.

a. Type in a title for the posting

b. Enter the content of your posting in the box below the title.

c. Notice the formatting buttons and buttons that allow you to make links and add images and movies.

d. You can preview your posting before you publish it or save it as a draft if you don't have enough time to complete it.

e. When you're finished, click the orange **PUBLISH POST** button f. See the figure on the next page.

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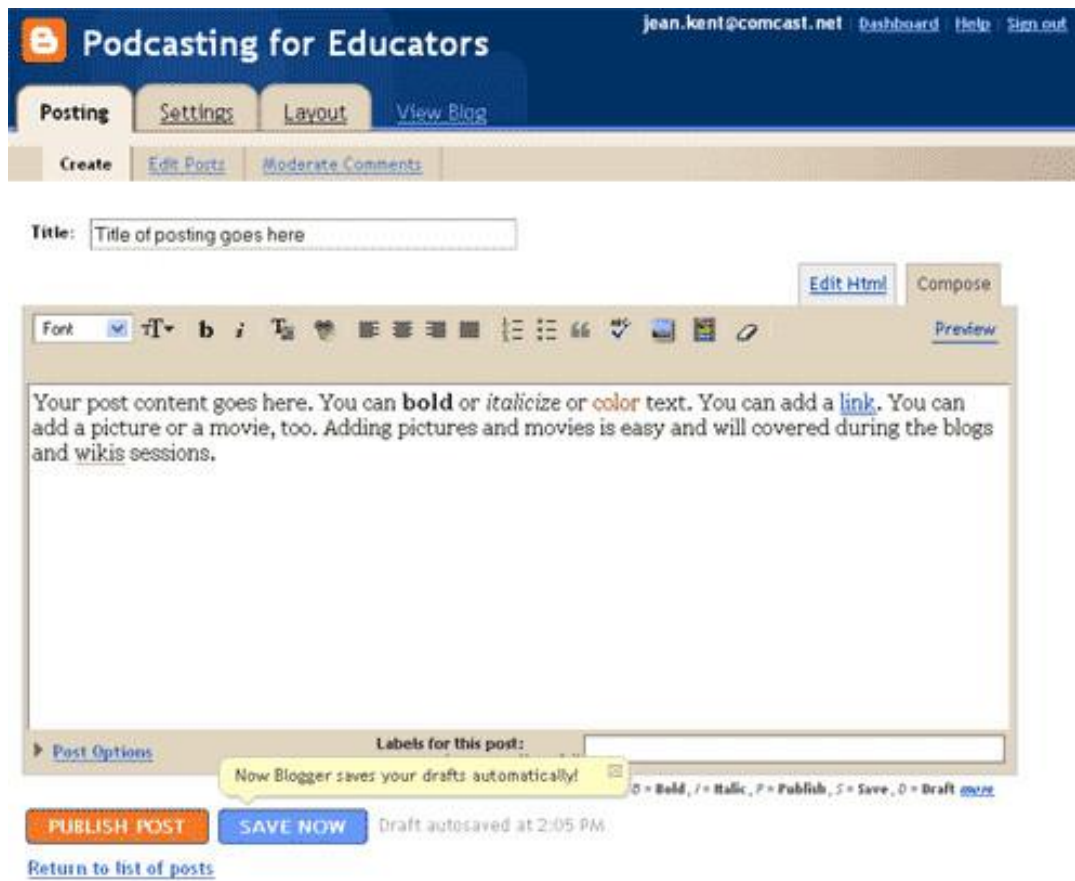
**BLOGS :: BLOGGER QUICK START**

6. Before you start using your blog, there are a few important settings you'll want to change. Click on the **Setting** tab.

7. In the **Basic** section:

a. Add a short description

b. Select **No** for **Add your blog to our listings?**

c. Consider selecting **No** for **Let search engines find your blog**?

d. Leave all other options unchanged.

e. Click the orange **Save Settings** button.

8. In the **Publishing** section:

a. Make a note of your blog address (selected when you created the blog).

b. Click the orange **Save Settings** button.

9. Skip to the **Comments** section.

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**BLOGS :: BLOGGER QUICK START**

a. If you want students to leave comments, make sure **Show** is selected in the **Comments** option.

b. Note: For more privacy, you can limit who can make comments but I have found that moderating comments is sufficient for controlling comments.

c. Select **Anyone** in the **Who Can Comment?** option.

d. Select **Yes** in the **Enable comment moderation?** option. This is very important as it allows you control over the comments that appear in your blog.

e. Enter your preferred email address in the box. Comment notifications are sent to this address so you can approve or disapprove new comments.

f. Select **Yes** in the **Show word verification for comments?** option.

g. Click the orange **Save Settings** button.

10. Skip to the **Permissions** section.

a. Click the **ADD AUTHORS** button if you will allow others to create posts to your blog.

b. In the **Blog Readers** option, select **Anybody** unless you need greater control over your blog readership. I have NOT found this to be necessary!

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**BLOGS: ENHANCING YOUR BLOG**
**Edit Your Profile**
1. Edit your profile. I encourage you to:
a. Share your profile.
b. Show your real name (if you feel comfortable doing so).
c. Don't show your email address.
d. Select a Display Name that shows up when you post a message. I use my first name only.
e. Include a photo (if you feel comfortable doing so).
f. Include an audio clip (if you have one).
g. Don't fill out the gender or birthday information.
h. Provide your home page URL (if you have one).
i. Include city, state, and country.
j. Add industry and occupation.
k. Fill out extended info (if you feel comfortable).
2. When done click the orange **Save Profile** button.
3. Click "**Return to dashboard**" link.
**To Add a Link to a Post**
1. In your post message create some link text. This is the text your students will click on to follow the link.
2. Use your mouse to select (highlight) the link text.
3. Click on the **Link** button from the formatting menu.

4. A pop up window will open. Type in the URL for the link and click **OK**. See the figure on the next page.
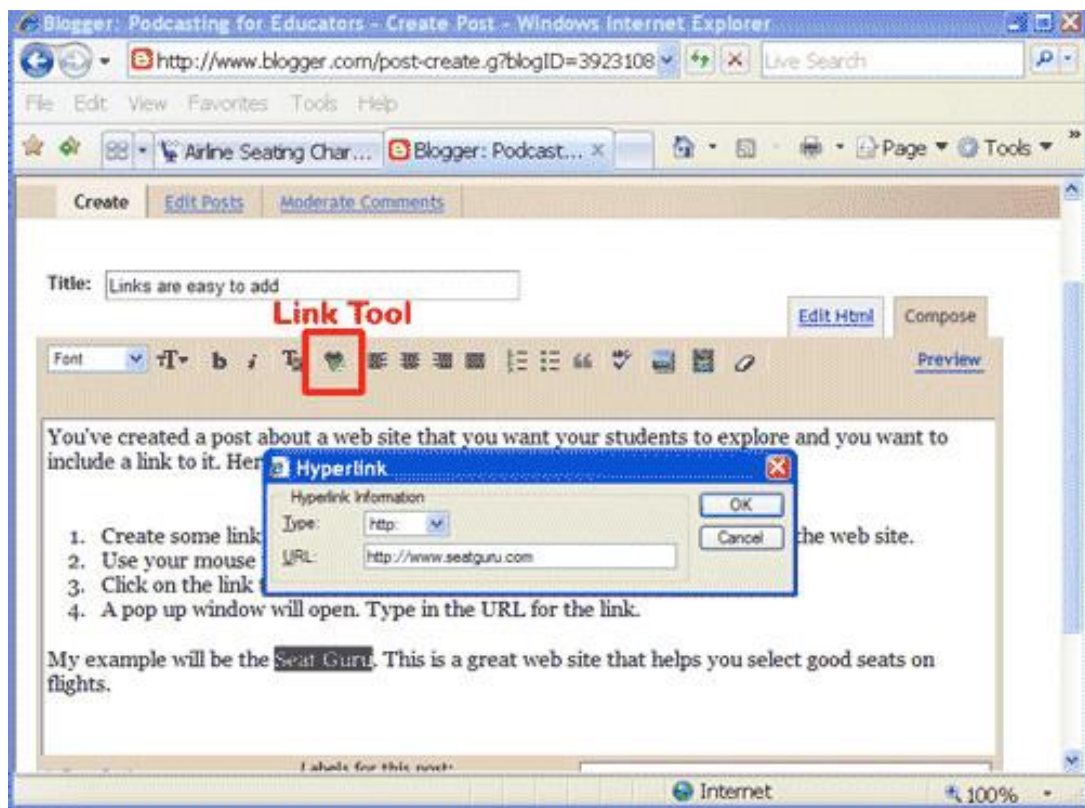
**BLOGS: ENHANCING YOUR BLOG**

5. After the link has been added, always test it to make sure it works.
**To Add an Image**
1. First create/find an image to add. The maximum file size is 8 MB and Blogger accepts GIF, JPG, and PNG formats. Here are some suggestions for creating images:
     a. Use a digital camera but resize the image to 640 by 480 or less.
     b. Use a photo sharing site like Flickr (http://www.flickr.com) and make sure you can legally use the image. Resize it so that it is no more than 640 pixels wide or high depending on the orientation.
     c. Use Comfight (http://www.compfight.com/) a search engine for Flickr that lets you search for Creative Commons licensed Flickr photos.
2. Place your mouse in the message where you want the image to appear then click on the **Add Image** button from the formatting menu.

3. A new window will open. Click the **Browse** button to find the file on your computer. See the figure on the next page.

**BLOGS: ENHANCING YOUR BLOG**

4. After you locate the image, choose a layout and image size. Click in the "I accept the Terms of Service" checkbox then on the orange **UPLOAD IMAGE**
button.

5. When the image is uploaded, click on the **DONE** button and your image should appear in your message. See the figure below.

**BLOGS: ENHANCING YOUR BLOG**
**To Add a YouTube video to your page**
YouTube has some excellent instructional videos and I encourage you to search the site for ones that relate to the subjects you teach. When you find one, you can embed it in your blog so students don't end up on the YouTube site.

1. Create a new post and add a meaningful title. Click the **Edit Html** tab in the upper right corner of the message box. See figure below: 2. Open a new tab in your browser and go to YouTube (http://www.youtube.com). In the search box, type **brainrules** and click the **Search** button. A list of videos by and about John Medina's book entitled *Brain Rules* will appear. One that is very relevant to high school and college students is titled **Sleep Loss = Brain Drain**. Click on the video thumbnail to play the video.

3. To the right of the video is an option to "**Embed**" the video and to the right of that is a customize icon. Click on the icon. See the figure on the next page.

**BLOGS: ENHANCING YOUR BLOG**
Here are my suggestions for customizing the video that will appear in your blog post.
Uncheck **Include related videos** since you have no control over what is included.
Leave **Show Border** checked.
Leave **Enable delayed cookies?** unchecked.
Select a border color that goes with your blog color scheme.
Use the default size (340 x 285).

4. Click once in the Embed code box and all the code will be highlighted.

Select **Edit → Copy** or right click and select **Copy** to copy the embed code to the clipboard.

5. Return to your Blogger tab and click in the message window. Select **Edit →**

**Paste** or right click and select **Paste**. The embed code will be pasted into the message window. See the figure on the next page.

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Title: Brainrules Video

Edit Html    Compose

Preview

b    i    👯    ❝    ✓    🖼    🖼

```
<object width="340" height="285"><param name="movie" value="http://www.youtube.com
/v/EI96e38zMj4&hl=en&fs=1&rel=0&color1=0x2b405b&color2=0x6b8ab6&border=1"></param>
<param name="allowFullScreen" value="true"></param><param name="allowscriptaccess"
value="always"></param><embed src="http://www.youtube.com/v/EI96e38zMj4&hl=en&
fs=1&rel=0&color1=0x2b405b&color2=0x6b8ab6&border=1" type="application/x-shockwave-
flash" allowscriptaccess="always" allowfullscreen="true" width="340" height="285">
</embed></object>
```

**PUBLISH POST**  **SAVE NOW**  Draft autosaved at 10:33 AM

Return to list of posts

# Brainrules Video

Sleep Loss = Brain Drain - John Med...

