USE OF ICT TOOLS AND ACADEMIC ACHIEVEMENT: A CASE OF MIRPUR AZAD JAMMU & KASHMIR

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Abstract

The use of Information and communication technology in higher educational institutions is an integral part of current educational policy and Higher Education Commission gives a lot of funds to universities in Pakistan. This research study has been conducted to check in the impact of ICT tools on the academic achievement of students of MUST, Mirpur. As per nature of the study, a quantitative approach and correlational survey design were used to conduct the study. The population for this study carried out all the 5507 students of MUST, Mirpur, and the sample consists of 458 students. The data for the study was collected from the sample of the study by using questionnaires. After the collection of the data, the data were analyzed in SPSS. To check the overall impact of ICT tools on academic achievement Pearson Coefficient Correlation was used. The findings and analysis of the data show that the use of ICT tools while using E-library has a significant impact on the academic achievement of students. The results of the study show that the use of ICT tools for improving attitudes of pupils towards learning and it has also significant impact on their academic achievement. The views of students of MUST, Mirpur show that they are using ICT tools for sending the course material to other students and receiving the course material from other students and faculty members and it has a significant impact on academic achievement of the students. It is recommended that the resource center of the university may be fully equipped with ICT tools so that the students can get benefit by using those ICT tools.

Keywords: ICT (Information and Communication Technology); MUST (Mirpur University of Science and Technology) academic achievement; higher education; students

Introduction

Students of the 21st century are seen to be motivated by the ICT tools and these tools draw the attention of the students and maintain the attentiveness of the students (Tondeur, Van Keer, Van Braak, & Valcke, 2008). Students are motivated and interested to complete their work by using ICT tools. In the last few years, the development of ICT has been increased and ICT tools have a revolutionary impact in every field of life (I. Ajayi & Ekundayo, 2009). Nowadays ICT has become an important utility like electricity or water for the people and people are conducting their business through the internet and other communication and technological tools.

In the field of education, ICT has a significant position and provides modern ways of learning and hands-on experiences to the pupils and tutors. ICTs also promote more dynamic and interactive participation of teachers and students and develop their interest and increase their performance (Adomi & Kpangban, 2010). The use of ICT tools has been increased dramatically in the past few years and the web and internet are used to find the information and ICTs are the central part of communication and through ICT sender can send the message and receiver can receive the message (Mbakwem, 2008).

In Pakistan computers and the internet is being used in the personal lives of the pupil and tutors and the integration process of ICT in the classroom level is slow (Vanderlinde, van Braak, & Dexter, 2012). Teachers are not only resisting to adopt modern technology but lack of hardware and software in the institutions is also a hurdle in the integration of technology in the classrooms

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(Bingimlas, 2009).

Saffari, Takmil, and Arbabzadeh (2014) noted that ICTs play a vibrant part to assist the educational process at the university level and it connects the people beyond the schedule and place. It also provides instant response and assessment to the learners. ICT tools enable the teacher to bring modification in methods of teaching and by the usage of these students learning and academic achievement can be increased. Generally, ICT can be used for storing, retrieving, manipulating and transmitting information in digital set-up (Anudu, 2010). Effective convention of Technological tools in the educational process strengthens aptitude of the teacher to cater to individual differences of pupils and fosters the involvement of learners (M. A. Hussain, Niwaz, Zaman, Dahar, & Akhtar, 2010). ICTs are the set and series of instruments and tools which transform the way or consuming and producing the information collectively on a global level (Kamel, Rateb, & El-Tawil, 2009).

ICT transforms the instructional process and strength the learning through a virtual environment and providing influential and effective learning opportunities (Hussain & Suleman, 2017). ICT tools are imperious in classroom teaching and beneficial for instructors and pupils for operating, storing, controlling and retrieving the data and promote student-centered learning (Guma, Faruque, & Khushi, 2013). ICT is the simple way to share and have access to data by using the internet and other communication technologies and also regard as superhighway through which people can transmit and share the information with each other. Today ICT is the most potent tool which can be used to extend educational and academic opportunities for the students as well as teachers (Bandele, 2006).

The integration of ICT in education reshaped the paradigm in teaching and new methodologies and approaches are introducing to make the process of learning more operative and efficient (Pelgrum, 2001). The pupil may be prepared to learn independently by the integration of ICT tools in classrooms and these tools also provided opportunities to solve the problems in education and

also in routine life. Technology gives chance to the people to change themselves according to the advancement of technology to achieve the educational goals (Pelgrum & Law, 2003). Computer and other technological tools are used for information processing and effective decision making in educational institutions and increase productivity (Uwadia, 2009).

ICT plays a vital role to increase the interactive perspective for the user and also develop intellectual and individual abilities. These technological tools improve access to education and also enhance the quality of education (Achor, 2013). The computer and internet empower the users and bring improvement in the field of education by utilizing rich educational resources (Tinio, 2003). Alexander (1999) found that when educational activities are taken place, ICT facilitates the students and develops higher-order thinking. Technology prepares the learners for the real world and many countries are depending more on technology to make progress. Students must be aware and well informed about ICT to become good citizens and students (Ashley , 2016).

