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Evaluating the Incorporation of Information and Communication Technology (ICT) in Secondary Schools: Teacher Perspectives, Obstacles, and Influence on Student Success

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***Abstract*:** This research, which uses a quantitative approach using survey methods, mostly focuses on the integration of Information and Communication Technology (ICT) in secondary schools. The sample consisted of 60 secondary schools in Lahore and Gujranwala with 310 teachers—144 male and 166 female. Proportional stratified sampling was utilized to assess teachers' perceptions on the Teacher Perceptions, problems, and Impact on Teacher Performance as well as related challenges using a 20-item questionnaire changed from the QICT (Questionnaire on the Integration of ICT). After verifying the questionnaire five qualified instructors tested it to get a 0.789 reliability coefficient. Results reveal that ICT is quite important for boosting teaching and learning. It increases educational growth, creativity, and teamwork. Rich countries rapidly embrace new technologies, but impoverished ones experience enormous challenges due to limited resources. This distinction is obviously shown by the various adoption rates of technology in learning contexts. The research stresses the need of strategic application and teacher training in addition to technology acquisition in order of successful ICT integration. Using technology in education in Pakistan, where ICT acceptability is still growing, relies on overcoming infrastructure, training, and resource allocation issues.

Keywords: ICT Integration, Secondary Education, Teacher Perceptions, Educational Challenges, Student Achievement

1. Introduction

ICT (Information and Communication Technology) gives people the right info when they need it. Today, ICT has an impact on growth, sparks new ideas, and helps people and groups work better in the digital world and global community. Rich countries quickly adopt new tech, but poor ones often lack resources, which slows them down. We see this gap in schools too. Some teachers are just starting to learn basic computer skills, while students in other places know how to use computers, tablets, and smartphones well. In the last 20 years, schools worldwide have started to use more ICT. People have always tried to use tech to solve problems, and now new ideas come faster than ever. Adding ICT to education matters a lot to teacher's society, the government, and local leaders. But most efforts to bring ICT into schools focus on buying new equipment instead of using it in ways that help students learn. When people use them current ICT tools can turn into strong helpers for education. But if folks don't use them well, it can waste a lot of money. Teachers need to think about how to use ICT to make teaching and learning better. Buying stuff like computers, gear, and smart boards doesn't help if you don't know how to use ICT in class. Just having tech around doesn't mean teaching and learning will be great. ICT might change what teachers do, but it doesn't always change how they teach. To make real changes, teachers should see ICT as a strong teaching tool, get

better at using digital things, and use tech in their everyday teaching. Pakistan, like many countries still growing, is just starting to bring ICT into its schools. This isn't easy and lots of things affect how well schools can start using tech. Even with these problems, ICT could help make teaching and learning better. At its heart, ICT lets people get, mix, keep, and work with info in how we talk to each other. It makes independent learning easier and gives students and teachers worthwhile experiences. When schools use ICT, they can set up livelier more hands-on, and better learning spaces that get students ready for what the digital world needs. As Pakistan and other growing countries keep putting money into using ICT, it's crucial to focus not just on the basics but also on building the know-how and plans to use these tools well. This way, they can close the gap in digital skills and help their people take part in the world's knowledge-based economy.

1.1 Problem Statement

At times, there is a belief that the implementation of ICTs will necessitate a transformation in the roles of teachers and learners, resulting in a shift from a nearly exclusive teacher-dominated approach to a student-centered approach. This shift will equip students for new technologies in culture and the globe and help them to improve their learning in areas like creativity, abilities in solving issues, information, and reasoning processes. Under this assumption, the present research aimed to concentrate on the "Assessing the Integration of Information and Communication Technology (ICT) in Secondary Schools: Teacher Perceptions, Challenges, and Impact on Student Achievement."

1.2 Objectives of the Study

The objectives of the study were to:

1. Determine the extent to which secondary school instructors perceive the integration of ICT in their classrooms.
2. Investigate the obstacles associated with the integration of ICT in secondary school classrooms.

1.3 Research Questions

1. To what extent do instructors perceive the integration of ICT in secondary school classrooms?
2. What are the obstacles that teachers encounter when integrating ICT into secondary school classrooms?

