Effect of Teachers Technological Capability and Application of ICT in Education on Organizational Improvement at University Level

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ABSTRACT

This study investigates the effect of teachers' technological capability and application of ICT in education on organizational improvement at university level. The objectives of the study were to identify the level of technological capability among teachers, to identify the application of ICT in education, to examine the organizational improvement, to determine the effect of teacher technological capability on organizational improvement, to measure the effect of application of ICT in education on organizational improvement at university level. This study was descriptive by nature, survey technique was used for data collection. Populations of the study consisted on 192 teachers of two public sector universities and universal sampling technique was used for data collection. A five point Likert scale was used for gathering responses. The researcher collected the data by personal visits of universities and with the help of colleagues those were serving in universities. Statistical Package for Social Sciences (SPSS) was used for data analysis. Researcher used the both descriptive and inferential statistics to analyze the data. It was recommended that the university administration may provide comprehensive teacher training on digital tools and emerging technologies, address teacher concerns about ICT's impact on student independence through targeted professional development, improve leadership effectiveness through clear communication, defined roles, and timely feedback, prioritize enhancing teacher technological capabilities, particularly in technical proficiency, problem-solving, digital literacy, innovation, and creativity. HoDs may promote a student-centered approach as a core strategy for organizational improvement and departments may invest in ICT infrastructure and resources.

Keywords: *Teacher Technological Capability, Application of ICT in Education, Organizational Improvement.*

INTRODUCTION

In many fields, including education, the term "technology" is a significant subject in the 21st century. This is due to the fact that technology serves as the main channel for transferring knowledge in many nations. Innovations in technology integration have reshaped our societies, fundamentally altering people's thought processes, work habits, and lifestyles (Gul, *et al.,* 2024). As a component of this goal, schools and other educational establishments responsible for equipping students for living in a "knowledge society" must include ICT integration in their curriculum (Ghavifekr, *et al.,* 2012).

Relying heavily on technology simplifies life and provides numerous advantages for individuals. The scenario has the possibility to change how students engage with education, such as the methods of teaching and studying. Technological tools are very useful for both teachers and students in and out of the classroom. Educators have a crucial part in integrating technology into their methods of teaching and learning. Hence, educators need to keep abreast of the newest educational technology advancements and incorporate them into their teaching methodologies (Hussain, 2018). The lack of knowledge on how to effectively teach a subject can render the use of technology useless or harmful to student learning (Radkowitsch, Vogel & Fischer, 2020).

Students in the present era reside in a highly technological environment. The majority of students utilize technology every day, such as texting, social media, and browsing the internet. Students perceive these varieties of technologies as beneficial and highly entertaining. These students who are familiar with these technologies will find it easy to use technology in school. The way students interact with the world influences their educational success in the learning environment. Technology has the ability to change the classroom into a dynamic learning space (Culjara, *et al.,* 2022).

Teachers need to understand that technology has a greater purpose than just aiding traditional teaching methods. They should be knowledgeable on how to use technology to improve teaching, boost productivity, and incorporate student-centered ICT practices for enhanced student learning. This implies that teachers must utilize ICT in innovative ways to develop more interesting and beneficial activities and more efficient lessons (Tezci, 2011).

Therefore, educators remain receptive to incorporating ICT into the classroom. Teachers must acquire new teaching techniques in order to adjust to the new tools when using technology for instruction (Castro Sánchez & Alemán, 2011). Technology capacity is another area that leads to the transformation of an organization. The state-of-the-art facility provides students with hands-on experience and an introduction. Technological ability equips students for future careers, enhances instructional practices, and fosters advanced thinking skills. The incorporation of technical integration in Higher Education is important and has a positive impact on teaching and learning. Furthermore, the technological capability also plays a crucial role for a startup organization. Strategic flexibility and product innovation display a positive impact (Hussain, Lazim & Taib, 2018).

Teachers must engage in professional development to effectively implement blended learning, which is crucial for achieving curriculum goals. This involves enhancing technological skills and adopting innovative teaching practices in line with 21st-century education. This is also true for technology education, of course. This research seeks to evaluate the technological skills of individual teachers with varying levels of knowledge and experience in utilizing digital methods, specifically in utilizing a variety of online and digital platforms (Fahrman & Norström, 2020).

Computers, the Internet, radios, televisions, projectors, and other electronic delivery systems are all part of Information and Communication Technology (ICT), which is commonly used in education today. School plays a crucial role in providing students with a variety of computer activities, while the home offers a limited range of computer activities for regular engagement (Kent & Facer, 2004). ICT is more and more frequently utilized with success in teaching, education, and evaluation. ICT is seen as a strong instrument for transforming and improving education. Several past researches have demonstrated that employing ICT effectively can enhance educational standards and link learning with real-world scenarios (Lowther, *et al.,* 2008). Learning is a continuous lifelong process in which individuals modify their expectations through acquiring knowledge, deviating from conventional methods. Over time, they must anticipate and be open to searching for new sources of information. Proficiency with ICT will be a necessary requirement for these learners (Weert & Tatnall, 2005).

Three key qualities necessary for achieving high-quality teaching and learning with ICT are autonomy, capability, and creativity. Students utilize ICT to have autonomy in their learning by taking control of their education. By doing so, they enhance their ability to work independently and collaboratively. Teachers can also grant students permission to work on specific assignments alongside classmates or in teams. By utilizing ICT in collaborative learning, students can enhance their confidence in taking risks and learning from their mistakes, while also having a greater chance to connect new knowledge with their existing knowledge (Lowther, *et al.,* 2008). ICT can enhance students' creativity to its fullest potential. They might find new multimedia resources and produce content in formats easily accessible to them through gaming CDs, and TV. Through students' independence, skills, and innovation, ICT can enhance the quality of both teaching and learning (Gephert, *et al.,* 1996).