Salehi and Salehi (2012) noted that ICT tools offer an advanced environment to the learners and they can acquire up to date knowledge. The leaners can get information from various resources and critical thinking could be established due to the usage of technological tools in education. The incorporation of ICT in teaching demands an optimistic attitude from the instructors and learners. ICT brings flexibility in education and learners can get information on every juncture and from everywhere. The learner must be prepared for operative learning because ICT may affect the methodologies (M. G. Moore & Kearsley, 1996).

According to Ball (2017) Information and communication technologies (ICT) is become a conventional part of every aspect of life and practices and procedures of business and governance have been changed by the use of ICT. The implication of ICT tools in education makes learning student-centered which provides freedom to the students in learning and students can learn by

exploration and innovations. This is known as the "constructionist" method of education.

Elfert (2015) stated that the UNESCO International Conference 2015 of ICT greatly emphasized the integration of ICT in education for the member countries. ICT can provide access to the diversity of learning resources that enhance the ability to lean as well as a teaching skill. ICT tools provide the pace of getting knowledge at anytime and anywhere irrespective of location. ICT facilitates collaborative learning and student can get knowledge due to the availability of online library and educational resources (Jalal, Buzdar, & Mohsin, 2017). The teacher can take students beyond traditional limits and students can participate actively in the process of teaching and learning (A. Ajayi, 2008).

It is supposed that usage of ICT in education can enhance the capabilities in the classroom and integration of ICT can assist the quality of education and also improve the curriculum. ICTs also enhance the results of learning and facilitate the reforms of education (Trucano, 2005). The performance and collaboration of students can be improved by the use of technology in the classroom (Lazonder, Wilhelm, & Ootes, 2003). ICT expands new learning opportunities for different people beyond their cultural, institution and geographical localities. ICT has the potential to transform the traditional system of education and enhance the outcomes of learning in the educational sector (Haddad & Draxler, 2002). Some ICT tools have capabilities to explore the topics with a greater degree and as a result, abstract ideas and concepts can become concrete ideas and concepts. ICT tools develop the live and dynamic experience for the learners which cannot attain by the book (Hennessy, Harrison, & Wamakote, 2010).

Zhao and Frank (2003) and Wang and Woo (2007) classifies the four key proposes of technological tools used by the teachers which are: preparation for classroom teaching and developing the instructional material, completion of administrative tasks, compilation of student's assessment reports and completion of additional education tasks. The first two purposes of the use of technology directly benefit the teachers and teachers can be highly engaged in the educational process. The third purpose of technology use can be benefited for the teacher as well as students and the fourth one is rarely used in the classrooms.

According to Yildirim (2007) and Buabeng-Andoh (2012) teachers are using technology for the preparation of notes and worksheets instead of focusing on the improvement of academic achievement and conversion of the traditional classroom to the constructivist classrooms. It is further revealed by the researcher that insufficient training to use modern technological tools and lack of required infrastructure in the institution and many hurdles that are faced by the teachers to integrate the ICT in learning and teaching (Asabere, Togo, Acakpovi, Torgby, & Ampadu, 2017).

ICT has an impact on the teaching activities of the faculty members and learning activities of pupils and the integration of ICT in education improves the quality of education and promotes lifelong learning (Nessipbayeva, 2013). ICT brings flexibility in the teaching and learning process and increase the interaction and reception of information. Students can learn fast through videos and lecture notes and they can improve academic performance (Slaouti & Motteram, 2006).

Problem Statement

The universities and higher education intuitions are facing many challenges in the proper adoption of ICTs due to lack of adequate equipment; shortage of skilled manpower and deficiency of equality in contents of courses are a number of problems encountered in the incorporation of ICT tools in higher educational institutions and universities. Furthermore, challenges have arisen as a result of ICT such as an increase in plagiarism in universities rather than undertaking research. With these challenges facing the ICT in learning institutions, this raises questions whether the intended goals in education are attained through the incorporation of ICT in the educational process.

Lectures have been delivered in old fashion classrooms where a lecturer has to be present in order for a lecture to take place. Other institutions adopted

virtual learning processes where students can study from their convenient locations online. Limited studies have been done to establish the influence that the adoption of ICT has had an impact on academic achievement at higher education level in Azad Jammu and Kashmir.

Hence, the purpose of this study is to review the impact of ICT tools on the academic achievement of Students in MUST, Mirpur.

Objectives of the Study

➢ To find out the relationship between the use of ICT and student academic achievement.
➢ To explore the use of ICT tool at university level
➢ To examine the existing usage of ICT tools in MUST, Mirpur

Literature Review

In the 20th century, information technology brings revolution and plays a vivacious role in the development of the educational world. The usage of information and communication technology tools brings a lot of changes in the traditional system of education and gives many remedial measures for educational problems (Cheema, 2012).

