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Role Of ICT Resources For Effective Teaching Learning Process At University Level: Comparison Between Teachers And Students' Perceptions

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Abstract

This study was planned to find out perceptions of teachers and the students about the role of effective teaching learning process at university level. Population of this descriptive study was all faculty members and students of university of Narowal. Fifty teachers and 300 students were randomly selected for data collection. A questionnaire on five points Likert scale consisted of 19 items was developed and validated through expert opinion. Data were collected from both the sources i.e., teachers and the students. Statistical techniques like mean, standard deviation, and independent sample t-test were used to analyze the data. It was concluded that both teachers and the students have positive perceptions about the role of information communication technologies (ICT) sources in effective teaching learning process at university level.

Key Words: Information communication technologies, sources, teaching learning process, university level

Introduction

Like other developing nations worldwide, Pakistan is only beginning to employ and integrate ICT in the teaching and learning process in educational institutions. There are undoubtedly several obstacles to using and integrating ICT in educational institutions. A variety of factors affect how well ICT is used in educational settings to enhance teaching and learning. Technology for acquiring, integrating, storing, and processing communication information is known as information communication technology. Independent learning is encouraged by information and communication technologies. ICT is essential for teachers and students since it provides opportunities for learning for both groups. ICT improves active learning and gives students a sense of responsibility for their learning both inside and outside of the classroom. In light of his expertise and knowledge, a teacher may simply plan and prepare his lectures, create the method and materials, such as contents, content delivery, and also ease the sharing of resources with students. There is increasing demand on educational institutions worldwide to incorporate new ICT technologies into their curricula in order to provide students the knowledge and skills they will need in the 21st century (Hue & Jalil, 2013). Many academics have emphasized how crucial it is to use them in order to improve the standard of teaching and learning. Governments and educational institutions have acknowledged the use of information and communications technology as a significant issue for improving the effectiveness of teaching and learning during the past several decades (Plump et al., 2009). The development of

computers, communication tools, and other multimedia instruments provides a wide range of sensory inputs. As a result, it is asserted that I perceive, remember, act, and understand. Students can experience virtual worlds when learning a range of subjects using simulations, animations, and software, which makes learning more direct, useful, and pleasant. Self-engaged learning by students is seen to be the cornerstone of effective education. The incorporation of information and communication technology into the teaching and learning process is a growing field of research. ICT integration is required to promote students' learning, according to various academic publications (Cartwright & Hammond, 2003; Herzig, 2004; Lim and Chin, 2004). ICT integration into teaching and learning is not a novel concept. Wang and Woo (2007) speculate that it could be as old as other technologies like radios and TVs. However, because new technologies, like web technology, evolve quickly, educators now place more emphasis on ICT integration. Information and communication technology integration can help educators and students improve education by providing curricular assistance in difficult subject areas (Gulbahar & Guven, 2008). A sensation of completeness or completion is produced via integration, according to Earle (2002), by seamlessly combining all a system's required parts. Giving children a CD-ROM with software or a list of websites is not integrating ICT into the classroom. According to Earle (2002), ICT and other crucial educational components, such content and technique, are molded into one entity to indicate that ICT integrated courses are properly utilized. However, ICT integration is not a simple application (Bhasin, 2012). This suggests that using technology in the teaching-learning process faces a number of challenges. The findings of the study conducted by Bingimlas (2009) showed that although teachers wished to include ICT in their lessons, they encountered a number of challenges. The key challenges were a lack of resources, limited skills, and lack of confidence. As it has been shown that the key components of technology integration in schools are competence, accessibility, and lack of trust. Teachers need access to ICT resources, such as hardware and software, as well as sufficient professional development, time, and technical support. No one component alone is adequate to offer effective education. Therefore, educators generally agree that technology has the ability to improve student learning outcomes and efficacy when used appropriately (Wang, 2001). If ICT is used properly, which involves using relevant sources, training approaches, and support mechanisms, it may improve teaching and learning (Hue and Ab Jalil, 2013). The main factor affecting how well students learn is not the availability of technology but rather the pedagogical framework for effective use of ICT.