Described by contemporary academics, enhancing organizational effectiveness, efficiency, and the quality of education within universities requires a thorough and comprehensive approach (Smith & Brown, 2015).Considering factors beyond academic rigor, such as student satisfaction, engagement, and responsiveness to societal needs, is crucial in determining the quality of education. Examining organizational culture dynamics, Scott offers up-to-date perspectives on how a university's cultural environment impacts its capacity to adapt and promote growth. Moreover, the Competing Values Framework provides a contemporary outlook on managing conflicting priorities to achieve comprehensive organizational enhancement (Cameron & Quinn, 2006).

The reason for studying how teacher technological skills and use of ICT affect organizational enhancement in universities is to make sure educational methods are in line with the changing requirements of the digital age. As universities aim for ongoing improvement, it is crucial to scrutinize how teacher skills and ICT work together to promote organizational advancement. These findings help advance scholarly discussions and also provide valuable information for education policymakers and practitioners to develop effective organizational improvement strategies (Voogt *et al.,* 2013).

In this modern era of science and technology, it's not possible to survive without technological integration in any field. Today is the era of technology but Pakistani teachers use traditional approaches in their teaching because of their low technological capabilities. Teacher’s technological capabilities and application of ICT have great influences on organizational improvement. But in Pakistan, teachers usually have less technological capabilities which are the big hurdle in creating their positive attitude towards the application of ICT in education for organizational improvement at university level. There is a dire need to examine the effect of teacher’s technological capability and application of ICT in education for organizational improvement. Therefore, the researcher will conduct this study to check the effect of teachers’ technological capability towards application of ICT in education on organizational improvement at university level.

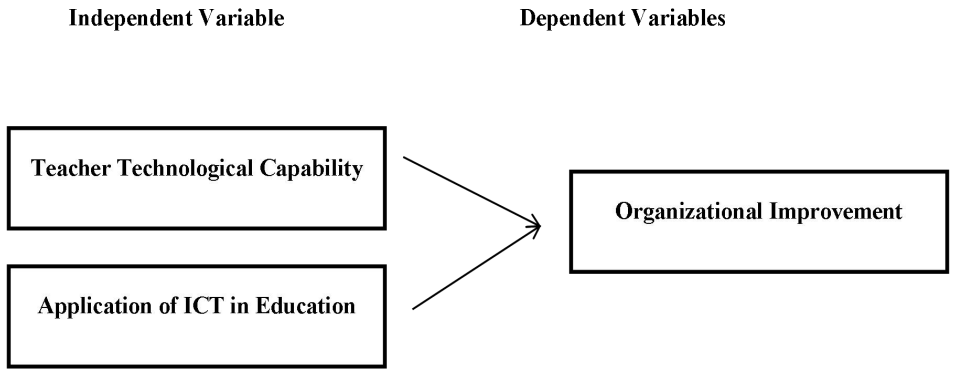
HYPOTHESIS OF THE STUDY

H_{01}: There is no significant effect of technological capability of teachers on organizational improvement.
H_{02}: There is no significant effect of application of ICT in education on organizational improvement.
H_{03}: There is no significant effect of technical proficiency on organizational improvement.
H_{04}: There is no significant effect of student-centered approach on organizational improvement.
H_{05}: There is no significant effect of Problem solving on organizational improvement.
H_{06}: There is no significant effect of digital literacy on organizational improvement.
H_{07}: There is no significant effect of Innovation creativity on organizational improvement.
H_{08}: There is no significant effect of use of ICT by teachers on organizational improvement.
H_{09}: There is no significant effect of skills and competencies on organizational improvement.
H_{10}: There is no significant effect of management information system on organizational improvement.
H_{11}: There is no significant effect of monitoring and evaluation of monitoring and evaluation on organizational improvement.
H_{12}: There is no significant effect of resource and innovation on organizational improvement.

DELIMITATIONS OF THE STUDY

The study will be delimited to division Mirpur. Two public sector universities, University of Kotli and Mirpur University Science and Technology (MUST) Azad Jammu and Kashmir.

CONCEPTUAL FRAMEWORK



This conceptual framework indicates that two independent variables (teacher technological capability and application of ICT in education) directly affect the dependent variable (organizational improvement).

MATERIAL AND METHODS

The study aimed to find out the effect of teachers' technological capability, and information communication technology (ICT) on organizational improvement. This chapter contains detailed information about the methodology of the study, the population, sample and sampling technique. This chapter also consisted on the detail of research instruments, their validity and reliability. Further, the data collection and data analysis techniques discussed in detail. This study was quantitative in nature and cross sectional survey was used for the collection of data. The survey method of data collection was more workable and reasonable for a large population (Creswell, 2009). One hundred and ninety two teachers from University of Kotli and Mirpur University of sciences and technology, AJ&K were the population of study. The universal sampling technique was commonly used in research studies. The sample was

selected using L.R. Gay (1996, p. 125) table of sampling. According to this table population is 192 would be the sample. Ninety two teachers of Mirpur University of science and technology and hundred teachers of university of Kotli Azad Jammu and Kashmir were selected as population of the study. A self-developed questionnaire of teacher's technological capability was used in study.

Teacher's technological capability questionnaire categorized into five dimensions that contains 25 items. Dimensions of teacher's technological capability questionnaire include, technical proficiency (5 items), Student-centered approach (5 items), problem solving (5 items) digital literacy (5 items) and innovation and creativity. ICT in education questionnaire was categorized into five subscales that contain 20 items. ICT in education questionnaire included, Use of ICT by teachers (4 items), Skills and Competencies (4 items), Education management information system (EMIS) (4 items) Monitoring and evaluation (4 items) and Research and innovation. Organizational improvement questionnaire was self-developed. The organizational improvement questionnaire was categorized into five subscales that contain 25 items. The organizational improvement questionnaire included, Governance (5 items), Information management (5 items), Monitoring and evaluation (5 items), Organizational structure (5 items) and Human resources management (5 items).