Blurton (2004) defines that "ICT is a diverse set of technological tools and resources which are used to communicating, creating, disseminating, storing and managing the information". Kadvekar (2015) defines that ICTs in higher education is based on software and hardware aspect and by using both of them can be called information and communication technology tools. These tools are used to manage the educational tasks and activities and make the content deliverable. These tools are also used for sharing content more effectively. By using ICT tools in education we can store the information and make it possible to reuse. ICT tools can use to make contact with peers and these tools are useful to make networks among other fellows. Simply one can say that when hardware and software are used of performing educational tasks it is ICT. Now a day's education is called the backbone of any country and nations are investing their lot of budget for the development of education. ICT tools play a vital role to manipulate, store and transmit the data.

ICT tools are used to observe, measure, communicate, discuss, try things out, investigate, handle, watch and monitor the things related to teaching and learning. We can enrich the system of education by using ICT tools for educational purposes (Narasimman & Ahmed, 2015). Fu (2013) have stated that ICT tools make easy access to education. Students can benefits from online courses at any time and any place. These tools bring easiness and convenience in the field of education and students can acquire knowledge by multiple souses. ICT tools bring change and reforms in the field of education.

ICT provides enormous innovative tools which have a very strong influence to enhance the process of learning and ICTs also construct new opportunities for students to access the information in different fields. ICT has the potential to meet the individual needs of students and promote independence and equal learning opportunities to the learners (Michiels & Van Crowder, 2001). Owusu-Ansah (2013) divided ICT tools into two groups: one is called capturing technologies and the other is called storage technologies. Capturing technologies are used to collect and convert the information into digital form. On the other hand storage technologies are used to store and retrieve the information in digital form.

According to Okolije (2016) using ICT tools in teaching and learning means to perform academic and non-academic activities by using ICT tools and ICT help and facilitate the student. The use of ICT tools is beneficial for teachers because they can store, manage and maintain their work in better by using innovative ICT tools. Yunus, Nordin, Salehi, Sun, and Embi (2013) reported that usage of ICT tools encourage to communicate through blogs and social networking web sites and cooperative learning can be engorged by using ICTs.

Onwuagboke, Singh, and Fook (2015) noted that ICT tools improve and facilitate the learning process for educators and these tools bring interactive and communicative classrooms. Moon (2004) argues that to tackle the upcoming educational challenges and rapid development there is a need to emergence the new technologies in our

educational system.

According to the report of UNESCO 2002, there is a need to implement state of the art ICT integrated curriculum by the teachers. Teacher plays the most crucial role in the effective use of instructional technology in the classrooms and teacher can focus, improve and enrich their subject teaching by using a variety of ICT tools and applications. The teacher can teach about specific skills and knowledge by using ICT tools and teachers gain more confidence by applying these technological tools in their subject area (Gu, Zhang, Chen, & GAO, 2005).

Innovative ICT tools have challenged the traditional system of education and the educational landscape is being changed globally due to the rapid growth of ICTs in the field of education (Rawandale, Sukhvinder, Priyadarshini, & Pushpa, 2013). Many teachers and experts in the field of education of the developing and developed countries have explored the modern teaching method by using ICT tools in learning and teaching system and also believed that modern or ICT methods of teaching are better than traditional methods of teaching (Noor-Ul-Amin, 2013).

It is widely accepted that modern ICT tools are the best way to develop the interest of the students in different subjects and the teacher plays a role as advisor and facilitator in modern teaching methods. The use of ICT develops the student-teacher relationship because the teacher stands back and acts as an observer and let them solve problems by themselves (Kaino, 2006). Usage of ICTs in delivering knowledge and instructions develops a positive impact on the attitude of the students towards learning and students can solve real-life problems (C. D. Moore, 2005).

The development of new ways in teaching and learning is taken place due to the use of computers and mobile phones developing countries and due to usage of such powerful and innovative tools in education, the student understands the content better than the traditional system of education (Adeosun, 2010). ICT can play a significant role in the advancement of knowledge

and skills in the educational world and it needs to integrate ICT tools in the learning process of developing countries. In developed countries, ICT tool is introduced at school level and school curriculum is integrated with ICT (Adeyemi & Olaleye, 2010).

ICT tool has introduced a new era in methodologies of education and the usage and integration of ICT tools in educational system radically change the traditional system of teaching and information delivery method (Akudolu & Olibie, 2007). Initially, ICTs had used a way to teach the computer and now ICTs are being used at a broader level to deliver learning material with high quality at a lower cost compared to the traditional methods (Adomi & Kpangban, 2010).

Researchers can get access to the relevant information by using the internet all over the world and they also get quick access to information which may be not available with other resources (Sin Tan, Choy Chong, Lin, & Cyril Eze, 2009). When ICT is used by the learners, their level of motivation and engagement can be improved and all learners involve enthusiastically in learning (Punamäki, Wallenius, Nygård, Saarni, & Rimpelä, 2007).

