

Opinions of Elementary School Teachers Towards  
Introducing e-learning in Private Schools in  
Dhahran, Saudi Arabia

By

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## CHAPTER ONE

### INTRODUCTION

## **1.1 Definitions of e-learning**

As the door closes on the 20<sup>th</sup> century and the millenium is uncorked, the e-decade is entered. The World Wide Web has given us e-commerce, e-business, e-solutions and now e-learning. As a result of being new and intrinsically vague, e-learning has generated different definitions (Carry & Willis, 2001). e-learning is defined as any form of learning that utilizes a network for delivery, interaction, or facilitation. It is also defined as Internet enabled learning; it describes the way new information and communications technologies re-invented education and learning in a digital world. The e-learning standards for 2001 manual published by the institute of IT Training considers e-learning to be the Overarching umbrella that encompasses education, information, and knowledge management. Use of the term constantly changes as the world of e-learning evolves. It covers a wide set of applications and processes which include web based learning, and virtual classrooms (Becker, 1999).

In this teaching and learning evolution, several terms have been attached to characterize the innovation and creation that has been occurring. Some of these terms are e-learning, distributed learning, online learning, web-based learning and distance learning. Zahm (1982) described computer-based training (CBT) as usually delivered by CD-ROM and that it is usually multimedia-based training. Karon (2000) discussed the convenience factor of well-designed computer-based training, that it is more convenient than instructor-led training. CBT courses are self-paced and available when learners are ready to take them,

not just when the seminar is scheduled or the instructor is available. (Hall & Snider, 2000) unaligned computer-based training as an all-encompassing term used to describe any computer-delivered training including CD-ROM and World Wide Web.

Like CBT, online training was classified as an all encompassing term that refers to all training done with a computer over a network, including the intranet, the local area network, and the internet (Gotschall, 2000). Gotschall supplemented that online training is also known as net-based training. Urdan & Weggan (2000) related that online learning constitutes just one part of e-learning and describes learning via internet, intranet and extranet. They added that levels of sophistication of e-learning vary. It can extend from a basic online learning program that includes text and graphics, exercises, testing, and record keeping to a sophisticated online learning program. Sophistication would include animation, simulations, audio and video sequences, peer and expert discussion groups, online mentoring, and links to materials on the intranet or the web. (Schreiber 1998) purported that e-learning is any technology-based learning, that is, information currently available for direct access.

Hall & Snider, (2000,p115) Op cit. define e-learning as “the process of learning via computers over the Internet and Intranet. Hall & Snider extended that e-learning is also referred to as web-based training, online training, distributed learning or technology for learning”. Distance learning, however, was not included in the e-learning definition and was defined as its own entity as a learning process meeting three criteria: a geographical distance separates communication between the teacher and the participant; the communication is two way and interactive; and some form of technology is used to facilitate the learning process.

Hall (2000, Ibid) contends that e-learning will take the form of

complete courses, access to content for “just-in-time” learning, access to components, and the separation of courses to acquire and test knowledge vs. content as an immediate, applicable resource to resolve an immediate, perhaps, one time only problem. Learning is and will continue to be a lifelong process, that could be accessed anywhere at anytime to meet a specific need or want. Hall added that more links to real time data and research would become readily available. Given the progression of the definitions, then, web-based training, online learning, e-learning, distributed learning, internet-based learning and net-based learning all speak of each other (Hall & Snider, 2000, Ibid).

Urdan & Weggan (2000, Op cit.) shared that e-learning covers a wide set of applications and processes, including virtual classrooms, and digital collaborations. They also customized their definition to the delivery of content via all electronic media, including the Internet, Intranets, extranets, satellite broadcast, and audio/video tape, interactive TV. They warned however that e-learning is defined more narrowly than distance learning, which would include text-based learning and courses conducted via written correspondence.

Given the review of definitions on all these terms it seems they show a great depth of interdependence among themselves. While one person may narrowly define a term, another person could give it the all-encompassing power. This communicates that e-learning, if given the all encompassing form, can be the larger circle of which all other terms would be overlapping at different times and extents given their user’s intention. Another rationalize that “just-in-time” learning is a major advantage of e-learning but not of distance learning. Distance learning purports planned courses or planned experiences. E-learning does not only value planned learning but also recognizes the value of the unplanned and the self-

directness of the learner to maximize incidental learning to improve performance.

The definition used in this research will be the definition agreed upon by the Knowledge and Learning Systems group of the NCSA (National Center for Supercomputing Applications) which is as follows: e-learning is the acquisition and use of knowledge distributed and facilitated primarily by electronic means. This form of learning currently depends on networks and computers but will likely evolve into systems consisting of a variety of channels (e.g., wireless, satellite) as they are developed and adopted. E-learning can take the form of courses as well as modules and smaller learning objects. E-learning may incorporate synchronous or asynchronous access.

#### Levels of e-learning:

E-learning falls into four categories, from the very basic to the very advanced. The categories are:

##### 1. **Knowledge databases :**

While not necessarily seen as actual training, these databases are the most basic form of e-learning. You've probably seen knowledge databases on software sites offering indexed explanations and guidance for software questions, along with step-by-step instructions for performing specific tasks. These are usually *moderately* interactive, meaning that you can either type in a key word or phrase to search the database, or make a selection from an alphabetical list.

##### 2. **Online support :**

Online support is also a form of e-learning and functions in a similar manner to knowledge databases. Online support comes in the form of

forums, chat rooms, online bulletin boards, e-mail, or live instant-messaging support. Slightly more interactive than knowledge databases, online support offers the opportunity for more specific questions and answers, as well as more immediate answers

### **3. Asynchronous Learning :**

This is e-learning in the more traditional sense of the word. It involves self-paced learning, CD-ROM-based, Network-based, Intranet-based or Internet-based. It may include access to instructors through online bulletin boards, online discussion groups and e-mail. Or, it may be totally self-contained with links to reference materials in place of a live instructor.

### **4. Synchronous Learning:**

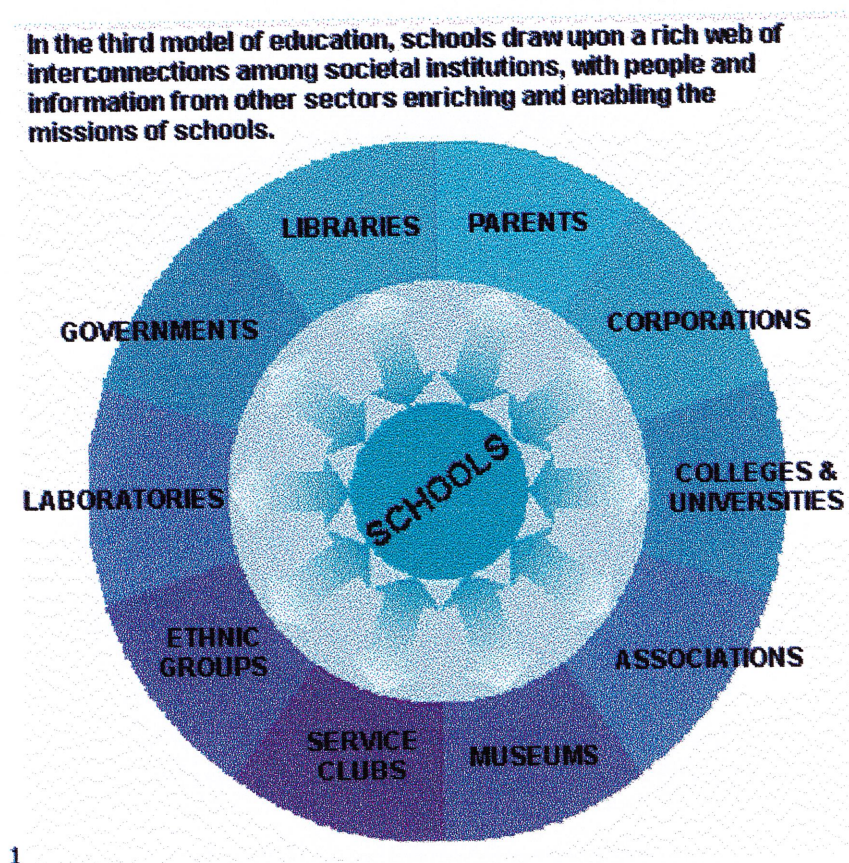
Synchronous training is done in real-time with a live instructor facilitating the training. Everyone logs in at a set time and can communicate directly with the instructor and with each other. You can raise your cyber hand and even view the cyber whiteboard. It lasts for a set amount of time -- from a single session to several weeks, months or even years. This type of training usually takes place via Internet Web sites, audio- or video-conferencing, Internet telephony, or even two-way live broadcasts to students in a classroom.

## **1.2 The Need for e-learning In Education**

McKenzie, 1998 explained that technology has a profound impact on learning whether people are ready for it or not. They anticipated that teachers may have either one of the following attitudes towards technology, they will act upon this knowledge or they would wake up

being only spectators as others pass them by with new and powerful services. They even offer an interesting controversy that presents itself, which is teacher's ability to embrace new technology, because if they do not –as they put it someone else will. They explain those companies such as AOL/time Warner, and the Discovery Channel to name a few would not hesitate to take on the teacher's job and attract all the learners.

Technology will lead to a digital renaissance in educational services. Depicted the new model of education called the third model of schools as apposed to the schoolhouse model and the factory model. The following figure represents the characteristics of the third model.



Source: (Ballard, 2000 P 72)

Figure 2: The Third Model of Education

This post Industrial form of society calls for a new, post Industrial form of education. Teachers, parents, school administrators, and policymakers have begun to realize that an entirely new model of education is needed. In this new kind of school, all students will be held to far higher standards of learning because everyone will have to be prepared to think for a living and everyone will have to be capable of learning many new skills over the course of a lifetime. This model of education will increase the links between students and their communities, bringing the resources of school to bear on the complex ethical, civic, and technical decisions that all citizens will have to make. The timing and location of education will be more flexible, to reflect and take advantage of changes in the workplace. The distinction between learning inside of school and outside of school will blur.

Technology is a key transforming element in creating this new model of school. Just as technology is reshaping other institutions, it has the potential to reshape education, ending the disjunction between school and the broader society. Technology offers unlimited new ways of learning, of teaching, and of running schools. It provides new ways for everyone involved in education to be openly accountable to parents, to communities, and to students. Traditional schools have emphasized individual performance and competition and have discouraged students from working or even talking together. In the new model of school, classroom experiences emphasize critical thinking, teamwork, compromise, and communication-the skills valued in today's workplace.

This model of education calls for changing the roles of students, teachers, and schools. In the new model of school, students assume many of the functions previously reserved for teachers. In small groups,

individual students act as peer-tutors for others. Because they are often the ones most familiar with new technologies, students lead by example, helping their classmates work through problems. In this way, students begin learning from an early age how to communicate and how to assume greater responsibility for their own education.

At the end of primary education pupils should have the ability to explore knowledge and experiment with it and be able to communicate this knowledge by means of information technology. They can engage in this exploration of knowledge both individually and in groups. Many have described the Internet as the most effective delivery medium of the century Becker, (1991) Op cit claimed that "It is estimated that by the year 2003 the number of online users is predicted to be 45 million. The expectation that the youth should be trained to utilize this innovative tool is on an increase". As the number of Internet users in the US increases, so does the belief of the public that e-learning has definite advantages to offer academic environments. Policies have been established to get every classroom in America connected (NCES, 1999). In his 1997 State of the Union address, former president Clinton proclaimed that one of his foremost goals was to give Internet access to all 12-year-olds in America's schools by the year 2000. It was also planned to have a student-computer ratio of four to one in addition to having every classroom in each educational district connected to the Internet by the year 2002. A large portion of educational funding has been invested in an attempt to connect every classroom in America to the Internet. In 1999 alone \$ 5.5 billion was spent to meet this goal (NCES, 1999 p44). Between 1994 and 1997, Internet access increased from 35% to 78% in America's public schools. As more and more schools got wired, both students and teachers received enormous educational resources (Kook,

1997).

Information and communication technology (ICT) is of significant importance in education due to the key part it can play in transforming educational standards and in preparing young people for the world of work and for an active role in society. There are many reasons suggested in literature for moving to a system of e-learning, they include:

**1. The changing nature of work and the move to a knowledge economy:**

There seems to be an agreement in all the literature that the fundamentals of our economy are currently shifting and that we are moving into a new economy which is driven by "the world of ideas and knowledge rather than material resources" (Hartley & Robertson, 2001, p3). Knowledge workers in this new economy "have a non-traditional orientation to time and space". This means that learning must accommodate this new approach. Traditional classroom learning does not allow this to happen.

**2. The move from "just-in-case" to "just-in-time" learning:**

Urdan & Weggan (2000, Op cit. p5) make the point that in "just-in-case" fashion, courses are given and then forgotten, often without improving the performance of students. However, there seems to be evidence that learners place more belief in knowledge that they have discovered on their own. e-learning allows learning materials to be available whenever needed by the learners so that they can be used just in time.

**3. The growth in the Internet and technology:**

The rapid rate of growth in access to the Internet makes the Internet the

ideal delivery vehicle for education and learning experiences. However, access to information is not an assurance that it will be used. In education, there is a widespread misunderstanding that pupil and students become "little scientists" merely because the framework of accessible information is available. This misunderstanding is an easy way out for many teachers and it invariably leads to the conclusion that the learner is to blame when the expectations of scientific behavior is not met. The main difference between those who succeed and those who does not is not the experience they have in using computers, but the training they have in learning. The general arguments that access to technology in school is important have only limited value if it is not combined with a training to learn. This may seem obvious, but it is a fact that most children have a lot of routine in being taught, and lack training in learning (Schofield, 1995).

**4. Resource solution** :E-learning can significantly help overcome the lack of resources in the American K-12 market. K-12 enrollment is expected to reach a record 53 million by fall of 2001 (6.5 million more than in 1990). Another consideration is that 2.7 million additional teachers will be needed over the next decade to support the expanding enrollment and replace teachers who retire. The effect of these two problems is that schools will be forced to cut corners by limiting the number of classes offered. E-learning will enable qualified teachers to share their courses across geographical boundaries, thus allowing schools to provide a wider spectrum of classes.

**5. Alternative learning method** :E-learning provides an additional learning method to students who struggle in a traditional classroom setting. The use of audio and visual computer programs, including

educational games, has been shown to improve problem solving skills and retention of abstract concepts in mathematics and science. Today's children are more comfortable with technology, which can become an engaging medium. Students who feel embarrassed about raising their hands in a physical class can engage in e-mail threads and online discussion groups without physical pressure

### **1.3 General Status of Education**

Educational philosophies evolve in response to the needs of each era and in harmony with available technology. The ancient Greek image of the teacher facing a single student while sitting on opposite ends of a log seems quaint and appealing, although inadequate in a modern context. The common practice of medieval students' copying manuscripts or compiling mathematical tables is now seen as insufficiently creative. The industrial age teacher standing in front of classroom with rows and columns of separated desks seems orderly, but possibly too rigid.