★ ★ ★ ★ ★

0:00 / 2:14
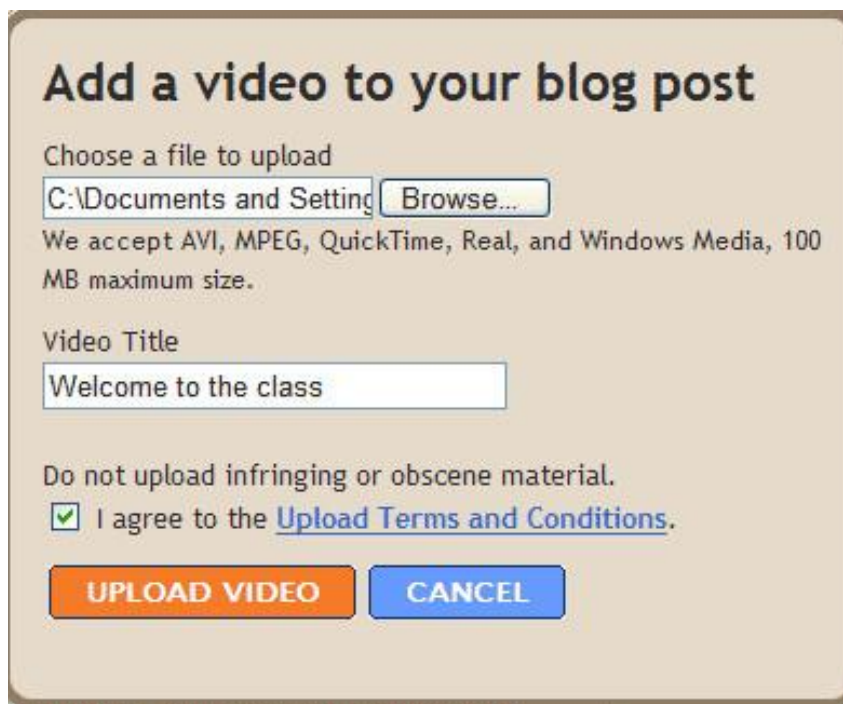
You Tube

**BLOGS: ENHANCING YOUR BLOG**

6. Click the **Preview** link to make sure the video has been embedded in your post. If it has, click the orange **PUBLISH POST** button. See the figure below:

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*Washington*
ACTE

**Add a video to your blog post**

Choose a file to upload

C:\Documents and Setting [Browse...]

We accept AVI, MPEG, QuickTime, Real, and Windows Media, 100 MB maximum size.

Video Title

Welcome to the class

Do not upload infringing or obscene material.

☑ I agree to the Upload Terms and Conditions.

[UPLOAD VIDEO] [CANCEL]

**BLOGS: ENHANCING YOUR BLOG**
**To Add a Video**
1. Adding a video is very similar to adding an image. First, create the video.
Here are some suggestions for creating videos:
a. Use the movie feature of your digital camera or a digital video camera.
b. Keep it short (unless you are as talented as Steven Spielberg).
c. The file size limit is 100 MB and Blogger accepts AVI, MPEG, QuickTime, Real, Windows Media file formats.
2. Place your mouse in the message where you want your video to display then click on the **Add Video** button from the formatting menu. It is to the right of the Add Image button.
3. A pop up window will appear. Browse for the video, give it a title, click in the "I agree to the Upload Terms and Conditions" checkbox then click on the orange **UPLOAD VIDEO** button. See the figure below.

4. A place holder will appear showing the progress of the uploading and processing of your video. It may take a few minutes for the video to appear.

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**BLOGS: ENHANCING YOUR BLOG**
**To Add Page Elements**
1. Click the **Layout** tab then click the **Page Elements** section. Click on the link labeled **Add a Gadget**. Gadgets include:
    a. Link list
    b. List
    c. Text
    d. Feed
2. There are other gadgets but these are the ones teachers will likely want to use. The two that are extremely useful, Link lists and Feeds, will be demonstrated in the workshop.
3. **Link lists** allow you to provide web resources to your students. From the list of gadgets, click **Link Lists**.
    a. Give your link list a meaningful title.
    b. Enter the URL for a web site.
    c. Add the title of the web site.
    d. Click the blue **ADD LINK** button to continue adding links on this list.

Web 2.0 Tools Pre-Conference Workshop
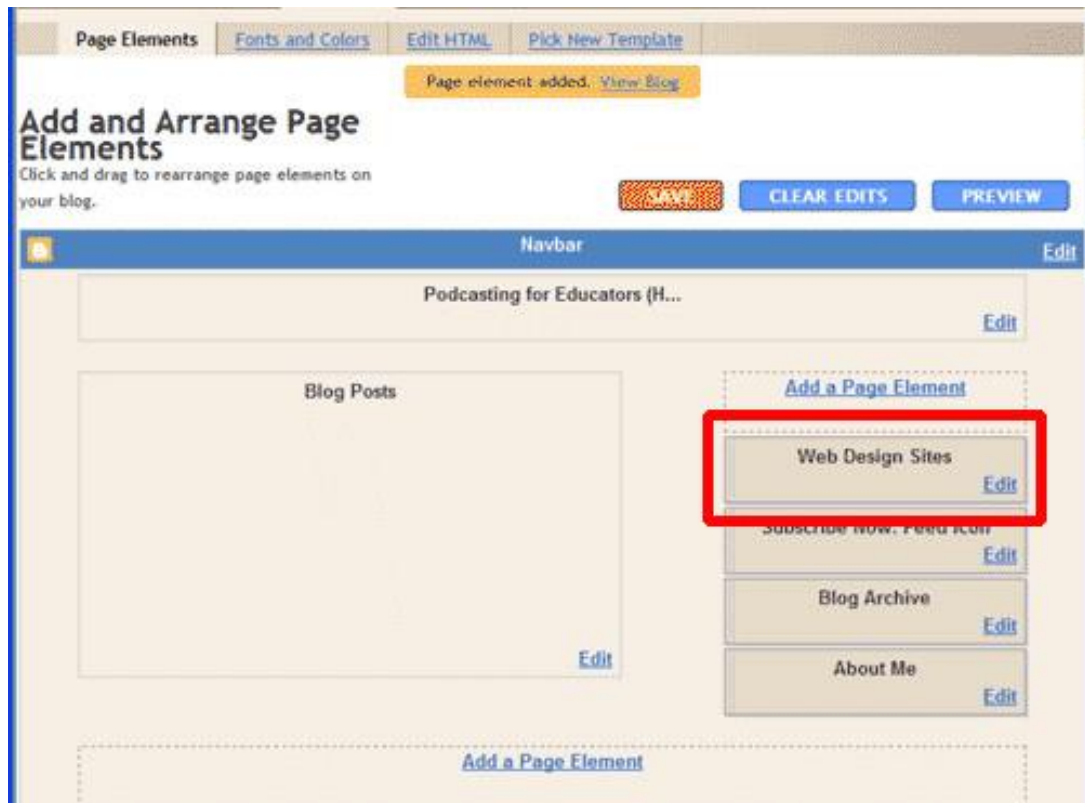
### BLOGS: ENHANCING YOUR BLOG

4. When all the links are added, click the orange **SAVE** button. Your page element will appear in your blog layout now. See the figure below.

5. The **Feed** gadget allows you to add automatically updated content from other relevant blogs, news web sites, professional journals, etc. You will add the RSS feed address provided by the source to create a Feed page element.

6. In the layout screen, click on **Add a Gadget** then select **Feed** from the list of gadgets.

a. Minimize the **Configure Feed** window. You need to find a feed before filling in the Feed URL box.

b. Open a new Tab in your browser and locate a resource with a RSS feed. For our workshop, let's add the **Grammar Girl** feed. To find it, go to http://www.qdnow.com/grammar.xml

c. Copy the URL to the clipboard.

d. Return to the **Configure Feed** window and paste the URL into the Feed URL box. Click the orange **CONTINUE** button.

Web 2.0 Tools Pre-Conference Workshop

**BLOGS: ENHANCING YOUR BLOG**

e. The feed information will display with some configuration settings. See the figure below.

f. Click the orange **SAVE** button and your feed will appear in your page layout. See the figure below.

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**BLOGS: ENHANCING YOUR BLOG**

7. Last but not least, you can rearrange the gadgets on your blog. Use your mouse to drag and drop a gadget to a new place in your page layout. See the figure below.

8. Explore some of the other gadgets, rearrange them, and view your blog to see how they look.

Web 2.0 Tools Pre-Conference Workshop

**WIKIS :: INTRODUCTION**

**Workshop Part 2 Description, Goals, and Outcomes** The second part of the workshop will focus on creating and configuring a wiki to use in a class. Wikis can be used as class web sites, for group collaboration, and to showcase student or group work. Wikis are designed for collaboration and this essential feature distinguishes them from blogs.

**Goals**:

9 Provide an overview of wikis and their use in education.

9 Create, configure and add content to a wiki.
**Outcomes**:
9 Create and configure a wiki using WetPaint.
9 Enhance the wiki with images, links, web resources, and feeds.
9 Manage the wiki.
9 Develop one or two ideas for using wikis in your classroom.
**Agenda**
I.
Introduction to wikis used in education
II.
Create and configure a wiki
III.
Add, edit content and manage the wiki

**What is a wiki?**
A wiki is a web site that allows users to add and edit content. Wikis are made for collaboration and can contain text, images, videos, links, and other types of content.

**WIKIS :: INTRODUCTION**

**How can wikis be used by teachers and students?**
9 Support group/team projects
9 Class web site to distribute assignments, handouts, etc.
9 Connect students to useful Web resources

**WIKIS :: QUICK START GUIDE**

**WetPaint Basics**
These instructions will show you how to create a WetPaint wiki account and set up a free wiki. WetPaint is one of several free wiki services but the advantage of using WetPaint is that they will remove ads from educational wikis. After you create an educational wiki, you can send an email message explaining how your wiki will be used and in 48 hours the ads are gone. Here are the instructions copied from the WetPaint wiki site at

http://www.wetpaint.com/category/Education--Ad-free/?wpcmp=educp1

If you haven't already, create your wiki, then send an email to education@wetpaint.com and include the following information:
• Your school name and address
• A short description of how you are using the wiki
• The URL of your education wiki
Please give us up to 48 hours to review your site and disable the ads.

1. To create your wiki, go to http://www.wetpaint.com and look on the top right side of the screen

2. First, name your site. For example, if you're teaching a computer science class, you might name your site **CS 101 Introduction to Computers**.

3. Next choose a URL or web address for your wiki. In the example used above, you might use http://cs101.wetpaint.com.

a. You can only use letters and numbers in your URL - no spaces allowed.

b. Your URL must be unique!

4. Click the big green **GO!** Button.

5. Now give your site a description. Tell the purpose of the wiki and perhaps how it will be used.

**WIKIS :: QUICK START GUIDE**

6. Pick a category. It's probably best to choose **Education** which would support your request to have the ads removed.

7. If you want to control who can view your site, make it a private site and select **Invited members**. See figure below.

8. If you've set your wiki to be private, only people you invite will be able to edit it.

9. Click the green **Continue to Step 2: the fun part** button.

10. Select a template for your wiki. There are 24 different styles and you can click the **zoom** link to get a larger view. Click in the radio button of the style thumbnail to select it. See the figure below.

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These users can
- ○ Access site settings, manage pages, use all editing tools, promote or ban mem (Administrator)
- ○ Manage pages, use all editing tools, promote or ban members, and invite others
- ◉ Edit pages, add images, and join discussions. (Writer)
- ○ Join discussions and leave comments. (Registered User)

☐ Send a reminder to people who do not respond in two days.

### WIKIS :: QUICK START GUIDE

11. Click on the green **Continue to Step 3: the other part** button. Fill in the account information including your date of birth.

12. Click on the green **Next, invite some friends to help out** button.

13. There are several options for the roles your invited guests can have on the site and a summary of them appears below.

14. I'll select **Edit pages, add images, and join discussions** for my wiki.

15. Fill in the email addresses separated by commas, edit the personal message and your name if desired then click the green **Send the invitations and create my site!** button. **Note**, you can defer sending invitations till later by clicking the link labeled "**just create my site**."

16. In a few seconds, your wiki is created. Click the green **Take me to my site** button.

17. Your site opens to the **Home** page which is blank and ready for you to edit.

### Adding and Editing Content and New Pages

1. Click on the **EasyEdit** button to open the tools for editing and adding content. Most of these will seem familiar as they are similar to the formatting tools in many word processing applications. The Widgets allow you to add content from many sources and we'll go over some of them during the training. See on the figure on the next page.