The self-developed questionnaires were presented to experts of field of education. These experts were from university of Kotli. Changes were made according to suggestions of experts for improvement of instruments. Instruments were improved and then used in further research. For pilot testing data was collected from 15 teachers of university level that were not part of sample. The teachers were asked to read the instructions and statement of questionnaire carefully. If they find any item missing or unrelated to purpose of the study they should provide suggestions about that and before collecting data for pilot testing two experts from education field will be involved to check the authenticity of items. Reliability of the self-developed instrument was checked by using Cronbach's alpha with the help of Statistical Package for Social Sciences (SPSS) software. Teacher technological capability is 0.82, ICT 0.78 and organizational improvement 0.85.

Data were collected by personally visiting the selected university Mirpur University of Science and technology as well as University of Kotli. The researcher took the help of her colleagues, friends as well as family members in data collections. Therefore, the response rate was 100%. Data were analyzed by using Statistical Package for Social Sciences (SPSS). Data were analyzed by using descriptive and inferential statistics. Descriptive statistics were used to analyze demographic variations, including, gender, age, academic qualification, experience and designation. In descriptive statistics, frequency and mean score and standard deviation were used to analyze the data. Inferential statistics were used to test hypotheses. In inferential statistics, Linear Regression was used to test the hypotheses.

DATA ANALYSIS

Descriptive Analysis of Teachers Technological Capability

Table 01: Technical Proficiency

S.#	Statements	SDA	DA	N	A	SA	M	SD
1	Digital tools and software	f (27) 14.1%	f (26) 13.5%	f (41) 21.4%	f (65) 33.9%	f (33) 17.2%	3.27	1.289
2	Use of ICT effectively	f (20) 10.4%	f (55) 28.6%	f (49) 25.5%	f (41) 21.4%	f (27) 14.1%	3.00	1.219

3	Training and personal development	f (5) 2.6%	f (34) 17.7%	f (55) 28.6%	f (52) 27.1%	f (46) 24.0%	3.52	1.116
4	Adapt new teaching methods	f (18) 9.4%	f (47) 24.5%	f (43) 22.4%	f (52) 27.1%	f (32) 16.7%	3.17	1.239
5	Improve educational institutions overall	f (29) 15.1%	f (43) 22.4%	f (30) 15.6%	f (58) 30.2%	f (32) 16.7%	3.11	1.339

Table 01 displays the descriptive analysis of technical proficiency, which is a sub-dimension of teachers' technological capability. 55.3% Teachers with (M=3.27, SD= 1.289) stated that they are skilled in using digital tools and software, while 54.1% Teachers with (M=3.00, SD= 1.219) mentioned that their technological skills help them to use ICT effectively. Additionally, 55.7% Teachers with (M=3.52, SD= 1.116) indicated that they look for training and personal development for improvement, 51.6% Teachers with (M=3.17, SD= 1.239) reported that their technological skills help to adapt new teaching methods, and 52.6% Teachers with (M=3.11, SD=1.339) said that their technological skills help to improve educational institutions overall.

Table 02: Student-Centered Approach

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Promote students' active participation	f(19) 9.9%	f(35) 18.2%	f(44) 22.9%	f(61) 31.8%	f(33) 17.2%	3.28	1.230
2	Online platform	f(11) 5.7%	f(41) 21.4%	f(41) 21.4%	f(62) 32.3%	f(37) 19.3%	3.38	1.183
3	To offer students various options	f(11) 5.7%	f(35) 18.2%	f(54) 28.1%	f(44) 22.9%	f(48) 25.0%	3.43	1.209
4	Monitor students' progress	f(12) 6.3%	f(41) 21.4%	f(43) 22.4%	f(48) 25.0%	f(48) 25.0%	3.41	1.246
5	Use digital tools for learning	f(21) 10.9%	f(41) 21.4%	f(24) 12.5%	f(68) 35.4%	f(38) 19.8%	3.32	1.306

Table 02 displays the descriptive analysis of student-centered approach, which is a sub-dimension of teachers' technological capability. 54.7% Teachers with (M=3.28, SD=1.203) stated that they are Promote students' active participation, while 53.7% Teachers with (M=3.38, SD= 1.183) mentioned that their Online platform to encourage student. Additionally, 53.1% Teachers with (M=3.43, SD=1.209) indicated that they look to offer students various options for learning opportunities. 50% Teachers with (M=3.41, SD=1.246) reported that they use digital tools to monitor students' progress, and 56.8% Teachers with (M=3.32, SD= 1.306) said that their technological skills help to use digital tools for learning.

Table 03: Problem Solving

S.#	Statements	SDA	DA	N	A	SA	M	SD
1	Technical problems related to education technology	f(31) 16.1%	f(59) 30.7%	f(32) 16.7%	f(50) 26.0%	f(20) 10.4%	2.84	1.270
2	Solve teaching problems	f(29) 15.1%	f(38) 19.8%	f(51) 26.6%	f(34) 17.7%	f(40) 20.8%	3.12	1.347
3	My capability to adapt technology	f(23) 12.0%	f(49) 25.5%	f(58) 30.2%	f(21) 10.9%	f(41) 21.4%	3.08	1.306
4	Use of ICT to boost student	f(11) 5.7%	f(52) 27.1%	f(49) 25.5%	f(44) 22.9%	f(36) 18.8%	3.29	1.200
5	Improves student learning technology	f(45) 23.4%	f(47) 24.5%	f(47) 24.5%	f(32) 16.7%	f(21) 10.9%	2.73	1.299

Table 03 displays the descriptive analysis of problem solving, which is a sub-dimension of teachers' technological capability. 56.7% Teachers with (M=2.84, SD= 1.270) stated that they are technical problems related to education technology, while 47.4% Teachers with (M=3.09, SD= 1.347) mentioned that they solve teaching problems. Additionally, 58.5% Teachers with (M=55.7, SD= 1.306) indicated that they look capability to adapt technology. 52.6% Teachers with (M=3.22, SD= 1.200) reported that their Use of ICT to boost, and 49% Teachers with (M=2.67, SD= 1.299) said that their problem solving skill improves student learning technology.

