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Application of Information Communication Technology at Secondary School Level and Its Practices

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Abstract: *At this point, it is a well-established fact that information and communications technology (ICT) is the most valuable source of power and attractiveness behind all types of knowledge-driven businesses worldwide. The availability of good, well-organized, well-equipped computer labs and highly-trained and dedicated ICT professionals in a variety of subjects inside the educational institution is an indispensable condition for the professional application of ICT in several societal areas. Specifically, this study aims to investigate the use and acceptability of information and communication technology (ICT) in secondary schools throughout the Punjab province. Participants included high school teachers as well as students from different regions of Punjab province. The study's findings investigated the constraints and flaws in the implementation of the information technology program. It also shows that other challenges, such as power outages, can obstruct students from achieving their educational objectives.*

Key Words: ICT, Practices, Secondary Schools

Introduction

Fundamental changes and rapid technological advances have had substantial effects on individuals' attitudes and behavior, and these changes remain. The broad usage of information and communication technologies has transformed communication, activities, habit, and how people use their free or leisure time (ICT). Even people's way of life was significantly transformed and affected, and modern times were marked by progress in communication, science, and technology. We cannot foresee a future in which science and technology can lead to prosperity and growth. "The way education is given is transformed by new scientific technology. In the near past, only a small but body of information was learned by the students. However, given the huge amount of information already available and the increasingly rapidly doubling of the amount of knowledge available through globally evolutionary education techniques is now needed.

It is Today's children must understand handle information rather than regurgitate information" (Mann, 1994).

We can employ information and communication technology to improve education and learning at the secondary level acceptably. It is because the use of technology makes learning more engaging and makes more accessible. Students benefit from the allure of information and communication technology because it helps them maintain a strong focus on education and learning (ICT). When utilizing information and communication technology to improve education, the country's structure is fundamental and necessary. In a technologically advanced world, it is important to remember that education is centered on learning and education rather than the technology itself because technology is just instrumenting such as teaching devices (Campoy, 1992). The use of technology is a relatively active

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step forward in modern learning, which increases the appeal of secondary education and learning. A belief held by [Collins \(1991\)](#) is that "the use of computers promotes active learning, which will eventually lead to a revolution in society's belief in education."

In addition, the diversity of information and communication technology is also present as our modern age moves towards human resources growth and the promotion of society (ICT). In the use of technology, we are well versed. Through ICT, the essential principle of the education and learning process is successfully executed (ICT). The teaching and learning of both teachers and students are made more accessible by information and communication technology (ICT). There are two broad categories to be considered when employing ICTFE in the educational process: information communication technology for education (ICTE) and ICT for education (ICTE). When it comes to information technologies and communications in education, the development of communication technologies for teaching and education is one thing, but the use of general components of ICTs in education and learning is another thing ([Olakulehin, 2007](#)).

Research Objectives

The objectives of the study are as under;

- To find out the widespread use of information communication technology in secondary schools.
- To explore secondary school student's readiness for the change in education through Information Communication Technology.

Literature Review

Current improvements in educational institutions informed that students' behavior, thinking, and other tools had improved significantly due to the deployment of information communication technology in secondary schools. "It is the goal of the Virginia Education Board to ensure that all high school graduates in Virginia have the knowledge and skills necessary to compete in a technologically advanced workforce, as well as to be disciplined and informed citizens. The state education standards for students ensure that all high school students in Virginia have the knowledge and skills required for higher

education and be well-disciplined and informed citizens. Consultancy programs in educational institutions effectively meet and support state standards assist all students from pre-kindergarten through grade 12 while also encouraging personal and social development. Qualified school counsellors in school counselling are committed to providing effective services. Students' progress and accomplishment are promoted and improved in schools through collaboration between professional school counsellors and other school community members such as parents, teachers, administrators, and other school community members. The counsellor's role is to direct the school counselling program and ensure effective strategies for implementing guidance standards (Standards for School Counseling Programs in Virginia Public Schools) used while adopted in January of 2004.

