Research Journal of Social Sciences & Economics Review
Vol. 2, Issue 2, 2021 (April – June)
ISSN 2707-9023 (online), ISSN 2707-9015 (Print)
ISSN 2707-9015 (ISSN-L)
DOI: https://doi.org/10.36902/rjsser-vol2-iss2-2021(246-254)

RJSSER
Research Journal of Social Sciences & Economics Review

Effect of ICT on Students Academic Development at the University Level

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Abstract

The focus of the study was to measure the effect of ICT on the students' academic development at the university level. The study was descriptive and for data collection survey method was used. The population consisted of all teachers and students of private and public universities of Islamabad and Rawalpindi. The total population of teachers in the public and private universities were 4078 and students were 140,125. A Stratified random technique was used for selecting the study sample. The researcher selected 525 teachers from public and private universities as well as 900 students from public and private universities. The researcher developed two questionnaires using a five-point Likert scale on the foundation of related literature. The reliability of these instruments was determined through Cronbach's alpha which was 0.839 teacher instrument and 0.832 was student instrument. Mean, standard deviation, t-test, and regression analysis were used for analyzing the data. It was found that ICT services are available at the public and private sector universities. It was also found that there was a significant effect of ICT on students' academic development. It is recommended may universities provide equal opportunities to students and to make access able ICT services for Students.

Keywords: ICT, University, Student, Development

Introduction

Among the essentials of almost every field of life, (ICT) information communication technology has gained cardinal importance. In the fields of business and administration agencies, ICTs have brought revolution during the past two decades. Among the unavoidable and barely important social activities, education is at the top. The existing concept of quality education is linked with qualities facilitators ensuring ample personal connection with the learners. The stronger the bond between the great teacher and the pupil is, the higher is the level of quality education. The influx of ICT has shifted the nucleus of learning from teacher to student. A student-centered atmosphere has become the key to success. The last decades have reshaped the whole system as ICT has become the need just like oxygen (D. M,2001). The developed countries have reached the climax by using ICT while the developing countries, being week in resources and hesitant in adopting the ICT, have been left behind. Thus, the guilt of difference and least connectivity between the developed and developing nation has been automatically created. (Kivunja, 2015). In the modern world, ICT serves the purpose of a cornerstone to every edifice of success. Therefore, to grab the basic comprehension of all the fundamental concepts of ICT demands an essential of all types of education. Technology bears the power to redevise the learning strategies and to highlight the new roles of the masters and the disciples in the valuable phenomena of education. ICT ascertains such a good atmosphere virtually where a component of power is molded into a learning process. (UNESCO, 2002).

ICT has produced and multiplied the chances of education. It goes without saying that without adopting ICT has made it compulsory like clothing to cover our bodies; we cannot make our education successful and Purposive. ICT and IT are simultaneously the same and different. These are the same because both deal with useful information and the latest technology. These are different for ICT focuses more on communication, i.e., virtual communication. This enlists the internet, Wi-Fi networking, mobiles, and other gadgets of connectivity. Human society has been facilitated with a

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great variety of connectivity skills by ICTs. Students in various countries can easily face virtual contact through teleconferencing, video calling, SMS, etc ((Hongbo, 2020).

Social media platforms like Twitter, Instagram, Facebook, YouTube let clients worldwide stay connected and updated. Latest ICTs have enabled the students of the global village to stay in touch with others just like next-door neighbors (Hongyun, Iqbal, Ashraf, & Bashir, 2021). Distances and differences in languages have been amassed. The impact of the latest communication technologies upon academic development is an aspect of ICT (Noor, 2003). The umbrella of ICT is composed of numerous digital flowers, such as; connectivity tools e.g., radio, T.V cars, phones, computers and networking machines, satellites, etc. learning management systems, online examinations, and automatic grading are a few more examples. Financial stability or economic growth in the shape of well improved per capita income is the proven promise of ICT to the workers and skillful person (Li, Ashraf, 2020).