Table 04: Digital Literacy

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Variety of digital tools	f(09) 4.7%	f(28) 14.6%	f(31) 16.1%	f(75) 39.1%	f(49) 25.5%	3.66	1.146
2	Online information	f(07) 3.6%	f(36) 18.8%	f(91) 47.4%	f(43) 22.4%	f(15) 7.8%	3.12	.927
3	Handle technical problems	f(11) 5.7%	f(37) 19.3%	f(67) 34.9%	f(37) 19.3%	f(40) 20.8%	3.30	1.168
4	Apply digital resources	f(25) 13.0%	f(28) 14.6%	f(62) 32.3%	f(47) 24.5%	f(30) 15.6%	3.15	1.234
5	Create basic digital content	f(07) 3.6%	f(28) 14.6%	f(26) 13.5%	f(66) 34.4%	f(65) 33.9%	3.80	1.163

Table 04 displays the descriptive analysis of digital literacy, which is a sub-dimension of teachers' technological capability. 64.6% Teachers with (M=3.66, SD=1.146) stated that they Variety of digital tools, while 69.8% Teachers with (M=3.12, SD= .927) mentioned that they evaluate the reliability of online information. Additionally, 55.7% Teachers with (M=3.30, SD=1.168) indicated that they look handle technical problems. 56.8% Teachers with (M=3.15, SD=1.234) reported that they apply digital resources, and 68.3% Teachers with (M=3.80, SD=1.163) said that they create basic digital content.

Table 05: Innovation and Creativity

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Use emerging technologies	f(14) 7.3%	f(38) 19.8%	f(38) 19.8%	f(64) 33.3%	f(38) 19.8%	3.39	1.214
2	Identify technology tools	f(28) 14.6%	f(46) 24.0%	f(48) 25.0%	f(43) 22.4%	f(27) 14.1%	2.97	1.272
3	Fix technical problems	f(17) 8.9%	f(42) 21.9%	f(55) 28.6%	f(40) 20.8%	f(38) 19.8%	3.21	1.240
4	Encourage students to use technological tools	f(19) 9.9%	f(29) 15.1%	f(59) 30.7%	f(47) 24.5%	f(38) 19.8%	3.29	1.227
5	Explore new technology tools	f(13) 6.8%	f(34) 17.7%	f(41) 21.4%	f(56) 29.2%	f(48) 25.0%	3.48	1.232

Table 05 displays the descriptive analysis of Innovation and creativity, which is a sub-dimension of teachers' technological capability. 53.1% Teachers with (M=2.97, SD= 1.214) stated that they use emerging technologies into teaching methods, while 49.4% Teachers with (M=2.97, SD= 1.272) mentioned that Identify technology tools. Additionally, 50.5% Teachers with (M=3.21, SD= 1.240) indicated that they fix technical problems. 55.2% Teachers with (M=3.29, SD= 1.227) reported that their encourage students to use technological tools, and 54.2% Teachers with (M=3.48, SD= 1.232) said that they explore new technology tools.

Table 06: Use of ICT by Teachers

Sr.#	Statements	SDA	SD	D	N	A	M	SD
1	Feel comfortable using ICT	f(28) 14.6%	f(34) 17.7%	f(32) 16.7%	f(52) 27.1%	f(46) 24.0%	3.28	1.386
2	Use digital tools effectively	f(23) 12.0%	f(43) 22.4%	f(52) 27.1%	f(44) 22.9%	f(30) 15.6%	3.08	1.249
3	Highly skilled to use ICT	f(16) 8.3%	f(59) 30.7%	f(56) 29.2%	f(36) 18.8%	f(25) 13.0%	2.97	1.164
4	Access to resolve technical issues"	f(25) 13.0%	F(38) 19.8%	f(49) 25.5%	f(40) 20.8%	f(40) 20.8%	3.17	1.320

Table 4.11 displays the descriptive analysis of use of ICT by teachers, which is a sub-dimension of information communication and technology in education. 51.1% Teachers with (M=3.28, SD=1.386) stated that they use feel comfortable using ICT, while 50% Teachers with (M=3.08, SD= 1.249) mentioned that they use digital tools effectively. Additionally, 59.9% Teachers with (M=2.97, SD= 1.164) indicated that they highly skilled to use ICT 46.3% Teachers with (M=3.17, SD= 1.320) said that their access to resolve technical issues.

Table 07: Skills and Competencies

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Strong digital literacy skills.	f(27) 14.1%	f(54) 28.1%	f(62) 32.3%	f(29) 15.1%	f(20) 10.4%	3.28	1.386
2	Promoting critical thinking	f(23) 12.0%	f(37) 19.3%	f(61) 31.8%	f(43) 22.4%	f(28) 14.6%	3.08	1.249
3	Communicate effectively using	f(23) 12.0%	f(57) 29.7%	f(55) 28.6%	f(36) 18.8%	f(21) 10.9%	2.97	1.164
4	Self-directed and independent learners	f(38) 19.8%	f(29) 15.1%	f(58) 30.2%	f(28) 14.6%	f(39) 20.3%	3.17	1.320

Table 07 displays the descriptive analysis of skills and competencies, which is a sub-dimension of information communication and technology in education. 60.4% Teachers with (M=3.28, SD=1.386) stated that students are developing strong digital literacy skills, while 54.2% Teachers with (M=3.08, SD= 1.249) mentioned that they promoting critical thinking. Additionally, 58.3% Teachers with (M=2.97, SD= 1.164) indicated that they communicate effectively using 50.5% Teachers with (M=3.17, SD=1.320) reported that ICT helps students to became self-directed and independent learners.