Students can find in-depth information related to their desired topic and by using spreadsheets and databases, they can organize their work. Students can present their ideas more clearly and due to the usage of audiovisual media and a variety of communication tools. ICT also provides an opportunity for the students to make the work more professional (Newhouse, 2001). There is the probabilistic relationship between learning and use of ICT rather than casual and the major purposes of using ICT tools by the educators are to information accessing and analyzing about real-world problems, to provide a scaffold, provision of feedback, to provide guide and reflection (Bransford, Brown, & Cocking, 2000).

ICT creates a new environment of teaching and learning and in the creation of a new learning environment ICT offers many advantages to the young learner who has different abilities and due to the use of innovative tools ICT makes learning more

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effective for slow learners (Kozma & Anderson, 2002). ICT construct the interactive environment for teachers and students and supports the powerful combination of videos, audios, texts, and graphic which are prepared by the specialists for individual and groups by the integration of technology (Bates, 2000).

ICT saves the time and cost of the students and faculty members by assessing resources from any place and it enables the faculty members to communicate with the students without the communication barriers (Hubackova & Klimova, 2014). Use of these ICTs in education promotes group learning and students can get knowledge about each other ideas and the relationships between the teachers and students can be improved and powerful learning experiences can be created (Saud, Shu, & Yasin, 2011).

In this digital era, leaning depends upon the modern technological tools in the learning environment and mobile technologies can be utilized in learning. Mobile technology can be used by the learners inside and outside the classroom or workplace (Yumurtaci, 2017). ICT provides the opportunity for the teachers to use digital storytelling to assists pupils and they can improve confidence and make the effective communication. By using digital technology teacher can tell the story and create awareness about the other culture among the students (Baeza-Yates & Ribeiro-Neto, 1999).

Roberts and Sikes (2011) argue for creativity and incentive growth of students present teaching requires to equip students with up to date instructional material and ICT tools. Ngugi (2012) noted that when the computer connects each other through network its helps the principal to share information and by this extension, academic performance and results of students can be shared with the community and parents.

According to Bank (2007) by using ICT tools teachers can maintain accurate records of students and they can analyze and judge the academic performance of students. Teachers can individualize the record of a student to make decisions about their academic growth. Makhanu and Kamper (2012)

argue that ICT tools are used to increase productivity and increase the power of decision making. These tools are helpful for teachers to deliver lessons and make students' academic records up to date. Record keeping and mandating can be done better by using ICT tools.

Research Methodology
Research Design
The study was comprised of quantitative design and questionire was used as a data collection tool.

Population and Sampling
The population for this study carried out all the 5507 students of MUST, Mirpur during spring semester 2019 and the sample consists of 458 students of the 03 departments of the Faculty of Engineering and 03 departments belonging to MS/M. Phil (2 years) & BS/BSc (4 years) programs in the 2nd semester in 2019 (Springs 2019) were the part of the study.

Instrumentation
Self-developed questionnaire on quasi-interval scale consisted of 30 items is used for data collection.

Validity and Reliability of the Instrument
The face validity of a questionnaire for students and for faculty members was determined individually by the help of experts in the field of education and after a lot of changes according to the directions of educational experts and senior faculty members questionnaire was finalized for pilot study. Reliability of the questionnaire was determined by Cronbach Alpha and the Alpha value for the questionnaire for the students was 0.80 which was accepted.

Data Collection Procedure
After taking the permission from the respective heads of faculties, researcher personally visit the departments to collect the data from students.

Data Analysis and Interpretation
The impact of ICT tools on the academic achievement of students is perceived by using correlation analysis and presented item wise in the Tables below.

Table 1: Relationship between the use of computer for research projects, reports, and academic achievement

<div align="center">Correlations</div>

		I use the computer for my research projects and reports.	Your GPA in the last semester was between:
I use the computer for my research projects and reports.	Pearson Correlation	1	.037
	Sig. (2-tailed)		.437
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.037	1
	Sig. (2-tailed)	.437	
	N	438	438

In Table 4.2 Pearson Correlation and the significance value of students of Engineering are (r = 0.037, p > .05 =.438) which shows the very weak positive and insignificant relationship between the use of computers for research projects, reports, and academic achievement.

Table 2: Relationship between the use of the computer to composing course work/assignments and academic achievement

Correlations

		I use the computer to compose my course work and assignments.	Your GPA in the last semester was between:
I use the computer to compose my course work and assignments.	Pearson Correlation	1	-.091
	Sig. (2-tailed)		.057
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	-.091	1
	Sig. (2-tailed)		.057
	N	438	438

In Table 2 Pearson Correlation and the significance value of students of Engineering are (r = -.091, p > .05 =.057) which shows the very weak negative insignificant relationship between the use of the computer to composing course work/assignments and academic achievement.