It is a fundamental human right to have access to education. The well-being and progress of any nation are dependent on education. Therefore, the quality of education is essential for the overall well-being of the nation. Pakistan is a developing country with an educational system that is in desperate need of improvement. To reverse the downward trend in education at the university level, we must improve the education system as soon as possible. To solve the issues, we must improve the quality of advanced education. In-country development and its educational system at the university level, practice-based learning focused on technology is needed. Young people's futures must be brightened, and they must be given a voice at the international level. ICT is the answer to the difficulties we are currently experiencing, given the situation's urgency. ICT can help us meet today's

requirements and demands and prepare our generation for tomorrow's difficulties.

Research Objectives

1. To find out teachers' perception about the role of information communication technologies resources for effective teaching learning process at university level.
2. To find out students' perception about the role of information communication technology resources for effective teaching learning process at university level.
3. To compare the perceptions of teachers and students regarding role of information communication technology resources for effective teaching learning process at university level.

Research Questions

1. What is the dimension of teachers' perception about information communication technologies resources for effective teaching learning process at university level?
2. What is the dimension of students' perception about information communication technologies resources for effective teaching learning process at university level?
3. Is there significant congruence between the perceptions of teachers and students about information communication technologies resources for effective teaching learning process at university level?

Significance of the study

This research is significant in many ways. It provides the evidence about perception of teachers and the students regarding role of ICT in teaching learning process at university level. Moreover, this study is an effort to point out the grey areas which are reluctant in developing conducive teaching and learning process. This study is also helpful in providing guidelines for the administrators to provide the infrastructure regarding ICTs. It also alerts the teaching training institutes to provide necessary training and arrange refresher courses for the teachers to meet the needs of the day.

Review of Related Literature

Information and communication technology integration into the curriculum is a crucial step in ensuring the quality of education (Hue & Jalil, 2013). However, simply having technology available won't result in a significant transformation of a school. Teachers are an essential element in the implementation of ICT in education. If academics aren't involved, the majority of children could not completely benefit from all of the potential benefits of ICT on their own. ICT significantly affects education and learning, according to Johannsen (2009). It is accurate to say that the incorporation of ICT into teacher education has shifted the pace of professional development.

According to Ali, Haolader, and Muhammad (2013), administrators and teaching staff have a strong desire to integrate ICT into teaching-learning procedures in classroom practices. In government-run universities, Pakistani students and teachers are more likely to employ information and communication technology for academic purposes, according to Iqbal, Ali, Hassan, and Aalamgeer (2015). The integration of ICT resources in education has revolutionized teaching practices by providing educators with innovative tools and technologies. ICT tools such as interactive whiteboards, multimedia presentations, and educational software enable teachers to create dynamic and engaging learning environments (Warschauer & Matuchniak, 2010). These resources facilitate the delivery of diverse instructional methods, cater to individual learning styles, and encourage active student participation. Moreover, ICT

enables teachers to access a vast array of online educational materials and resources, enhancing their ability to design and deliver effective lessons. ICT resources play a crucial role in fostering student engagement in the learning process. Interactive learning platforms, educational games, and multimedia content capture students' interest and motivate them to explore concepts independently (Hew & Brush, 2007).

Numerous studies have indicated the positive impact of ICT resources on learning outcomes. Research shows that the integration of ICT in educational settings leads to improved student achievement, higher academic performance, and increased retention rates (Tamim et al., 2011). ICT resources provide personalized learning experiences, tailoring content and activities to individual student needs, which can result in more effective learning outcomes. The integration of technology in the classroom has revolutionized teaching and learning approaches. Educational technology tools, such as interactive whiteboards, multimedia presentations, and online resources, can enhance student engagement and make learning more interactive and dynamic (Picciano, 2017). Technology also enables personalized learning experiences, allowing students to access content at their own pace and cater to their individual learning styles and preferences.