Table 08: Education Management Information System (EMIS)

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Provides accurate data	f(35) 18.2%	f(64) 33.3%	f(53) 27.6%	f(21) 10.9%	f(19) 9.9%	2.61	1.193
2	User-friendly and accessible	f(25) 13.0%	f(53) 27.6%	f(65) 33.9%	f(31) 16.1%	f(18) 9.4%	2.81	1.142
3	Inform educational decision-making	f(28) 14.6%	f(51) 26.6%	f(64) 33.3%	f(27) 14.1%	f(22) 11.5%	2.81	1.192
4	Highlight the needs of the student	f(45) 23.4%	f(53) 27.6%	f(50) 26.0%	f(23) 12.0%	f(21) 10.9%	2.59	1.271

Table 08 displays the descriptive analysis of education management information system (EMIS), which is a sub-dimension of information communication and technology in education. 60.9% Teachers with (M=2.61, SD=1.1.93) stated that they provides accurate data while 61.5% Teachers with (M=2.81, SD=1.142) mentioned that EMIS is user-friendly and accessible to all teachers. Additionally, 59.9% Teachers with (M=2.81, SD=1.1.192) indicated that they Inform educational decision-making 53.6% Teachers with (M=2.59, SD= 1.271) reported that EMIS analyze data to highlight the needs of the student.

Table 09: Monitoring and Evaluation

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Indicators to measure the impact	f(48) 25.0%	f(49) 25.5%	f(50) 26.0%	f(29) 15.1%	f(16) 8.3%	2.56	1.248
2	Effectiveness of ICT integration	f(16) 8.3%	f(68) 35.4%	f(49) 25.5%	f(39) 20.3%	f(20) 10.4%	2.89	1.141
3	Enhance ICT use in education	f(27) 14.1%	f(43) 22.4%	f(79) 41.1%	f(24) 12.5%	f(19) 9.9%	2.82	1.132
4	Data from evaluations	f(28)	f(47)	f(54)	f(37)	f(26)	3.09	1.251

		14.6%	24.5%	28.1%	19.3%	13.5%		

Table 09 displays the descriptive analysis of education management information system (EMIS), which is a sub-dimension of information communication and technology in education. 51.5% Teachers with (M=2.56, SD= 1.248) stated that that there are clear indicators to measure the impact of ICT in education, while 60.9% Teachers with (M=2.89, SD= 1.141) mentioned that effectiveness of ICT integration. Additionally, 63.5% Teachers with (M=2.82, SD=1.132) indicated that they enhance ICT use in education, 52.6% Teachers with (M=3.09, SD= 1.251) stated that data from evaluations are used to enhance ICT plans.

Table 10: Research and Innovation

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Discovering new ICT applications	f(19) 9.9%	f(57) 29.7%	f(46) 24.0%	f(44) 22.9%	f(26) 13.5%	3.01	1.213
2	Test new ICT based learning tools	f(30) 15.6%	f(39) 20.3%	f(63) 32.8%	f(38) 19.8%	f(22) 11.5%	2.91	1.218
3	Receiving the results of research	f(21) 10.9%	f(36) 18.8%	f(78) 40.6%	f(29) 15.1%	f(28) 14.6%	3.04	1.168
4	Support research on the effective use of ICT in education	f(18) 9.4%	f(50) 26.0%	f(50) 26.0%	f(33) 17.2%	f(41) 21.4%	3.15	1.283

Table 10 displays the descriptive analysis of research and Innovation (EMIS), which is a sub-dimension of information communication and technology in education. 53.7% Teachers (M=3.01, SD= 1.213) stated that researchers are discovering new ICT applications in education. While 53.1% teachers (M=2.91, SD=1.218) mentioned that they test new ICT based learning tools. Additionally, 59.4% teachers (M=3.04, SD=1.168 indicated that educators are receiving the results of research on ICT in education, 52% Teachers with (M=3.15, SD=1.283) stated that they support research on the effective use of ICT in education.

Table 11: Governance

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Roles and responsibilities	f(31) 16.1%	f(34) 17.7%	f(55) 28.6%	f(46) 24.0%	f(26) 13.5%	3.01	1.270
2	Decisions in transparent manner	f(21) 10.9%	f(43) 22.4%	f(54) 28.1%	f(54) 28.1%	f(20) 10.4%	3.05	1.168
3	Clear vision and mission	f(18) 9.4%	f(49) 25.5%	f(54) 28.1%	f(44) 22.9%	f(27) 14.1%	3.07	1.194
4	Evaluate policy regularly	f(20) 10.4%	f(31) 16.1%	f(46) 24.0%	f(56) 29.2%	f(39) 20.3%	3.33	1.258
5	Decision making process	f(25) 13.0%	f(32) 16.0%	f(40) 20.8%	f(38) 19.8%	f(57) 29.7%	3.36	1.396

Table 11 displays the descriptive analysis of Governance, which is a sub-dimension Organizational improvement. 52.6% Teachers with (M 3.01, SD= 1.270) stated that their organization clear roles and responsibilities, while 56.2% Teachers with (M=3.05, SD= 1.168) mentioned that their decisions are made in transparent manner. Additionally, 53.6% Teachers with (M=3.07, SD= 1.194) indicated that they have clear vision and mission to improve organization. 53.2% Teachers with (M=3.33, SD= 1.258)

reported that there is a process to evaluate policy regularly, and 50.5% Teachers with (M=3.36, SD= 1.396) said that their decision making process is transparent.