It has been argued that each generation has its own fight against images of learners as wax to be molded, pitchers to be filled, and slates to be written on (Brown & Duguid, 2000). For a long time learning was laced with ideas of "absorption capacity", as if humans were information sponges. Indeed the idea that learning is mere information absorption has been around for ages. Learning has been treated as a supply-side matter, thought to follow teaching or, information delivery. But learning is more demand driven. People learn in response to need. When people cannot see the need for what is being taught, they ignore it, reject it, or fail to assimilate it in any meaningful way (Stokes, 2000).

Having known that, the efforts to redefine learning under modern terms associated with technology have swept through the educational arena. These views emphasized how important it is not to force-feed learning, but to encourage the need and make the resources available to people in order for them to gain knowledge independently (Sheeky, 2001).

In the past all of the power was with the teacher. The Teachers brokered the sources of information. They defined where instruction was presented, how it was presented, and how learning was assessed. The learner was not actively involved in the process, and he was required to follow the lead of the teacher. Traditional classroom learning is often focused on the instructor. Information tends to flow from instructor to students, and as a result can be more *passive* for students. This is characterized by Owston ( 1997)in the" phrase "sage on the stage" because the instructor (considered to be the expert) must somehow transfer his or her knowledge to the learners (assumed to be less knowledgeable".

#### **1.4 The Use of Technology and e-learning In Education**

The historical path of technology in education is filled with controversy. Even books and paper faced resistance because they reduced human memory skills. Although they are powerful tools in fostering learning, their contents and usage are shaped by prevailing philosophies of education. We can only guess how long it took for the first grammar or arithmetic textbooks to appear. Some proponents must have argued that textbook-assisted instruction meant that students could learn on their own, but teachers still played a key role in challenging, guiding, and

evaluating student performance. Paper and books changed the content of education because memorization of key dynastic leaders or a few medicinal plants gave way to consulting extensive royal histories or detailed pharmacological tables. Powerful technologies change our expectations and curricula.

Postman (1995,p106 ) said that "every teacher has his or hers individual view on learning, expressed as "pedagogy in use". Such a personal theory of learning can be aligned or influenced by many pedagogical theories, but are to a large extent dependent on personal experiences and preferences of learning" The fundamentally different views on learning influence the understanding of the role of technology in the context of education.

Kleiman (2000) stated that a clear connection between the generally available technology and the ideas and the thoughts that develops as basis for applications of the technology and the way we relate to technology in general. Some people are rooted in the behaviorist tradition where learning is viewed as a process resulting in changed behavior; the name that is connected to that view is Skinner. Skinner, with his association to a behaviorist approach to human endeavor, is an exponent for a mechanistic approach to education.

As stated by (Haugland, 1997) other people draw on the constructivist idea of learning where learning relates to the way students explore the concepts and interrelations of a complex phenomena. Piaget is an exponent for the view that emphasis the different stages in the way we learn. Just as our views on learning are formed and socially constructed through past and present experiences, so are our attitudes towards

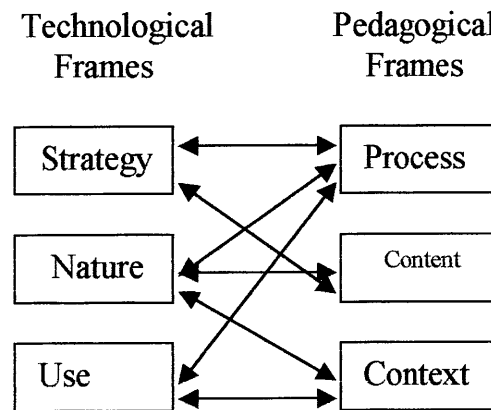
technology. In order to interact with technology, people have to relate and make sense of the particular technology in relation to the context it is used in. This process of sense making is to a large extent depending on the individual user's pre-existing attitudes and perception (Gilhooly, 2001).

Magnusson & Svensson (2000) presented a conceptual framework that deconstructs peoples underlying assumptions, attitudes of technology into three dimensions (1) The nature of technology, which should be understood as an individual's perception of the potential of the technology in question. (2) The strategy of technology should be interpreted as the individual's perception of the underlying reasons of implementing the technology, and finally (3) the technology in use refers to people's understanding of the relation between technology and it's use context.

Ktoridou (2002) presents a picture of how the development of knowledge and technology has lead to growing abstraction of education. The technological time line is not as simple as it may seem yet the most significant event on the timeline is the introduction of the World Wide Web. When Berner-Lee at Cerni Geneva defined HTML as a tool for exchanging documents on the net, he built. The net was there and the standard for encoding documents was established. The revolutionary growth of the web can only be understood in light of a mature user society.

Dean (2000) found that an understanding of educational technology as something that has the primary purpose of making learning more effective is linked to a view on the use of this technology. A behaviorist view on the learning process is connected with a focus on content-learner

interaction, whereas a constructivist view goes hand in hand with learning in a collaborative context. On the abstract level a link exists between the understanding of technology and the phenomenon it aims at supporting. The following figure maps the interrelations between technology and pedagogy.



Source: Magnusson, (2000),P 32.

**Figure 1:Technological and Pedagogical Frames**

The way the cosequences of the technology in use are appreciated is related to the way the context of learning is understood. Similarly the attitudes towards the nature of e-learning technology in terms of functionality and affordances correspond to the way the content of learning is perceived (Eurich & Schfield, 1995). The attitudes toward the nature of technology are hard to separate from consequences that affect the views on processes, content, and context of learning.

Now there is a power shift to the learner, who has direct access to sources of information and instructional services. This shift is leading to the disintermediation of traditional classroom educator's institutions. Increasingly learners become actively involved in the process.

Since most instructors were taught in instructor-focused classrooms it is very hard for them to break from this mold. e-learning on the other hand

is much more suited for a learner-focused environment .As a result of learners constructing their own learning, they are considered to be more *active*. This type of active learning forces teachers to be "guides on the side" of the learner. e- learners have more responsibility for their learning, and instructors spend much more time providing resources than delivering content, (Jukes&Mckain ,2001).

e-learning already offers pupils links to useful materials, Questions on homework problems and the chance to "ask the teacher" with e-mail links to a specialist in every subject. For pupils, new technology is bridging an important gap in their education Easy access to the Internet has opened up access to unlimited sources of information and knowledge. It provides a series of modules and assessments that guide pupils through the course material for their chosen subject. It works intelligently, responding to pupils' progress, and guiding them back to the areas they need to concentrate on. But it is not a replacement for a teacher. e-learning is intended to be used in conjunction with a teacher - allowing pupils to work at their own pace and giving the teacher more time to concentrate on individual pupils rather than preparing course materials. Also has the advantage of being online. Course materials can be updated instantly in response to changes to the curriculum, while textbooks quickly go out of date.

McKenzie, 1998, Op cit. believed that there are many questions that need to be addressed when the shift happens towards e-learning. Who will provide the instructional services in the future? Can schools move quickly enough to catch this wave and not be engulfed? It is stressed that the real issue is not technology, but the mindsets that operate behind the technology.

The Benefits of e-learning include:

1. **Varying the types of content**

Images sounds and text work together to build memory in several areas of the brain and result in better retention of the material .

2. **Creating interaction that engages the attention**

Games, quizzes and even just required manipulation of something on the screen create more interest, which in turn builds better retention .

3. **Providing immediate feedback**

E-learning courses can build in immediate feedback to correct misunderstood material. The more immediate the feedback the better, because each step of learning builds upon the previous step. If no feedback is given, then the next step may be building upon an incorrect interpretation.

4. **Encouraging interaction with other e-learners and an e-instructor** -Chat rooms, discussion boards, instant messaging and e-mail all offer effective interaction for e-learners, and do a good job of taking the place of classroom discussion. Building an online community significantly influences the success of online programs.

5. **Self-paced**

E-learning lets you go through the course at your own pace. This helps avoid missed information in situations where you either have to leave the course for an outside emergency or you just don't catch what the instructor said. e-learning offers user-controlled elements that just aren't feasible in regular classes. For example, differentiating the sound of an

irregular heart beat from that of a regular heart beat by clicking on icons on the screen allows the learner to listen at their own pace and replay the sound as often as they like. This self-paced element is one of the things that make e-learning so effective.

#### **6. Interactive**

another element that e-learning offers is interactivity. This type of interactivity can be in the form of simply clicking on appropriate responses to questions, clicking to animate an object or start a process, or dragging and dropping items to practice a skill.

#### **7. Motivating**

Being motivated to learn is half the battle. Knowing the course you are taking is going to have some "fun" elements like video, audio, animation and the "gaming" scenarios creates more interest and curiosity in learning. This, too, leads to better retention and faster learning. Other motivating factors with e-learning are the conveniences that it offers, such as being able to go through the course any time and anywhere (almost). It is much easier to work training into a busy schedule when you don't have to take two days off to travel and then sit in a classroom.

The proper use of technology can only be viewed in the context it is about to be applied in. The educational system that embraces the technology can have profound impact on the success or failure of the attempt. Elementary education in the kingdom of Saudi Arabia has to be carefully examined before it can invite the e-learning effort.

### **1.5 Education In The Kingdom of Saudi Arabia**

To gain a full picture of education in Saudi Arabia we have to appreciate that until 1369/70 AH (1949/50 AD) an education system did not exist. That system was later established through the active support

and encouragement of Prince, now King, Fahd Ibn Abdel Aziz, who later took over the ministry of education and Higher Council for Education as the supreme educational body in the kingdom. Moreover, we must understand that most, if not all, of the educational systems in the countries of the Middle East are derived from the colonial systems of the past. It's something that's straight-jacketed the provision of education in these countries. Even should they want to adapt their educational systems to meet their economic and social needs, a painful transformation is required. But in the kingdom of Saudi Arabia the situation is different: the Saudi education system has managed to avoid all these debilitating factors right from the start. In fact, Saudi policy makers have had the fabulous opportunity to create an education system, which meets the demands of the nation (Roper, 2001).

There are four levels of education in the Kingdom preceding higher education. The first level is pre-school: a small sector currently limited to larger cities in the first instance. The second level is primary school for children aged 6 to 12. The third level is intermediate for pupils aged 12 to 15. And the fourth stage is for pupils aged 15 to 18, which prepares students wishing to continue their studies at university level. And over the past 20 years, there's no greater evidence of the kingdom's commitment to the education of its people than the huge investments it has made in these levels. The ministry of education bears the bulk of the responsibility for the education of boys and Girls at all four levels. Moreover, year upon year the number of pupils in each level is rising. The statistics show the same holds true for girls, who benefit from education in the primary, intermediate and secondary levels in accordance with the wise policy of the kingdom which aims to ensure that the whole population knows at the very least how to the three Rs, reading, writing and simple arithmetic In

the Saudi Education System Signs of progress have been moderate yet relevant.

The data indicate the following:

1. The pupil teacher ratio in primary education decreased from 19 pupils per teacher in 1990 to 12 pupils per teacher in 1998. This is a development in the quality of primary education because this allows the teacher to provide individualistic teaching that takes into consideration the differences between students. This also improves their capacity to acquire necessary skills, science and knowledge for their potentials as well as their mental, physical and reflex growth.
2. The pupil teacher ratio in private schools is inferior to that of public schools; it was 13 pupils per teacher in 1990 against 16 for the public schools and 10 pupils per teacher in 1998 against 12 for public schools. The gap between private education and public education was considerably reduced during the last years, which reflects low Pupil Teacher Ratio's for the governmental education. If the Pupil Teacher Ratios in Saudi Arabia decreased during the last years, it is because the Government sought to provide education opportunities to all social categories notwithstanding the geographic distance or population specificity's. Schools with limited pupil-capacity were established in the remote areas. It is true that this type of education is expensive, however, education is a top priority for the Government that supported this type of schools.
3. The number of male and female teachers increased in general from 112.207 in 1990 to 179.194 in 1998 with a 57% increase in around ten years. This increase indicates that the Government is interested in recruiting qualified teachers in order to meet the sustainable growth in the

number of pupils in primary education.

As for the introduction of computers into education in Saudi Arabia, there have been several attempts to utilize Internet into teaching that began with the introduction of computer courses in high school, then some added courses in secondary school. Following the understanding of the huge impact of technology on teaching the subject of computers became compulsory, one class per week, which then extended into two classes. The emphasis in those courses was on the history of computers, components, and keyboard skills. In higher grades the introduction of databases and Basic language programming was necessary.

**Table1: The Number of Computers Provided to Elementary Schools in the period 1412-1418H**

| <b>Total Number of Computers</b> | <b>Small Lab</b> | <b>Big Lab</b> | <b>Year</b> |
|----------------------------------|------------------|----------------|-------------|
| 2750                             | 48               | 142            | 1412        |
| 2586                             | 44               | 134            | 1412        |
| 3877                             | 56               | 205            | 1414        |
| 961                              | 11               | 52             | 1415        |
| 3861                             | 61               | 202            | 1415        |
| 2850                             | 150              | 90             | 1417        |
| 3387                             | 105              | 156            | 1417        |
| 4043                             | 104              | 195            | 1418        |
| 24045                            | 579              | 1176           | total       |

**Source: Al-Sultan&Fantookh, 2002,P51.**

As indicated in the table the increasing number of personal computers is an effort to wire schools has been a major interest of the Ministry of Education in Saudi Arabia, Yet the number of machines alone has not affected the desired change in education. The next plan by the ministry

was to turn to the area of teacher training on issues of technology use to fully support a correct transition to quality education. The annual meeting of teacher colleges had issued a plan to include a compulsory computer-training program in all teacher preparation courses (Mason, 2001).

The transformation in education that has occurred in the past half century is truly astonishing. Today, Saudi Arabia 's nationwide educational system comprises more than 26,000 schools, eight universities, and a large number of colleges and other educational and training institutions. King Fahd has implemented other measures to further improve the quality of education. One is an ambitious school computer project that seeks to provide a computer for each student and also establish a network that connects all schools and universities to facilitate teaching and research. Implemented with the active support and participation of the private sector, the project will also provide computer training for more than 111,000 teachers. As an example, an educational development program for electronics was set up in 1997 to provide ongoing educational programs for teachers and instructors. The program also provides training for students who plan to become instructors and offers scientific seminars in electronics to attract students. Similar projects are being introduced in other fields of vocational training (Laurillard, 2002).