Technology allows the creation of interactive multimedia content, such as simulations, virtual labs, and gamified learning modules (Jong et al., 2014). These resources immerse students in real-world scenarios, encouraging active exploration and experimentation. Interactive multimedia content enhances student engagement and fosters deeper understanding of complex concepts.

Learning analytics is an emerging field that uses data to gain insights into student learning behaviors and outcomes (Siemens & Long, 2011). By analyzing student data, instructors can identify areas where students may be struggling and adapt instructional strategies to address individual needs. ICT tools like virtual discussion forums, online quizzes, and collaborative projects promote cooperation among students by providing opportunities for joint problem-solving and shared decision-making. Through ICT integration, students can contribute their perspectives, exchange ideas, and collectively construct meaning (Tsovaltzi & Kamariotou, 2011). This fosters a sense of community in the learning process and encourages active participation.

ICT integration in collaborative and cooperative learning environments facilitates active engagement between students and teachers. Online discussions, instant messaging, and video conferencing provide platforms for continuous interaction and feedback (Harasim, 2012). Teachers can monitor group activities, intervene when needed, and provide guidance to enhance the learning experience. In turn, students have greater access to resources, support, and expertise from their teachers, fostering a more dynamic and effective learning environment. ICT-supported collaborative and cooperative learning enable students to actively engage with course content, discuss complex topics, and solve problems together, leading to deeper understanding and retention of knowledge (Wang, Chen, & Anderson, 2015).

ICT facilitates the seamless integration of theory and practice in the learning process. Unlike traditional classrooms, where theoretical concepts are often taught separately from practical applications, ICT allows for a more holistic and hands-on learning experience (Gulati & Saini, 2021).

Interactive multimedia content, virtual simulations, and gamified learning modules provide students with opportunities to apply theoretical knowledge to real-world scenarios, promoting creative thinking and problem-solving.

ICT enables collaborative and participatory learning environments, where students actively engage in the creation and sharing of knowledge (Scardamalia & Bereiter, 2014). Online platforms, such as virtual discussion forums and social media groups, foster peer-to-peer collaboration, idea exchange, and constructive feedback. ICT supports personalized learning pathways tailored to individual students' interests, strengths, and learning styles (Beetham & Sharpe, 2013).

ICT offers a wide range of multimedia and multimodal learning resources that stimulate creativity and imagination (Latham & Carr, 2015). Visuals, audios, videos, and interactive elements enrich the learning experience, making it more engaging and enjoyable for students. Multimedia content encourages creativity by enabling students to express their ideas through various media, such as creating videos, podcasts, and digital presentations. ICT integration in education brings authentic learning experiences, connecting students with real-world problems and contexts (Herrington & Parker, 2013). Virtual field trips, online simulations, and case studies immerse students in practical situations, encouraging them to think critically and creatively to find solutions. Authentic learning experiences foster creativity by challenging students to apply their knowledge in meaningful ways.

ICT integration in education has transformed the landscape of creative learning, breaking down the barriers between theory and practice and promoting an integrated and participatory approach to teaching and learning. By fostering collaborative and personalized learning environments, providing multimedia and multimodal resources, and offering authentic learning experiences, ICT empowers students to unleash their creativity and develop critical skills for the 21st century. ICT has had a profound impact on the education sector. It has revolutionized teaching and learning methods, enabling personalized and interactive learning experiences (UNESCO, 2013). E-learning platforms, educational apps, and digital resources have made education more accessible and flexible. Moreover, ICT has facilitated communication and collaboration among students and educators, creating virtual learning communities (Albirini, 2006).

Information and Communication Technology (ICT) has become a critical driver of societal transformation, impacting various sectors, including education, healthcare, business, and governance. Its evolution and widespread adoption have opened up new opportunities for individuals, businesses, and governments. ICT has revolutionized communication, access to information, and service delivery, making the world more interconnected and accessible. However, challenges such as the digital divide and cyber security risks require careful consideration and proactive measures to harness the full potential of ICT for the betterment of society.