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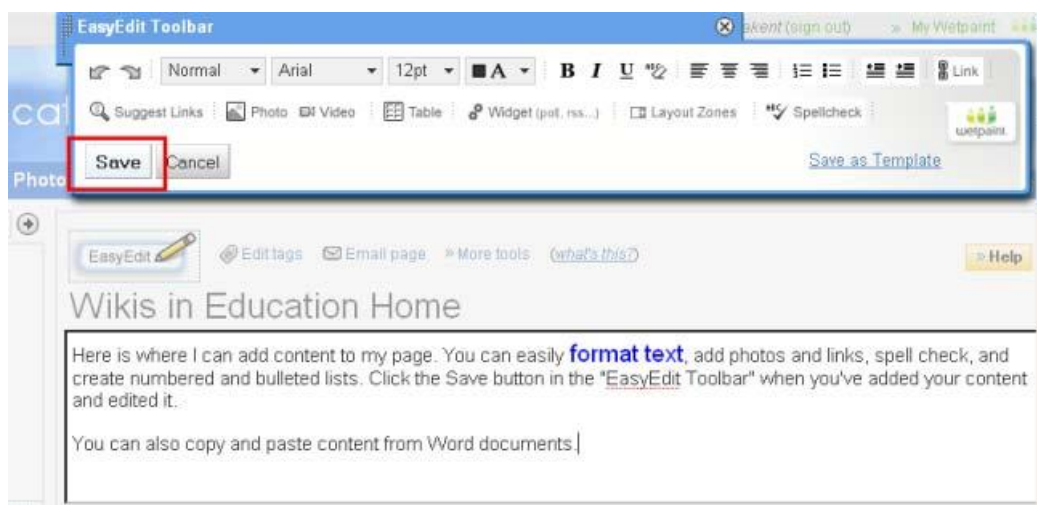
**WIKIS :: QUICK START GUIDE**

2. After you've made changes to the page, click the **Save** button.

3. If you want to **add an image**, click the **EasyEdit** button. Place your cursor where you want the image to appear then click the **Photo** button. The **Photo Gallery** window opens and you can select a photo. If the Photo Gallery is empty, click the **Upload New Photo** button.

    a. Limit photo dimensions to no more than 400x500 pixels.

    b. Image size should be less than 50k.

    c. Click the **Browse** button to locate the image on your computer.

    d. Click the **Add Photo** button. See the figure below.

    e. A dialog box will open and you can give a title and description to the photo if desired.

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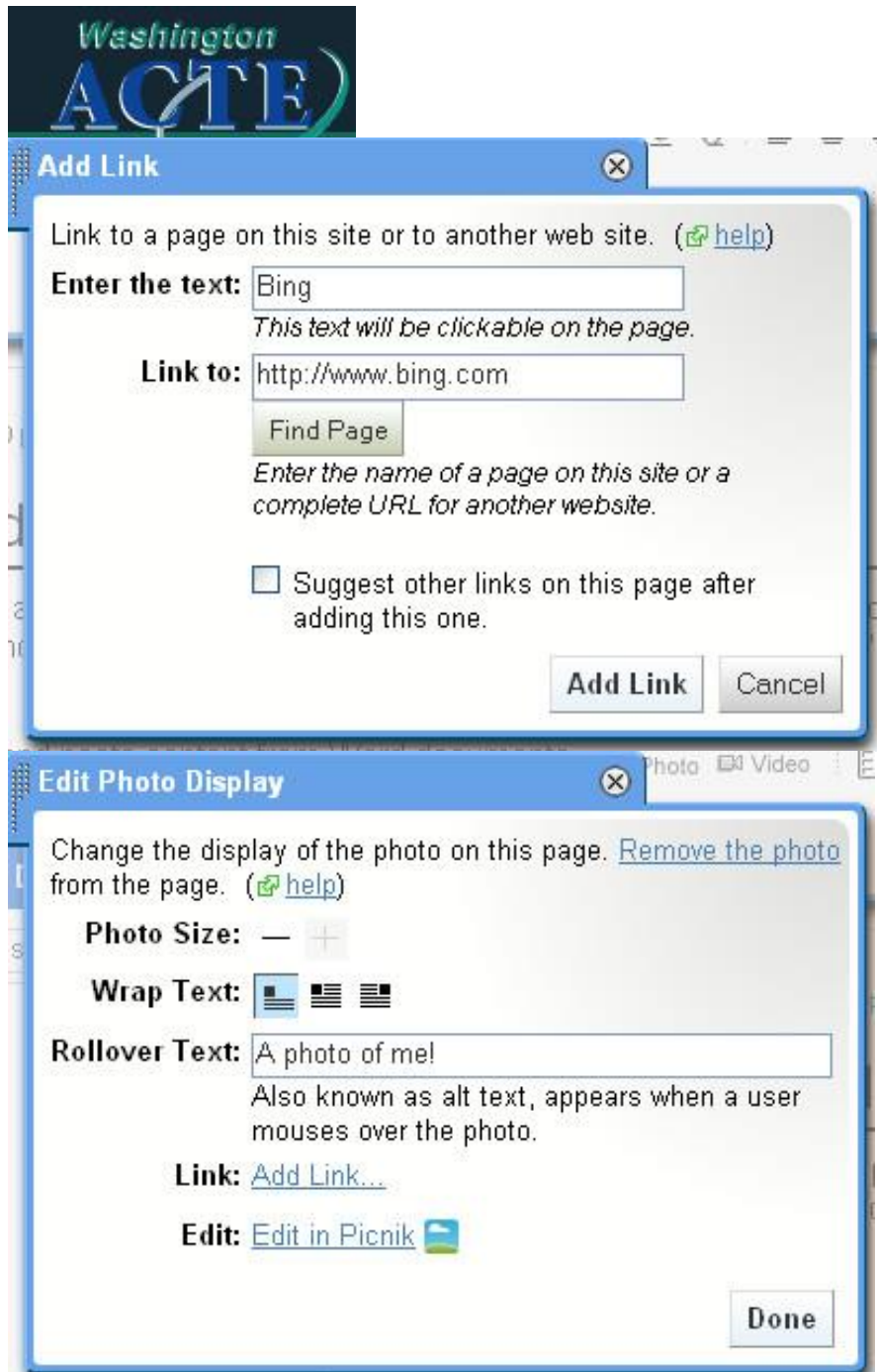
**WIKIS :: QUICK START GUIDE**

f. Finally, you can resize the photo and select an option for wrapping the text around the photo. You can add a link to the photo and edit it in Picknik a free online image editor. See the figure below.

4. **Add a link** to another page in your wiki or to another web site by following these steps.

a. Click on the **EasyEdit** button and place your cursor where you want the link to appear. Click the **Link** button.

b. In the dialog box that opens, enter the link text in the first box.

c. To link to another page in your wiki, click the **Find Page** button.

d. Or, to link to another web site, enter the URL. See the figure below:
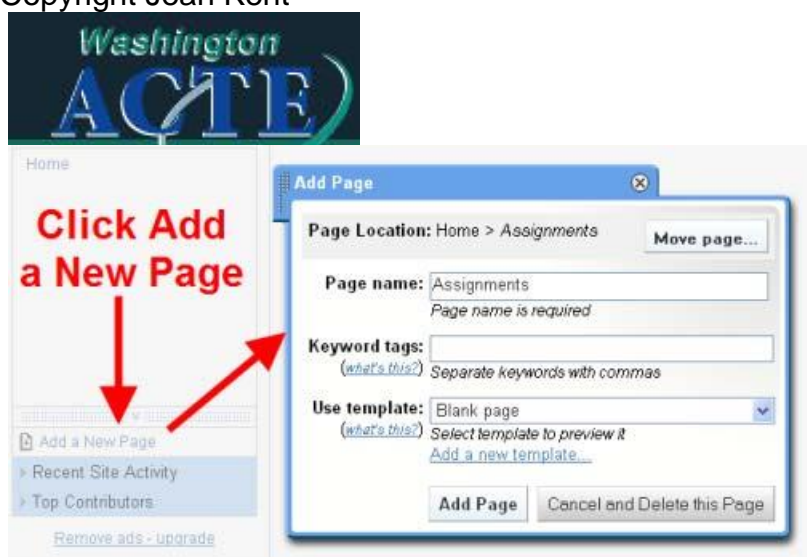
## WIKIS :: QUICK START GUIDE

5. To create a **class wiki**, add new pages that will contain the content you want for your students. For example, you might want to add the following pages:

a. Assignments

b. Syllabus

c. Calendar

d. Resources

e. Announcements

f. How to Earn an A in this class

6. In the navigation pane on the left, click **Add a New Page**. See the figure below:

7. The **Add Page** dialog box opens. Name your page and give it some keywords if you want to. You can use a template but the ones they currently offer aren't helpful for educators. The **monthly calendar template** is an exception.

8. Before you add a new page, decide if it will be a sub page of an existing page. If you want to create a sub page, click on a higher level page first before you click on the Add a New Page link. Click on Home in the menu before clicking on the Add page link if you aren't making a sub page. See the figure on the next page.

**WIKIS :: QUICK START GUIDE**

Notice the indented link for **Assignment 1**. Before I clicked on the **Add a New Page** link, I clicked on the **Assignment** link. Doing this nested the Assignment 1 page within the Assignment link.

I recommend you create your all your class pages

then start filling in the content. Remember, you can copy and paste from Word or another word

processing program if you already have content

created.

9. A **group project** wiki might contain the following pages: a. Project Assignment

b. Project Schedule

c. Brainstorming Page

d. Rough Draft

e. Research Notes

f. Team Members

10. Again, I recommend a member of the group create the blank pages first then the team members can add content as they work on the assignment.

11. Finally, you can add "**widgets**" (e.g., polls, chat windows, RSS feeds, videos) to the pages in your wiki.

12. Open the page you want to add a widget to, click the **EasyEdit** button then click the **Widget** button. Select a **YouTube** widget. YouTube has some great content if you're willing to spend time searching for it.

a. Type in keywords to find a video related to your course content then click the **Search** button. See the figure on the next page.
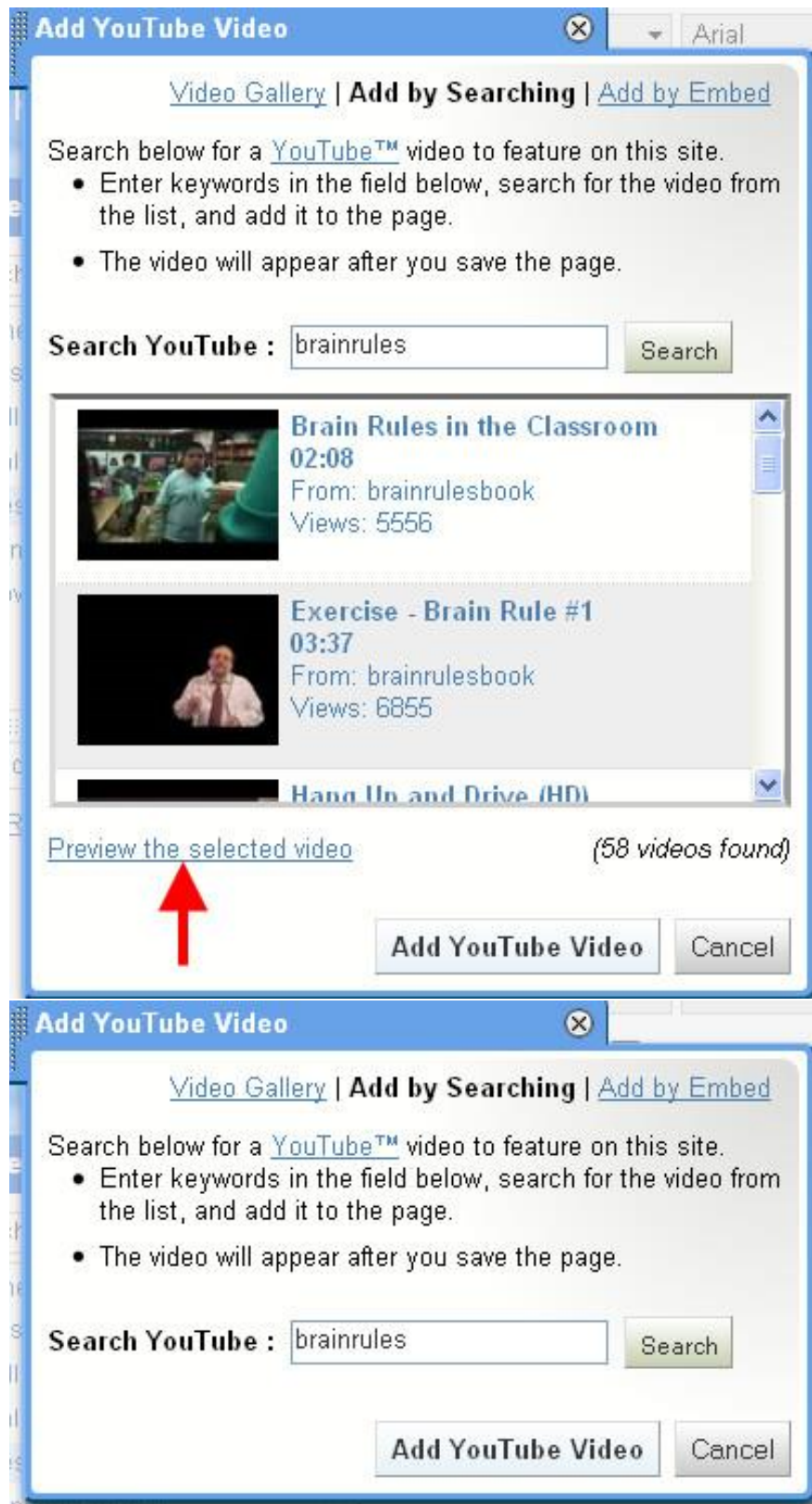
**WIKIS :: QUICK START GUIDE**

b. Select a video from the list that matches your keywords and click the **Preview the selected video** link. I highly recommend previewing any

content you add from YouTube first. If you decide to add it, click the **Add YouTube Video** button. See the figure below: Web 2.0 Tools Pre-Conference Workshop

## WIKIS :: QUICK START GUIDE

c. Add a title, description, and keyword tags if you wish then click the **Save** button. You can resize the video and change how it wraps with the text on the page, too. When you click the **Done** button and save your edits, the video will be added to your page.