Table 12: Information Management

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Easily accessible information	f(26) 13.5%	f(49) 25.5%	f(52) 27.1%	f(30) 15.6%	f(35) 18.2%	2.99	1.300
2	Reliable data management systems	f(13) 6.8%	f(42) 21.9%	f(60) 31.3%	f(51) 26.6%	f(26) 16.5%	3.18	1.127
3	Data privacy and security	f(21) 10.9%	f(35) 18.2%	f(67) 34.9%	f(38) 19.8%	f(31) 16.1%	3.12	1.207
4	Share information effectively	f(18) 9.4%	f(46) 24.0%	f(56) 29.2%	f(37) 19.3%	f(35) 18.2%	3.13	1.236
5	Utilize data effectively	f(21) 10.9%	f(27) 14.1%	f(61) 31.8%	f(52) 27.1%	f(31) 16.1%	3.23	1.203

Table 12 displays the descriptive analysis of information management, which is a sub-dimension Organizational improvement. 52.6% Teachers with (M=2.93, SD=1.315) stated that information is easily accessible to all relevant, while 57.9% Teachers with (M=3.23, SD= 1.178) mentioned that their organization use reliable data management systems. Additionally, 54.7% Teachers with (M=3.04, SD= 1.219) indicated that they have clear policies for data privacy and security. 53.2% Teachers with (M=3.15, SD=1.235) reported that information is share effectively across department and 58.9% Teachers with (M=3.22, SD= 1.225) said that they are taught how to utilize data effectively.

Table 13: Monitoring and Evaluation

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Measure performance	f(19) 9.9%	f(37) 19.3%	f(60) 31.3%	f(55) 28.6%	f(21) 10.9%	3.11	1.143
2	Organizational goals	f(20) 10.4%	f(37) 19.3%	f(64) 33.3%	f(49) 25.5%	f(22) 11.5%	3.08	1.150
3	Performance of employee	f(19) 9.9%	f(46) 24.0%	f(55) 28.6%	f(38) 19.8%	f(34) 17.7%	3.11	1.240
4	Receive timely feedback	f(26) 13.5%	f(29) 15.1%	f(47) 24.5%	f(54) 28.1%	f(36) 18.8%	3.23	1.295
5	Progress towards goals	f(17) 8.9%	f(40) 20.8%	f(43) 22.4%	f(43) 22.4%	f(49) 25.5%	3.35	1.302

Table 13 displays the descriptive analysis of monitoring and evaluation, which is a sub-dimension Organizational improvement. 59.9% Teachers with (M=3.11, SD=1.143) stated that measure performance are clearly outlined, while 58.8% Teachers with (M=3.08, SD=1.150) mentioned that their organizational goals are monitored. Additionally, 52.6% Teachers with (M=3.11, SD=1.240) indicated that they have clear policies for data privacy and security. 52.6% Teachers with (M=3.23, SD= 1.295) reported that they receive timely feedback 44.8% Teachers with (M=3.35, SD=1.302) said that their progress towards goals is regularly monitored.

Table 14: Organizational Structure

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Organizational Structure	f(10)	f(30)	f(53)	f(53)	f(46)	3.49	1.167
		5.2%	15.6%	27.6%	27.6%	24.0%		
2	departments are effectively	f(15)	f(21)	f(62)	f(62)	f(32)	3.39	1.125
		7.8%	10.9%	32.3%	32.3%	16.7%		
3	Framework of organization	f(11)	f(34)	f(78)	f(34)	f(35)	3.25	1.121
		5.7%	17.7%	40.6%	17.7%	18.2%		
4	Effective communication	f(13)	f(24)	f(42)	f(57)	f(56)	3.62	1.218
		6.8%	12.5%	21.9%	29.7%	29.2%		
5	Team meetings	f(17)	f(19)	f(53)	f(54)	f(49)	3.52	1.224
		8.9%	9.9%	27.6%	28.1%	25.5%		

Table 14 displays the descriptive analysis of organizational structure, which is a sub-dimension Organizational improvement. 55.2% Teachers with (M=3.49, SD=1.167) stated that their organizational structure is clearly defined, while 64.6% Teachers with (M=3.39, SD=1.125) mentioned that all the departments are effectively working together. Additionally, 58.8% Teachers with (M=3.25, SD=1.121) their framework of organization is flexible to change. 58.9% Teachers with (M=3.62, SD= 1.218) reported that effective communication exists across all levels of the organization and 55.7% Teachers with (M=3.52, SD= 1.224) said that team meetings are regularly held to discuss progress and challenges.

Table 15: Human Resources Management

Sr.#	Statements	SDA	DA	N	A	SA	M	SD
1	Responsibilities for job	f(11)	f(19)	f(53)	f(50)	f(59)	3.66	1.178
		5.7%	9.9%	27.6%	26.0%	30.7%		
2	Fair recruitment process	f(09)	f(27)	f(69)	f(51)	f(36)	3.41	1.089
		4.7%	14.1%	35.9%	26.6%	18.8%		
3	Opportunities for training	f(16)	f(26)	f(78)	f(31)	f(41)	3.29	1.187
		8.3%	13.5%	40.6%	16.1%	21.4%		
4	Employee complaints	f(13)	f(21)	f(54)	f(67)	f(37)	3.49	1.126
		6.8%	11.4%	27.3%	32.6%	22.0%		
5	Performance of employee	f(15)	f(20)	f(50)	f(63)	f(44)	3.53	1.180
		7.8%	10.4%	26.0%	32.8%	22.9%		

Table 15 displays the descriptive analysis of human resources management, which is a sub-dimension Organizational improvement. 53.6% Teachers with (M=3.60, SD=1.191) stated that their expectations and responsibilities for job are clearly outlined, while 62.5% Teachers with (M=3.50, SD=1.081) mentioned that there is a fair recruitment process. Additionally, 62% Teachers with (M=3.36, SD=1.186) stated that they are provided with opportunities for training and development. 59.9% Teachers with (M=3.52, SD=1.156) reported that there are procedure in place for handling employee complaints and 55.7% Teachers with (M=3.49, SD=1.142) said that the performance of employee is recognized and rewarded.