Table 3 Relationship between the use of ICT tools in the application of learned knowledge to the real-world situation and academic achievement

Correlations

		ICT tools help me to apply what I have learned in a real-world situation.	Your GPA in the last semester was between:
ICT tools help me to apply what I have learned in real-world situations.	Pearson Correlation	1	.054
	Sig. (2-tailed)		.258
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.054	1
	Sig. (2-tailed)	.258	
	N	438	438

In Table 3 Pearson Correlation and the significance value of students of Engineering are (r =.054, p > .05 =.258) which shows the very weak positive insignificant relationship between the use of ICT tools in the application of learned knowledge to the real-world situation and academic achievement.

Table 4 Relationship between the use of ICT tools in organizing the tasks and academic achievement

Correlations

		The use of ICT tools helps me to organize my tasks.	Your GPA in the last semester was between:
The use of ICT tools helps me to organize my tasks.	Pearson Correlation	1	.036
	Sig. (2-tailed)		.452
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.036	1
	Sig. (2-tailed)	.452	
	N	438	438

Table 4 shows Pearson Correlation and the significance value of students of Engineering (r =.036, p > .05 =.452) which shows very weak positive insignificant relationship between the use of ICT tools in organizing the tasks and academic achievement.

Table 5: Relationship between the use of the Internet to look new and updated information and academic achievement

Correlations

		I use the internet to look for new and updated information.	Your GPA in the last semester was between:
I use the internet to look for new and updated information.	Pearson Correlation	1	-.074
	Sig. (2-tailed)		.122
	N	437	437
Your GPA in the last semester was between:	Pearson Correlation	-.074	1
	Sig. (2-tailed)	.122	
	N	437	438

In Table 5 Pearson Correlation and the significance value of students of Engineering are (r = -.074, p > .05 =.122) which shows the very weak negative insignificant relationship between the use of the Internet to look new and updated information and academic achievement.

Table 6: Relationship between using the ICT tools to collaborate academically with other students and academic achievement

Correlations

		I use the ICT tools to collaborate academically with other students.	Your GPA in the last semester was between:
I use the ICT tools to collaborate academically with other students.	Pearson Correlation	1	.017
	Sig. (2-tailed)		.717
	N	437	437
Your GPA in the last semester was between:	Pearson Correlation	.017	1
	Sig. (2-tailed)	.717	
	N	437	438

In Table 6 Pearson Correlation and the significance value of students of Engineering are (r = .017, p > .05 =.717) which shows a very weak positive insignificant relationship between using the ICT tools to collaborate academically with other students and academic achievement.

Table 7: Relationship between the uses of ICT tools to makes the learning content more interesting and academic achievement

Correlations

		The use of ICT tools makes learning content more interesting.	Your GPA in the last semester was between:
The use of ICT tools makes learning content more interesting.	Pearson Correlation	1	.050
	Sig. (2-tailed)		.295
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.050	1
	Sig. (2-tailed)	.295	
	N	438	438

In Table 7 Pearson Correlation and the significance value of students of Engineering are (r = .050, p > .05 =.295) which shows a very weak positive insignificant relationship between uses of ICT tools to makes the learning content more interesting and academic achievement.

Table 8: Relationship between using ICT tools while using the E-Library and academic achievement

Correlations

		I use ICT tools while using the E-Library.	Your GPA in the last semester was between:
I use ICT tools while using the E-Library.	Pearson Correlation	1	.140**
	Sig. (2-tailed)		.003
	N	438	438
Your GPA in the last	Pearson Correlation	.140**	1

semester was between:	Sig. (2-tailed)	.003	
	N	438	438

**. Correlation is significant at the 0.01 level (2-tailed).

In Table 8 Pearson Correlation and the significance value of students of Engineering are (r = .140, p < .05 =.003) which shows a weak positive significant relationship between use ICT tools while using the E-Library and academic achievement.

Table 9: Relationship between use of ICT equipment in lecture rooms of the university and academic achievement

Correlations

		ICT equipment is used in the lecture rooms of the university.	Your GPA in the last semester was between:
ICT equipment is used in the lecture rooms of the university.	Pearson Correlation	1	.019
	Sig. (2-tailed)		.689
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.019	1
	Sig. (2-tailed)	.689	
	N	438	438

In Table 9 Pearson Correlation and the significance value of students of Engineering are (r = .019, p > .05 =.689) which shows the very weak positive insignificant relationship between use ICT equipment in lecture rooms of the university and academic achievement.

Table 10: Relationship between ICT equipped resource center of the university and academic achievement

Correlations

		The resource center of the university is equipped with ICT tools.	Your GPA in the last semester was between:
The resource center of the university is equipped with ICT tools.	Pearson Correlation	1	.026
	Sig. (2-tailed)		.593
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.026	1
	Sig. (2-tailed)	.593	
	N	438	438

In Table 10 Pearson Correlation and the significance value of students of Engineering are (r = .026, p > .05 = .593) which shows the very weak positive insignificant relationship between the use of ICT equipped resources center of the university and academic achievement.