### **1.6 Private Schools In Saudi Arabia**

The government runs almost all the schools. There are few private schools at the primary levels of education. Totals of 688 schools have been constructed during the past two years and are financed by the private sector. Private education is officially encouraged in the Kingdom of Saudi Arabia. Private institutions exist at all levels and receive

governmental funding and administrative support. Licenses for opening private institutions are granted only to Saudi citizens. State supervision of private schools ensures a level equal to that of governmental schools (Manee, 1993).

The Area of Dhahran has a total of five private schools. Private schools have focused on providing their students with the latest technology for education possible. The Kingdom is also forging ahead in stamping out computer illiteracy among Saudi youth.

More than 111,000 schoolteachers will also be imparted computer education under the program, which is estimated to cost around SR 1 billion. The ministry plans to implement the program with full financing by firms from the private sector. They will make available computer systems, as well as instructors to the schools, besides carrying out necessary maintenance works. Firms are being paid for providing these facilities by the students' parents in installments, with SR 1, 000 being set apart as a sum for each year. Another important landmark during the reign of King Fahd was the launch of Abdullah ibn Abdul Aziz Schools' Net Project, known as Watani Project, for which the monarch donated SR20 million. Five private model schools in Dhahran have already been established under the project, which envisages connecting all Saudi schools and the educational directorates by means of wide area network on a Kingdomwide basis (Manee, 1993, Ibid.).

Dr. Al-Awad Vice minister of education said the schools' Net project would provide every student, teacher, parent and educator with an array of services and huge source of reference material on the Net. The schools' Net services and content include, but are not limited to, all

subjects curricula, educational reference material and electronic books, (Al-Sultan, 2002).

The schools' Net first phase will provide one million students with their IT requirements in a ratio of one PC for ten students. The ministry has already signed a SR90 million contract with a national company for equipping the schools' computer labs. A total of 21,025 personal computers are being supplied to 1,188 selected schools in 50 different regions of the country under the program. (Manee, 2002).

In a study conducted by (Al-Sultan, 2002, Op cit.) in the scope of The Electronic School Project in Saudi Arabian Private Schools a survey was distributed to a random sample of 210 teachers from various areas of the kingdom regarding the acceptance or resistance to utilizing e-learning in the private sector of primary education the findings indicated that 70% of teachers supported the use of e-learning inside the classroom while 8% resisted the use of it in the classroom. The study went further to discuss the reasons behind such resistance and found them to be associated with the language barrier, the technological know how, and the belief that technology is an added work weight on the teacher.

Richardson & Turner (2000,p123) believed that "the reason for the difference between traditional teaching and e-learning is the clash of mindsets between those who did not see the future and those who understood where things were heading and used technology to enable the change" There are many that believe that e-learning will never be able to move k-12 education out of its traditional roots. As explained by O'Donnel (1991,p131) "They believe that change is something that happens to steel workers, to farmers, to automakers-that it would never have an effect on schools. Yet the same technology that changed business

in the past six years would compel us to articulate the future of the school, The genie is out of the bottle, and there is no putting it back” Technology shifts the power to the learner, allowing learners to be in control of their learning. It is not replacing, but redefining instructional delivery

Some technology cheerleaders and national leaders focus on installing computers in classrooms as a measure of success in transforming education. However, even if there were one computer available for each student, with appropriate software and network access, there is no assurance that education would improve. The technology alone can never be a solution, but in the hands of a knowledgeable teacher, appropriately designed technology can become a useful tool. The World Wide Web cannot be a solution to educational needs unless the creative component is included. We have to do more than teach kids to surf the net; we have to teach them to make waves.

Change in education is hard and it is easy to walk away from it with a sense of hopelessness. An example is considered in the observation of the blue whale, the largest mammal on earth. It is so big that when it decides to turn around it can take up to five to seven minutes to turn 180 degrees. There is a strong parallel between blue whales and schools. Both of them seem to take forever to turn around. Yet if the blue whale is compared to a school of sardines, unlike the blue whale they can turn almost instantly. Although they appear to be swimming together, in reality a small number of fish are beginning to swim in a different direction as their number grows (15-20%), the rest of the school changes direction almost instantaneously. The case is no different when school change is considered, (Salmon, 2000).

### **1.7 Statement of The Problem**

With the emergence of the information age there has been a call to use the Internet and communication technologies to enhance education. Teachers need to successfully integrate technology and reform their teaching practices. This process of change is often a difficult one which requires changing long held practices and beliefs. The use of web sites in teaching is considered one of the newest changes that teacher's experience. Teachers no longer ponder in classes and lecture students sitting in classrooms, nor their words written down or digested and repeated. Those days are somewhat –long gone. We have entered the Millenium where e-learning is done through computers and web sites (Griffin, 2002). The issue of integrating the Internet into classroom instruction is dependent upon a teacher's willingness to implement technology actively. There has been no study that enhanced the opinion of elementary school teachers towards introducing e-learning in private education in Dhahran Saudi Arabia .

### **1.8 Purpose of The Study**

The main purpose of the study is to determine a baseline composite of teacher's opinion towards e-learning. The intent is to identify attributes of teachers that may contribute to a positive perspective about e-learning. It is expected that the results will be constructive in the future efforts to actually implement e-learning in schools. As a result, (a) school administrators, (b) teacher educators, (c) Educational technology decision makers will gain valuable insight by attending to the findings and recommendations of this study.

### **1.9 Objectives of The Study**

The research aims to achieve the following objectives:

1. To determine teacher's concerns towards e-learning.
2. To determine the requirements to implement e-learning.
3. To determine the plan needed to implement e-learning.

### **1.10 Research Questions**

Teacher Concerns:

Question 1: What are teachers expressed pinions towards e-learning?

Requirements of Implementing e-learning:

Question 2: What are the teachers needed requirements to implement e-learning ?

Strategy Plan to Implement e-learning:

Question 3: What is the plan to implement e-learning ?

### **1.11 Significance of The Study**

This study hopes to determine the opinion of teachers on introducing e-learning in private schools. The implementation of the electronic school project beginning with ninety-one schools throughout Saudi Arabia in the year 2003 will see the integration of the smart technologies into the curriculum. The latest technologies will enable the teachers to prepare and use the interactive and participative multimedia instructional materials. The students will also be using these technologies to seek and discover knowledge. Therefore, Davis & Shade (1999,p15) acknowledges that "the role of the teacher must change from a dispenser of knowledge to a facilitator and guide in the learning process The teachers must be able to help students to learn how to learn and how to use e-learning

effectively to access the vast resources available”.

It is believed that addressing the issue of e-learning early on would enhance teacher's opinion, confidence, and instructional abilities with respect to integrating e-learning into the classroom.

### **1.12 Methodology**

This quantitative study employed a questionnaire. The questionnaire contains both positively and negatively phrased statements to preclude any response set (Cohen & Manion, 1994). Furthermore, the positively worded and negatively worded statements have to be randomly placed in the questionnaire. The population of the study is all the teachers in five private Saudi Schools in Dhahran. The sample is selected by using stratified random sampling technique to include both, male and female teachers. Stratified random sampling is likely to be more representative on a number of variables than a simple random sampling. Descriptive statistics are procedures for organizing and summarizing the data in order to communicate and describe the important characteristics of a sample (Cohen & Manion, 1994, Ibid.). If the data is in numerical form, such as age or number of years of teaching experience, the findings are usually reported in the form of distribution, mean and standard deviation. On the other hand, the data that cannot be expressed in numerical form, such as sex or academic qualification, are reported in the form of frequency and percentage. Tables are being employed to display the data and to allow for easy reference and interpretation.

The mean and standard deviation of the opinions of teachers towards e-learning were computed. The standard deviation represents an average

deviation from the mean score of the sample. The larger the standard deviation the larger is the variability among the set of scores.

### **1.13 Delimitations**

The study is conducted in five elementary schools in Dhahran the respondents are selected randomly from the teachers. The sample includes male and female teacher participants.

There may be differences among teachers from the rural and urban schools, and from the primary and secondary. There may also be regional variations in terms of gender, experience and ethnic composition.

Also this study is limited mainly to the opinions of teachers towards e-learning in schools. Future studies on opinion towards other forms of information technology can be carried out when they are more readily accessible to teachers.

### **1.14 Definition of Terms**

Constructivist Pedagogy: The educational philosophy of teachers who believe that good teaching encompasses (a) multiple classroom activities rather than one common set for all students. (b) Allowing student interest to guide activity. (c) Student freedom to move about the classroom. (d) Requiring students to be responsible for their learning, and (g) the teacher acting as a facilitator rather than a lecturer (Gustafson, 1999).

Internet: A network that spans the globe linking millions of computers and their users to one another. It uses telecommunication software and

hardware.

e-learning: Education via the Internet, network, or standalone computer. Network-enabled transfer of skills and knowledge. e-learning refers to using electronic applications and processes to learn. e-learning applications and processes include Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. Content is delivered via the Internet, intranet/extranet, audio or videotape, satellite TV, and CD-ROM.

#### Asynchronous learning

A self-paced learning event. Learners are online at different times and cannot communicate without time delay. Examples: courses taken via Internet, CD-ROM, Web presentation, or videotaped classes.

#### Private sector

Any business or organization that is not a member of the public sector (public education or government agency). Public sector Any public education or government agency

#### Synchronous learning

Real-time learning situation that can include immediate, two-way communication between participants.

#### Virtual classroom (VC)

A scheduled offering that is available at multiple locations (either desktop or classroom) via a network.

CHAPTER TWO

REVIEW OF THE LITERATURE

Wired classrooms and diagnostic gadgetry spelled the end of the trusty blackboard and chalk. Two million school pupils in Britain use Internet portals for learning at school that contains tailored information on every aspect of the UK curriculum from Roman settlements to earthquakes. The e-learning portal has been established in 35% of primary schools (Boyd, 1997, p44). According to (Haugland & Wright , 1997, Op cit. p 15) the schools in the US and some parts of the UK have already started using e learning. The political will to improve educational standards on both sides of the Atlantic has led governments to commit significant amounts of cash to getting schools online. Last year, another £1bn was earmarked for investment in new technology for schools as part of the National Grid for Learning in Britain. The government's stated aim is a computer for every five pupils, compared with one for every nine in 1998. In the US, the number has fallen from 16 students per computer in 1992 to four last year (Haugland & Wright , 1997, Ibid. ).

### **2.1 Teacher Concerns:**

As found by (Hartley & Robertson, 2001) education is fundamentally concerned with access to resources and communication and those are two of the net's biggest strengths. Combined with the predictable growth of computing in schools, it makes online education one of the few areas that investors are prepared to put money into during this time." Until now the teacher has stood there facing 30 kids and they have all been taught in the same way. With the internet, they can be reached on their own terms, in their own way and in their own time." estimates suggest 50-65% of new teachers in the next five years, either straight from university or the private sector will be comfortable with internet use (Watson, 2001 p 23).

As quoted (O'Donnell, 1991) regarding the increase in the number of

computers in schools, a poll taken in 1990 in which U.S. teachers ranked computer skills and media technology as more 'essential' than the study of European history, biology, chemistry, and physics. One of the arguments for computerizing schools that were mentioned was "to make tomorrow's work force competitive in an increasingly high-tech world". According to Kook (1997), "The growth of communication networks will change the image of the classroom for the twenty-first century. The global classroom will be connected by networks that reach around the world and across subject areas".

It is hypothesized that once the Internet becomes an integral part of the classroom experience, learning will move away from a more traditional and didactic environment to a more authentic and constructivist type of experience (Becker,1991, Op cit.). Many teachers find this transition difficult, shifting from large group, didactic type learning to facilitating learning in small groups. For those teachers who are successful at making the transition to working with smaller, cooperative groups, they struggle with the more fundamental issue of technology's legitimate relationship to traditional learning curriculum (Salmon, 2000, Op cit.). Teachers have difficulty making the philosophical and pedagogical shifts necessary to accommodate a less traditional learning environment.

Technology cannot be effective in the classroom without teachers who are knowledgeable about both the technology itself and about how to use it to meet educational goals. (Hannafin &Savenye ,1993,p106) stated that "the interactive nature of the computer, and its capacity to enable student-entered exploration, requires a "fundamental shift" in the role of the

Teacher" The teacher can no longer be a dispenser of information to relatively passive learners. They point out those terms like "manager of information," "coach," "guide," "organizer," "initiator," and "diagnostician," appear in the literature to describe the technology-oriented teacher's new role.

Kook (1997, Op cit.) defines five roles that teachers will assume, as they become more active in their use of computers and communication technologies:"1. Information consultants, 2. Team collaborators, 3. Facilitators, 4. Course developers, and 5. Academic advisors."Viewing the teacher's role as a continuum, (Hannafin and Savenye, 1993, Op cit.) put the role of traditional lecturer and imparter of knowledge at one end and the role of coach, observer, and facilitator at the other end. They then generalize that the traditional end of the continuum embraces an objectivist learning theory while the other end is likely to embrace constructivism.

Minton's research (2000) indicates that teachers who possess more constructivist philosophy toward learning are more successful at using technology for classroom learning activities. These teachers generally encourage students to work in small groups on complex content-rich projects that allow the learners to design their own problems while taking responsibility both for their learning and for assessing their own progress.

It is postulated that the perceived relative advantage of an innovation is a predictor of its adoption (Griffin, 2002, Op cit.). The new technology must be viewed as having the capacity to do that which could not be done before or it must do it better than before. In order for e-learning to

become an everyday learning approach in the classroom, it must be perceived as having a clear advantage to its utility and as being simplistic in its use for learning (Brown & Duguid 2000, Op cit.). In an e-learning user survey conducted by the e-learning magazine in April 2001, when asked about the primary benefits of e-learning over traditional classroom learning 79% of teachers responded that availability anytime and anywhere is the primary benefit followed by cost savings (59%) and self-paced learning (57%) (e-learning magazine, 2001 p51).

Teachers must move away from more traditional types of learning experiences towards more constructivist pedagogy if they are going to facilitate e-learning. The hope that e-learning will revolutionize education is held by many (O'Donnell, 1991 Op cit.). Yet research suggests that if e-learning is to be implemented, it is more likely that it will help teachers improve upon the current curriculum rather than create a revolutionizing change.

Oftentimes a school's culture contributes to the resistance of the adoption and implementation of new and innovative approaches to learning. The e-learning user survey concludes that 51% of teachers consider "cultural resistance" a barrier to e-learning. School culture encompasses the knowledge of the teachers, including the ideologies and conventions that influence their self-perceptions as teachers, which in turn, affect how they in turn implement curriculum. The myth that pervades didactic learning is that teachers perceive themselves as the controllers of students and the dispensers of knowledge. This perception causes teachers to cling to a traditional methodology wherein information is transferred to the students in environments over which the teacher has the control (Mason, 2001, Op cit. p 43).