Children of today's generation use technology to study the world from several points of view. They think and behave in a way that allows them to readily and correctly build things. It represents a significant advance in the students' ability to utilize information and communication technology. Several medium-sized English schools in Pakistan have information and communication technology (ICT) integrated into their curricula and efficient management. [Khan, Khan, Siraj, and Hijazi \(2011\)](#) stated that the experience of information communication technology in Pakistan's city schools was one of the essential success studies on the subject and that it was one of the essential success studies on the subject. This school now has a long-term competitive advantage over other high school students in terms of energy. The children at this institution make extensive use of information technology tools, which positively impact their overall personality. In addition, the student community in particular and the country as a whole will be valuable resources.

According to [Shaikh and Khoja \(2011\)](#), the usage of information and communications technology has made economies more viable and mutually dependent on one another, and as a result, it has been at the forefront of long-term development initiatives. Examples are Teo, 2009; Derek and Dahlman, 2006; Ng et al., 2006; Van der Wende, 2002; Van der Wende, 2001; Chung, 2001.) Because information and communication

technology (ICT) improves living standards, upgrades societies promote equity in education, improves education quality and learning quality, and is a driving force for change. They propose a more diverse and flexible type of Higher Education Studies in which research, education, and social involvement are still rich and relevant while also being more accessible. This research asserts unequivocally that effective, outcome-oriented, and systemic integration of information and communication technology (ICT) is essential for Pakistan's Higher Education Studies to have a promising future. " As previously said, numerous researchers are required to implement information and communication technology (ICT) at the grassroots level in very preliminary classes. After that, we can hope to see an improvement in our global economy. The use of information and communication technologies has also helped raise the overall quality of our educational system because our rules and plans are updated regularly. The use of information technology in all sectors of education, employment, and daily life, according to many academics, is essential for the twenty-first century. It is true at both the secondary and industrial levels, they argue. In order for Pakistan to be prosperous in the twenty-first century, the country's education sector must enhance through the implementation of effective and comprehensive information technology policies ([Shaikh & Khoja, 2011](#)).

Information and communication technologies cannot promote until they are made more widely available. Education and training are essential components of the creation and support of economic activity. The availability of well-trained and versatile people makes it easier for the economy to diversify and attract new revenue and employment opportunities. A flexible workforce with a high level of general education and a solid foundation in the administration of information technology, for example, is required for the development of cutting-edge technological innovations. Information and communication technology policy has been researched and examined, and there is a large amount of literature on the subject available. In order to assist students in developing new talents and high-quality thinking to equip them to face future life difficulties, teachers and students should be able to use information and communication

technology in their teaching and learning processes. Spencer (1999) defined formalized (Spencer, 1999). If we are to attain a results-oriented approach to implementing secondary ICT in our country, we will require highly-skilled, dedicated, and competent professionals to accomplish this goal. Students or learners are unable to master the usage of new information and communication technologies (ICTs) and instead rely on traditional training approaches. They collaborate with their fellow students to develop proficiency and excellence in the use of information and communications technology (ICT) ([Ali, Riaz, & Wattoo, 2018](#)). They create intellectual intimacy with their fellow students to advance their knowledge and develop their abilities in a variety of disciplines. Pupils or students must be able to use information and communication technologies (ICTs) at institutions to achieve the ultimate goal. Instructive information and communication technologies (ICTs) are extremely important since they influence the way worthwhile learning takes place.

According to research on the role of information and communications technology (ICT) in improving education and expanding knowledge-based economies worldwide, the world is currently in a state of chaos. A primary concern for Pakistan is the scarcity of research materials that connect secondary school and higher education information communication technology with Pakistani learning and culture. This article primarily discusses the use of secondary information and communication technologies in the contemporary environment, which is the focus of this essay. Furthermore, more importantly, are the students prepared for this new learning and teaching environment? As a result, we pay close attention to the behavior of our students. Hassal and Joyce (2001) point out that student perceptions are crucial to research since "it is these opinions that define how students get near their study with ICTs," according to the authors. According to Mladenovic (2000), students need to evaluate their views of information communication technology because learning methods for information communication technology should attend from students' perspectives.