1.4 The Study's Importance

In today's digital world, the integration of ICT into education is more important than ever before. It greatly improves the ways in which students learn and teachers convey information. This research is important because it reveals how information and communication technologies might improve conventional teaching strategies by making them more interesting, dynamic, and fruitful for pupils. The study offers important insights that may guide initiatives for better integration by investigating teacher perspectives, difficulties, and the influence of ICT on student accomplishment. Additionally, the research stresses the need for continuous training and assistance to overcome obstacles to the use of ICT, highlighting the significance of professional development for teachers. The results have special significance for developing nations like Pakistan, where the possibilities of information and communication technology (ICT) in the classroom are only beginning to materialize, and where it is critical to solve problems with resources, infrastructure, and teacher training in order to reap the full advantages of ICT.

2. Literature Review

The impact of technology on student learning, the challenges faced by educators, and the necessary conditions for its implementation have all been the subject of much research on the topic of information and communication technology (ICT) integration in the classroom. This literature review synthesizes key findings from research on the subject of ICT integration in secondary school classrooms, with a focus on issues such as teacher viewpoints, student achievement, gender inequality, training, and administrative and technical support.

Instructors' perspectives on the use of technology in the classroom determine the degree to which such integration is successful. The way teachers feel and think about technology greatly influences how they use it in the classroom, according to Ertmer (1999). If both instructors and students have a good impression of ICT tools, their usage in the classroom may be more extensive and effective. Despite the claims of ICT's benefits, Alazam et al. (2012a) discovered that teachers often face barriers to its successful use, including ignorance, negative attitudes, and inadequate support systems. These findings suggest that acknowledging and responding to teachers' perspectives is

critical for promoting successful ICT integration. Oguzor (2011) argues that pupils might gain a lot by using ICT in the classroom, even when traditional methods of teaching are still there. It is not enough for teachers to just be comfortable with technology in the classroom; they must also be able to adapt it to their own needs. Continual professional development and resources are crucial for teachers to effectively integrate ICT into their classes, according to Bauer and Kenton (2005). Included in this is guaranteeing that teachers can take advantage of professional development chances and have the confidence to effectively use ICT technologies.

It needs administrative and technical support to integrate ICT effectively. According to Almekhlafi and Almeqdadi (2010), inadequate administrative support and outdated technology are two big problems when it comes to making good use of ICTs. Even the most proficient teachers could struggle to make regular use of ICT if they don't have the resources (time, money, etc.) (Bauer & Kenton, 2005). Strong support mechanisms, including access to contemporary technology and technical assistance, are necessary for schools to overcome these challenges and allow effective integration of ICT. Research looking at gender disparities in ICT use has yielded contradictory conclusions. Despite the fact that gender does influence the inclination to use ICT (Bakar, Hamzah, and Asmiran, 2012b), Morley (2010) did not find any significant variation in ICT use based on gender. Also, according to Elsaadani (2012), there was no correlation between gender and opinions on ICT. Other factors, such as individual attitudes, resource availability, and training, seem to have a greater impact on ICT integration than gender, at least according to this study. A hotly debated topic in educational research is how pupils' use of ICT impacts their academic achievement. Chandra (2008) asserts that the use of information and communication technology has the potential to improve academic performance by boosting learning experiences and engagement. Youssef and Dhamani (2008) point out that studies have produced varying results on the influence of ICT on performance, with some finding no effect and others finding substantial effects. The impact of ICT on students' academic performance varies from one setting to another and is context dependent, however ICT has the potential to enhance education (Aristovnik, 2012).

3. Research Methodology

In this chapter, the research methodology utilized in this study will be elaborated upon, including the design of the study, population, instrumentation, validity and reliability of the instruments, data collection, ethical considerations, and statistical analysis.

3.1 Philosophical Research Design

This study's philosophical research model was positivist. Positivists assert that scientific and realistic implications of ideas should be considered in evaluating proposals on conducting analysis and practical approaches to developing solutions (Johnson & Onwuegbuzie, 2004).