Moreover, less traditional teachers who frequently use projects, debates, and who value student interest and prefer facilitating group work and student-selected learning activities are said to possess more constructivist philosophy of learning. Interestingly, (Salmon, 2000, Op cit) reported that these less traditional teachers are more likely to value e-learning and perceive it as an essential approach in the learning environment. These teachers also have strong beliefs about the necessity of peer collaboration within their educational community. And it is this sense of community that creates a school culture that plays an active and dynamic role in the acceptance of pedagogical changes (Hartley & Robertson, 2001, Op cit.).

The reality is that teachers are an integral part of the school's culture. It must be understood that a teacher's worldview and philosophy of education can impede or facilitate student's acceptance of e-learning.

It is unlikely that the promise of school reformation can occur without interventions that facilitate the revisualization of what it means to be educated, by both teachers and students, and of what their self-perceptions are of their roles in the learning environment (Carey & Willis, 2001, Op cit.). These perceptions, according to Fournier's (2001,p14) survey on e-learning users in schools in 22 European countries, change from one country to the other. When teacher's were asked if they preferred traditional educational methods only 31% of them answered yes, while 46,7% expressed desire for openness. As to the measure of institutional resistance their answers to the open questions express a "cultural fracture" which testifies more to the incomprehension towards the new prospects of e-learning than to a hostility present in these schools (Fournier, 2002).

It is vital that educators drive the transformation towards e-learning so as to ensure ownership as well as sound educational quality in e-learning. Technological decisions need to be preceded by educational decisions. Only Through following a bottom up organic approach during the technological transformation can the transition be beneficial for the teacher and the learner (Teather, 2001).

As addressed by the (e-learning in Europe survey, 2001p115) it has been found that the perceptions towards the advantages of e-learning are related to the evolution of the teaching processes. The findings indicated that 18,3% of teachers thought that e-learning provided greater efficiency in teaching and only 10% thought the opposite. As for the advantage of saving costs on class premises, 10.8% agreed totally. Regarding reaching greater number of students, 26% of respondents believed e-learning to be a brilliant tool for that and only 5,8% thought otherwise. As to the issue of removing scheduling constraints on teachers, 38.3% thought it would serve as a great way to provide flexible space and time, and only 2.5% thought it did not change that aspect. In his survey "Is your Organization Ready for e-learning" (Minton, 2000, Op cit. p61)-found that 60% of respondents believed it would cut costs compared to traditional classroom teaching. Additionally it was found that student comprehension and retention levels derived from e-learning may be up to 250% better than traditional methods. The nature of the learning materials provided by e-learning allows for rapid deployment, meaning the content is always up-to-date.

According to (Teather, 2000, Op cit. p 13) in his study of the perceptions of 292 participants in a large-scale evaluation of teachers' attitudes towards e-learning in three schools in Canterbury in the United

Kingdom. The study has found that 14.2% of teachers are very motivated towards putting effort into e-learning while only 6.7% revealed a negative response. When faced with the question if they preferred the collaborative team approach to the e-learning process 26.7% believed it enhanced their teaching experience and made it easier and only 4.2% thought otherwise. In a study commissioned by the (National Education Association, 2000 p 116), it was found that 72% of elementary school teachers who are NEA members have positive feelings towards e-learning compared to only 14% who hold negative feelings towards e-learning. As for the advantages e-learning presents 20% of teachers believed e-learning provides more class participation compared to only 6% who do not think so. In the view that e-learning provides richer curriculum, 26% of teachers thought that the variety of curriculum presented by the World Wide Web is greater than traditional teaching compared to 9% who had a negative view.

In his study (Kleiman, 2000 , Op cit. p 104) of staff acceptance and participation in e-learning, he found that some of the indicated disadvantages of e-learning were absence of team work and collaboration between students which indicated the attitude of 9% of the respondents compared to 28% who thought otherwise. 6% felt that fragmentation of work was a characteristic of e-learning compared to 29% who thought otherwise. A number of traditional teachers believed that inadequacy of monitoring during exams was a disadvantage of e-learning. Those teachers make up 3% of the respondents compared to 25% who thought otherwise. The problem of addressing varied learning styles was considered a barrier towards e-learning. 10% of the participants felt it was not adequate to different learning needs of students compared to 31%

who believed otherwise.

## **2.2 Requirements of e-learning:**

In his report (e-learning- are schools prepared?), (Spender, 2001, p76) claimed that e-learning is the next generation of learning, and that the shelf life of knowledge can be so short that the only effective way to meet the demands of learning is to deliver it online. He believed that learning has transformed into a process, not something you go off and experience for a specific period of time. It is something that resources the daily quality of life. The move towards e-learning requires staff education and training. This will incorporate training in educational as well as technical processes. In the report the results of the survey of 343 participants showed that 48% of teachers believed that attending training courses was a necessary requirement of e-learning compared to 4% who believed otherwise. The staff-training program, in their view, must integrate learning about educational design with learning how to use the tools. An integrated approach is desirable, with the work involved being accredited, accepted, and supported by effective services

There existed a strong belief amongst teachers that the implementation of e-learning is a timetable commitment, and they suggested a non-compulsory adoption strategy based on demonstrating effectiveness and encouraging participants. A technical infrastructure must be in place by means of installing an academic server throughout the school. It was believed that 30% of teachers believed that a technological infrastructure is a must compared to 7% who did not think it was necessary. Also evident was the fact that any e-learning provision cannot operate in isolation from the classroom teaching. All members of the teaching team will need to have an understanding of the options open to them and these

options will have to be presented coherently and not conceptually separated into e-learning and traditional teaching. In the survey done by (Salmon, 2000 Op cit. p13) on teachers and the changing learning environment it was found that 45% of teachers believed that e-learning made different aspects of education delivery more visible. Content, assessment, enrolment, record keeping all became noticeable as separate systems, while only 4% believed that e-learning does not result in a change in the modes of delivery of teaching.

As identified by (Mason, 2001, Op cit. p105) in his report on re-engineering the educational organization, that teachers were willing to work on developing the course materials required for e-learning and to have more freedom to concentrate on the teaching/learning process. 20% of teachers agreed that production of course materials is necessary and a part of the normal duties of the staff member, compared to 12% who believed that it should be made optional.

### **2.3 Strategic Plan to Implement e-learning:**

According to (Davidson & Schofield , 1997 p19) changing the school through technology requires employing plans or strategies that are effective. Good planning requires attention to both content and process of strategy. To have a technology strategy disavowed by the faculty does not produce a happy outcome. The development of a school plan requires debate, time, and leadership. In the survey of 323 school teachers, 20% of teachers thought that gradual implementation is the best way to go about applying e-learning in schools compared to 7% who thought that total implementation should come as a one step of complete transformation.

As stated by (Jamlan, 2002p158), the transformation towards e-learning would not incorporate a fast, and rooted process, instead it requires a more slow and gradual transition, that may start with the combining of both old and new models of education and substituting the old with the new until the final arrival at the desired e-learning educational model.

While re-engineering a large institution steeped in years of tradition and established practice may be a lengthy process, there can be a limit to the ability of a single institution to meet the demands of e-learning. Thus collaboration with other institutions using the same e-learning system would facilitate the joint development of courses or materials. The unavoidable commercial partnership should be positive in terms of direct support and linking with institutions sharing the same systems. e-learning is also focusing minds on the learning arena, and encouraging a more systematic approach and that knowledge management and e-learning can come together to support the e-learning strategy. As stated by (Laurillard, 2002 p170) in the study of attitudes among teachers using e-learning, it was found that 70% of teachers thought that collaboration with external organizations is a must compared to 4% who thought there was no immediate need to collaborate with other organizations.

Schools have become aware of their need to increase productivity. The application of technology without a concurrent transformation in the teaching/learning process will be an add-on that will only increase costs. Implementation of e-learning must become a part of the overall school budget in order that reductions on expenditure on space and equipment are achieved (McKenzie, 1998, Op cit.). In Britain during the period 1994-1998 when student numbers in elementary went up to 50% and unit costs went down to a quarter, the use of technology was the main reason

for this cost effectiveness. This reduction in unit costs of teaching was established by making instruction more efficient. (Davidson & Schofield, 1997, Op cit. p118) showed in a study of variation per student costs with student numbers for teaching technologies that it was found that the Internet software is the ultimate example of an industry where manufacturing and distribution cost virtually nothing. In the study a number of 1500 students cost 25\$ per student, which was the lowest estimate.

As stated by (Magnusson & Svensson, 2000, Op cit. p123) the school would require rigorous quality assurance procedures as well as regular surveying of student's access to technology and the effectiveness of technology-based teaching methods. A large-scale intensive feedback system is necessary. The report found that 23% thought that quality assurance is essential compared to 18% who believed it to be unnecessary.

As described by (Jamlan, 2002 Opcit), the state of education in any country relied primarily on the physical, spiritual and technological support that the country is willing to provide to the educational institutions. As a result of the absence of technologically trained teachers and poorly equipped school environments, the education system in most developing countries suffers from outdated curriculum, and traditional teaching methods. The only path to redefine education and carry it beyond its current state is to incorporate technology into education and produce new models of teaching.

In order to successfully implement new models of education, an in depth study into the requirements of e-learning is a must (Jamlan, 2002 Ibid.). A technological infrastructure has to be in place consisting of both

human resources and the rebuilding of curriculum to accommodate technology. Mainly the introduction of technology into education must present efficient solutions to educational problems that the organization suffers from. However, if technology remains simply an add-on to previous educational models, it would not accomplish the desired goals and ambitions of an educational system. Furthermore (Jamlan, 2000Ibid) emphasizes that Arab states take the initiative to develop e-learning centers, and train teachers to deploy e-learning, and introduce electronic curriculum materials. The main thing that has been highlighted is that e-learning becomes an educational strategy and modern system that transforms the traditional education that exists.

Haugland & Wright (1997) found that the benefits, which resulted from the implementation of e-learning in schools, were tremendous. It offered ongoing support for the teacher, created balance between different sources of information, flexibility in addressing various student learning styles, unified thematic teaching, constant communication between teachers of various subjects, activated teacher-teacher dialogue and teacher-student dialogue, and encouraged students motivation to learn.

## CHAPTER THREE

### METHODOLOGY

One fundamental reason for engaging in this research is to examine elementary teacher's expressed opinion toward e-learning, since prior research indicated that teachers are the primary decision-makers as to what technology they prefer in classroom learning (Schofield, 1995 , Op cit.).

### **3.1 Research Sample**

There are five private elementary schools in Dhahran, Saudi Arabia. The sample is selected by using the stratified random sampling technique to include both male and female teachers. Stratified random sampling is likely to be more representative on a number of variables than a simple random sampling technique. The research consisted of one hundred elementary teachers, from the private education sector from five schools in the area of Dhahran, Saudi Arabia. The survey was conducted in the months of April and May 2002.

The names of the schools follow:

| <b>School Name</b>       | <b>Number of Teachers</b> |
|--------------------------|---------------------------|
| Dhahran Main Camp School | 65                        |
| Dhahran Hills School     | 75                        |
| Dhahran North School     | 68                        |
| Dhahran South School     | 64                        |
| Dhahran Ahliah School    | 70                        |
| Total                    | 342                       |

## **1.2 Questionnaire Design**

The questionnaire was compiled from questions used in questionnaires employed in previous online research studies (Fournier, 2002, Op cit.). The questions were adapted from the surveys mounted by Fournier.

A questionnaire was designed to survey teacher's opinion towards introducing e-learning. However, since e-learning is a relatively new area of study, no standardized instruments were readily applicable. Therefore the questionnaire was designed and developed. The instrument was divided into three sections: Teacher concerns towards e -learning, requirements for implementing e-learning, planning a strategy to implement e-learning. Each section was aimed at gathering data to answer a specific research question. Questions 1-10 addressed teachers concerns towards e-learning, Questions 11-15 addressed requirements for implementing e-learning, and Questions 15-20 addressed the strategy plan to implement e-learning. A Likert Scale was designed to address the twenty questions.

## **1.3 Data Collection Procedure**

Since all the schools identified for this study were located in Dhahran, questionnaires were delivered to the principals by hand. The sampling technique to be used and the purpose of the study were explained to the principals. The principals then distributed the questionnaires to the selected teachers. The questionnaires were collected from the schools three days later to give ample time for the teachers to study and complete. The rate of response is expected to be higher when the questionnaires are distributed through the principals than when the questionnaires are sent

and returned by mail. It also reduces the time taken to collect the data.

Descriptive statistics are procedures for organizing and summarizing the data in order to communicate and describe the important characteristics of a sample. The data are reported in the form of frequencies and percentages. Tables are being employed to display the data and to allow for easy reference and interpretation.

The mean and standard deviation of the opinion of teachers towards e-learning were computed. The standard deviation represents an average deviation from the mean score of the sample. The larger the standard deviation the larger is the variability among the set of scores.

Panel of Experts Review: a panel of experts to check it's validity and reliability of the questionnaire reviewed the questionnaire. The panel consisted of professors at University of Bahrain from three departments, the Curriculum Department, the Educational Technology Department, and the Information Technology Department. Suggestions and feedback lead to final edits and refined the final copies of the questionnaire.

### **3.4 Procedure**

After the data was collected, it was entered into an SPSS spreadsheet. Upon the review of the data results, it was determined that the data gathered was nonparametric, or represented in a non-normal distribution. The data was statistically analyzed using a quantitative procedure. A more detailed explanation of the procedure follows.

The frequencies and percentages were calculated in SPSS for the data. The means and standard deviations were also reported.

The tables for frequencies and percentages were then translated to histograms to illustrate the frequencies graphically. Both the histogram and the tables displaying the mean and standard deviation are presented in Chapter Four.

CHAPTER FOUR  
ANALYSIS OF DATA

#### **4.1 Descriptive Statistics**

The frequencies and percentages were calculated in SPSS. The tables for frequencies and percentages for each statement were then translated to histograms to illustrate the frequencies graphically.

#### **4.2 Findings**

The expectation that e-learning can be introduced in elementary schools is high. The reasons influencing teachers' adoption of e-learning are:

1. Their pedagogical concerns towards e-learning.
2. The training and the technical requirements of e-learning adoption.
3. The strategic plan deployed.

These factors can be used to predict teacher's perceptions towards e-learning. The twenty questionnaire statements were categorized according to the research questions. A description of the statistical analysis is presented below.

#### **4.3 Description of Statistical Analysis**

The results of the statistical analysis are presented in detail, in three sections that correspond to the three research questions. The statistical findings are reported in the following sections:

1. Teachers' concerns.

2. e-learning requirements.
3. e-learning strategy plan.