Different students have different approaches to developing high-level impressions of a variety of things. Moreover, one of the most critical and challenging problems in mathematics is the pupils' bewilderment. Perhaps, with information and communication technologies in the mathematics classroom, this ambiguity will be eliminated. The use of information and communication technology (ICT) is appealing and engaging to children who are not interested in mathematics. Barkatsas, Kasimatis, and Gialamas stated that Middleton had provided several criteria that provide a logical basis for why a desire for success is desirable in current mathematics classes and that Middleton's arguments were well-founded. According to Middleton, when students demonstrate intrinsic motivation, they are more likely to engage in a variety of pedagogically desirable behaviors such as taking time off work or persevering in the face of failure, engaging in more detailed and understanding monitoring, selecting complex tasks, exercising greater creativity and risk-taking, and engaging in a selection of more profound and more efficient performance ([Barkatsas, Kasimatis & Gialamas, 2009](#)). As a consequence of this challenge, leaders need to be more vigilant to make proper decisions. Furthermore, several channels are currently being used to relay information. It tells us that leaders can no longer control the spread of knowledge. During the emotionally charged information process, leaders should be prepared if it is already broadcast. When an employee is unhappy with the behavior of management, the employee can take previously impossible measures. With a simple click, a worker can engage or send an irritated message to the entire employee team with the head of the top management team. A staff member can contact the editor to submit an article on the event, whereas E-leadership enables a mighty leader to coordinate groups of people who were distorted from and disorganized in the past ([Kashif, & Ali, 2019](#)).

Education information and communication technologies (ICTs) enhance student-centred learning, fostering more severe and critical thinking skills. From this perspective, educational information and communication technology allow teachers to expand their role and responsibilities, moving away from the traditional role of teacher and toward the role of facilitator and channel for students, which is critical in assisting students in

building their knowledge for future learning. Access to knowledge and expertise that would otherwise be unavailable is made possible by using adequate and straightforward information and communication technologies (ICTs) for training. It helps to expand learning experiences in the classroom. The use of ICT in primary and secondary schools, emphasizing enhanced quality of subject teaching and learning in class, has become increasingly widespread, as Hennessy, Harrison, and Wamakote (2010) described. Under the study's findings mentioned above, teachers' use and non-use of information communication technology in the classroom is influenced by a range of internal and external variables. Teachers in developing nations are being propelled into the twenty-first century by their use of information and communication technology and the pedagogical implications this has for initial teacher education and the continued professional development of teachers ([Ali, Nargis, Yasmeen, & Iqbal, 2015](#)).

Therefore, pedagogy, which focused on students, is still essential; nevertheless, information technology also plays a highly significant role in education and contributes to the future expansion of pedagogy. Education Information and Communication Technology (ICT) is evolving from interactive technology and learning to mutual technology at an increasingly rapid pace. In addition, from student pedagogy to collaborative pedagogy and team-oriented teaching at school. The emphasis in this environment is on the creation of an appropriate learning environment. In the case of underdeveloped countries, this may be more feasible in the long run. According to the facts, if information communication technology policies and strategies for education development assistance at the institution or secondary school level not developed to enable and promote resourceful use of information communication technology for educational purposes, it is likely that they will be limited. Due to the lack of comprehensive education sector policies and strategies for information and communications technology, it would be appropriate to develop an independent ICT for education project as a pilot, to use the pilot experience to inform and contribute to the establishment of comprehensive education sector policies and strategies for ICT.

Research Methodology

The study investigates the use of information and communications technology (ICT) in high schools and their practices and the significance of the topic, which leads us to classify it as a descriptive study. There were secondary schools in the target demographic, and a sample of students was drawn from these institutions for the study. Secondary school computer lab managers and students in classes 9 and 10 were among those who took part in the research project. In order to achieve the study's objectives, the researchers utilized two research methods (a questionnaire and interviews), which they used to collect data from participants. The questionnaire and interview questions were subjected to rigorous testing by the experts' researchers to ensure their validity and reliability. Their suggestions have been taken into consideration and implemented. The

dependability of the questionnaires was determined by the coefficient of reliability, which was 0.85.