INFERENTIAL ANALYSIS

Table 16: Linear regression analysis of technical proficiency and organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients					
	B	Std. Error	Beta	T	Sig	R^2	F	Sig
(Constant Technical proficiency	.551	.051	.691	10.885	.000	.477	118.483	.000

Dependent Variable: Organizational Improvement

Table 16 Shows that a linear regression analysis was conducted to determine the influence of independent variable technical proficiency, a component of teachers technological capability predicting the dependent variable organizational improvement. This model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R^2 value is .477, showing that 47.7% of the variance in technical proficiency can be explained by the independent variable in the model. The results of the regression analysis indicated that technical proficiency has a significant and positive effect on organizational improvement, with a beta coefficient of .691 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect of technical proficiency on organizational improvement" was rejected.

Table 17: Linear regression analysis of student-centered approach and Organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients					
	B	Std. Error	Beta	T	Sig	R^2	F	Sig
(Constant) Student-centered approach	.445	.044	.661	10.033	.000	.517	100.668	.000

Dependent Variable: organizational improvement

Table 17 Shows that a linear regression analysis was conducted to determine the influence of independent variable student-centered approach, a component of teachers technological capability predicting the dependent variable organizational improvement. This model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R^2 value is .517, showing that 5.17% of the variance in student-centered approach can be explained by the independent variable in the model. The results of the regression analysis indicated that student-centered approach has a significant and positive effect on organizational improvement, with a beta coefficient of .661 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect of student-centered approach on organizational improvement" was rejected.

Table 18: Linear regression analysis of problem solving and organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients					
	B	Std. Error	Beta	t	Sig	R^2	F	Sig
(Constant)	.445	.044	.661	9.832	.000	.442	96.671	.000
Problem solving								

Dependent Variable: organization improvement

Table 18 shows that a linear regression analysis was conducted to determine the influence of independent variable Problem solving, a component of teachers technological capability predicting the dependent variable organizational improvement. This model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R^2 value is .442, showing that 4.42% of the variance in problem solving can be explained by the independent variable in the model. The results of the regression analysis indicated that Problem solving has a significant and positive effect on organizational improvement, with a beta coefficient of .661 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect of problem solving on organizational improvement" was rejected.

Table 19: Linear regression analysis of digital literacy and organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients					
	B	Std. Error	Beta	t	Sig	R^2	F	Sig
(Constant)	.458	.044	.673	10.371	.000	.453	107.552	.000
Digital literacy								

Dependent Variable: organization improvement

Table 19 shows that a linear regression analysis was conducted to determine the influence of independent variable digital literacy that is the component of teacher's technological capability predicting the dependent variable organizational improvement. This model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R^2 value is .453, showing that 4.53% of the variance in problem solving can be explained by the independent variable in the model. The results of the regression analysis indicated that digital literacy has a significant and positive effect on organizational improvement, with a beta coefficient of .673 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect of digital literacy on organizational improvement" was rejected.

Table 20: Linear regression analysis of innovation and creativity and organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients					
	B	Std. Error	Beta	t	Sig	R^2	F	Sig
(Constant)	.530	.047	.706	11.385	.000	.498	129.015	.000
Innovation creativity								

Dependent Variable: organization improvement

Table 20 shows that a linear regression analysis was conducted to determine the influence of independent variable Innovation creativity, a component of teacher's technological capability predicting the dependent variable organizational improvement. This model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R^2 value is .498, showing that 4.98% of the variance in Innovation creativity can be explained by the independent variable in the model. The results of the regression analysis indicated that Innovation creativity has a significant and positive effect on organizational improvement, with a beta coefficient of .706 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect of Innovation creativity on organizational improvement" was rejected.

Table 21: Linear regression analysis of teacher's technological capability and organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients					
	B	Std. Error	Beta	T	Sig	R^2	F	Sig
(Constant) Teachers	.737	.042	.836	17.362	.000	.699	301.442	.000

Dependent Variable: organization improvement

Table 21 shows that a linear regression analysis was conducted to determine the influence of independent variable teacher's technological capability, this model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R^2 value is .699, showing that 6.99% of the variance in teachers technological capability can be explained by the independent variable in the model. The results of the regression analysis indicated that teacher's technological capability has a significant and positive effect on organizational improvement, with a beta coefficient of .836 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect of teachers technological capability on organizational improvement" was rejected.

Table 22: Linear regression analysis of use of ICT by teachers and organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients					
	B	Std. Error	Beta	t	Sig	R^2	F	Sig
(Constant) Use of ICT by teachers	.448	.047	.638	9.439	.000	.402	89.099	.000

Dependent Variable: organization improvement

Table 22 shows that a linear regression analysis was conducted to determine the influence of independent variable teachers, a component of information communication technology predicting the dependent variable organizational improvement. This model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R2 value is .699, showing that 6.99% of the variance in teachers can be explained by the independent variable in the model. The results of the regression analysis indicated that teacher has a significant and positive effect on organizational improvement, with a beta coefficient of .638 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect of teachers on organizational improvement" was rejected.

Table 23: Linear regression analysis of skills and competencies on organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients	T	sig	R^2	F	Sig
	B	Std. Error	Beta					
(Constant) Skills and competencies	.448	.047	.638	9.439	.000	.402	89.099	.000

Table 23 shows that a linear regression analysis was conducted to determine the influence of independent variable skills and competencies a component of information communication technology predicting the dependent variable organizational improvement. This model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R^2 value is .402, showing that 4.02% of the variance in skills and competencies can be explained by the independent variable in the model. The results of the regression analysis indicated that skills and competencies has a significant and positive effect on organizational improvement, with a beta coefficient of .638 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect of skills and competencies on organizational improvement" was rejected.