#### **4.4 Description of The Reasoning and Methodology Used in The Study**

The statistical findings for the opinion measures in the questionnaire are reported as frequencies, and percentages. This analysis uses the frequency procedure to tabulate the counts and calculate the percentages.

1. Frequency counts are charted using a histogram, which visually displays the distribution of the teacher's responses using a bar graph.
2. Totals for the percentages are congregated into five groups- strongly disagree, disagree, do not know, agree, and strongly agree.

To summarize, these analyses present the initial statistical findings for measures of teacher's opinions towards introducing e-learning in education.

#### **Section 1: Teachers' Concerns**

This section presents the descriptive statistics from the data gathered during the study. The following five measures were analyzed to determine a baseline composite for the teachers concerns towards e-learning:

**Table (2): Percentages**

| <b>Statement</b>                    | <b>SA<br/>Percentage</b> | <b>AG<br/>Percentage</b> | <b>DN<br/>Percentage</b> | <b>DA<br/>Percentage</b> | <b>SD<br/>Percentage</b> |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. Provides efficiency in teaching  | 37%                      | 48%                      | 5%                       | 9%                       | 1%                       |
| 2. Reduces collaboration            | 20%                      | 26%                      | 13%                      | 32%                      | 9%                       |
| 3. Saves on class premises          | 27%                      | 37%                      | 14%                      | 16%                      | 6%                       |
| 4. Causes fragmentation of learning | 3%                       | 29%                      | 24%                      | 29%                      | 15%                      |
| 5. Causes decline in commitment     | 9%                       | 26%                      | 21%                      | 32%                      | 12%                      |

SA: Strongly Agree, AG: Agree, DN: Do not know, DA: Disagree, SD: Strongly Disagree

**Table 3: Mean and Standard Deviation**

| <b>Mean</b> | <b>Standard Deviation</b> |
|-------------|---------------------------|
| 1.89        | 0.93                      |
| 2.84        | 1.32                      |
| 2.37        | 1.21                      |
| 3.24        | 1.12                      |
| 3.12        | 1.19                      |

**Item1: It provides efficiency in teaching:**

**Frequency:** As displayed the distribution of the frequencies from the questionnaire. It demonstrates that the teachers expressed positive opinions towards the statement that e-learning provides efficiency in

teaching, which was portrayed with a positively skewed data set.

**Percentages:** Upon reviewing the (Table 2), it can be concluded that (37%) of teachers strongly agreed that e-learning provides efficiency in teaching. While (48%) agreed to the statement and only (5%) were uncertain of their answer. (9%) of teachers disagreed that e-learning provides efficiency, and (1%) strongly disagreed.

**Mean and Standard Deviation:** The (table 3) shows that the Mean of the data set is equal to (1.89) and the standard deviation is equal to (0.9309). Standard deviation shows the spread of a score distribution - the larger the standard deviation, the wider the spread. In survey data, it indicates the extent to which the respondents provided similar responses or ratings. When the respondents provided the same or highly similar responses, the standard deviation of their responses will be small as shown in this survey response.

**Item2: e-learning reduces teamwork and collaboration between students:**

**Frequency:** As demonstrated the teachers expressed negative opinions concerning the issue that e-learning reduces teamwork and collaboration between students. The findings are in accordance with (Kleiman, 2000) study, which was mentioned in the literature review and showed that 28% of teachers disagreed with the same statement.

**Percentages:** As shown in the (Table 2) it can be concluded that (32%) of teachers disagreed that e-learning reduced teamwork and collaboration between students compared to (20%) who strongly agreed and (26%) who agreed and (9%) who strongly disagreed and only (13%) were uncertain.

**Mean and Standard Deviation:** The (table 3) shows that the Mean of the data set is equal to (2.84) and the standard deviation is equal to (1.32). Standard deviation shows the spread of a score distribution - the larger the standard deviation, the wider the spread. In survey data, it indicates the extent to which the respondents provided similar responses or ratings. When the respondents provided the same or highly similar responses, the standard deviation of their responses will be small as shown in this survey response.

**Item3: e-learning saves on class premises:**

**Frequency:** As illustrated the teacher's expressed positive opinions towards the statement that e-learning saves on class premises. This is consistent with the study (e-learning in Europe survey, 2001) mentioned in the literature review and resulted in 10.8% of teachers totally agreed to the same statement.

**Percentages:** A better illustration of the teacher's opinions can be viewed in the (Table 2). It shows that (27%) of teachers strongly agreed that e-learning saves on class premises, (37%) agreed, compared to (16%) who disagreed and (6%) who strongly disagreed a relatively large number (14%) of teachers were uncertain, which can be traced back to the unfamiliar class environment that teachers have not experienced.

**Mean and Standard Deviation:**

The table shows that the Mean of the data set is equal to (2.37) and the standard deviation is equal to (1.2115). Again the standard deviation shows highly similar responses between teachers. Low mean scores means that more respondents agree with this particular statement.

**Item4: Causes fragmentation of work and loss of consistency in learning:**

**Frequency:** As displayed the teachers expressed disparate opinions concerning the issue that e-learning causes fragmentation of work .The findings are not in accordance with (Kleiman, 2000) study which was mentioned in the literature review and showed that 29% disagreed with the statement.

**Percentages:** As shown in the (table 2) an equal distribution of teachers (29%) agreed and (29%) disagreed that e-learning causes fragmentation of work. While (3%) only strongly agreed and (15%) strongly disagreed. (24%) of teachers were uncertain. This is traced back to the technological pedagogy mentioned in the introduction, and that teachers view the advantages or disadvantages of technology according to their believes of the use of that technology in a given context.

**Mean and Standard deviation:**

The (table 3) shows that the Mean of the data set is equal to (3.24) and the standard deviation is equal to (1.12). This indicates that the mean was substantially high and that it clusters around the central tendency, which illustrates a normal distribution. The standard deviation is small and shows less variation and similar responses between teachers. Low mean scores means that more respondents agree with this particular statement

**Item 5: e-learning causes decline in student commitment:**

**Frequency:** As displayed the teacher's expressed disparate opinions concerning the issue that e- learning causes decline in student

commitment. This is in accordance with (Minton, 2000) study mentioned in the literature review that showed that e-learning resulted in 250% better student retention and motivation.

**Percentages:** As shown in the (table 2) (32%) of teachers disagreed that e-learning causes decline in student commitment, while (26%) agreed, (21%) were uncertain, and (9%) strongly agreed, (12%) strongly disagreed.

### **Mean and standard deviation:**

The (table 3) shows that the Mean of the data set is equal to (3.12) and the standard deviation is equal to (1.19). This shows similar responses. Low mean scores means that more respondents agree with this particular statement

**Table (4) : Percentages**

| <b>Statement</b>                                       | <b>SA<br/>Percentage</b> | <b>AG<br/>Percentage</b> | <b>DN<br/>Percentage</b> | <b>DA<br/>Percentage</b> | <b>SD<br/>Percentage</b> |
|--------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 6. It helps reach a greater number of students.        | 50%                      | 31%                      | 8%                       | 10%                      | 1%                       |
| 7. Results in difficulty in monitoring students.       | 18%                      | 28%                      | 20%                      | 30%                      | 4%                       |
| 8. Results in Decline in student achievement           | 8%                       | 18%                      | 23%                      | 39%                      | 12%                      |
| 9. It can limit the production costs of teaching       | 21%                      | 36%                      | 21%                      | 22%                      | —                        |
| 10. It can standardize the content of course materials | 26%                      | 48%                      | 16%                      | 8%                       | 2%                       |

SA: Strongly Agree, AG: Agree, DN: Do not know, DA: Disagree, SD: Strongly Disagree

**Table (5): Mean and Standard Deviation**

| <b>Mean</b> | <b>Standard Deviation</b> |
|-------------|---------------------------|
| 1.81        | 1.03                      |
| 2.7         | 1.19                      |
| 3.3         | 1.39                      |
| 2.44        | 1.06                      |
| 2.12        | 0.96                      |

**Item 6: It helps reach a greater number of students:**

**Frequency:** the distribution of the frequencies from the questionnaire demonstrates that the teachers expressed positive opinions towards the statement that e-learning helps reach a greater number of students, which was portrayed with a positively skewed data set. This corresponds with the (e-learning in Europe survey, 2001) which was mentioned in the literature review and showed that (26%) of teachers agreed to the statement.

**Percentages:** As shown in table (4) half the teachers (50%) of strongly agreed that e-learning helps reach a greater number of students, (31%) agreed, (8%) were uncertain and (10%) disagreed while only (1%) strongly disagreed.

**Mean and standard deviation:**

The table shows that the Mean of the data set is equal to (1.81) and the standard deviation is equal to (1.029). The standard deviation is close to

one, which means very similar responses to this item. Low mean scores means that more respondents agree with this particular statement

**Item 7: e-learning results in difficulty in monitoring students during exams:**

**Frequency:** As demonstrated the teacher's expressed disparate opinions concerning the issue that e-learning results in difficulty in monitoring students during exams. This is consistent with the study of (Kleiman, 2000) which was mentioned in the literature review and found that (25%) of teachers disagreed to the statement and only (3%) agreed.

**Percentages:** The (table 4) displays that (18%) of teachers strongly agreed that e-learning results in difficulty in monitoring students during exams. (28%) agreed, (20%) were uncertain, (30%) of teachers disagreed and (4%) strongly disagreed.

**Mean and standard deviation:**

The (table 5) shows that the Mean of the data set is equal to (2.74) and the standard deviation is equal to (1.1859). The standard deviation is small which means similar responses. Low mean scores means that more respondents agree with this particular statement

**Item 8: e-learning results in decline in student achievement:**

**Frequency:** As demonstrated the teachers expressed negative opinions concerning the issue that e-learning results in decline in student achievement. This is consistent with the study of (Minton, 2000)

mentioned in the literature review and showed that e-learning compared to traditional teaching resulted in 250% better student retention rate.

**Percentages:** The (table 4) displays that (8%) of teachers strongly agreed that e-learning results in decline in student achievement, while (18%) agreed, (23%) were uncertain, and (39%) disagreed, and only (12%) strongly agreed.

**Mean and standard deviation:**

The (table 5) shows that the Mean of the data set is equal to (3.29) and the standard deviation is equal to (1.1397). The standard deviation is small which means similar responses. Low mean scores means that more respondents agree with this particular statement.

**Item 9: e-learning can limit the production costs of teaching:**

**Frequency:** As demonstrated the teacher's expressed disparate opinions concerning the issue that e-learning can limit the production costs of teaching.

**Percentages:** The (table 4) shows that (21%) of teachers strongly agreed that e-learning can limit the production costs of teaching, and (36%) agreed, (21%) were uncertain, while (22%) disagreed.

**Mean and standard deviation:**

The (table 5) shows that the Mean of the data set is equal to (2.44) and the standard deviation is equal to (1.0572). Low mean scores means that more respondents agree with this particular statement. Standard deviation shows the spread of a score distribution - the larger the standard deviation, the wider the spread. In survey data, it indicates the

extent to which the respondents provided similar responses or ratings.

**Item 10: e-learning can standardize the content of course materials:**

**Frequency:** As demonstrated the teachers expressed positive opinions towards the statement that e-learning can standardize the content of course materials, which was portrayed with a positively skewed data set. This is consistent with the study (Salmon, 2000) mentioned in the literature review that found that (45%) of teachers believed that e-learning helped make the course content more standard and visible to them.

**Percentages:** The (table 4) shows that (26%) of teachers strongly agreed that e-learning can standardize the content of course materials, while close to half the teachers (48%) agreed, and (16%) were uncertain, (8%) disagreed, and only (2%) strongly disagreed.

**Mean and standard deviation:** The (table 5) shows that the Mean of the data set is equal to (2.12) and the standard deviation is equal to (0.9564). Low mean scores means that more respondents agree with this particular statement. Standard deviation shows the spread of a score distribution - the larger the standard deviation, the wider the spread. In survey data, it indicates the extent to which the respondents provided similar responses or ratings

## **Section 2: Requirements for implementing e-learning:**

**Table (6): Percentages**

| <b>Statement</b>                                              | <b>SA<br/>Percentage</b> | <b>AG<br/>Percentage</b> | <b>DN<br/>Percentage</b> | <b>DA<br/>Percentage</b> | <b>SD<br/>Percentage</b> |
|---------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 11. participating in training courses is necessary.           | 50%                      | 42%                      | 2%                       | 6%                       | —                        |
| 12. The production of online curriculum is required.          | 35%                      | 54%                      | 6%                       | 5%                       | —                        |
| 13. Team of teachers to lay the groundwork for a tech.plan    | 38%                      | 36%                      | 19%                      | 6%                       | 1%                       |
| 14. Layout of a school technological infrastructure           | 43%                      | 31%                      | 23%                      | 2%                       | 1%                       |
| 15. Rebuilding the modes of delivering teaching is necessary. | 40%                      | 41%                      | 17%                      | 1%                       | 1%                       |

SA: Strongly Agree, AG: Agree, DN: Do not know, DA: Disagree, SD: Strongly Disagree

**Table (7):Mean and Standard Deviation**

| <b>Mean</b> | <b>Standard Deviation</b> |
|-------------|---------------------------|
| 1.64        | 0.79                      |
| 1.81        | 0.76                      |
| 1.96        | 0.95                      |
| 1.87        | 0.91                      |
| 1.82        | 0.82                      |

**Item 11: Teacher participation in training courses is necessary:**

**Frequency:** As demonstrated the teachers expressed positive opinions towards the statement that Teacher participation in training courses is necessary, which was portrayed with a positively skewed data set. This is consistent with the study (e-learning are schools prepared?) (Spender, 2001) which found that 48% of teachers believed that attending training courses was necessary.

**Percentages:** As shown in the (table 6) half the teachers (50%) strongly agreed to the importance of attending training courses, (42%) agreed, (2%) were uncertain, and (6%) disagreed.

**Mean and standard deviation:** The (table 7) shows that the Mean of the data set is equal to (1.64) and the standard deviation is equal to (0.798). Low mean scores means that more respondents agree with this particular statement. Standard deviation shows the spread of a score distribution - the larger the standard deviation, the wider the spread. In survey data, it indicates the extent to which the respondents provided similar responses or ratings

**Item 12: The production of online curriculum is required:**

**Frequency:** As demonstrated the teachers expressed positive opinions towards the statement that production of online curriculum is required, which was portrayed with a positively skewed data set. This corresponds with the study (Mason, 2001) mentioned in the literature review that reported that (20%) of teachers agreed that production of online curriculum is required.