### A few Tips

1. You can create as many wikis as you want with one Webpaint account.

2. You can copy and paste content from a Word document.

3. Before you add a new page, decide if it will be a sub page of an existing page. If you want to create a sub page, click on a higher level page first before you click on the Add page link. Click on Home in the menu before clicking on the Add page link if you aren't making a sub page.

4. You can't delete a wiki. If you don't want to use your wiki any longer, delete all the pages – except the home page (which can't be deleted) then remove all content from the home page.

5. If you use a wiki for group projects, you'll probably want to create a wiki for each group.

6. File attachments appear at the bottom of the page/screen and can be easily overlooked. If you decide to provide content as file attachments, make sure to alert your students to their location.

7. I've found that Wetpaint hiccups every now and then but so far I haven't lost any information. So be patient!

8. I've gotten the ads removed for each wiki I've requested.

## WIKIS :: MANAGING YOUR WIKI

### Managing a Wiki

Wikis are collaborative by design. Even if you make a wiki your class web site, you'll probably still want to allow students to comment on some of the pages and possibly even add content. Maybe you'll try to have a

paperless classroom and require students to use the wiki to get all their homework assignments, etc.

Using a wiki for a group or team project is a great way to organize the team and track their progress, too. It might even be a good way for faculty to get organized on a project.

Some of the wiki management tools are described below.

1. The navigation buttons that appear horizontally across the screen provide information about your wiki.

a. **Home** takes you back to wiki homepage.

b. **Discussions** let's you view all the threads and replies on your wiki.

c. **Photos** shows all the photos and images that have been added to your wiki and provides a link to add more photos or create an album.

d. **Videos** shows all the videos that have been added to your wiki and provides a link to add more videos or to create a collection.

e. **News** shows the news feeds that have been added to your wiki and provides a link to add a news feed.

f. **Updates** has a list of all the changes made to your wiki and the members who made them.

g. **Members** shows all the members who have been added to your wiki and provides a way to invite others to join.

h. **To Do** has a detailed list as well as the status of all the "**To-Do**" lists associated with your wiki.

i. **Invite** provides an easy way to invite new members.

2. On the far right of the screen, **My Profile** has information about you, the wiki owner. You can add a photo and additional information about yourself if you want to.
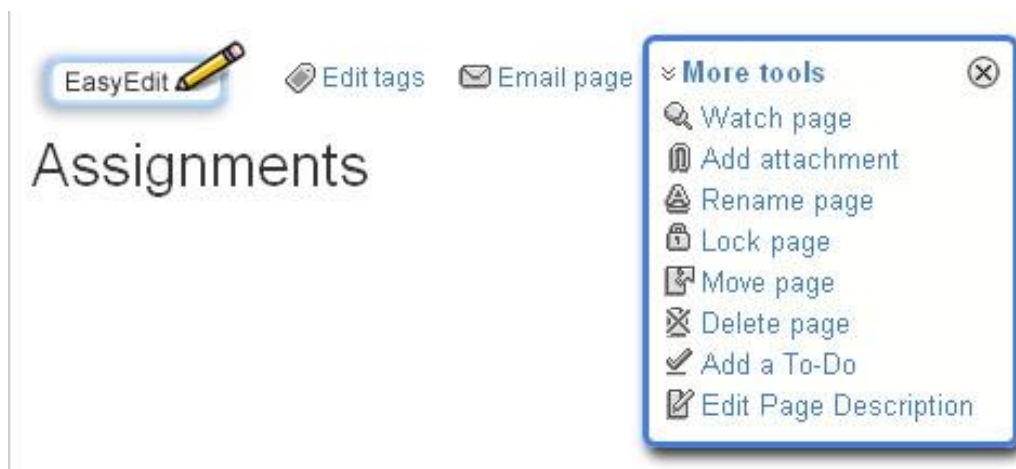
**WIKIS :: MANAGING YOUR WIKI**

3. Next to My Profile, **Settings** shows all the current settings for your wiki and allows you to change them. Notice you can choose to receive statistics about your wiki and you can also create a backup of the content.

4. In the main page area and to the right of the **EasyEdit** button, **Edit Tags** (keywords) can be used to add new tags to any page to describe its contents.

Tags appear at the bottom of the page and you can click on them to see a list of all pages that share the same tag.

5. Click on the **More Tools** link to see other management options for your wiki.

See the figure below:

a. Click **Watch page** if you want to monitor a page. You can be emailed when the page changes or you can remove the email notification. Find your watch list and update the settings in **My Profile**.

b. Use the **Add attachment** option to add a file to the page. WetPaint supports a large variety of file types. Remember the attachment appears at the bottom of the page.

c. **Rename page** lets you change the name of a page. If there are links to the page, you will have to update them.

d. **Lock page** prevents future edits to the page.

e. **Move page** lets you set a new location for the page or change the page order. You'll get a list of all the pages in your wiki and you can make the page a sub page of one of them. Or, you can reorder the pages. See the Web 2.0 Tools Pre-Conference Workshop

31 of 32
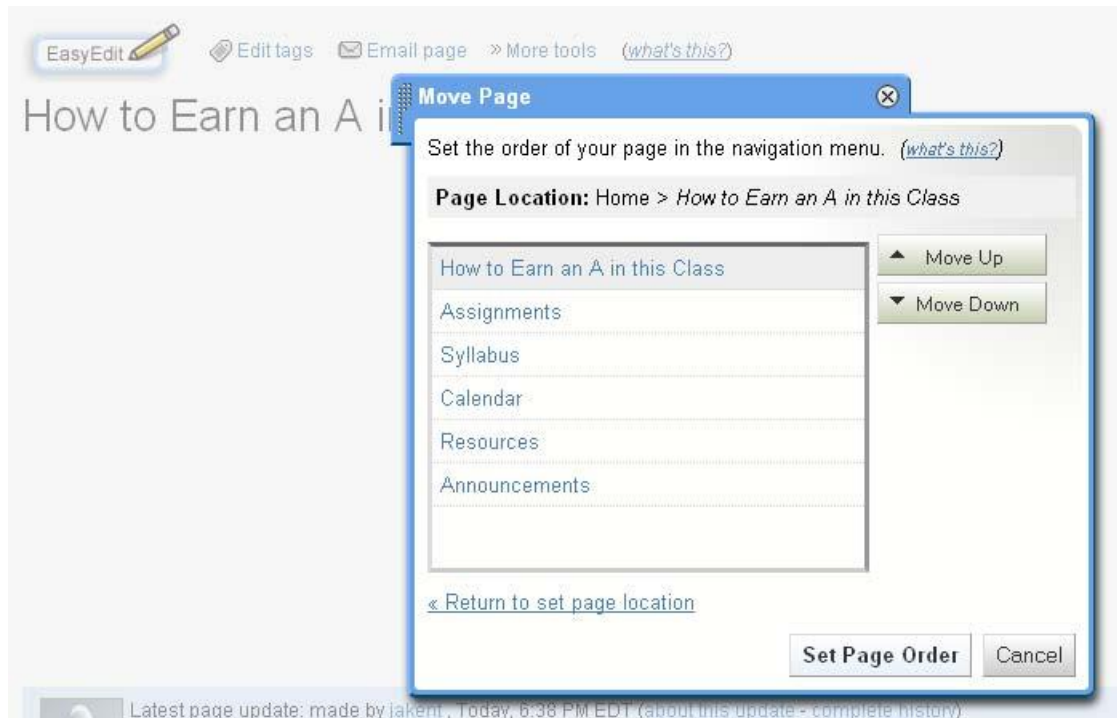
**WIKIS :: MANAGING YOUR WIKI**

figure below. I'm moving "How to Earn an A in this Class" up so it will appear just below the Home page.

f. **Delete page** lets you delete the page and helps you manage links that will be broken if you delete the page. The home page is the only one that can't be deleted.

g. **Add a To-Do** lets you add a "to do" reminder to the page. Reminders include cleaning up formatting, adding content, fact checking, spell check, and much more.

h. **Edit Page Description** let's you change the page description.

Web 2.0 Tools Pre-Conference Workshop

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Copyright Jean Kent

**Appendix 3**
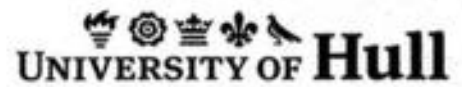
Centre for Educational
Studies
T 01482 465988
E j.lison@hull.ac.uk

ETHICAL PROCEDURES FOR RESEARCH AND TEACHING
IN THE
FACULTY OF EDUCATION

PERMISSION TO PROCEED WITH RESEARCH:  ETHICAL APPROVAL

| | |
|---|---|
| Reference Number: | 11/004 |
| Name: | Mohammed Alghamdi |
| Programme of Study: | PhD |
| Research Area/Title: | An investigation of how to use Web 2.0 technologies in educational supervision in Saudi Arabia |
| Image Permission Form | Received (or N/A if no images) |
| Name of Supervisor: | Dr Trevor Male |
| Date Approved by Supervisor: | 6 September 2011 |
| Date Approved by Ethics Committee: | 7 November 2011 |

**Appendix 4**

**Focus group questions (for supervisors):**

Q1:  What do you know about Web 2.0 technologies? **ماذا تعرف عن تقنيات الويب 2.0؟**

Q2: What do you know about Web 2.0 technology tools? **ماذا تعرف عن أدوات تقنيات**

**الويب 2.0؟**

Q3: What do you know about the following tools: YouTube, blog, Twitter, Wiki,

Googledocs? Please give a brief definition of each tool. **ماذا تعرف عن الأدوات التالية:**

**اليوتيوب، المدونات، الويكي، مستندات قوقل، تويتر. أعط تعريف مختصر لكل أداة.**

 Q4: What do you think about the introduction of Web 2.0 technologies in

educational supervision? **ما رأيك في تقديم تقنية الويب 2.0 في الإشراف التربوي؟**

Q5: Do you think that these tools can be useful in enhancing communication

between teachers and supervisors, and in educational supervision in general? **هل**

**تعتقد بأن هذه الأدوات من الممكن أن تساهم في تحسين التواصل بين المشرفين التربويين والمعلمين**

**وتحسين الإشراف التربوي بشكل عام؟ كيف؟**

Q6: How are you currently using Web 2.0 technology in your work? **كيف تستخدم حاليا**

**تقنية الويب 2.0؟**

Q7: Why are you (not) using Web 2.0 technology in your work? **لماذا تستخدم/ لا تستخدم**

**أدوات الويب 2.0 في عملك؟**

Q8: What do you perceive to be the usefulness of using Web 2.0 technology in

supervision? **ما هي تصوراتك حول فائدة توظيف تقنية الويب 2.0 في الإشراف التربوي؟**

Q9: What are the barriers to, and challenges of, adopting Web 2.0 technology in

supervision? **ما هي المعوقات والتحديات التي قد تحد من تبني توظيف تقنية الويب 2.0 في الإشراف**

**التربوي؟**

**Q10**: How Web 2.0 technology can improve supervision in future? كيف يمكن لتقنية

الويب 2.0 أن تساهم في تحسين الإشراف التربوي في المستقبل؟

**Q11**: What changes need to be made to the Web 2.0 technology itself, or in the way

Web 2.0 is used in supervision? ما هي **التغييرات التي نحتاجها (في التقنية بحد ذاتها)** أو في الطرق

التي تستخدم الويب 2.0 في الإشراف التربوي؟

**Q12**: What are the strategies to diffuse and adopt this innovation? **ماهي استراتيجيات**

نشر وتبني هذا الابتكار في التربية والإشراف التربوي؟

**Appendix 5**

Dear supervisor

My name is Mohammed Alghamdi, and I am PhD student at Hull University. As part of my study, I am carrying out a piece of research investigating the use of various Web 2.0 tools within education and supervision. Web 2.0 tools are described as:

...a range of software tools allowing users to share data and interact with other users using the World Wide Web, examples of these may include blogging, wikis and social networks (Minocha, 2009).

Your participation in this study is completely voluntary. The enclosed survey will take about 10 minutes to complete. All responses will be kept confidential, as no identifying information will be included in the final report. Anonymity will be maintained throughout the process.