The researchers approached the schools' principals to acquire authorization to conduct a study among the targeted group. The researchers interviewed students and instructors once they had completed the surveys and interviews with them, and the data were analyzed with the help of SPSS.

Analysis and Interpretations of the DATA

The data collected was organized and then checked in a schedule. Then tables were subsequently developed, and each relevant portion received all relevant comments and explanations. After each table, there is a detailed description of the data given in the table.

Table 1. Computers Availability and Configuration

| Items | Respondents | Responses | Per% |
|--|-------------|------------------|------------|
| Total number of computers & in working position | Teachers | 16 | 20 (100%) |
| | Students | 16 | 200 (100%) |
| Hard disks at client servers and at main servers | Teachers | 320GB | 20 (100%) |
| | | 160GB | 13 (65%) |
| | Students | 150GB | 07 (35%) |
| | | 160GB | 160 (80%) |
| | | 150GB | 40 (20%) |
| | | 1GB | 04 (20%) |
| Ram in the computer | Teachers | 2GB | 16 (80%) |
| | Students | 1GB | 40 (20%) |
| Motherboard | Teachers | 2GB | 160 (80%) |
| | | Intel (Original) | 20 (100%) |
| | Students | Intel (Original) | 200 (100%) |
| | | 2.8GHz | 13 (65%) |
| Processors | Teachers | 2.93GHz | 03 (15%) |
| | | 3.00GHz | 04 (20%) |
| | | 2.8GHz | 130 (65%) |
| | Students | 2.93GHz | 30 (15%) |
| | | 3.00GHz | 40 (20%) |
| CD Rom / DVD Writer | Teachers | DVD Writer | 12 (60%) |
| | | CD ROM | 08 (40%) |
| | Students | DVD Writer | 120 (60%) |
| | | CD Rom | 80 (40%) |

According to the responses of teachers and students, Table 1 demonstrates that 100 per cent of the computers are operational.

Under the teacher's responses, 65 per cent of Hard Disks on the 320GB main servers at Client Server are 160GB, and 20 percent of Hard Disks on Client-Server are 150GB. In addition, 35 percent of

Hard Disks of Computers are on the 320GB and 150GB main servers at Client-Server in all computer labs and 80 percent Hard Disks on Computers are 160GB, and 20 percent of Hard

Disks on Computers are 150 percent GB. According to the responses from teachers and students, 20 percent of computers have 1 GB of RAM, and 80 percent of computers have 2 GB of RAM in all computer laboratories, respectively. According to teacher responses, all computer laboratories have PCs with Intel's (original) motherboard installed on every single one of

them. According to the responses of professors and students, 65 percent of computer processors have a speed of 2,8 GHz, 15 percent have a speed of 2.93 GHz, and 20 percent have a speed of 3,00 GHz throughout all computer laboratories. According to instructors and students, 60 percent of computers have DVD Writers installed on them, while 40 percent have a CD ROM installed.

Table 2. Availability of Internet Connection and its use in the Computer Labs

| Items | Respondents | Responses | Per% |
|--|-------------|-------------|------------|
| Students use Internet | Teachers | Yes | 20 (100%) |
| | Students | Yes | 200 (100%) |
| V-Fone PTCL (4 Sets) or DSL | Teachers | V-Fone PTCL | 13 (65%) |
| | | DSL | 07 (35%) |
| | Students | V-Fone PTCL | 130 (65%) |
| | | DSL | 70 (35%) |
| Internet Connection at main server and at each PC Separately | Teachers | Yes | 20(100%) |
| | Students | Yes | 200 (100%) |
| Frequent use of the Internet | Teachers | Yes | 20 (100%) |
| | Students | Yes | 200 (100%) |
| Students work keenly | Teachers | Very keenly | 20 (100%) |
| | Students | Very keenly | 200 (100%) |