**Percentages:** As displayed in the (table 6) (35%) of teachers strongly

agreed, and more than half the teachers (54%) agreed, (6%) were uncertain, (5%) disagreed.

**Mean and standard deviation:** The (table 7) shows that the Mean of the data set is equal to (1.81) and the standard deviation is equal to (0.7614). Low mean scores means that more respondents agree with this particular statement. Standard deviation shows similar responses or ratings.

**Item 13: Team of teachers to lay the groundwork of a technological plan:**

**Frequency:** As demonstrated the teachers expressed positive opinions towards the statement that a team of teachers to lay the groundwork of a technological plan, which was portrayed with a positively skewed data set.

**Percentages:** As shown in the (table 6) (38%) of teachers strongly agreed to the statement, (36%) agreed, (19%) were uncertain, (6%) disagree, and only (1%) strongly disagreed.

**Mean and standard deviation:** The (table 7) shows that the Mean of the data set is equal to (1.96) and the standard deviation is equal to (0.9526). Low mean scores means that more respondents agree with this particular statement. Standard deviation shows similar responses or ratings

**Item 14: Layout of a school technological infrastructure:**

**Frequency:** As demonstrated the teachers expressed positive opinions towards the statement layout of a school technological infrastructure,

which was portrayed with a positively skewed data set.

**Percentages:** The (table 4) shows that (43%) of teachers strongly agree to the statement, (31%) of teachers agree, (23%) were uncertain, (2%) disagree, and (1%) strongly disagree.

**Mean and standard deviation:** The (table 6) shows that the Mean of the data set is equal to (1.87) and the standard deviation is equal to (0.9063). Low mean scores means that more respondents agree with this particular statement. Standard deviation shows similar responses or ratings

#### **Item 15: Rebuilding the modes of delivering teaching:**

**Frequency:** As demonstrated the teachers expressed positive opinions towards the statement rebuilding the modes of delivering teaching is required, which was portrayed with a positively skewed data set. This is consistent with the study (Salmon, 2001), which reported that 45% of teachers believed that e-learning required a change in the delivery of education.

**Percentages:** The (table 6) showed that (40%) of teachers strongly agreed, (41%) agreed, (17%) were uncertain, (1%) disagreed, and (1%) strongly disagreed.

**Mean and standard deviation:** The (table 7) shows that the Mean of the data set is equal to (1.82) and the standard deviation is equal to (0.8212). Low mean scores means that more respondents agree with this particular statement. Standard deviation shows respondents provided similar responses or ratings.

### **Section 3: Strategic plans to implement e-learning:**

**Table (8): Percentages**

| <b>Statement</b>                                        | <b>SA<br/>Percentage</b> | <b>AG<br/>Percentage</b> | <b>DN<br/>Percentage</b> | <b>DA<br/>Percentage</b> | <b>SD<br/>Percentage</b> |
|---------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 16. Gradual implementation, one class per subject area. | 45%                      | 32%                      | 12%                      | 9%                       | 2%                       |
| 17. It must be made an integral part of budget making.  | 41%                      | 45%                      | 11%                      | 2%                       | 1%                       |
| 18. Establishing support services.                      | 50%                      | 35%                      | 12%                      | 3%                       | —                        |
| 19. Collaborative partnership with external org.        | 27%                      | 43%                      | 20%                      | 8%                       | 2%                       |
| 20. Mechanisms to evaluate the process are needed       | 54%                      | 40%                      | 5%                       | 1%                       | —                        |

SA: Strongly Agree, AG: Agree, DN: Do not know, DA: Disagree, SD: Strongly Disagree

**Table (9): Mean and Standard Deviation**

| <b>Mean</b> | <b>Standard Deviation</b> |
|-------------|---------------------------|
| 1.91        | 1.05                      |
| 1.77        | 0.8                       |
| 1.68        | 0.8                       |
| 2.2         | 0.98                      |
| 1.53        | 0.64                      |

**Item 16: Gradual implementation one class per subject area:**

**Frequency:** As demonstrated the teachers expressed positive opinions towards the statement gradual implementation one class per subject area, which was portrayed with a positively skewed data set. This is consistent with the study of (Davidson & Schofield , 1997) which was mentioned in the literature review which found that 20% of teachers thought that gradual implementation is the best way to apply e-learning.

**Percentages:** the (Table 8) shows that (45%) of teachers strongly agreed to the statement, (32%) agreed, (12%) were uncertain, and (9%) disagreed, and (2%) strongly disagreed.

**Mean and standard deviation:** The (table 9) shows that the Mean of the data set is equal to (1.91) and the standard deviation is equal to (1.055). Low mean scores means that more respondents agree with this particular statement. Standard deviation shows similar responses.

**Item 17: e-learning must be made an integral part of budget making:**

**Frequency:** As demonstrated the teachers expressed positive opinions towards the statement e-learning must be made an integral part of budget making, which was portrayed with a positively skewed data set.

**Percentages:** As displayed in the (table 8) (41%) of teachers strongly agreed to the statement, (45%) agreed, (11%) were uncertain, (2%) disagreed, and (1%) strongly disagreed.

**Mean and standard deviation:** The (table 9) shows that the Mean of the data set is equal to (1.77) and the standard deviation is equal to (0.8022). Low mean scores means that more respondents agree with this particular statement, As well as the standard deviation.

**Item 18: Establishing support services such as specialized multimedia services:**

**Frequency:** As demonstrated) the teachers expressed positive opinions towards the statement establishing support services such as specialized multimedia services, which was portrayed with a positively skewed data set.

**Percentages:** As displayed in the (table 8) half the teachers (50%) strongly agreed to the statement, (35%) agreed, (12%) were uncertain, (3%) disagreed.

**Mean and standard deviation:** The (table 9) shows that the Mean of the data set is equal to (2.16) and the standard deviation is equal to (0.9783). Low mean scores means that more respondents agree with this particular statement, as does as the standard deviation.

**Item 19: Collaborative partnership with external organizations:**

**Frequency:** As demonstrated the teachers expressed positive opinions towards the statement collaborative partnership with external organizations, which was portrayed with a positively skewed data set. This is consistent with the study (Laurillard, 2002) which reported that 70% of teachers thought that collaboration with external organizations is a must.

**Percentages:** As shown in the (table 8) (27%) of teachers strongly agreed to the statement, (43%) agreed, (20%) were uncertain, (8%) disagreed, (2%) strongly disagreed.

**Mean and Standard deviation:** The (table 9) shows that the Mean of the data set is equal to (2.15) the standard deviation is equal to (0.9763).

Low mean scores means that more respondents agree with this particular statement, as does the standard deviation.

**Item 20: Mechanisms to evaluate the process are needed:**

**Frequency:** As demonstrated the teachers expressed positive opinions towards the statement mechanisms to evaluate the process are needed, which was portrayed with a positively skewed data set. This is in consistent with the study (Magnusson & Svensson, 2000) mentioned in the literature review, which reported that 23% agreed.

**Percentages:** The (table 8) showed that more than one half (54%) strongly agreed to the statement, (40%) agreed, (5%) were uncertain, (1%) disagreed.

**Mean and standard deviation:** The (table 9) shows that the Mean of the data set is equal to (1.53), the standard deviation is equal to (0.642). Low mean scores means that more respondents agree with this particular statement

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

This chapter presents a discussion of the findings and the theoretical implications of the research study.

An important outcome of the study is that it provides a baseline composite of teachers' opinions towards introducing e-learning to elementary classes. The data analyses indicated that teachers view e-learning as a positive aspect in their lives, the lives of students, and that it is a positive force in learning. The most expressed concern towards the introduction of e-learning is the increase in student numbers. Other concern such as the efficiency in teaching and the reduction of resources were also highly expressed by teachers. This provides an answer to the first research question: What are the teachers concerns towards e-learning?

Furthermore, the results of the study are consistent with the current literature in the belief that the teachers feel that many requirements are needed before they are fully prepared to integrate e-learning into schools. A very high percentage (69%) of teachers expressed a need for training courses in e-learning. The Dhahran Teaching Commission (DTC) is taking action to address these requirements and has recently released a document outlining plans to require a second training course for all teachers. This answers the second research question: What are the requirements needed to implement e-learning that were expressed by teachers?

In addition to the above findings, the statistical analysis of the data from the study indicated that teachers are supportive of a strategic plan to implement e-learning. Additionally the teachers expressed that they believe that online course materials are needed. Teachers supported whatever steps are needed to derive a strategy , but were hesitant as to the

responsibility of deploying it. This answers the third research question: What is the plan to implement e-learning?

Interestingly, the results of the study indicate that the most impeding factor for the teachers may be the acceptance of changes in the social dynamics of school environment as a result of introducing e-learning. Adjusting their pedagogical approaches to become more constructivists in nature and moving away from a more traditional didactic type of teaching may be the most difficult fear for most teachers. Wilson's more recent research (2000) indicates that teachers possessing a more constructivist philosophy toward learning are more positive at towards e-learning. These teachers generally encourage the overall change in teaching methodologies and student independent learning. Not only will accepting these changes be necessary for teachers, but they also will be necessary for parents and others affiliated with a school to be educated and to accept the inevitable changes e-learning will bring to classroom learning.

### **5.1 Theoretical Implications**

This study contributes to a better understanding of teachers' opinions toward introducing e-learning into private elementary schools. The data analyses from the research indicated that, overall, teachers view e-learning as a positive aspect in education, in the lives of students, and that it is a vitally positive force in classroom learning. The findings from this study are also consistent with the current literature to the effect that the teachers feel that they needed to attend training courses before they are fully prepared to integrate e-learning into the classroom.

This specific research also posits that that teacher's generally think that

developing online course materials is necessary. The data analyzed for this research implies that the teachers believe that a plan to implement e-learning is required.

## **5.2 Recommendations**

Based on the statistical findings of this research and the discussions, the following recommendations are presented to (a) School administrators, (b) educational technology decision makers who may gain from attending to the results of this study.

1. Teachers should be encouraged to maintain positive opinions towards introducing e-learning in education. Therefore, time and money should be allocated for ongoing training and continual support for all teachers.
2. Computer hardware and software should be upgraded to reflect state-of-the-art technology.
3. Well-trained hardware and software support personnel should be available, in a timely fashion to all classrooms utilizing e-learning.
4. Additionally, planning and learning time should be provided to classroom teachers so that they can commit to integrating e-learning into meaningful learning without infringing upon their already limited personal time.
5. Funds should be provided to allow teachers to purchase memberships to valuable and meaningful web sites that facilitate their learning as well as the learning of students.
6. Teachers, parents, administrators, and business people all should be

offered seminars educating them about the pedagogical changes that will occur as a result of introducing e-learning into private elementary schools.

7. Current curriculum standards and standardized testing methods should be reviewed and aligned with the modifications in instructional practices and administrative procedures that are inevitable as a result of implementing e-learning.
8. It is recommended that a separate government department be created reporting directly to the ministry of education to study the implementation of e-learning this department can be named the e-learning Development Center (EDC).
9. Put together a national strategy for e-learning to be implemented in both boys and girls schools.
10. Start a pilot project in selected schools. And maintain assessment of the success of e-learning after the pilot project.

### **5.3 Further Research**

This section discusses implications for further research as a result of the findings from this study and the following recommendations are given.

Further research should determine whether certain effective strategies could be influential in improving the opinions of teachers with respect to the integration of e-learning into education. As certain strategies are demonstrated to improve teacher's opinions, recommendations should be made, and actions should be taken to integrate these positive effective strategies employed in teaching teachers to implement e-learning into

education.

This study needs to be modified and then applied to other teachers in secondary or high school education, so that the results can be further defined to identify trends across a larger population.

Additionally, a study should be implemented within the community to identify the reactions of parents, and business people, concerning the use of e-learning in education.

In addition to the described research, the economics of e-learning need to be addressed, and various models of budgeting to be suggested. There is a great need to explore, explain, and support positions about implementing e-learning. Changing the roles of teacher's challenges established patterns and creates concerns for those who believe we risk quality in this change.

The implementation of e-learning in elementary education presents one of the most remarkable challenges and one of the most powerful opportunities that education may ever encounter. In support of this quest further research is vitally important.

Envisioned change will not be fruitful until people look beyond the simplicities of information and individuals to the complexities of learning, knowledge, and organizations. That way, it is more likely that change will reorganize the education system, rather than simply disorganizing it.

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## Appendices (1)

Statistical Measures  
Used in the Analysis of Data

## Frequencies

Provides efficiency in teaching.

### Statistics

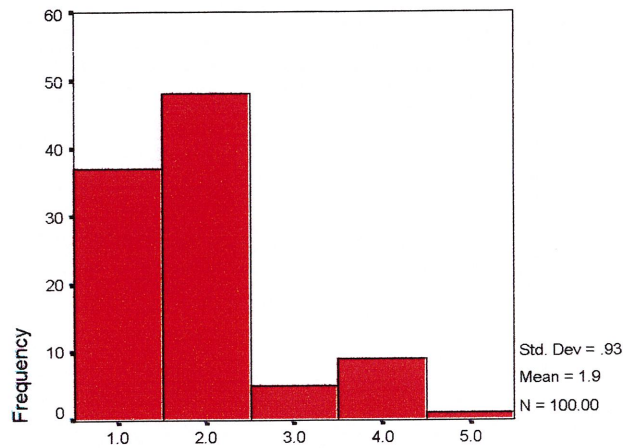
Item1

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 1.8900 |
| Std. Deviation |         | .9309  |

Item1

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 37        | 37.0    | 37.0          | 37.0               |
|       | AG    | 48        | 48.0    | 48.0          | 85.0               |
|       | DN    | 5         | 5.0     | 5.0           | 90.0               |
|       | DA    | 9         | 9.0     | 9.0           | 99.0               |
|       | SD    | 1         | 1.0     | 1.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item1



Item1

Strongly Agree

Five Point Lickert Scale

Strongly Disagree

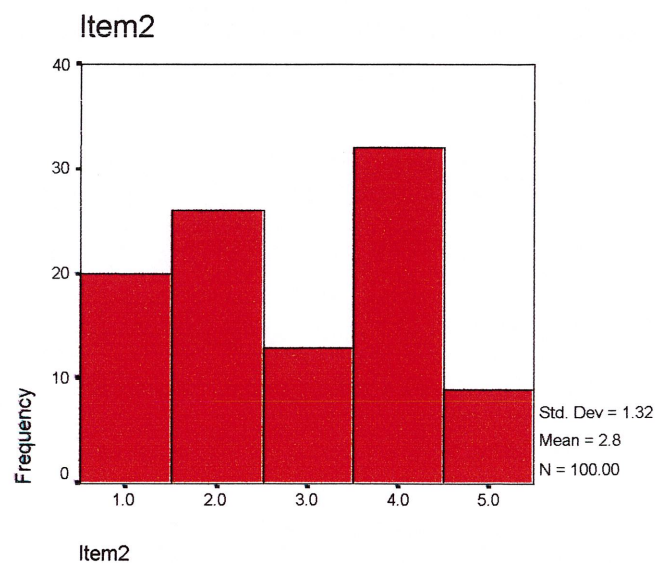
Reduces teamwork and collaboration between students.