Table 11: Relationship between the use of ICT tools in teaching and learning process to make it easier and academic achievement

Correlations

		ICT tools make the teaching-learning process easier.	Your GPA in the last semester was between:
ICT tools make the teaching-learning process easier.	Pearson Correlation	1	-.097*
	Sig. (2-tailed)		.042
	N	437	437
Your GPA in the last semester was between:	Pearson Correlation	-.097*	1

	Sig. (2-tailed)	.042	
	N	437	438

*. Correlation is significant at the 0.05 level (2-tailed).

The table 11 displays Pearson Correlation and the significance value of students of Engineering (r = -.097, p < .05 = .042) which shows a very weak negative significant relationship between use of ICT tools in teaching and learning process to make it easier and academic achievement.

Table 12: Relationship between the use of ICT tools in teaching and learning process to make it effective and academic achievement

Correlations

		ICT tools make the teaching and learning process more effective for me.	Your GPA in the last semester was between:
ICT tools make the teaching and learning process more effective for me.	Pearson Correlation	1	-.036
	Sig. (2-tailed)		.456
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	-.036	1
	Sig. (2-tailed)	.456	
	N	438	438

Table 12 indicates Pearson Correlation and the significance value of students of Engineering are (r = -.036, p > .05 = .456) which shows very weak negative insignificant relationship between the use of ICT tools in teaching and learning process to make it effective and academic achievement.

Table 13: Relationship between the use of ICT tools to improve the quality of learning and academic achievement

Correlations

		The use of ICT tools improves the quality of my learning.	Your GPA in the last semester was between:
The use of ICT tools improves the quality of my learning.	Pearson Correlation	1	.063
	Sig. (2-tailed)		.185
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.063	1
	Sig. (2-tailed)	.185	
	N	438	438

In Table 13 Pearson Correlation and the significance value of students of Engineering are (r = .063, p > .05 = .185) which shows the very weak positive insignificant relationship between the use of ICT tools to improve the quality of learning and academic achievement.

Table 14: Relationship between using the computer for my academic purpose and academic achievement

Correlations

		I use the computer for my academic purpose.	Your GPA in the last semester was between:
I use the computer for my academic purpose.	Pearson Correlation	1	.072
	Sig. (2-tailed)		.134
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.072	1
	Sig. (2-tailed)	.134	
	N	438	438

In Table 14 Pearson Correlation and the significance value of students of Engineering are (r = .072, p > .05 = .134) which shows the very weak positive insignificant relationship between using the computer for my academic purpose and academic achievement.

Table 15: Relationship between browsing the internet for updating knowledge and academic achievement

Correlations

		I browse the Internet for updating my knowledge.	Your GPA in the last semester was between:
I browse the Internet for updating my knowledge.	Pearson Correlation	1	-.019
	Sig. (2-tailed)		.694
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	-.019	1
	Sig. (2-tailed)	.694	
	N	438	438

In Table 15 Pearson Correlation and the significance value of students of Engineering are (r = -.019, p > .05 = .694) which shows the very weak negative insignificant relationship between browsing the internet for updating knowledge and academic achievement.

Table 16: Relationship between sharing the new usage of ICT with fellows and academic achievement

Correlations

		I like to share new usage of ICT with my fellows.	Your GPA in the last semester was between:
I like to share new usage of ICT with my fellows.	Pearson Correlation	1	.130**
	Sig. (2-tailed)		.007
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.130**	1
	Sig. (2-tailed)	.007	
	N	438	438

**. Correlation is significant at the 0.01 level (2-tailed).

In Table 16 Pearson Correlation and the significance value of students of Engineering are (r =.130, p < .05 = .007) which shows a weak positive significant relationship between sharing the new usage of ICT with fellows and academic achievement.

Table 17: Relationship between using ICT tools for recreative activities and academic achievement

Correlations

		I use ICT tools for recreative activities.	Your GPA in the last semester was between:
I use ICT tools for recreative activities.	Pearson Correlation	1	.039
	Sig. (2-tailed)		.415
	N	437	437
Your GPA in the last semester was between:	Pearson Correlation	.039	1
	Sig. (2-tailed)	.415	

	N	437	438

In Table 17 Pearson Correlation and the significance value of students of Engineering are (r =.039, p > .05 = .415) which shows a very weak positive insignificant relationship between using ICT tools for recreative activities and academic achievement.

Table 18: Relationship between improvement in grades of students by using ICT tools to prepare for exams and academic achievement

Correlations

		I have improved my grades due to using ICT to prepare for exams.	Your GPA in the last semester was between:
I have improved my grades due to using ICT to prepare for exams.	Pearson Correlation	1	.058
	Sig. (2-tailed)		.225
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.058	1
	Sig. (2-tailed)	.225	
	N	438	438

In Table 18 Pearson Correlation and the significance value of students of Engineering are (r =.058, p > .05 = .225) which shows a very weak positive insignificant relationship between improvement in grades of students by using ICT tools to prepare for exams and academic achievement.