It's a gateway to glorious success in education too. The education sector is the most cardinal of all sectors of society (Joseph, 2005). The flexibility of ITC's integration into the learning and teaching process helps to increase the reception and interaction of information in calculations. Such possibilities include the communication patterns used by teachers and suggest a change in learning methods, which promotes new path scenarios that favor both collaborative and individual learning. The use of ICT in educational settings changes the domain that acts as a catalyst for ICT. ICT encourages and supports independent learning. Learners use ICT for learning purposes. Get involve in the learning process and more and more students are using computers as a source of information and perceptual tools (García-Alcaraz, Martínez-Loy a, García-Alcaraz, Sánchez-Ramírez, C., 2019).

The availability of technologies, state-of-the-art computers, peripherals, networking, and a wide range of tools for students and their students, living in an increasingly high range of technologies is an integral part of the teaching and learning 21century (Ashraf, Li, & Mehmood, 2017).ICT provides input into students' learning process, which should help in the better production of education. Availability of ICT resources can make learning easy and enhance learning by making education less dependent on the quality of different faculty members and by providing home based education all over the day (MB Wesa, 2002). ICT can transfer information and knowledge in easily and positively way to learners.it also helps the learners to take benefits of the vast range of possibilities for getting information for higher education purposes and its also enhance leaning through home-based communication (Royal, 1998).

Student development in higher education integrates educational learning programs with major issues of personal improvement and individual development (Ashraf et al., 2019). It is a student-centered, comprehensive experience that focuses on understanding values, developing skills, and advancing knowledge (Li, Murad, et al., 2020). The role of ICT in the world of acquiring knowledge has always been appreciating. It's too has always changed according to the need of time. Currently, technology also helps students to motivate and enable learners from those ways have never been able to before (Adom sent, M., Godemann, J., Michelsen, G., Barth, M., Rieckmann, M., & Stoltenberg, 2007). If computers and technology are used properly, "insight is the ability to dream in the brain of teachers who see the never-ending ability to change the traditional concepts of teaching. (Collins, A., & Halverson, R.2018).

Key Words: ICT, academic, development, higher

Research Objectives

1. To explore the availability of ICT services in higher education.
2. To measure the effect of ICT on student academic development at the university level.
3. To compare the views of the respondent regarding ICT service at the University Level.

Research Questions

1. What is the availability of ICT service at the university level?
2. What is the effect of IT service on student development at the university level?
3. What are the views of the respondent regarding the impact of ICT on students 'academic development?

Review of Literature

An important part of a person's body is their brain. To help improve its functionality, you need to use it frequently. To this end, technology helps students to develop their minds by providing them with a great source of information. The evolution of technology has come a long way, and it is evolving

every day. Incorporating technology into a student's daily life will help them prepare for the future. It will also give them a better understanding of how technology evolves. In addition, exposing them to technology encourages students to learn as much as they can. It will be important for students to be equipped with the necessary technical skills to work effectively with these new technologies. One of the great benefits of introducing new technology to students in properly preparing for the job market is that they will rely heavily on technology.

The implementation of information and communication technology has changed the traditional teaching learning concepts. The application of Information and Communication Technology (ICT) has revolutionized teaching and learning. When students use ICT to support their teaching, students with various learning styles can maximize their learning potential. ICT enables learners to be more independent, reflective, and self-organized in their learning process. In addition, ICT makes it possible to provide virtual instruction to students outside the classroom. ICT provides students with expert materials and skills, although it depends on the teaching purpose of the teachers, the level of the students, the teaching needs, and the resources available (Ismail, 2018).

The application of Information and Communication Technology (ICT) in education has revolutionized teaching and learning. When students use ICT to support their teaching, students with a variety of learning styles can maximize their learning potential. ICT enables learners to be more independent, reflective, and self-organized in their learning process. In addition, ICT makes it possible to provide virtual instruction to students outside the classroom. ICT provides students with expert materials and skills although it depends on the teaching purpose of the teachers, the level of the students, the teaching needs, and the resources available.