Please complete the survey bellow. Moreover, if you would like to receive a summary of the findings of this research please email me at m.ghamdi2006@gmail.com at any time. If you have any questions or concerns regarding this study I can be reached via email or at 0555777675.

I greatly appreciate your time and co-operation in assisting me with my studies.

Yours Faithfully,

Mohammed Alghamdi


عزيزي المشرف التربوي

أنا طالب دكتوراة في التربية في جامعة هل في المملكة المتحدة. ولاستكمال متطلبات الحصول على الدرجة فإنني أقوم حاليا بالتحقيق في كيفية توظيف تقنيات الويب ٢ في الإشراف التربوي. ويمكن تعريف تقنية الويب ٢ على أنها مجموعة من البرامج والأدوات التي تسمح للمستخدمين بمشاركة البيانات والمعلومات والتفاعل مع الآخرين عبر الإنترنت، الويكي والمدونات والشبكات الاجتماعية تعتبر أمثلة لأدوات الويب ٢.

أقدر لكم مشاركتكم في هذه الدراسة. وأفيدكم بأنه سوف يستغرق ملء الاستبانة حوالي ١٠ دقائق. ويسعدني أن أؤكد لكم بأن مشاركتكم في هذه الدراسة سوف تحاط بسرية تامة ولن يترتب عليها أي شيء ولن تظهر الأسماء في التقرير النهائي، كما يمكنكم الانسحاب من هذه المشاركة في الوقت الذي ترغبون فيه بكامل الحرية.

الرجاء إكمال الاستبانة أدناه، وفي حال رغبتكم في الحصول على مستخلص لنتائج الدراسة فالرجاء عدم التردد في مراسلتي على البريد الإلكتروني التالي m.ghamdi2006@gmail.com

وإذا كان لديكم أي استفسارات تتعلق بهذه الدراسة فالرجاء عدم التردد في مراسلتي أو الاتصال بي على رقم ٠٥٥٥٧٧٧٦٧٦.

ختاما: تقديري وامتناني لكم على التعاون والمشاركة في هذه الدراسة

سائلا الله العلي القدير أن يمن عليكم بتوفيقه

والله الموفق

محمد الغامدي

**1. Name (optional)  الاسم (اختياري)**


**2. Select your age group. الفئة العمرية**

☐ من ٢٠ ٣٠ سن 20- 30 years

☐ من ٣١ ٤٠ سنة 31-40 years

☐ من ٤١ ٥٠ سنة 41-50 years

☐ أكبر من ٥٠ سنة Over 50 years

**3. What is your highest professional/academic qualification?  أعلى مؤهل أكاديمي حصلت عليه**

☐ دبلوم Diploma

☐ بكالوريس تربوي Bachelor of Education Degree

☐ ليسانس Bachelor of Arts/Science

☐ دراسات عليا Postgraduate

**4. How many years supervising experience do you hold?  عدد سنوات الخبرة بالإشراف التربوي؟**

☐ من ١ ٥ سنوات 1 - 5 years

☐ من ٦ ١٠ سنوات 6 – 10 years

☐ من ١١ ١٥ سنة 11-15 years

☐ من ١٦ ٢٠ سنة 16 - 20 years

☐ أكثر من ٢٠ سنة Over 20 years

**5. Indicate how often do you work with teacher (formally) to support or help?**
**أشر ألى عدد اللقاءات التي تتم بينك وبين المعلم بشكل رسمي للمساعدة والدعم**

☐ ولا مرة في العام Not at all

☐ مرة في العام Once each year

☐ من ٢-٤ مرات في العام 2-4 times per year

☐ من ٥-٧ مرات في العام 5-7 times per year

☐ أكثر من ٧ مرات في العام More than 7 times each year

**6. Indicate how often do you work with teacher (informally) to support or help?**
**أشر ألى عدد اللقاءات التي تتم بينك وبين المعلم بشكل غير رسمي للمساعدة والدعم**

☐ ولا مرة في العام Not at all

☐ مرة في العام Once each year

☐ من ٢-٤ مرات في العام 2-4 times per year

☐ من ٥-٧ مرات في العام 5-7 times per year

☐ أكثر من ٧ مرات في العام More than 7 times each year

**7. What are the communication approaches between you and your teachers?**
**ماهي طريقة التواصل بينك وبين المعلمين الذين تشرف عليهم؟**

☐ الزيارة المدرسية Visiting in school.

☐ البريد الالكتروني Email

☐ الجوال Mobile

☐ رسائل نصية قصيرة SMS

☐ By school' telephone تلفون المدرسة

☐ وسائل التواصل الاجتماعية كالفيس بوك وتويتر Social networks tools

☐ أخرى: حدد من فضلك Others: please specify

**8. Do you use the Internet at home? هل تستخدم الإنترنت من المنزل؟**

☐ نعم Yes

☐ لا No

**9. Indicate your familiarity with the following websites/tools you use أشر إلى مدى معرفتكم باستخدام المواقع / الأدوات التالية**

|  | Excellent ممتاز | Very good جيد جدا | Good جيد | Poor ضعيف | Terrible سيئة |
|---|---|---|---|---|---|
| Twitter تويتر |  |  |  |  |  |
| YouTube يوتيوب |  |  |  |  |  |
| Blogs المدونات |  |  |  |  |  |
| Wikis الويكي |  |  |  |  |  |
| Googledocs مستندات قوقل |  |  |  |  |  |

*Comments:*

**10. Indicate your confidence in using the following websites/tools أشر إلى مدى ثقتكم وتمكنكم من استخدام الأدوات التالية**

|  | Very confident واثق جدا | Confident واثق | Somewhat confident واثق إلى حد ما | Not so confident ثقة منخفضة | Not at all لا يوجد ثقة |
|---|---|---|---|---|---|
| Twitter تويتر |  |  |  |  |  |
| YouTube يوتيوب |  |  |  |  |  |
| Blogs المدونات |  |  |  |  |  |
| Wikis الويكيز |  |  |  |  |  |
| Googledocs مستندات قوقل |  |  |  |  |  |

*Comments:*

……………………………………………………………………………………………………………
…

**11. With what devices do you use the Internet? أي الأجهزة تستخدم لتصفح الإنترنت؟**

☐ كمبيوتر مكتبي Desktop

☐ كمبيوتر محمول Laptop

☐ Mobile Phone الهاتف

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☐ Others: (please specify) أخرى: حدد من فضلك

*Comments:*..................................................................................................................

**12. How often do you use the Internet (Hours per week)?** كم عدد الساعات الأسبوعية التي تتصفح فيها الإنترنت؟

    ☐ من ١ ٥ ساعات اسبوعيا 1-5

    ☐ من ٦ ١٠ ساعات اسبوعيا 6-10

    ☐ من١١ ١٥ ساعة اسبوعيا 11-15

    ☐ أكثر من ١٦ ساعة أسبوعيا +16

**13. How do you provide information, knowledge and feedback for your teachers?** كيف تقدم المعلومات والمعارف والتغذية الراجعة للمعلمين الذين تشرف عليهم؟

    ☐ Short meeting after monitoring my class. الاجتماعات القصيرة بعد الزيارة الصفية

    ☐ Communication after school hours التواصل خارج ساعات العمل الرسمي

    ☐ In training programmes من خلال البرامج التدريبية

    ☐ In public meetings من خلال اللقاءات العامة

    ☐ Others: please specify أخرى: حدد لو سمحت

*Comments:*

:..................................................................................................................

**14. Have you ever received training for the use of these Web 2.0 tools?** هل سبق أن تلقيت أي برنامج تدريبي عن استخدام أدوات الويب ٢٫٠؟

    ☐ Yes نعم

    ☐ No لا

**15. Can you see how these tools are being used in Education and supervision?** هل لديك فكرة عن كيفية استخدام هذه الأدوات في التربية والإشراف التربوي؟

**16. Do you use Internet in supervision? How?** هل تستخدم الإنترنت في الإشراف التربوي؟ كيف؟

**17. What is your opinion about the implementation of the web 2.0 tools and services in education and supervision?** ماهو رأيك في توظيف أدوات الويب ٢٫٠ وخدماتها في التربية والإشراف التربوي؟

**18. Do you think Web 2.0 tools should be used in the supervision process?** هل تعتقد بأن أدوات الويب ٢٫٠ من المفروض أن تستخدم في عملية الإشراف التربوي؟

☐ Definitely yes بالتأكيد نعم

☐ Probably yes ربما نعم

☐ Probably not ربما لا

☐ Definitely not بالتأكيد لا

**Appendix 6**

Dear teacher

My name is Mohammed Alghamdi, and I am PhD student at Hull University. As part of my study, I am carrying out a piece of research investigating the use of various Web 2.0 tools within education and supervision. Web 2.0 tools are described as:
...a range of software tools allowing users to share data and interact with other users using the World Wide Web, examples of these may include blogging, wikis and social networks (Minocha, 2009).
Your participation in this study is completely voluntary. The enclosed survey will take about 10 minutes to complete. All responses will be kept confidential, as no identifying information will be included in the final report. Anonymity will be maintained throughout the process.
Please complete the survey bellow. Moreover, if you would like to receive a summary of the findings of this research please email me at m.ghamdi2006@gmail.com at any time. If you have any questions or concerns regarding this study I can be reached via email or at 0555777675.
I greatly appreciate your time and co-operation in assisting me with my studies.

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أقدر لكم مشاركتكم في هذه الدراسة. وأفيدكم بأنه سوف يستغرق ملء الاستبانة حوالي ١٠ دقائق. ويسعدني أن أؤكد لكم بأن مشاركتكم في هذه الدراسة سوف تحاط بسرية تامة ولن يترتب عليها أي شيء ولن تظهر الأسماء في التقرير النهائي، كما يمكنكم الانسحاب من هذه المشاركة في الوقت الذي ترغبون فيه بكامل الحرية.
الرجاء إكمال الاستبانة أدناه، وفي حال رغبتكم في الحصول على مستخلص لنتائج الدراسة فالرجاء عدم التردد في مراسلتي على البريد الإلكتروني التالي m.ghamdi2006@gmail.com
وإذا كان لديكم أي استفسارات تتعلق بهذه الدراسة فالرجاء عدم التردد في مراسلتي أو الاتصال بي على رقم ٠٥٥٥٧٧٧٦٧٦
ختاما: تقديري وامتناني لكم على التعاون والمشاركة في هذه الدراسة

سائلا الله العلي القدير أن يمن عليكم بتوفيقه

والله الموفق

محمد الغامدي

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**1. Name (optional) (اختياري) الاسم**

**2. Select your age group. الفئة العمرية**

- [ ] من ٢٠ ٣٠ سن 20- 30 years
- [ ] من ٣١ ٤٠ سنة 31-40 years
- [ ] من ٤١ ٥٠ سنة 41-50 years
- [ ] أكبر من ٥٠ سنة Over 50 years

**3. What is your highest professional/academic qualification? أعلى مؤهل أكاديمي حصلت عليه**

- [ ] دبلوم Diploma
- [ ] بكالوريس تربوي Bachelor of Education Degree
- [ ] ليسانس Bachelor of Arts/Science
- [ ] دراسات عليا Postgraduate

**4. How many years teaching experience do you hold? عدد سنوات الخبرة في التعليم**

- [ ] من ١ ٥ سنوات 1 - 5 years
- [ ] من ٦ ١٠ سنوات 6 – 10 years
- [ ] من ١١ ١٥ سنة 11-15 years
- [ ] من ١٦ ٢٠ سنة 16 - 20 years
- [ ] أكثر من ٢٠ سنة Over 20 years

**5. Indicate how often do you work with supervisor (formally) to support or help? أشر ألى عدد اللقاءات التي تتم بينك وبين المشرف التربوي بشكل رسمي للمساعدة والدعم**

- [ ] ولا مرة في العام Not at all
- [ ] مرة في العام Once each year
- [ ] من ٢-٤ مرات في العام 2-4 times per year
- [ ] من ٥-٧ مرات في العام 5-7 times per year
- [ ] أكثر من ٧ مرات في العام More than 7 times each year

**6. Indicate how often do you work with supervisor (informally) to support or help? أشر ألى عدد اللقاءات التي تتم بينك وبين المشرف التربوي بشكل غير رسمي للمساعدة والدعم**

- [ ] ولا مرة في العام Not at all
- [ ] مرة في العام Once each year
- [ ] من ٢-٤ مرات في العام 2-4 times per year
- [ ] من ٥-٧ مرات في العام 5-7 times per year
- [ ] أكثر من ٧ مرات في العام More than 7 times each year

**7. What are the communication approaches between you and your supervisor? ماهي طريقة التواصل بينك وبين المشرف الذي يشرف عليك؟**

- [ ] الزيارة المدرسية Visiting in school.
- [ ] البريد الالكتروني Email

☐ الجوال Mobile

☐ رسائل نصية قصيرة SMS

☐ By school' telephone تلفون المدرسة

☐ وسائل التواصل الاجتماعية كالفيس بوك وتويتر Social networks tools

☐ أخرى: حدد من فضلك Others: please specify

---

**8. Do you use the Internet at home? هل تستخدم الإنترنت من المنزل؟**

☐ نعم Yes

☐ لا No

**9. Indicate your familiarity with the following websites/tools you use أشر إلى مدى معرفتكم باستخدام المواقع / الأدوات التالية**

|  | Excellent ممتاز | Very good جيد جدا | Good جيد | Poor ضعيف | Terrible سيئة |
|---|---|---|---|---|---|
| Twitter تويتر |  |  |  |  |  |
| YouTube يوتيوب |  |  |  |  |  |
| Blogs المدونات |  |  |  |  |  |
| Wikis الويكي |  |  |  |  |  |
| Googledocs مستندات قوقل |  |  |  |  |  |

*Comments:*

**10. Indicate your confidence in using the following websites/tools أشر إلى مدى ثقتكم وتمكنكم من استخدام الأدوات التالية**

|  | Very confident واثق جدا | Confident واثق | Somewhat confident واثق إلى حد ما | Not so confident ثقة منخفضة | Not at all لا يوجد ثقة |
|---|---|---|---|---|---|
| Twitter تويتر |  |  |  |  |  |
| YouTube يوتيوب |  |  |  |  |  |
| Blogs المدونات |  |  |  |  |  |
| Wikis الويكيز |  |  |  |  |  |
| Googledocs مستندات قوقل |  |  |  |  |  |

*Comments:*

……………………………………………………………………………………………… …

**11. With what devices do you use the Internet? أي الأجهزة تستخدم لتصفح الإنترنت؟**

☐ كمبيوتر مكتبي Desktop

☐ كمبيوتر محمول Laptop

☐ الهاتف Mobile Phone

□ Others: (please specify) أخرى: حدد من فضلك

Comments:.................................................................................