Table 19: Relationship between the effectiveness of the use of ICT for making students critical thinker and academic achievement

Correlations

		The use of ICT has been effective for making me, critical thinker.	Your GPA in the last semester was between:
The use of ICT has been effective for making me, critical thinker.	Pearson Correlation	1	.022
	Sig. (2-tailed)		.651
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.022	1
	Sig. (2-tailed)	.651	
	N	438	438

In Table 19 Pearson Correlation and the significance value of students of Engineering are (r =.022, p > .05 = .651) which shows a very weak positive insignificant relationship between the effectiveness of the use of ICT for making students critical thinker and academic achievement.

Table 20: Relationship between bringing easiness in completing educational tasks by using ICT tools and academic achievement

Correlations

		It is easy for me to complete educational tasks by using ICT tools.	Your GPA in the last semester was between:
It is easy for me to complete educational tasks by using ICT tools.	Pearson Correlation	1	.038
	Sig. (2-tailed)		.428
	N	438	438

Your GPA in the last semester was between:	Pearson Correlation	.038	1
	Sig. (2-tailed)	.428	
	N	438	438

In Table 20 Pearson Correlation and the significance value of students of Engineering are (r =.038, p > .05 = .428) which shows a very weak positive insignificant relationship between bringing easiness in completing educational tasks by using ICT tools and academic achievement.

Table 21: Relationship between using ICT tools for improving creativity and academic achievement

Correlations

		By using ICT tools I have improved my creativity.	Your GPA in the last semester was between:
By using ICT tools I have improved my creativity.	Pearson Correlation	1	.069
	Sig. (2-tailed)		.151
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.069	1
	Sig. (2-tailed)	.151	
	N	438	438

In Table 21 Pearson Correlation and the significance value of students of Engineering are (r =.069, p > .05 = .151) which shows a very weak positive insignificant relationship between using ICT tools for improving creativity and academic achievement.

Table 22: Relationship between the use of ICT to improve the ability to find relevant and useful information and academic achievement

Correlations

		ICT helps me to improve my ability to find relevant and useful information.	Your GPA in the last semester was between:
ICT helps me to improve my ability to find relevant and useful information.	Pearson Correlation	1	.019
	Sig. (2-tailed)		.693
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.019	1
	Sig. (2-tailed)	.693	
	N	438	438

In Table 22 Pearson Correlation and the significance value of students of Engineering are (r =.019, $p > .05 = .693$) which shows the very weak positive insignificant relationship between the use of ICT to improve the ability to find relevant and useful information and academic achievement.

Table 23: Relationship between improvement in attitude towards learning by using ICT tools and academic achievement

Correlations

		ICT tools help me to improve my attitude towards learning.	Your GPA in the last semester was between:
ICT tools help me to improve	Pearson Correlation	1	.127**
my attitude towards learning.	Sig. (2-tailed)		.008
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.127**	1
	Sig. (2-tailed)	.008	
	N	438	438

**. Correlation is significant at the 0.01 level (2-tailed).

In Table 23 Pearson Correlation and the significance value of students of Engineering are (r =.127, $p < .05 = .008$) which shows a weak positive significant relationship between improvement in attitude towards learning by using ICT tools and academic achievement.

Table 24: Relationship between improvement of motivation towards learning by using ICT tools and academic achievement

Correlations

		ICT tools help to improve my motivation towards learning.	Your GPA in the last semester was between:
ICT tools help to improve my motivation towards learning.	Pearson Correlation	1	.082
	Sig. (2-tailed)		.087
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.082	1
	Sig. (2-tailed)	.087	
	N	438	438

In Table 24 Pearson Correlation and the significance value of students of Engineering are (r =.082, $p > .05 = .087$) which shows a very weak positive insignificant relationship between improvement of motivation towards learning by

using ICT tools and academic achievement.

Table 25: Relationship between making student independent learner by using ICT tools and academic achievement

Correlations

		ICT tools help to make me an independent learner.	Your GPA in the last semester was between:
ICT tools help to make me an independent learner.	Pearson Correlation	1	.031
	Sig. (2-tailed)		.518
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.031	1
	Sig. (2-tailed)	.518	
	N	438	438

In Table 25 Pearson Correlation and the significance value of students of Engineering are (r =.031, p > .05 = .518) which shows the very weak positive insignificant relationship between making student independent learner by using ICT tools and academic achievement.

Table 26: Relationship between the use of ICT tools for project-based learning and academic achievement

Correlations

		ICT tools are helpful for project-based learning.	Your GPA in the last semester was between:
ICT tools are helpful for project-based learning.	Pearson Correlation	1	.019
	Sig. (2-tailed)		.694
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.019	1
	Sig. (2-tailed)	.694	
	N	438	438

In Table 26 Pearson Correlation and the significance value of students of Engineering are (r =.019, p > .05 = .694) which shows the very weak positive insignificant relationship between the use of ICT tools for project-based learning and academic achievement.