Technology teaching strategies are often based on a scientific approach to teaching and learning. Teachers are seen as facilitators and collaborators with students, rather than experts. There is also a tendency to emphasize problem -solving and the use of research skills as students play a more active role in explaining and developing their ideas. The areas in which teachers can use ICT in their education are wide, as technology advances, new tools and techniques are developed every day (Pardede,2012)

It is considered the information technology empower learner as well as teacher too. Its promote change and bring novelty in 21- century skills development. There is a widespread belief that ICT can empower teachers and learners and that it will make the teacher-to-learn process more student-to-teacher-based and achieve learning for students as a result of this change (Ajaz, Mehmood, Ali, & Ashraf, 2014). I will grow, and there will be opportunities for learners. To develop their creativity, problem-solving skills, informational reasoning skills, communication skills, and high-order thinking skills. The great teaching challenges facing revolve around student diversity, which, among others, diversifies students' academic preparation, Language, and educational background. Incorporating ICT into teaching and learning is high on the education reform agenda. ICT is often seen as an indispensable tool for participating in the academic community (Hepp, Hinostroza, Laval, & Rehbein, 2004).

The 'pilot effect' can be a key driver for recorded effects. ICT-related interventions in education that introduce a new medium for teaching and learning can only improve because of the efforts made around such interventions to educate teachers and students. This is because as the level of interaction of students increases, so does the level of their education. That way, students can easily communicate with each other using email. Mail and chat can improve their academic performance, thus incorporating computer and internet use into their study habits (Somekh, 2008).

ICT needs to be seen as an integral part of cultural toolkit education in the 21st century, adhering to new and evolving patterns of development wherever the nature and reach of teacher education increases (Oliver, 2002). At the same time, raising, and improving the quality of education is an important concern in the development and expansion of education. ICT can do improve the quality of education in several ways: by increasing students' enthusiasm and commitment, making it possible to acquire basic skills and enhancing teacher training. ICT is also a tool that enables and brings change which, when used properly, can encourage a difference in the environment that results from a learning center (Francescato, 2007).

ICT policy target in higher education teaching prepares youth to join active and innovative in establishing, maintaining, and developing a knowledge society bringing all-round economic and social development and global competitiveness. The introduction of ICT in higher education

profoundly affects education process access, equity management, Performance, teaching and quality. The technology provided by ICT can inspire and promote a change like the teaching process from teacher to student. Learning When many students use computers as sources of information and knowledge tools, ICT will be widely applied and help their education (Varis, 2007).

To support constructive knowledge: learning points. Sight during which ICT technique is used simultaneously, various opportunities are provided for constructive learning and support for education. This helps to move the resource-based and learning center platform forward and does everything possible to help you learn relevant and relevant to the context. Educational institutions can offer distance learning programs with the help of ICT (Olofsson & Lindberg 2012). In Technology-related educational programs students are eligible to study everywhere any time and able to overcome geographical berries. overcome geographical barriers, Large-scale learners burdened with other responsibilities have been given much more flexibility for learning opportunities.

The growing use of ICT as a life tool has seen generic skills have increased in recent years to include information literacy (Martin & Grudziecki 2006). Virtual libraries are a great gift especially for students as they reduce the cost of shopping: very expensive reference books, research, and material reference magazines. Research tools are available on the internet. It helps the students and teachers in written assignments to locate both letters and avoid damage to them. CT improves the quantity and quality of educational delivery. To do Introducing ICT system in the teaching process in less developed and developing countries. Learning with the help of technology has proven to be quite expensive in all areas of consideration, infrastructure, course development and course delivery (Emeka & Nyeche, 2016). One of the key contributing factors in determining student success in different disciplines and areas is student success (Shukakidze, 2013).

However academic success is the major goal of the education and also the aim of higher education as well, our faculty are looking for ways to enhance and promote education (Eret, Gokmenoglu, & Demir, 2013). With each passing year, technology is becoming a more traditional part of the educational culture. The integration of technology into the education system is forcing colleges and universities to make dramatic changes by increasing the quality, diversity and availability of tremendous information and reshaping teacher-student relationships. (Inoue, 2007).

Higher educational institutions have also increasingly recognized the importance of adopting CMS to reform university examinations. CMS is a computing and communications model that is a fast-moving technology. ICT provides the means for fast and efficient communication, efficient storage, data retrieval and processing, and the exchange/use of information to its customers (Akbar & Qureshi, 2015). The ICT can be an inspiring tool for many students. Young people are fascinated by technology. Teachers should take advantage of the excitement and enthusiasm of the ICT. The purpose of learning for those already excited learners, the Internet provides them with additional convenience learning activities that are not readily available in the classroom. Workshops, seminars, and training programs consist of a large proportion of the highest academic development unit in higher education (Hill, Lomas, & MacGregor, 2003).