**12. How often do you use the Internet (Hours per week)?** كم عدد الساعات الأسبوعية التي تتصفح فيها الإنترنت؟

من ١ ٥ ساعات اسبوعيا 1-5 □

من ٦ ١٠ ساعات اسبوعيا 6-10 □

من١١ ١٥ ساعة اسبوعيا 11-15 □

أكثر من ١٦ ساعة أسبوعيا 16+ □

**13. How do you received information, knowledge and feedback form your supervisor?** كيف تقدم لك المعلومات والمعارف والتغذية الراجعة من قبل المشرف التربوي؟

□ Short meeting after monitoring my class. الاجتماعات القصيرة بعد الزيارة الصفية

□ Communication after school hours التواصل خارج ساعات العمل الرسمي

□ In training programmes من خلال البرامج التدريبية

□ In public meetings من خلال اللقاءات العامة

□ Others: please specify أخرى: حدد لو سمحت

Comments:
:.................................................................................

**14. Have you ever received training for the use of these Web 2.0 tools?** هل سبق أن تلقيت أي برنامج تدريبي عن استخدام أدوات الويب ٢,٠؟

□ Yes نعم

□ No لا

**15. Can you see how these tools are being used in Education and supervision?** هل لديك فكرة عن كيفية استخدام هذه الأدوات في التربية والإشراف التربوي؟

**16. Do you use Internet in supervision? How?** هل تستخدم الإنترنت في التدريس والإشراف التربوي؟ كيف؟

**17. What is your opinion about the implementation of the web 2.0 tools and services in education and supervision?** ماهو رأيك في توظيف أدوات الويب ٢٫٠ وخدماتها في التربية والإشراف التربوي؟

**18. Do you think Web 2.0 tools should be used in the supervision process?** هل تعتقد بأن أدوات الويب ٢٫٠ من المفروض أن تستخدم في عملية الإشراف التربوي؟

☐ بالتأكيد نعم Definitely yes

☐ ربما نعم Probably yes

☐ ربما لا Probably not

☐ بالتأكيد لا Definitely not

**Appendix 7**

الآخوة الزملاء المعلمين

السلام عليكم ورحمة الله وبركاته وبعد

أشكركم جزيل الشكر على مشاركاتكم الهامة في الفترة السابقة من حيث المشاركة في البرنامج التدريبي ٢٠٠ والتواصل الدائم من خلال أدوات الويب
الاستبانة الحالية تهدف إلى قياس مدى استفادتكم ورؤيتكم حيال توظيف الويب ٢٠٠ وأدواتها في الإشراف التربوي والتعليم وبعد تعرفكم على بعض إمكانات الويب ٢٠٠
قد يستغرق ملء الاستبانة حوالي ٥ دقائق

خالص الشكر والتقدير على جهودكم
والله يحفظكم

أخوكم: محمد الغامدي

| After knowing the affordance of Web 2.0 tools for supervising and teaching. I consider Web 2.0 tools… | | | | | |
|---|---|---|---|---|---|
| Answer Options | Strongly Agree | Agree | Neutral | Disagree | Strongly disagree |
| Enhance cooperative/ collaborative work. | | | | | |
| Promote learning opportunities that facilitate teachers' use of technology to learn and to communicate. | | | | | |
| Promote teachers participation in the teaching process. | | | | | |
| Promote critical thinking and enhance the emergence of new ideas. | | | | | |
| Increase teachers' motivation | | | | | |
| Promote knowledge sharing. | | | | | |
| Develop teachers technology capabilities which are important in the information-rich and global society we live in. | | | | | |
| If correctly used by supervisors, they can be an excellent strategy in the supervising and teaching process. | | | | | |
| Demand new technology capabilities and skills in supervisors' and teachers' professional repertoire. | | | | | |
| If correctly used, can promote collaborative knowledge construction. | | | | | |
| If correctly used, they can enhance the emergence of e-supervisor. | | | | | |
| Enhance peer communication. | | | | | |
| | | | | | |

| Web 2.0 tools and teachers (After using of Web 2.0 technologies). The learning experience with Web 2.0 tools… | | | | | |
|---|---|---|---|---|---|
| Answer Options | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
| Was irrelevant for my professional development. | | | | | |
| Opened new ideas for my future teaching activities. | | | | | |
| Was very motivating. | | | | | |
| Was an added value for my professional education? | | | | | |
| Will help me to prepare more interesting classes for my pupils. | | | | | |
| Are easy implement in future classes. | | | | | |
| Can offer different and more stimulating learning activities. | | | | | |
| Will help me to prepare technology capable students. | | | | | |
| Made me confident with ICT. | | | | | |
| Help me reflect on my own learning experience and the experience of others. | | | | | |
| Increase interest and motivation. | | | | | |
| Increase involvement. | | | | | |
| Increase competitiveness. | | | | | |
| Facilitate communication and collaboration among team members. | | | | | |
| Facilitate communication and collaboration among different teams. | | | | | |
| Provide me with quick feedback from my supervisor and peers. | | | | | |
| Provide me with quick answers for my questions. | | | | | |
| Help make me feel that the supervisor is more like a friend. | | | | | |
| Help make me share the same concern. | | | | | |
| | | | | | |

**Appendix 8**

- **Tools Used In the Survey**

The technological tools used in the survey study were WhatsApp, Google+ and Blogs. An overview of the tools and their application in the current study is mentioned below.

*1.WhatsApp:*

This application is a very effective communication tool. It is also beneficial because it allows teachers to exchange multimedia such as videos, images, graphics, text and animations. Communication within WhatsApp is free. Users only require Internet connectivity and as a result it is a cost-effective way of sharing information between individuals both locally and internationally. WhatsApp messenger was also used as an instructional program through which teachers were guided through specific instructions relevant to the project, such as Web 2.0 tools and how they can be used in educational supervision. Twenty-two of the 25 teachers from the sample had WhatsApp messenger in their handsets. I created a group called the Web 2.0 group, with a meaningful avatar, which is a representation of reality. I started by asking participants about the training program and the benefits they acquired, and then wrote a brief description about the program. I answered teachers' questions about Web 2.0 and the tools that we used. WhatsApp messenger is the quickest way to contact with teachers. Also, it is possible to find out the user's last appearance in WhatsApp. Most of teachers' contributions were educational broadcasts. It was useful and I commented on all broadcasts sent by teachers. I used this application to send direct links to teachers, to respond quickly.

*2. Google Plus (Google +):*

Google Plus is a social networking application that allows users to network or access other Google features and applications such as Gmail and Google Blogger. The

application also provides a convenient and easy to use chat service for teachers. Since it is free, I asked all teachers to download it on their mobiles. I created a circle called the Web 2.0 group and added all teachers in this circle. Teachers created the same group and added each other as well. The Hangouts feature, which is used to facilitate socialization processes, was used to meet and interact with some teachers after school. The video chat that is offered by the Hangout feature of Google Plus is another suitable tool that I used to instruct teachers on various educational activities without their physical presence, to facilitate interactions and socialisation. Teachers and I shared information through the Sparks feature of this application, which is designed to achieve real life communications.

*3. Blogging:*

When the teachers set up their blogs and wrote their first blog entry, a self-introduction, I encouraged them to make them attractive and active, offering an award for the best blog. I employed blogs so as to collaborate with teachers. In the beginning, I posted guidance and videos on my blogs to help teachers to create and learn about blogs. Through the use of blogs, I also encouraged teachers to value and employ technology as an appropriate tool for disseminating information to their peers. When I started with the first contribution I posted a question on my blog, which was: Through your experiences in dealing with students, how can you help students who face learning difficulties? Then I sent the link by Google Plus and WhatsApp group for teachers to share. The results were wonderful and distinctive because their reliability and validity were ascertained.

- **Web 2.0 tools and educational supervision**

Education supervision refers to processes, programmes and activities that are designed and executed by an educational supervisor with a purpose of improving and facilitating the performance of teachers (Collis and Moonen, 2008). The significant role supervisors play is establishing professional learning environment (AlBar, 2012). Furthermore, Lubega and Niyitegeka (2008) highlighted the role of the supervisor as helping to create insightful practice where the teachers can enhance their tasks. Hence, the supervisor must demonstrate a positive attitude and experience which can increase the teacher's knowledge and work. Technology can be used between supervisor and teacher to perform their tasks, keep in touch and create an effective learning environment between them. Web 2.0 technologies can thus be used to enhance the processes and activities involved in educational supervision.

The professional processes and activities which are concerned with the implementation of educational programmes such as the curriculum by educators or teachers are also involved in education supervision. Collis and Moonen (2008) explain that with the advent of improved and innovative technologies such as web applications, the contemporary education system is employing these tools increasingly with a view to enhancing the educational supervision processes. Sadaf et al (2012) describe Web 2.0 technologies as the most appropriate and efficient tools that facilitate education supervision in modern schools. There have been various typologies of Web 2.0 technologies which can provide useful insights into their features and uses (Bower, 2015; Franklin and Van Harmelen, 2007; Boulos et al., 2006; Crook, 2008). However, the following section will not use those typologies; rather it will describe the various Web 2.0 applications, together with their pros, cons and potential use in education supervision.

- **Blogs**

Churchill (2011) defines a blog as a web page or site that is published within the Internet and established to allow users to post information. The information or data that is posted on blogs is arranged in such a manner that those posts that are more recent appear first at the top of the list. The term "blogs" is an abbreviation of "weblogs" that Edelman and Intellissek (2005) say are "easily published, personal web sites that serve as sources of commentary, opinion and uncensored, unfiltered sources of information on a variety of topics." (p. 2). Blogs are designed to enable groups or

individuals to share information or discuss various topics or issues (Lamont, 2010). They are beneficial because posts within them update users on recent developments within a project. Blogs are also cheap and easy to design and publish as compared to other web pages and represent the most effective way of sharing information and data by individuals. Blogs are also an appropriate way through online presence of groups and institutions can be appreciated which would act as a promotional strategy (Lamont, 2010). However, blogs are less secure as compared to other websites and as a result they are likely to infringe on the privacy and confidentiality of users or groups and the integrity of data or information therein. The information that is posted on blogs may also be unreliable and less credible (Churchill, 2011).

A number of blog-publishing platforms exist some general, others developed specifically in an education context. The blog-publishing platform WordPress (http://wordpress.org) contains multimedia libraries, a variety of templates and a plethora of widget to enable users to enhance the functionality of their blogs. However a disadvantage is that since it is updated frequently, this can cause difficulties in using the website plug-ins that are already installed (Jones and Alida-Farrington, 2011). Edublogs (http://edublogs.org) is based upon the WordPress platform and allows teachers to create and manage a collection of blogs through a secure portal. Kidblog (http://kidblog.org) also offers the ability to create class sets of blogs. The Tumblr (http://tumblr.com) platform has gained widespread popularity due to its user-friendliness and simple resharing facilities (Bower, 2015).