Table 27: Relationship between the openness of the new horizon by using the internet as ICT tool and academic achievement

Correlations

		Internet and ICT tools open a new horizon to the digital world for me.	Your GPA in the last semester was between:
Internet and ICT tools open a new horizon to the digital world for me.	Pearson Correlation	1	.070
	Sig. (2-tailed)		.141
	N	438	438
Your GPA in the last semester was between:	Pearson Correlation	.070	1
	Sig. (2-tailed)	.141	
	N	438	438

In Table 27 Pearson Correlation and the significance value of students of Engineering are (r =.070, p > .05 = .141) which shows a very weak positive insignificant relationship between the openness of the new horizon by using the internet as ICT tool and academic achievement.

Table 28: Relationship between bringing improvement of perception in different subjects by using ICT tools and academic achievement

Correlations

	The use of ICT enables me to improve my perception of different subjects.	Your GPA in the last semester was between:
The use of ICT enables me to improve my perception of different subjects. — Pearson Correlation	1	.062
Sig. (2-tailed)		.195
N	438	438
Your GPA in the last semester was between: — Pearson Correlation	.062	1
Sig. (2-tailed)	.195	
N	438	438

In Table 28 Pearson Correlation and the significance value of students of Engineering are (r =.062, p > .05 = .195) which shows the very weak positive insignificant relationship between bringing improvement of perception in different subjects by using ICT tools and academic achievement.

Table 29: Relationship between the use of ICT tools for sending course material and academic achievement

Correlations

	ICT tools are used by me for sending course material.	Your GPA in the last semester was between:
ICT tools are used by me for sending course material. — Pearson Correlation	1	.119*
Sig. (2-tailed)		.013

Correlations (continued)

	ICT tools are used by me for sending course material.	Your GPA in the last semester was between:
N	438	438
Your GPA in the last semester was between: — Pearson Correlation	.119*	1
Sig. (2-tailed)	.013	
N	438	438

*. Correlation is significant at the 0.05 level (2-tailed).

In Table 29 Pearson Correlation and the significance value of students of Engineering are (r =.119, p < .05 = .013) which shows a weak positive significant relationship between the use of ICT tools for sending course material and academic achievement.

Table 30: Relationship between the use of ICT tools for receiving course material and academic achievement

Correlations

	ICT tools are used by me for receiving course material.	Your GPA in the last semester was between:
ICT tools are used by me for receiving course material. — Pearson Correlation	1	.187**
Sig. (2-tailed)		.000
N	438	438
Your GPA in the last semester was between: — Pearson Correlation	.187**	1
Sig. (2-tailed)	.000	
N	438	438

**. Correlation is significant at the 0.01 level (2-tailed).

In Table 30 Pearson Correlation and the significance value of students of Engineering are (r =.187, p < .05 = .000) which shows a weak positive significant relationship between the use of ICT tools for receiving course material and academic achievement.

Findings

i. The findings and analysis of the data show that the use of ICT tools while using E-library has a significant impact on the academic achievement of students.

ii. There is a significant negative correlation between making the teaching-learning process easy by using ICT tools and academic achievement which means that if ICT tools are used for bringing easiness then academic achievement of students can't be enhanced in MUST, Mirpur.

iii. Sharing new usage of ICT with fellow students has a significant relationship with academic achievement and the academic achievement of students is enhanced if they share the new usage of ICT with their fellows.

iv. The results of the shows that the use of ICT tools for improving attitudes of pupils towards learning have also significant impact on their achievement.

v. Students of MUST, Mirpur are using ICT tools for sending the course material to other students and teachers and it has a significant impact on academic achievement of the students.

vi. Students of MUST, Mirpur is also using ICT tools for receiving the course material from their teacher and other fellow students and it has also significant impact on academic achievement of students.

Conclusion and Recommendations

The following recommendations of the study are made in light of the above findings:

- The use of ICT tools in while using E-Library have significant impact on the academic achievement of the students and there is need to improve the facility of ICT tools in the library of the university. Students may be visited online international journals and digital libraries of the world by using E-library. The quality of education in the MUST, Mirpur may be improved by the well-equipped E-library of the university.

- ICT tools may be used positively in the university instead of using these tools for enjoyment and easiness. Students may be motivated to use ICT tools positively. The faculty members should motivate the students towards the use of modern ICT tools and students can share the usage of ICT tools among each other.

- The use of ICT tools motivates the students towards learning and there is need to conduct the workshops and seminars related to positive use of ICT tools in the university. University students and faculty members may be aware of using ICT tools and workshops can be conducted related to using and integrating the modern technological tools in teaching and learning process of university education.

- Students may be motivated and encouraged to use social media and email for receiving and sending the course work and other helping material related to their studies to other fellow students.

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