**Statistics**

|                |         |        |
|----------------|---------|--------|
| Item2          |         |        |
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 2.8400 |
| Std. Deviation |         | 1.3159 |

**Item2**

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 20        | 20.0    | 20.0          | 20.0               |
|       | AG    | 26        | 26.0    | 26.0          | 46.0               |
|       | DN    | 13        | 13.0    | 13.0          | 59.0               |
|       | DA    | 32        | 32.0    | 32.0          | 91.0               |
|       | SD    | 9         | 9.0     | 9.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |



**Strongly Agree**

**Five Point Likert Scale**

**Strongly Disagree**

## Saves on class premises

### Statistics

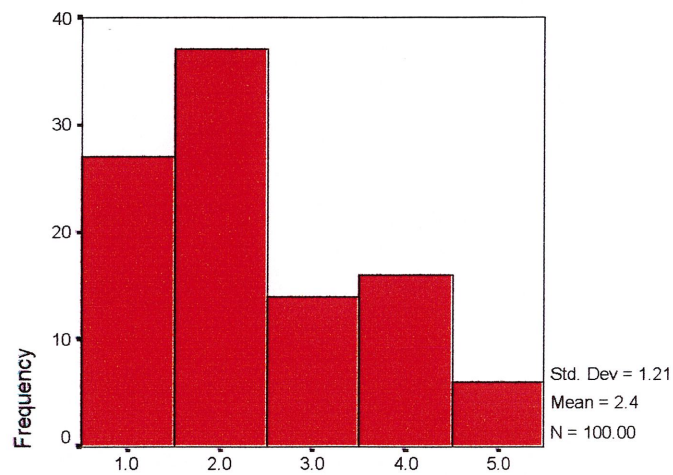
Item3

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 2.3700 |
| Std. Deviation |         | 1.2115 |

Item3

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 27        | 27.0    | 27.0          | 27.0               |
|       | AG    | 37        | 37.0    | 37.0          | 64.0               |
|       | DN    | 14        | 14.0    | 14.0          | 78.0               |
|       | DA    | 16        | 16.0    | 16.0          | 94.0               |
|       | SD    | 6         | 6.0     | 6.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item3



Item3

Strongly Agree

Five Point Lickert Scale

Strongly Disagree

### Causes fragmentation of learning.

#### Statistics

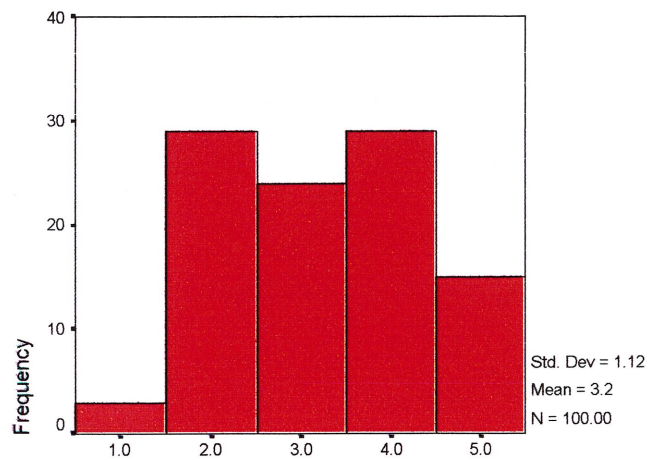
Item4

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 3.2400 |
| Std. Deviation |         | 1.1202 |

Item4

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 3         | 3.0     | 3.0           | 3.0                |
|       | AG    | 29        | 29.0    | 29.0          | 32.0               |
|       | DN    | 24        | 24.0    | 24.0          | 56.0               |
|       | DA    | 29        | 29.0    | 29.0          | 85.0               |
|       | SD    | 15        | 15.0    | 15.0          | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item4



Item4

Strongly Agree

Five Point Lickert Scale

Strongly Disagree

## Causes decline in student commitment

### Statistics

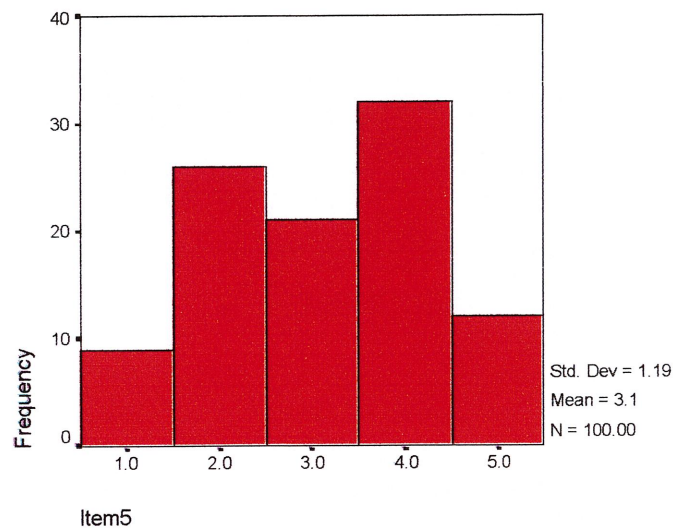
Item5

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 3.1200 |
| Std. Deviation |         | 1.1916 |

Item5

|          | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------|-----------|---------|---------------|--------------------|
| Valid SA | 9         | 9.0     | 9.0           | 9.0                |
| AG       | 26        | 26.0    | 26.0          | 35.0               |
| DN       | 21        | 21.0    | 21.0          | 56.0               |
| DA       | 32        | 32.0    | 32.0          | 88.0               |
| SD       | 12        | 12.0    | 12.0          | 100.0              |
| Total    | 100       | 100.0   | 100.0         |                    |

Item5



Strongly Agree

Five Point Lickert Scale

Strongly Disagree

It helps reach a greater number of students.

#### Statistics

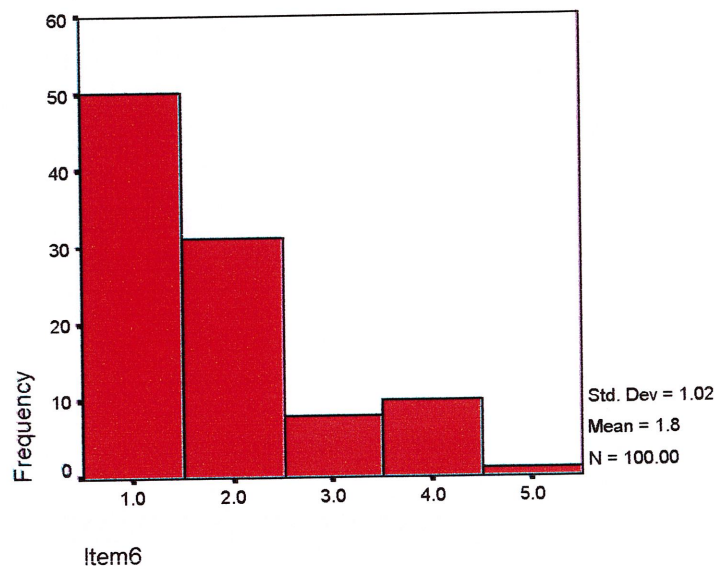
Item6

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 1.8100 |
| Std. Deviation |         | 1.0219 |

Item6

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 50        | 50.0    | 50.0          | 50.0               |
|       | AG    | 31        | 31.0    | 31.0          | 81.0               |
|       | DN    | 8         | 8.0     | 8.0           | 89.0               |
|       | DA    | 10        | 10.0    | 10.0          | 99.0               |
|       | SD    | 1         | 1.0     | 1.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item6



Strongly Agree

Five Point Likert Scale

Strongly Disagree

It helps reach a greater number of students.

**Statistics**

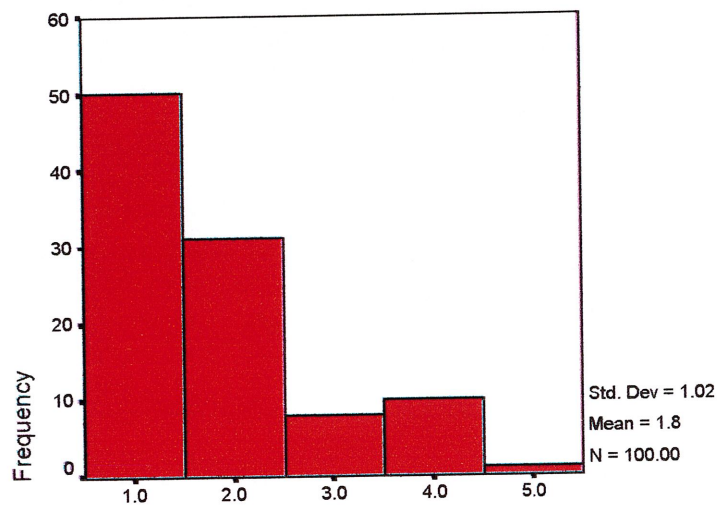
Item6

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 1.8100 |
| Std. Deviation |         | 1.0219 |

**Item6**

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 50        | 50.0    | 50.0          | 50.0               |
|       | AG    | 31        | 31.0    | 31.0          | 81.0               |
|       | DN    | 8         | 8.0     | 8.0           | 89.0               |
|       | DA    | 10        | 10.0    | 10.0          | 99.0               |
|       | SD    | 1         | 1.0     | 1.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

**Item6**



Item6

**Strongly Agree      Five Point Likert Scale      Strongly Disagree**

## Results in difficulty in monitoring students during exams

### Statistics

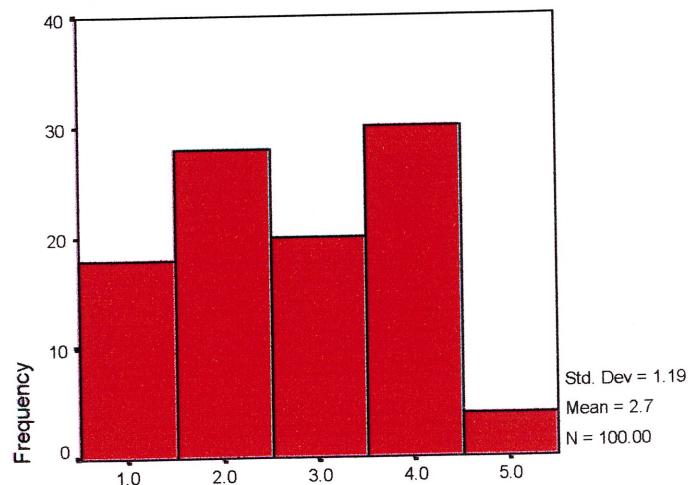
Item7

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 2.7400 |
| Std. Deviation |         | 1.1859 |

Item7

|          | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------|-----------|---------|---------------|--------------------|
| Valid SA | 18        | 18.0    | 18.0          | 18.0               |
| AG       | 28        | 28.0    | 28.0          | 46.0               |
| DN       | 20        | 20.0    | 20.0          | 66.0               |
| DA       | 30        | 30.0    | 30.0          | 96.0               |
| SD       | 4         | 4.0     | 4.0           | 100.0              |
| Total    | 100       | 100.0   | 100.0         |                    |

Item7



Item7

Strongly Agree

Five Point Lickert Scale

Strongly Disagree

It can limit the production costs of teaching.

**Statistics**

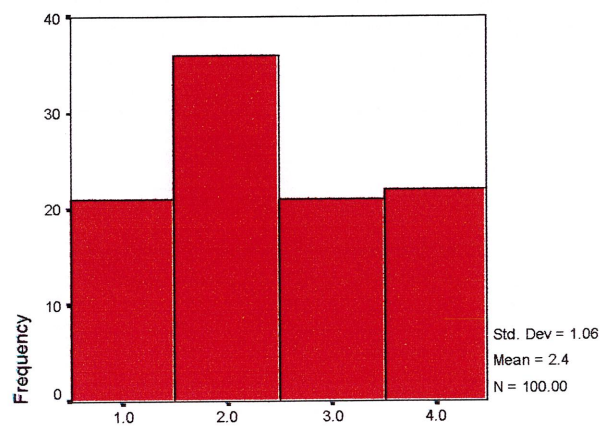
Item9

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 2.4400 |
| Std. Deviation |         | 1.0572 |

**Item9**

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 21        | 21.0    | 21.0          | 21.0               |
|       | AG    | 36        | 36.0    | 36.0          | 57.0               |
|       | DN    | 21        | 21.0    | 21.0          | 78.0               |
|       | DA    | 22        | 22.0    | 22.0          | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item9



Item9

**Strongly Agree      Five Point Lickert Scale      Strongly Disagree**

It can standardize the content of course materials

**Statistics**

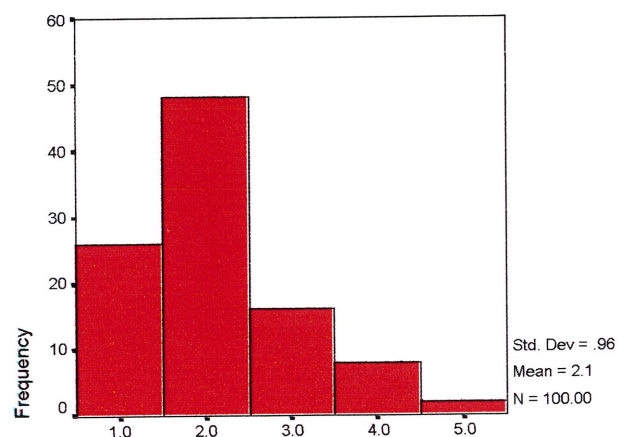
Item10

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 2.1200 |
| Std. Deviation |         | .9564  |

**Item10**

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 26        | 26.0    | 26.0          | 26.0               |
|       | AG    | 48        | 48.0    | 48.0          | 74.0               |
|       | DN    | 16        | 16.0    | 16.0          | 90.0               |
|       | DA    | 8         | 8.0     | 8.0           | 98.0               |
|       | SD    | 2         | 2.0     | 2.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item10



Item10

**Strongly Agree**

**Five Point Lickert Scale**

**Strongly Disagree**

## **REQUIREMENTS FOR IMLEMENTING e-LEARNING:**

Participating in training courses is necessary.