In contemporary education systems within which learning institutions have embraced technology in learning processes, blogs can be used as effective tools of educational supervision. Lamont (2010) illustrates that educational supervisors could employ blogs to collaborate with teachers, for example, posting guidance on how teachers could facilitate the attainment of learning objectives by their students. Through the use of blogs, supervisors could also encourage teachers to value and employ technology as an appropriate tool for disseminating information to their students. Educational supervisors could also share information with teachers within blogs on the most appropriate education pedagogies and approaches that they could employ to achieve success in meeting the diverse educational needs among students (Churchill, 2011). This service is also applicable in managing content within educational sites. This includes updating information on these sites, pertaining to educational activities and

the role of teachers in the execution of various programmes. Close monitoring of the ability of teachers to meet their obligations can also be achieved by educational supervisors through the evaluation of the information that is reported by the teachers on the blogging service or updates on educational websites.

- **WhatsApp**

WhatsApp is a messenger application, which is designed for specific mobile platforms such as android and iPhones. This application is a very effective communication tool that allows users with smart phones to exchange instant messages (Olson, 2012). The advantage of this application is that it is cross-platform and does not require users to register accounts. WhatsApp is also beneficial because it allows users to exchange multimedia such as videos, images, graphics, text and animations. Communication within WhatsApp is free. Users only require Internet connectivity and as a result it is a cost effective way of sharing information between individuals both locally and internationally. Security concerns have, however, been raised in the use of this application (Bradshaw and Dembosky, 2013). Bigger bundles are also required when sending images and videos via WhatsApp messenger. WhatsApp messaging is only possible if both users have Internet connectivity and installation of the software on their smart phones, which is a disadvantage over text messaging.

WhatsApp can be used as a communication tool in processes of education supervision. For example teachers would report to their supervisors to demonstrate their compliance with education processes and activities such as time schedules for classes, issuance of assignments and examinations (Olson, 2012). WhatsApp messenger can also be used as an instructional program through which supervisors would guide teachers through specific instructions that concern specific learning instructional activities, such as assessment of students' lab work and class projects. Teachers would also consult their supervisors on matters of education via WhatsApp application and as a result making them more effective in instruction (Olson, 2012).

- **Google Calendar**

Google Calendar is a web application that was developed and presented in 2006 by Google to promote time management among users (Mossberg, 2006). The advantage of this application is that it is free. Users are, however, required to have a Google account before they use this application. Dunn (2008) says that the Google Calendar

application is designed with a good user interface, which makes it easy to use. The application is also compatible with a wide range of platforms and web applications. Google Calendar has, however, been criticized on the basis of the problems in scheduling outside the user's time zone. Text wrapping within the month view page of Google Calendar is also not possible.

Google Calendar can be used in education supervision, especially in scheduling events that are involved in teacher-supervisor interaction and time management. School oriented programmes and schedules would be designed by educational supervisors on Google Calendar. Events such as afterschool activities and sports can be scheduled effectively through the use of Google Calendar (Dunn, 2008). Google Calendar provides notifications, which, are employed by supervisors and teachers as reminders of various supervisory activities and programmes (Dunn, 2008). Educational supervisors could also display the calendar on the school website as a tool for informing all stakeholders and reminding them on the actual dates and times of various educational activities. This would result in reduction of absenteeism from school activities (Dunn, 2008).

- **Google Plus (Google +)**

Google Plus is a social networking application by Google. This application was launched in 2011 and provides effective content sharing controls via the Circles feature (International Business times, 2013, p. 1). Google Plus allows users to network or access other Google features and applications such as Gmail and Google Blogger. The application also provides a convenient and easy to use chat service for users. Google Plus through the Sparks feature allows users to subscribe to various documents depending on their discipline of interest and information needs (Brooks, 2011). Google plus has a disadvantage of not having a provision for users to send personal messages. The application also requires that a friends' network is built to enhance the search facility (International Business times, 2013).

The Hangouts feature can be used in educational supervision, as supervisors could employ this feature to meet and interact with teachers both during school hours and after school. The video chat that is offered by the hangout feature of Google Plus is another suitable tool that educational supervisors can use to instruct teachers on various educational activities without their physical presence (Brooks, 2011). The

Huddles feature within Google plus is also an effective educational supervision tool, which allows supervisors to monitor and keep in touch with the learning environment (Brooks, 2011). Teachers and supervisors can also achieve contact with each other through Google + and as a result facilitate their interaction and socialisation. Teachers and their supervisors are also able to share information through the Sparks feature of this application. Supervisors could also enhance the research skills of teachers by recommending links on Google Plus as an effective way in which to gather data and information within blogs and wikis on various topics of interest (Brooks, 2011).

- **Wikis**

A wiki refers to a website that is designed to allow individuals to add, alter or remove its content. Wikis can be accessed through web browsers and are commonly developed collaboratively by a group of people (Clinebell et al., 2012). Wikis are advantageous because they allow users to post content instantly and can link users into external sources for reference. They also promote sharing of information and documents among individuals for free. There are a variety of wikis, which are applicable for various needs. Wikis are, however, less reliable in terms of credibility of their content. In addition, simultaneous editing is often unsuccessful. Wikis are also unable to allow users to make drawings or equations (Chang et al., 2010).

A study conducted in Al-Baha University (ABU) to identify the impact of wiki technology on students learning of biology highlighted the impact of the technology on their knowledge and attitude levels. Through the process of interactions, the study results highlighted the positive impact of the technology on students' eLearning and electronic usage skills, apart from reflecting students' enhanced attainment of biological knowledge. Students in the study believed that information on the wiki pages was of great help in enhancing their knowledge of biology in comparison with traditional methods of learning through lectures (Alzahrani, 2013).

Wikis have been widely employed in educational supervision processes and activities, which is basically attributed to their nature of supporting collaboration. This includes sharing of information and research findings between supervisors and teachers through posts on wiki (Clinebell et al, 2012). Most wikis have notification of new content through emails, which would allow teachers to get up to date on the developments of an educational project or activity. Educational supervisors could also post information

on wikis such as reference materials through links that would allow teachers to access external such as reports and journal articles on education. This in turn would enhance their knowledge and make them more effective. In this sense it appears that wikis are an appropriate way through which the process collaboration and interaction within educational supervision can be promoted. Wikis can also be used by supervisors to facilitate teachers' research and access to educational programmes, curricular, policies and pedagogy, which can be used to promote their roles in education.

- **Google for Educators**

Google for Educators is a special feature by Google, which is specially designed for educators or teachers. This application is beneficial to educators because it compiles or links useful features of the Google search engine with the purpose of allowing supervisors to be innovative in their educational supervision, become organised and inspired (Borja, 2006). Through Google for Educators, supervisors are able to make their supervisory roles more dynamic. Supervisors are also able to organise supervisory processes and projects effectively through this application (Borja, 2006). Google for educators is a very informative tool with various features that are applicable in educational supervision. It is, however, limited to applications that are provided for Google Inc.

Educational supervisors apply Google for Educators' features such as Google Maps to study areas where their educational supervision processes are to be implemented. Google Maps provides supervisors with details of locations such as directions, terrain satellite views and streets, which makes educational supervision outside the school environment more effective and appropriate (Borja, 2006). Google Book search is another feature that is offered by Google for Educators. This tool allows educational supervisors to research on various aspects of educational supervision, which would make them more effective in their roles. Links within Google Book Search also allows supervisors to access relevant reading materials that will guide the creation of effective supervisory plans for educational processes and programmes (Borja, 2006).

- **Facebook**

Facebook is a popular social networking site and service, which has applications that support and facilitate social networking such as communication, sharing of photos and news among members of online communities. According to Pilgrim and Bledsoe

(2011) Facebook is increasingly used by organisations and institutions for purposes such as advertising and professional communication. Users of the Facebook service register accounts and personal profiles before they use the service. The application is advantageous because it is portable with many computer platforms including all web enables mobile phones. Facebook allows exchange of messages and even video chats among friends or members of a group, which makes it a very effective tool for communication and collaboration. The disadvantages associated with Facebook include access of personal information by individuals, which could be used for unintended purposes (Pilgrim and Bledsoe, 2011).

Facebook can be used to facilitate collaboration and communication between educational supervisors and teachers. This could be achieved through video chatting on matters related to educational instruction. Links to educational information, news and reports could also be posted by supervisors on the Facebook accounts of the teachers they supervise with an aim of promoting their teaching roles. Educational supervision profiles can also be created on the Facebook site to enhance creation of forums for improved education supervision. Facebook can also act as an online conferencing centre where educational supervisors and teachers can meet without personal contact and as a result allow supervision at a distance. Teachers could also post their reports and educational activities on the Facebook accounts of their supervisors for enhanced assessment and guidance. Teachers and their supervisors could also socialise through Facebook to enhance their relationships and motivation for effective performance in education activities.

- **Twitter**

Twitter is an Internet based social networking site and service, which also provides its users with micro-blogging services. The messages that users send via this site are known as tweets and they play important information and educational roles in addition to communication, advertising and presentation of news (Wright, 2010). The site, which was launched in 2006, has attracted millions of users because of its effectiveness in communication processes that are portable with a variety of web applications and mobile phones. Twitter is beneficial because of the ease of joining the site and using it for various purposes, especially communication. The social networking site also provides its users with effective services that are democratic, as illustrated by the fact that those with accounts on the site are allowed to follow any individual or organisation

that they choose. Twitter is also flexible and offers its users a variety of free applications. However, a disadvantage of the site is that users are unable to determine who is following them. The integrity or credibility of tweets within Twitter is also hard to determine (Wright, 2010).

Twitter could be used by educational supervisors to communicate with the teachers whom they supervise. The site could be an effective tool for creating collaboration within the processes and activities of educational supervision. In addition, teachers and supervisors' participation in educational supervisory exercises and activities could be enhanced through Twitter. This could be achieved through posting tweets on the site on matters regarding education, such as conferences, training and reports on the performance of teachers within specific institutions and consequent recommendations. Supervisors could also inform teachers on various events and educational supervision activities, plans and expectations.

- **Google Docs**

Google Docs is an office suite provided by Google Inc. It is a feature of Google Plus that presents its users with an effective online storage service for their documents. The important features of Google Docs include provision for creation and editing documents within the Internet. Users of Google Docs are also able to collaborate with other users in real time. The Spreadsheet and Writely feature within Google Docs is advantageous because it allows users to design, store, provide and publish presentations on the Internet (Midler, 2012). The application provides its users with cloud computing facilities through which they are able to store up to 3 GB of documents and data within Google's remote servers. In addition to the variety of features that Google Docs presents its users with, it has many document formats from which users can choose. Google Docs has, however, been criticized for lack of high quality presentation of documents as compared to other word processing applications.

Educational supervision can be enhanced significantly through the application or use of Google Docs. For example teachers could create reports on their educational activities through the use of Google Docs and present them to their supervisors for evaluation. Educational supervisors can also employ the features of Google Docs to design plans and strategies for instruction, which would facilitate the role of teachers and their proficiency in dissemination of knowledge to students. Furthermore,

educational instructors could create feedback reports on the performance of teachers and provide them with recommendations on how they would improve the execution of their roles. Communication and collaboration can also be achieved in educational supervision through Google Docs.

- **YouTube**

YouTube is a popular video sharing service, which was developed in 2005. The YouTube website allows users to share videos and links. Users of the site are also able to view videos published by other users within the site (Lin et al., 2012). This is achieved through the upload capability of the site, which enables users to share diverse videos of various sizes (Lee and Lehto, 2013). The site allows display of music videos, movie and TV clips, educational videos and amateur videos. The benefits of YouTube include the ease and fast capacity that it provides its users for uploading and sharing videos in different formats. The site also has elaborate privacy features and allows safe video browsing among its users. The site also has an elaborate feedback system. YouTube provides a rating system for videos, which can be used to evaluate their credibility or authenticity (Lee and Lehto, 2013). YouTube is, however, disadvantaged by the fact that it limits videos to 1GB capacity. In addition, comments on the site are not restricted. The site has also been criticized based on the limited level of notification for infringement of copyright.

Educational supervisors can use YouTube to present teachers with videos and links on educational processes, policies and curricular to guide and facilitate their roles. Video on education processes can be transmitted on YouTube for evaluation and analysis by educational supervisors. Educational supervisors could also post comments on YouTube to demonstrate their take on educational activities that are uploaded by teachers (Lee and Lehto, 2013). The most effective and research based educational pedagogy can be designed and uploaded on YouTube as a way of facilitating the effectiveness of teachers in their instructional roles. The feedback system within YouTube is also an effective strategy that would enable teachers to get feedback from their supervisors on various educational activities, to stimulate improvement.