3.2 Research Design

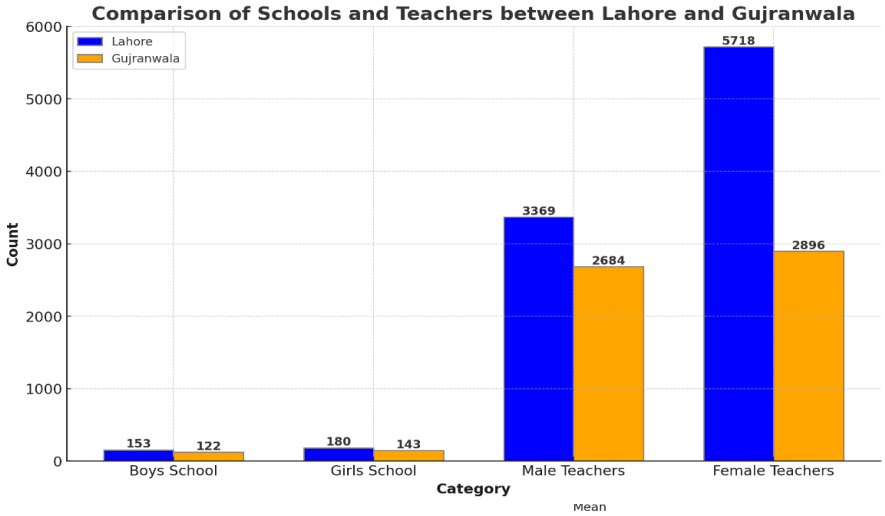
This study employed a quantitative approach with a descriptive survey design. Descriptive surveys use questionnaires to gather information about the attitudes, opinions, and habits of individuals on various educational and social topics (Orodho, 2009). This research aimed to analyze the integration of information and communication technology (ICT) for effective teaching and learning at the secondary school level.

3.3 Population of the Study

The research was about the secondary school teachers of two Pakistan-based districts- Gujranwala and Lahore. 10% of the schools in each district were aimed to be involved through the employment of a proportional stratified sampling technique. As a consequence, a pool of 60 public secondary schools came into being (27 of these were from Gujranwala while 33 were from Lahore) and 310 instructors became the participants. A survey questionnaire that involved ICT integration in teaching as a topic, closed demographic variables, and teacher perceptions.

3.4 Validity and Reliability of Instrument

The instrument had pilot testing to ensure both its reliability and validity. It was checked by the experts and the previous trials, and it got the legitimacy from them. A50-respondent abstract was filled in by the pilot test group. While using the Cronbach's alpha, which came up with a 0.889 value, we concluded that the instrument is quite reliable (Hulin, Netemeyer, &Cudeck, 2001).



3.5 Ethical Considerations

The study was conducted through ethical procedures, considering each person's adequate knowledge, confidentiality, personal privacy, and the prevention of undesirable consequences. Adhering to these principles was done very faithfully during the study.

3.6 Delimitation of the Study

With the time constraints and the limited technology resources available, the study was delimited to the ICT-integrated secondary schools in Lahore and Gujranwala. The preferred ultimate goal was to guarantee that the learners are made well aware of all opportunities available within the digital world. Through that, they can develop their skills that can later be transferred to their workplace.

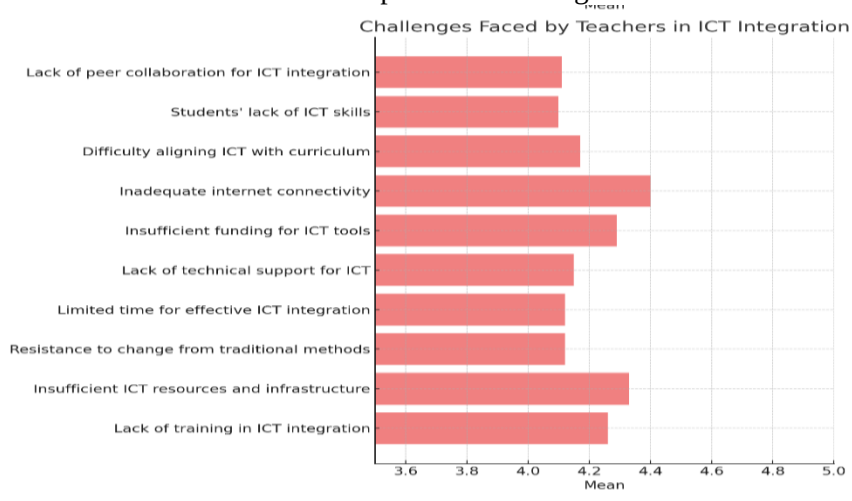
4. Data Analysis

4.1 Data Collection

Public secondary schools in Gujranwala and Lahore were the primary sources of the data. The researcher informed participants about the study's goals and purpose and guaranteed their anonymity. The researcher used SPSS version 16.0 to examine the data. Statistical tools for both descriptive and inferential purposes, including frequency distributions, percentages, means, standard deviations, and tests for independence (independent sample t-test and one-way ANOVA).

Determine the extent to which secondary school instructors perceive the integration of ICT in their classrooms.

RQ:01 To what extent do instructors perceive the integration of ICT in secondary school classrooms?