### **Statistics**

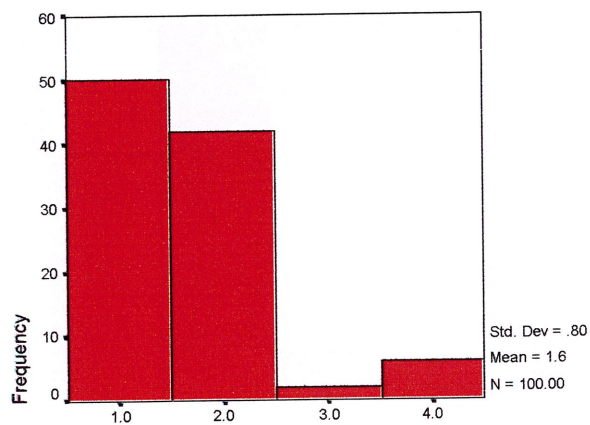
Item11

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 1.6400 |
| Std. Deviation |         | .7980  |

Item11

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 50        | 50.0    | 50.0          | 50.0               |
|       | AG    | 42        | 42.0    | 42.0          | 92.0               |
|       | DN    | 2         | 2.0     | 2.0           | 94.0               |
|       | DA    | 6         | 6.0     | 6.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item11



Item11

**Strongly Agree**

**Five Point Lickert Scale**

**Strongly Disagree**

Team of teachers to lay the groundwork of a technological plan.

**Statistics**

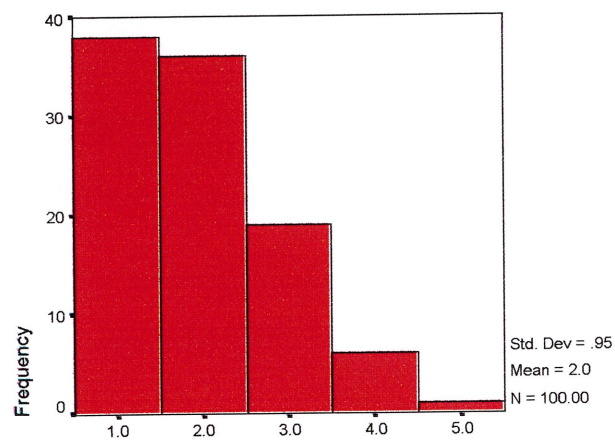
Item13

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 1.9600 |
| Std. Deviation |         | .9526  |

**Item13**

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 38        | 38.0    | 38.0          | 38.0               |
|       | AG    | 36        | 36.0    | 36.0          | 74.0               |
|       | DN    | 19        | 19.0    | 19.0          | 93.0               |
|       | DA    | 6         | 6.0     | 6.0           | 99.0               |
|       | SD    | 1         | 1.0     | 1.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

**Item13**



Item13

**Strongly Agree**

**Five Point Likert Scale**

**Strongly Disagree**

## Layout of a school technological infrastructure.

### Statistics

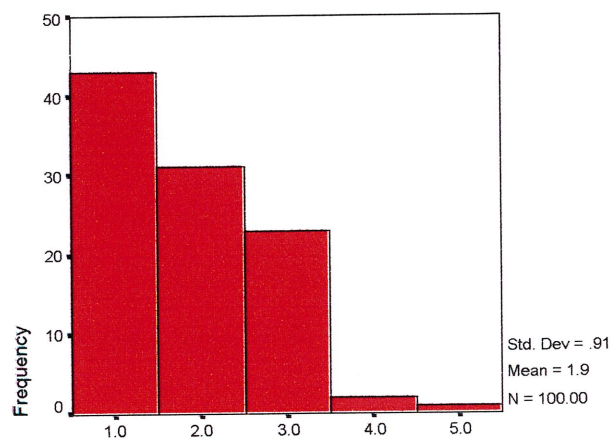
Item14

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 1.8700 |
| Std. Deviation |         | .9063  |

Item14

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 43        | 43.0    | 43.0          | 43.0               |
|       | AG    | 31        | 31.0    | 31.0          | 74.0               |
|       | DN    | 23        | 23.0    | 23.0          | 97.0               |
|       | DA    | 2         | 2.0     | 2.0           | 99.0               |
|       | SD    | 1         | 1.0     | 1.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item14



Item14

Strongly Agree      Five Point Likert Scale      Strongly Disagree

## Rebuilding the modes of delivering teaching.

### Statistics

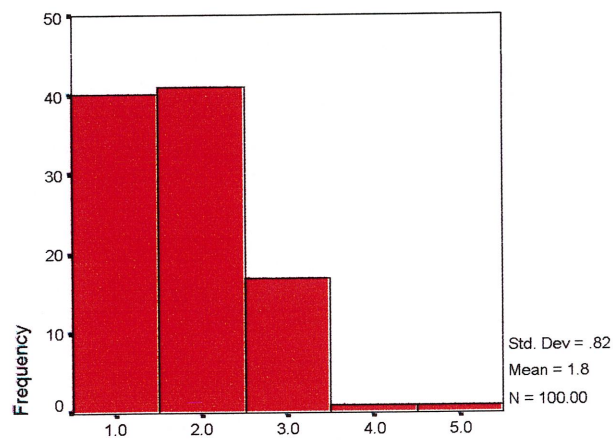
Item15

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 1.8200 |
| Std. Deviation |         | .8212  |

Item15

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 40        | 40.0    | 40.0          | 40.0               |
|       | AG    | 41        | 41.0    | 41.0          | 81.0               |
|       | DN    | 17        | 17.0    | 17.0          | 98.0               |
|       | DA    | 1         | 1.0     | 1.0           | 99.0               |
|       | SD    | 1         | 1.0     | 1.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item15



Item15

Strongly Agree

Five Point Likert Scale

Strongly Disagree

## STRATEGIC PLAN TO IMPLEMENT e-LEARNING.

Gradual implementation one class per subject area.

### Statistics

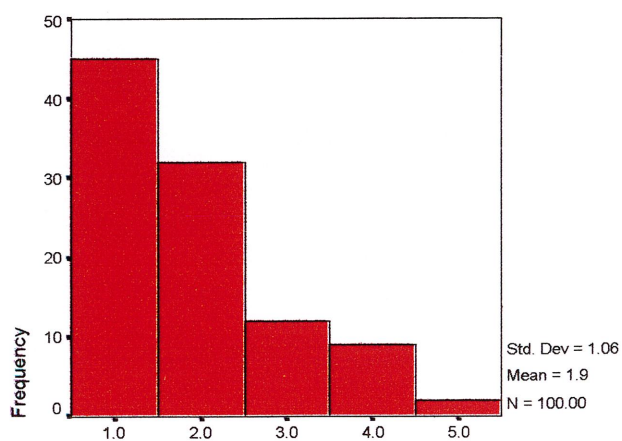
Item16

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 1.9100 |
| Std. Deviation |         | 1.0550 |

Item16

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 45        | 45.0    | 45.0          | 45.0               |
|       | AG    | 32        | 32.0    | 32.0          | 77.0               |
|       | DN    | 12        | 12.0    | 12.0          | 89.0               |
|       | DA    | 9         | 9.0     | 9.0           | 98.0               |
|       | SD    | 2         | 2.0     | 2.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item16



Item16

Strongly Agree

Five Point Lickert Scale

Strongly Disagree

It must be made an integral part of budget making.

**Statistics**

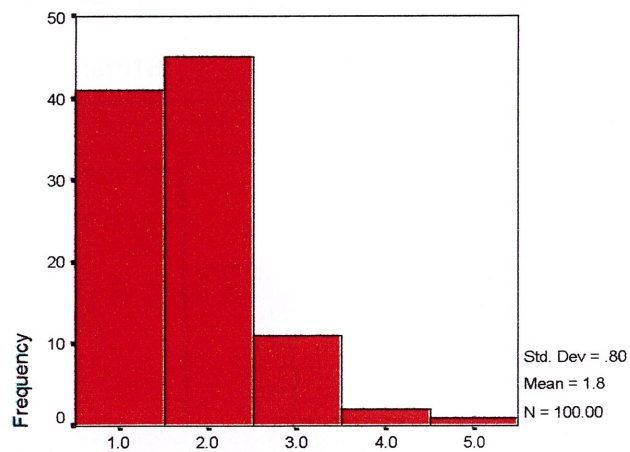
Item17

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 1.7700 |
| Std. Deviation |         | .8022  |

**Item17**

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 41        | 41.0    | 41.0          | 41.0               |
|       | AG    | 45        | 45.0    | 45.0          | 86.0               |
|       | DN    | 11        | 11.0    | 11.0          | 97.0               |
|       | DA    | 2         | 2.0     | 2.0           | 99.0               |
|       | SD    | 1         | 1.0     | 1.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item17



Item17

**Strongly Agree**

**Five Point Lickert Scale**

**Strongly Disagree**

Collaborative partnership with external organizations is needed.

**Statistics**

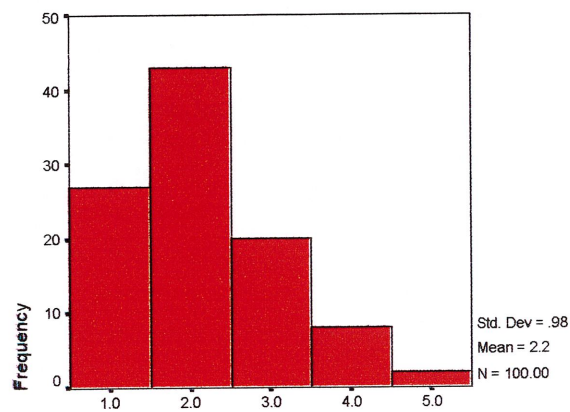
Item19

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 2.1500 |
| Std. Deviation |         | .9783  |

Item19

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 27        | 27.0    | 27.0          | 27.0               |
|       | AG    | 43        | 43.0    | 43.0          | 70.0               |
|       | DN    | 20        | 20.0    | 20.0          | 90.0               |
|       | DA    | 8         | 8.0     | 8.0           | 98.0               |
|       | SD    | 2         | 2.0     | 2.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item19



Item19

Strongly Agree      Five Point Likert Scale      Strongly Disagree

Mechanisms to evaluate the process are needed.

**Statistics**

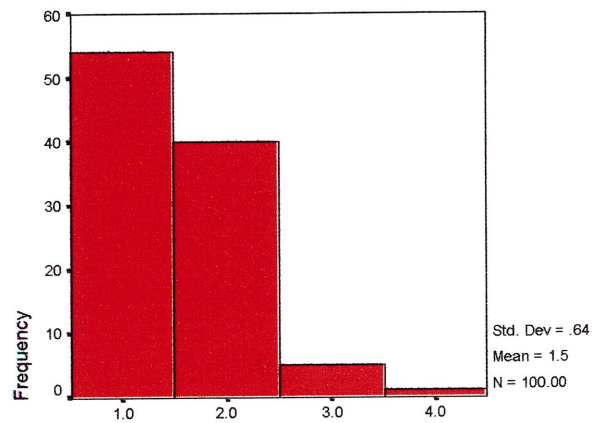
Item20

|                |         |        |
|----------------|---------|--------|
| N              | Valid   | 100    |
|                | Missing | 0      |
| Mean           |         | 1.5300 |
| Std. Deviation |         | .6428  |

Item20

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | SA    | 54        | 54.0    | 54.0          | 54.0               |
|       | AG    | 40        | 40.0    | 40.0          | 94.0               |
|       | DN    | 5         | 5.0     | 5.0           | 99.0               |
|       | DA    | 1         | 1.0     | 1.0           | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Item20



Item20

**Strongly Agree**

**Five Point Likert Scale**

**Strongly Disagree**

## Appendices (2)

|                                         |
|-----------------------------------------|
| <h3>Questionnaire of The<br/>Study</h3> |
|-----------------------------------------|

Attached is a questionnaire of 20 items to determine teacher's opinion towards introducing e-learning to primary schools. In this research e-learning is defined as any form of learning that utilizes a network for delivery, interaction, or facilitation; the network. Please indicate the answer of your choice with a check mark.

The information enclosed in this questionnaire will remain confidential and will be used for scientific purposes.

Your participation is vital to the success of this research Thank you for taking the time to answer it.

Amal Al-Ghowainim  
Med Student

Dr.Muain Al-Jamlan  
Supervisor

|          | Statement                                                         | Strongly Agree | Agree | Do not know | Disagree | Strongly Disagree |
|----------|-------------------------------------------------------------------|----------------|-------|-------------|----------|-------------------|
| <b>A</b> | <b>Teacher concerns towards e-learning:</b>                       |                |       |             |          |                   |
| 1.       | Provides efficiency in teaching                                   |                |       |             |          |                   |
| 2.       | Reduces teamwork and collaboration between students               |                |       |             |          |                   |
| 3.       | Saves on class resources                                          |                |       |             |          |                   |
| 4.       | Causes fragmentation of work and loss of consistency in learning. |                |       |             |          |                   |
| 5.       | Causes decline in student commitment                              |                |       |             |          |                   |
| 6.       | It is a way to reach a greater number of students.                |                |       |             |          |                   |
| 7.       | Results in difficulty in monitoring students during exams.        |                |       |             |          |                   |
| 8.       | Results in decline in student achievement.                        |                |       |             |          |                   |
| 9.       | It can limit the production costs of teaching                     |                |       |             |          |                   |
| 10.      | It can standardize the content of course materials.               |                |       |             |          |                   |
|          |                                                                   |                |       |             |          |                   |
| <b>B</b> | <b>Requirements for implementing e-learning</b>                   |                |       |             |          |                   |
| 11.      | Participating in training courses is necessary.                   |                |       |             |          |                   |
| 12.      | The production of online curriculum is required.                  |                |       |             |          |                   |
| 13.      | A team of teachers to lay the groundwork of a technological plan. |                |       |             |          |                   |
| 14.      | Layout of a school technological infrastructure.                  |                |       |             |          |                   |
| 15.      | Rebuilding the modes of delivering teaching.                      |                |       |             |          |                   |
|          |                                                                   |                |       |             |          |                   |
| <b>C</b> | <b>Planning strategy to implement e-learning.</b>                 |                |       |             |          |                   |
| 16.      | It should be implemented gradually one class per subject area.    |                |       |             |          |                   |
| 17.      | It must be made an integral part of budget making.                |                |       |             |          |                   |

|     |                                                                  |  |  |  |  |  |
|-----|------------------------------------------------------------------|--|--|--|--|--|
| 18. | Establishing support services such as specialized multimedia     |  |  |  |  |  |
| 19. | Collaborative partnership with external organizations is needed. |  |  |  |  |  |
| 20. | Mechanisims to evaluate the process are needed.                  |  |  |  |  |  |