Table 24: Linear regression analysis of education management information system (EMIS) and organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients	T	sig	R^2	F	Sig
	B	Std. Error	Beta					
(Constant) Education management information	.500	.060	.592	8.384	.000	.351	70.289	.000

Dependent Variable: organization improvement

Table 24 shows that a linear regression analysis was conducted to determine the influence of independent variable, education management information that was a component of information communication technology predicting the dependent variable organizational improvement. This model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R^2 value is .351, showing that 3.51% of the variance in education management information can be explained by the independent variable in the model. The results of the regression analysis indicated that education management information system has a significant and positive effect on organizational improvement, with a beta coefficient of .592 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect of education management information on organizational improvement" was rejected.

Table 25: Linear regression analysis of monitoring and evaluation and organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients	T	sig	R^2	F	Sig
	B	Std. Error	Beta					
(Constant)	.592	.051	.716	11.688	.000	.512	136.608	.000
Monitoring and evaluation								

Dependent Variable: organization improvement

Table 25 shows that a linear regression analysis was conducted to determine the influence of independent variable monitoring and evaluation that is a component of information communication technology predicting the dependent variable organizational improvement. This model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R^2 value is .512, showing that 5.12% of the variance in Monitoring and evaluation can be explained by the independent variable in the model. The results of the regression analysis indicated that Monitoring and evaluation has a significant and positive effect on organizational improvement, with a beta coefficient of .716 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect Monitoring and evaluation organizational improvement" was rejected.

Table 26: Linear regression analysis of resource and innovation and organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients	T	sig	R^2	F	Sig
	B	Std. Error	Beta					
(Constant)	.576	.046	.736	12.412	.000	.542	154.061	.000
Research &innovation								

Dependent Variable: organization improvement

Table 26 shows that a linear regression analysis was conducted to determine the influence of independent variable Monitoring and evaluation a component of Research and innovation predicting the dependent variable organizational improvement. This model demonstrates statistical significance, with a p value of 0.000. In addition, the table indicates that the R^2 value is .542, showing that 5.42% of the variance in research and innovation can be explained by the independent variable in the model. The results of the regression analysis indicated that research and innovation has a significant and positive effect on organizational improvement, with a beta coefficient of .736 and a p-value of 0.000. Hence, the null hypothesis "there is no significant effect research and innovation organizational improvement" was rejected.

Table 27: Linear regression analysis of Information Communication Technology (ICT) and organizational improvement

Model	Unstandardized Coefficients		Standardized Coefficients	T	sig	R^2	F	Sig
	B	Std. Error	Beta					
(Constant)	.800	.050	.815	16.036	.000	.664	257.143	.000
Information communication technology								

Dependent Variable: organization improvement

Table 27 demonstrates that a linear regression analysis was to determine the influence of independent variable Information communication technology (ICT), predicting the dependent variable (organizational improvement). This model is considered statistically significant due to a p value of ($p = 0.000$). Additionally, the table shows an R^2 value of .664, indicating that 6.64% of the variation in organizational improvement is effectively explained by the independent variable in the model. The regression analysis results showed that there is a significant positive effect on organizational improvement by the Information communication technology (ICT), with a β coefficient of .815 and a p-value of 0.000. Therefore, the null hypothesis "there is no significant effect of Information communication technology (ICT) on "organizational improvement" was rejected.

DISCUSSION

The findings show that while teachers are actively seeking professional development, evaluating online sources, and managing technical issues well, there are still gaps in how they apply their skills in the classroom. Many teachers are not using digital tools to track student progress or adopting new teaching strategies with emerging technologies. This suggests a need for more focused training that helps teachers not just gain technical skills, but also use them in ways that improve teaching and learning outcomes.

Teachers generally have a positive attitude towards using ICT in education and often show strong digital skills. They support ICT use in classrooms, but some are hesitant about how it affects student independence. These teachers are also less interested in exploring new ICT tools or focusing on students' specific needs. This highlights a divide where some educators embrace change, while others may need encouragement or support to fully understand the benefits of ICT in fostering student growth and independence.

Organizational improvement in schools is clearly influenced by teachers' technological skills and the use of ICT. Technological ability has a moderate impact, especially in problem-solving and digital literacy. However, innovation and creativity show only a weak link to improvement. Similarly, ICT use in areas like research and evaluation has a moderate effect, while tools like EMIS and teacher skills have a weaker impact. Also, although teachers value collaboration and growth, they feel leadership lacks clear direction, timely feedback, and role clarity. Improving these areas may help schools benefit more from technological and ICT advancements.

CONCLUSIONS

Teachers seek training and development for improvement, evaluate the reliability of online information and teachers can handle technical problems. However, teachers are failing to use technological skills that help to adapt new teaching methods, use digital tools to monitor students' progress, use emerging technologies into teaching methods. There is a positive outlook on ICT integration in education. Teachers demonstrate high ICT skills and encourage its use. However, teachers feel that there is a significant portion of teachers expressed concerns about ICT's impact on student independence. They are less willing to highlight the need of student as well as discovering new ICT applications in education**.** It is concluded that the teacher values transparency, collaboration, and development However, teachers perceive deficiencies in leadership clarity, timely feedback, defined organizational structures and job role clarity.

Teacher's technological capability has significant moderate effect on organizational improvement. It means teacher's technological capability is one of the factors that influence the organizational improvement. Furthermore dimensions of teacher's technological capability have effect on technical proficiency, problem solving, digital literacy; innovation and creativity have significant weak effect on organizational improvement. Therefore student-centered approach has significant moderate effect on organizational improvement. The information communication technology (ICT) has significant moderate effect on organizational improvement. It means information communication technology is one of the factors that influence the organizational improvement. Moreover dimensions of information communication technology, research and innovation, motoring and evaluation have significant moderate effect on organizational improvement. Therefore uses of ICT by teachers, skills and competencies and education management information system (EMIS) have significant weak effect on organizational improvement.

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