Research design and Methodology

This study was descriptive in nature and survey method was used to collect the data. All faculty members and the students studying in University of Narowal were the population of the study. Simple random sampling technique was used to select the sample for the study. Among faculty members, 50 teachers and 300 students were randomly selected.

Instrumentation

Questionnaire was used to collect the data from both the samples i.e., teachers and

students. Questionnaire was developed to find out perceptions of teachers and the students regarding the role of information communication technology in teaching learning process at university level. Questionnaires was consisted of 19 items on five points Likert scale. To ensure the validity of the questionnaire, expert opinion was taken from experts. Content Validity Ratio (CVR) of each item and Content Validity Index (CVI) of the questionnaire were calculated and found 0.85. Items with weak CVR were improved. Moreover, pilot testing was conducted to calculate Cronbach alpha of the questionnaires 0.87.

Data Analysis

Collected data from both the sources were analyzed through SPSS. The opinion of the teachers and students was compared by applying mean, standard deviation. Questionnaire on five points Likert scale was used to find out perception of teachers and the students about the role of ICT in teaching learning process. Range of mean score was calculated as 4. The mean score was divided into three cut points and the dimension of the perception was determined. Following cut points were made and displayed in the following table.

Table 1 Cut points of Mean score and the Dimensions of the role of ICT

Sr. No.	Mean Range	Dimension
1	1.0 to 1.66	Negative
2	1.67 to 3.33	Neutral
3	3.34 to 5.00	Positive

Above table displays the cut points of mean score and the dimension of role was explored under the umbrella of table 1. First research question was about the dimension of teachers' perceptions about the role of ICTs in teaching learning process while second research question was about students' perceptions. Item wise analysis is provided in the following table.

Table 2 Dimension of Teachers' and Students' Perceptions about the role of ICT in teaching learning process

Sr. No.	Statement	Teachers' Perception			Students' Perceptions		
		M	S.D.	Dimension	M	S.D.	Dimension
1	ICT build up career skill among students.	2.96	0.86	Neutral	3.56	0.31	Positive
2	Students understand the ICT activity easily.	3.35	0.89	Neutral	3.27	0.56	Neutral
3	Student gives positive feedback for practical activities of ICT.	3.05	0.91	Neutral	3.51	0.39	Positive
4	Student show interest for practical activities of ICT.	3.35	1.02	Positive	3.98	0.46	Positive
5	Student have experience to explore ICT related problem.	2.95	0.75	Neutral	2.76	0.75	Neutral

6	Teaching learning process improve through ICT education.	3.89	0.98	Positive	4.31	0.53	Positive
7	ICT activities build confidence and spirit in professional success.	3.45	0.78	Positive	3.92	0.61	Positive
8	ICT education explore the opportunities of concept based teaching/learning.	3.59	1.02	Neutral	4.03	0.29	Positive
9	Students need collaboration with experienced teacher for ICT resources learning.	4.05	0.65	Positive	4.31	0.57	Positive
10	Teacher's skill encourage the students' interest toward ICT.	3.87	0.91	Positive	3.58	0.89	Positive
11	ICT resources inspire students for new technologies and ideas.	3.02	0.96	Neutral	2.63	0.75	Neutral
12	Seminars and workshops are conducted for ICT awareness.	2.96	1.01	Neutral	1.96	0.56	Neutral
13	Teachers use instructional models for ICT activities in the class.	1.93	1.03	Neutral	2.02	0.31	Neutral
14	ICT provides opportunity for team work.	3.56	0.65	Neutral	2.45	0.65	Neutral
15	Student use low/no cast material for the practice of ICT.	3.53	0.70	Positive	1.98	0.81	Neutral
16	ICT resources required for modern education.	4.24	0.57	Positive	4.68	0.43	Positive
17	ICT education facilitate students for effective learning.	4.34	0.45	Positive	4.09	0.55	Positive
18	ICT education develops cognitive thinking among students.	4.09	0.72	Positive	3.32	0.86	Neutral
19	Resources of ICT inspire students for new technologies and ideas.	4.19	0.64	positive	3.34	0.71	Positive
20	Total Scale	3.49	0.32	Positive	3.35	0.60	Positive