Teachers identified several significant challenges in integrating ICT into secondary school classrooms, with the most prominent being a lack of training and professional development (mean = 4.26, SD = 0.96), insufficient ICT resources and infrastructure (mean = 4.33, SD = 0.93), and resistance to change from traditional teaching methods (mean = 4.12, SD = 1.05). Other challenges included limited time within the curriculum for effective ICT integration (mean = 4.12, SD = 1.02), a lack of technical support (mean = 4.15, SD = 1.08), insufficient funding (mean = 4.29, SD = 0.97), inadequate internet connectivity (mean = 4.40, SD = 0.87), difficulty aligning ICT with the curriculum (mean = 4.17, SD = 1.00), students' lack of ICT skills (mean = 4.10, SD = 1.10), and a

What are the obstacles that teachers encounter when integrating ICT into secondary school classrooms?
RQ02: What is the Impact of ICT Integration on Students' Academic Performance in Secondary Schools?

4.2 Mean of Perceived Impact of ICT on Students' Academic Performance

Teachers generally perceived that ICT integration had a positive impact on students' academic performance, noting several key benefits. These included enhanced student engagement and participation (mean = 4.24, SD = 0.99), improvement in academic performance with ICT use (mean = 4.21, SD = 1.05), and the development of critical thinking and problem-solving skills (mean = 4.28, SD = 0.93). Additionally, ICT was seen to increase motivation to learn (mean = 4.23, SD = 1.00), facilitate individualized and differentiated instruction (mean = 4.26, SD = 0.97), and provide better access to learning resources (mean = 4.37, SD = 0.87). It also supported collaborative learning (mean = 4.20, SD = 0.99), prepared students for higher education and careers (mean = 4.20, SD = 1.02), enabled effective tracking and assessment of progress (mean = 4.28, SD = 0.96), and contributed to a more interactive and dynamic learning environment (mean = 4.27, SD = 0.97).

5. Discussion, Conclusion, and Recommendations

5.1 Discussion

This section presents the study's conclusions about the use of ICT in secondary school lessons, based on responses from secondary school educators in the districts of Gujranwala and Lahore. Teachers' perspectives on the integration of ICT, the obstacles they encounter, and the effects of ICT on students' academic achievement will all be part of the conversation. The survey found that most secondary school teachers see the use of technology in the classroom favorably. Educators saw the potential of ICT to enhance classroom instruction. Their reasoning was that with the help of ICT, classes might be more integrated and engaging, which in turn would pique students' interests and encourage personalized learning. This finding is consistent with what Ertmer (1999) said, which is that positive views about ICT have the potential to promote their acceptance and use in the classroom. However, the research also showed that there are concerns about the potential abuse of ICTs, even if the general sentiment is positive. Teachers face frustrating challenges such as inadequate training and professional development, dwindling resources, and nonexistent technological assistance, in addition to the obvious benefits of ICT. It makes perfect sense, considering that Alazam et al. (2012a) highlighted the fact that there are still some obstacles that prevent instructors from making good use of ICT, even when they recognize its potential.

5.2 Conclusion

Teachers see the integration of ICT in secondary school classrooms favorably and see its potential to improve teaching and learning, but there are a number of obstacles that need to be overcome, according to the study's conclusions. Nevertheless, in order to achieve the method's full potential, it is necessary to address some obstacles, such as inadequate training, a lack of information and communication technology resources, resistance to change, and technological problems. It is crucial to maintain the movement in education alive because, despite these and other obstacles, ICT has significantly improved student engagement, academic performance, and critical skills training; however, the focus should be on overcoming these obstacles. Teachers' firm belief that pupils' academic performance has been positively affected by the incorporation of ICT is another important facet of ICT integration that was brought to light by the study. These opinions are based on data that shows how effective these strategies are: higher levels of student involvement and participation; better academic achievements; enhanced students' capacity to think critically and solve problems; higher levels of student enthusiasm; and the ability to tailor lessons to the unique requirements of each student. Also, it's worth noting that students work together better and have better learning tools thanks to technology, which makes class more fascinating overall. The research did find a few issues, however, with the idea of using ICT in secondary school classrooms. Among these difficulties were the following:

a lack of time to devote to information and communication technology (ICT), antiquated pedagogical methods, limited infrastructure and resources, and bad internet and support, among other technical obstacles. When combined, they reduce the efficiency of ICT.

5.3 Recommendations

Schools should support teachers' continuous professional development, which should include both technical and pedagogical abilities, in order to improve the integration of ICT in education. Effective utilization also requires the improvement of ICT resources and infrastructure and the provision of strong technical assistance. The last piece of advice I have is for educational leaders to make sure teachers have the time and resources they need to successfully adopt ICT into their curricula.

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