- **RSS**

RSS is an acronym, which stands for Really Simple Syndication or Rich Site Summary. RSS is a system of Internet feeds which employs various formats to present

users with updates on new works such as news headlines, updated blog entries, videos, audio and other multimedia. Updated works within the Internet are published through RSS feeds in formats of specific standards. RSS documents are referred to as web feeds or channels (Stephens, 2012). This application is advantageous because it presents its users with full and summarized feeds through text and metadata such as authorship of online content and the dates of publication or updates. RSS is effective because it allows its users such as publishers of web content to automatically syndicate web data and information that is published on various sites on the Internet. RSS formats are compatible with a variety of programs and web applications, which confer the advantage of wide usage. RSS allows users to be notified or informed about updates and new publications within their favourite web pages. The effectiveness of RSS is also demonstrated by the fact that it is able to aggregate various feeds from different websites. RSS has, however, been criticized on the basis of less appealing photos and graphics of its feeds. The identity of the web pages from which some feeds emerge could also be confusing to the user (Stephens, 2012).

RSS are effective applications, which can be used to enhance educational supervision. Educational supervisors and teachers could subscribe to this service to get feeds or notifications instantly upon updates and new publications within educational sites. This would enhance the efficiency with which online communication on educational matters such as conferences, training programmes, research, teacher assessment and feedback is achieved within the process of educational supervision. For example, teachers could get instant feeds to inform them about feedback and evaluation reports that are published by their supervisors. In addition, teachers could be informed about updates on educational projects and activities through the feeds system of the RSS.

- **Delicious**

Delicious is a web-based service for social bookmarking. Through this web service users are able to discover, store and share various web bookmarks. This service allows users to bookmark their favourite and important sites or URLs. Delicious represents a form of web-based classification of links and sites in which index terms are used to crate bookmarks (Lin et al., 2012). The advantage of this web service and application is its feature for tagging links to various sites. Users are also able to view the links that are tagged by others. The application is also beneficial to users because it enables them to group various links in accordance to topic and interest. Public profiles can also be

created on Delicious, through which information can be shared through blogging and tags of websites and links. However, Delicious does not link users to popular sites such as Twitter and Facebook, through which users would share links with their social networking site friends (Lin et al., 2012).

Educational supervisors could employ Delicious to tag teachers whom they supervise to various links and sites through which they would get guidance in their educational roles. This could include links and tagging of educational policies, curricula and teaching pedagogies that will enhance the roles and knowledge of teachers for effectiveness in their instructional responsibilities. Teachers could also be tagged to links to research articles and findings on various aspects of education, which could be used to train and improve their skills and abilities in instruction. Feedback can also be presented to teachers through Delicious by means of tags. Delicious is an effective web application through which collaboration and communication in addition to mentorship can be achieved in the processes of educational supervision.

**Appendix 9**

**Consent Letter: using Web 2.0 technologies in educational supervision, in Saudi Arabia.**

The follow information is provided for you to decide whether you wish to participate in the present study. You should be aware that you are free to decide not to participate or to withdraw at any time without affecting your relationship with researcher or the University of Hull.

*Purpose of the study:*

The purpose of the study is to identify how educational supervisors can use Web 2.0 technologies in order to communicate with teachers, to identify the principle of using Web 2.0 technologies in educational supervision and to identify the benefit of using Web 2.0 technologies in educational supervision. This research will be conducted in order to help the development of strategies related to the implementation of Web 2 technologies, in the hope that such strategies will be implemented in the educational supervision in the Ministry of Education in the Kingdom of Saudi Arabia.

In this research, a combination of quantitative and qualitative data collection methods will be used in the form of Mixed Method research. Data will be collected by questionnaires and interviews.

Please feel free to ask questions regarding this study, either before participating or during the time that you are participating. I will be happy to share our findings with you after the research is completed. However your name will not be associated with the research findings in any way, and your identity as a participant will be known only to the researcher.

There are no known risks and/or discomforts associated with this study.

*Confidentiality:*

Much of the data I wish to collect and use for research purposes in this study will be private. However, in using this data for the purposes of research all names will be removed in order to preserve anonymity. The recorded data will store in the researcher's recorder, and the data will be stored securely. The researcher will look careful for the meaning when he translates the interviews and the questionnaire.

Please sign your consent with full knowledge of the nature and purpose of the study.

Copy of the consent form will be given to you to keep.

Signature of participant                                        Date



Mohammed Alghamdi

The University of Hull

m.ghamdi2006@gmail.com

00447988952444

**Appendix 10**

# Organization Authorization Letter

The following is the letter that I intend to send to the Ministry of Education in Saudi Arabia that expresses my desire to undertake the research; therefore it seeks permission to contact their members as potential individual participants:

## To Whom It May Concern

I am a doctoral candidate at the University of Hull, under the supervision of Dr. Trevor Male. I am currently conducting research in Educational Supervision. Specifically, I am seeking to investigate how to use Web 2.0 technologies in educational supervision while attempting to develop a model of using Web 2.0 in educational supervision. The ultimate product of this research may assist the Ministry of Education in adapting to the changing conditions that are occurring throughout the educational field, and it could enrich Educational supervisors, teachers and decision makers in the Ministry of Education in Saudi Arabia. I am sure that the Ministry of Education in Saudi Arabia will be willing to participate in the research, so I will supply some copies of the thesis for the Ministry's library. If your organization agrees to participate in the research, I plan on conducting some interviews and questionnaires with supervisors and teachers in Riyadh city and if possible, in other cities.

Of course, you are under no obligation to participate, or even respond to this correspondence. The name of your organization will have its identity revealed but the individual participants will be kept confidential.

If you would like to see more detailed information about the research and the proposed interviews and questionnaires, I can send it to you either by hard-copy, post, or as a PDF file by email.

The ethical procedures of the university require that I must obtain the consent of the organization for such participation. Also, there are consent letters for the participants to contribute in the questionnaires and semi-structured interviews. I would be grateful if you could give me your consent to participate in the research. Please sign and date the form below and return to this to me through my email address, which I have enclosed below.

Name of the principal:

Date:

Signature:

The contact details of the researcher are: Mohammed Alghamdi, 1 Revlin Park, Kingswood, Hull, UK.  Tel. 0044-7988952444.
Email: m.ghamdi2006@gmail.com

Education Ethics Officer:

The university of Hull, Cottingham Road, Hull, HU6 7RX

Centre for Educational Studies, tel. 01482- 465988

Email:

**Thank You**

**Appendix 11-1:**

**Supervisors' demographic variables non-parametric tests (Kruskal-Wallis and Mann-Whitney U test)**

*A: Supervisors' familiarity and confidence with (Age of group)*

| Select your age group. | N | Mean Rank for Familiarity | Mean Rank for Confidence |
|---|---|---|---|
| 20-30 years | 10 | 11.25 | 10.45 |
| 31-40 years | 12 | 11.83 | 12.46 |
| 41-50 years | 1 | 21.50 | 22.00 |
| Total | 23 | | |

**Test Statistics[a,b]**

| | Familiarity | Confidence |
|---|---|---|
| Chi-Square | 2.109 | 2.769 |
| df | 2 | 2 |
| Asymp. Sig. | .348 | .250 |

a. Kruskal Wallis Test

b. Grouping Variable: Select your age group.

*B: Supervisors' familiarity and confidence with (qualification)*

**Ranks**

| Mann-Whitney Test | What is your highest professional/academic qualification? | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Familiarity | Bachelor of Education | 13 | 12.77 | 166.00 |
| | Post graduate | 10 | 11.00 | 110.00 |
| | Total | 23 | | |
| Confidence | Bachelor of Education | 13 | 12.46 | 162.00 |
| | Post graduate | 10 | 11.40 | 114.00 |
| | Total | 23 | | |

**Test Statistics[a]**

| | Familiarity | Confidence |
|---|---|---|
| Mann-Whitney U | 55.000 | 59.000 |
| Wilcoxon W | 110.000 | 114.000 |
| Z | -.623 | -.373 |
| Asymp. Sig. (2-tailed) | .533 | .709 |
| Exact Sig. [2*(1-tailed Sig.)] | .563[b] | .738[b] |

a. Grouping Variable: What is your highest professional/academic qualification?

b. Not corrected for ties.

## C: Supervisors' familiarity and confidence with (Experience)

| How many years supervising experience do you hold? | N | Mean Rank of Familiarity | Mean Rank of Confidence |
|---|---|---|---|
| 1-5 years | 6 | 12.83 | 11.17 |
| 6-10 years | 4 | 15.50 | 13.88 |
| 11-15 years | 8 | 11.69 | 13.88 |
| 16-20 years | 2 | 12.00 | 13.25 |
| Over 20 years | 3 | 6.50 | 5.33 |
| Total | 23 | | |

**Test Statistics[a,b]**

| | Familiarity | Confidence |
|---|---|---|
| Chi-Square | 3.172 | 4.000 |
| df | 4 | 4 |
| Asymp. Sig. | .529 | .406 |

a. Kruskal Wallis Test

b. Grouping Variable: How many years supervising experience do you hold?

**Appendix 11-2:**

**Teachers' demographic variables non-parametric tests (Kruskal-Wallis)**

*A: Teachers' familiarity and confidence with (Age of group) before and after training*

| Select your age group | N | Familiarity Pre Mean Rank | Familiarity post Mean Rank |
|---|---|---|---|
| 20-30 years | 5 | 18.90 | 17.70 |
| 31-40 years | 16 | 13.94 | 14.72 |
| 41-50 years | 9 | 16.39 | 15.67 |
| Total | 30 | | |
| **Select your age group** | N | Confidence Pre Mean Rank | Confidence post Mean Rank |
| 20-30 years | 5 | 17.20 | 21.20 |
| 31-40 years | 16 | 12.78 | 13.13 |
| 41-50 years | 9 | 19.39 | 16.56 |
| Total | 30 | | |

**Test Statistics[a,b]**

| | Familiarity Pre Mean | Familiarity post Mean | Confidence Pre Mean | Confidence post Mean |
|---|---|---|---|---|
| Chi-Square | 1.357 | .450 | 3.504 | 3.460 |
| df | 2 | 2 | 2 | 2 |
| Asymp. Sig. | .507 | .799 | .173 | .177 |

a. Kruskal Wallis Test

b. Grouping Variable: Select your age group

*B: Teachers' familiarity and confidence with (qualification) before and after training*

| What is your highest professional academic qualification? | N | Familiarity Pre Mean Rank | Familiarity post Mean Rank |
|---|---|---|---|
| Bachelor of Education Degree | 24 | 14.77 | 15.23 |
| Bachelor of Arts/Science | 1 | 11.50 | 2.00 |
| Postgraduate | 5 | 19.80 | 19.50 |
| Total | 30 | | |
| **What is your highest professional academic qualification?** | N | Confidence Pre Mean Rank | Confidence post Mean Rank |
| Bachelor of Education Degree | 24 | 14.65 | 14.50 |
| Bachelor of Arts/Science | 1 | 2.00 | 1.00 |
| Postgraduate | 5 | 22.30 | 23.20 |
| Total | 30 | | |

**Test Statistics[a,b]**

| | Familiarity Pre Mean | Familiarity post Mean | Confidence Pre Mean | Confidence post Mean |
|---|---|---|---|---|
| Chi-Square | 1.582 | 5.663 | 3.441 | 6.989 |
| df | 2 | 2 | 2 | 2 |
| Asymp. Sig. | .453 | .059 | .179 | .056 |

a. Kruskal Wallis Test

b. Grouping Variable: What is your highest professional academic qualification?

## C: Teachers' familiarity and confidence with (Experience) before and after training

| How many years teaching experience do you hold? | N | Familiarity Pre Mean Rank | Familiarity post Mean Rank |
|---|---|---|---|
| 1–5 years | 4 | 21.00 | 15.38 |
| 6–10 years | 8 | 15.25 | 17.75 |
| 11–15 years | 10 | 12.35 | 12.50 |
| 16–20 years | 3 | 15.17 | 15.50 |
| Over 20 years | 5 | 18.00 | 18.00 |
| Total | 30 | | |

| How many years teaching experience do you hold? | N | Confidence Pre Mean Rank | Confidence post Mean Rank |
|---|---|---|---|
| 1–5 years | 4 | 13.63 | 16.75 |
| 6–10 years | 8 | 16.56 | 15.75 |
| 11–15 years | 10 | 11.50 | 12.40 |
| 16–20 years | 3 | 21.00 | 17.50 |
| Over 20 years | 5 | 20.00 | 19.10 |
| Total | 30 | | |

**Test Statistics[a,b]**

| | Familiarity Pre Mean | Familiarity post Mean | Confidence Pre Mean | Confidence post Mean |
|---|---|---|---|---|
| Chi-Square | 3.292 | 2.126 | 4.889 | 2.366 |
| df | 4 | 4 | 4 | 4 |
| Asymp. Sig. | .510 | .713 | .299 | .669 |

a. Kruskal Wallis Test

b. Grouping Variable: How many years teaching experience do you hold?