Table 2 described the item-wise analysis of the data obtained through questionnaire from teachers and the students. It was found that teachers perceived that ICT resources have positive role with mean score 3.49 and standard deviation 0.32 in effective

teaching learning process at university level. Item-wise analysis revealed that there was not any item found on which teachers responded negatively about the positive role of ICT resources. After analyzing teachers' perception, results of students' perceptions regarding role of ICT resources in effective teaching learning process were analyzed. Students' perception about the role of ICT sources was also found positive with mean score 3.35 and standard deviation 0.60. Mean score of all the items was remained above the cut point 1.66 which showed that students perceived positive role of ICT sources in teaching learning process. The next research question was about the comparison of teachers and students' perceptions about the role of ICT resources in effective teaching learning process at university level. Independent sample t-test was applied to find out the results which are given in the following table.

Table 3 Comparison between Teachers and Students' Perceptions about Role of ICT Sources

Variable	N	M	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)
Teachers' Perception	50	3.49	0.32	0.14	348	3.25	0.06
Students' Perception	300	3.35	0.60				

Table 3 showed the results of independent sample t-test to find out difference between perceptions of teachers and the students regarding role of ICT sources in effective teaching and learning process. Mean score 3.49 with S.D. 0.32 of teachers' perceptions differed insignificantly from student' perceptions ($M = 3.35$, $S.D. = 3.35$, $S.D. = 0.60$; $t(348) = 3.25$; $p = 0.06 \geq 0.05$). Findings clearly depicts that teachers and the students have same perceptions regarding the role of ICT sources in effective teaching learning process.

Discussion

This study was intended to find out teachers' and students' perceptions about the role of ICT sources at university level. Results of the study showed that both teachers and the students perceive the role of ICT positively. Moreover, insignificant difference was found between the perceptions of teachers and the students. The results of the study are aligned with the results of the study conducted by Iqbal et al. (2015). Moreover, Hew and Brush (2007) concluded that ICT sources develop students' interest and motivate them to explore the things independently. These findings support the results of this study. In a study Bibi et al. (2020) pointed out the problems during using the ICT and concluded that availability of infrastructure is the major problem faced by the students. The current study showed positive role of ICT sources but the previous study concluded that infrastructure is the major problem in Pakistani context. So, this problem may be addressed to enhance the role of ICT sources for effective teaching learning process.

Conclusions of the Study

This study was planned to find out perception of both teachers and the students about the role of ICT sources in effective teaching learning process at university level. Criteria about the perceptions was

made after calculating the range of mean scores and three levels were made. On the basis of criteria perceptions were evaluated. It was concluded that teachers have positive perception about the role of ICT sources at university level. Moreover, it was also concluded through the findings that students also perceive ICT sources positively regarding its role in teaching learning process. Furthermore, it was concluded that both teachers and the students have the same perceptions and they do not differ in their perceptions about role of ICT sources in teaching learning process.

Recommendations

Following recommendations were offered on the basis of conclusions of the study. Teachers perceived positively about the role of ICT sources in effective teaching learning process. So, it was recommended that teachers should be equipped wit ICT sources so that they can use them for effective teaching learning process. Moreover, students also perceived role of ICT sources positevely, so it was recommended that universities may provide ICT sources to the university students for effective learning. Furthermore, no significant difference was found between the perceptions of both teachers and the students which provides evidence about the positive role of ICT sources in effective teaching learning process. So it was recommended that universities may provide opportunities to both teachers and the students for using ICT sources for conducive learning environment.

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