Table 2 demonstrates that all students in computer labs use the Internet to complete their tasks, according to instructor and student responses. 65% of instructors and students indicate that their computer laboratories have V-Fone PTCL access, whereas 35% of teachers and students report a DSL connection. Teachers and students indicated that the Internet is 100% accessible for both the central server and the

computer laboratories for the individual PC. According to the comments of teachers and students, each of the secondary school pupils utilizes the Internet regularly at the computer labs there. In Punjab secondary schools, computer laboratories are filled with fully mindful students and are interested in their work, according to the opinions of professors and students.

Table 3. Computer changing Students' Behavior, Computer as a Subject, visit of Computer Lab and the awareness about the Government Policies.

| Items | Respondents | Responses | Per% |
|---|-------------|------------|------------|
| Use of computer changing the behavior | Teachers | Yes | 20 (100%) |
| | Students | Yes | 200 (100%) |
| Students taking computer as a subject | Teachers | Computer | 12 (60%) |
| | | -- | 08 (40%) |
| | Students | Computer | 186 (93%) |
| | | -- | 14 (07%) |
| Students visit the computer lab daily | Teachers | Visit | 19 (95%) |
| | | Visit not | 01 (05%) |
| | | Four times | 36 (18%) |
| How many times visit computer lab in a week | Students | 5 times | 40 (20%) |
| | | 6 times | 124 (62%) |
| | | Yes | 0% |
| Know about govt. policies | Teachers | No | 20 (100%) |
| | Students | Yes | 0% |

| Items | Respondents | Responses | Per% |
|-------|-------------|-----------|------------|
| | | No | 200 (100%) |

Table 3 shows students and teachers that utilizing a computer changes the behavior of pupils and their thinking by 100%. 60% of students take computers as a subject, although most students respond by indicating that 93% take computers as a topic in the classroom. However, computers as a subject are a huge problem. The preceding figures say that 95% of pupils attend teachers every day in the computer workshop. Whereas 18% report that the computer laboratory is visited four times a week, 20% say that the computer lab visits five times a week, and 62% respond six times a week. The data above showed the 100% reaction of the teachers and children that they do not know secondary government IT policy.

Discussion

The study revealed that teachers and students responded that 100 percent computers (16 computers in each lab) and all are working at the high school level. The study also examines the necessity to use the latest information technology to bring positive changes and generate a new cult of education to meet international standards of education, as demonstrated by previous researchers, [Khan et al. \(2011\)](#), that there is a lack of ICT infrastructure available at school level. The DSL or V-Fone PTCL connectivity is available in all secondary computer labs in Pakistan. Internet connection on both the central server and each PC. Moreover, the computer laboratory shows 100 percent internet usage. During the survey, it was also found that the teachers and students frequently use the Internet at computer labs. To explore their expertise, they use numerous websites. The study also found that students used computer laboratories intensively; however,

electricity failure has proved to be the most significant barrier to computer laboratory applications. The teacher and the student were very interested in using computers to improve behavior and thinking processes for education. One of the school's teachers claimed that most pupils take computers as a secondary school subject.

After a few teachers' and students' interviews, the government in Pakistan and other provinces of Punjab took positive steps to introduce information technologies. It facilitated urgent energy systems in UPS by giving students the ability to minimize the anxiety resulting from Pakistan's power failure. The program supports students who fulfil the 70 percent high school criterion. There is still the little provision of alternate sources for government at the secondary level. This step, however, is for "something better than nothing" on the side of the government. In questionnaires, it has also been noticed that no computer classes save for pupils studying a specific computer subject were available to general students.

Conclusion

Finally, the findings of this study include the research ideas of students and professors in Pakistan, particularly those in government institutions in Pakistan, who are more likely than others to employ information and communications technology for academic purposes. In addition, the report proposes that the government pay close attention to the needs of students and professors in government-run institutions of higher learning.

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