Advances in technology in recent years have had a profound effect on human lives. Universities worldwide have been able to easily study and research better technical facilities in information technology (ICT). Learning technologies such as modal, teaching, and learning activities can be very helpful. This Skills help students gain experience in random writing. (Oshinake & Adekunmisi, 2011). Chickering's theory of cognitive development revolves around seven paths of student development.

According to Chikring & Racer (1993), paths symbolize the direction and breadth of student development. The severity of these seven pathways was to explain how student development can be affected in a university environment Learner, physically, emotionally, socially, and intellectually, especially in the creation of identity.

On the contrary straightforward and other ideas suggest that progress is a special, step-by-step process. An individual's development is based on changes that can be described through some theoretical framework. People change because their development enables them to realize themselves. He thinks he has been welcomed and stable, especially during adolescence as a student. Finally, information technology and communication play an important role in improving the academic quality of its students to meet the growing needs of the job market in a century influenced by the technical

quality of a university and its students. Therefore, more attention should be paid to improving universities. ICT facilities so that students are exposed to ICT before joining the workforce.

Results

Table 1

Availability of ICT at the university regarding teacher survey

ICT	N	Mean	S.D
ICT	525	3.49	1.384

Table 1 indices the availability of ICT at the University Level. The mean of ICT service is (mean=3.49.SD=1.384)

Table 2

Availability of ICT at the university regarding (Student's opinion)

ICT	N	Mean	S.D
ICT	900	3.89	1.292

Table 2 indicate the availability of ICT at the University Level

Table 3

Model summary effect of ICT service on students' academic development (teacher Survey)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.679	.461	.460	9.662

a. Predictors: (Constant), ICT

The table demonstrates the model summary of the ICT service and academic development. As claimed by the summary, the correlation R is .679, and R-square is .461 so a strong relationship existed between the ICT and academic development.

Table 4

ANOVA summary effect of ICT on student's academic development at university level

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41813.662	1	41813.662	447.922	.000
	Residual	48915.554	524	93.350		
	Total	90729.217	525			

a. Dependent Variable: Academic development

b. Predictors: (Constant), ICT

ANOVA Summary of ICT service and academic development demonstrated in the table. This table shows that the regression equation is significant F (1, 524) = 447.922, p=.000, ICT service was a significant predictor of academic development.

Table 5

Coefficient summary effect of ICT on student's academic development at university level

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	28.670	1.129		25.388	.000
	ICT	3.940	.186	.679	21.164	.000

a. Dependent Variable: Academic development

The table 5 table shows the coefficient summary of the model. It discloses that the value of coefficient ICT services was3.940, its t value is21.164 which is significant at the .05 level as p=.000 .It suggests that there was a significant difference between IT services and academic development.

Table 6

Model summary Effect of ICT service on Students' development at the university level

1	.600[a]	.360	.360	10.285

a. Predictors: (Constant), IT

Table 5 demonstrates the model summary of the ICT service and academic development. Consequently, the correlation R is .600 and R- the square is .360; hence there existed a strong relationship between ICT service and academic development.

Table 7

ANOVA summary effect of ICT service on student's academic development

Model	Sum of squares	df	Mean square	F	Sig
Regression	53501.072	1	53501.072	505.751	.000
Residual	94995.324	898	105.785		
Total	148496.396	899			

a. Dependent Variable: Academic development

b. Predictors: (Constant), ICT

Table 8

ANOVA Summary of ICT service and academic development is demonstrated in the table. This table shows that the regression equation is significant F (1, 898) = 505.751, p=.000, ICT was a significant predictor of academic development.

Table 9

Coefficient summary effect of ICT service on student's academic development

	Unstandardized Coefficients		Standardized Coefficients	Coefficients	
Model	B	Std Error	Beta	t	Sig
Constant	35.784	.896		39.933	.000
IT	3.191	.142	.600	22.489	.000

a. Dependent Variable Academic development

The table 8 disclosed that the value of coefficient ICT services was 3.191 its t value is 22.489 which is significant at the .05 level as p=.000. It represents that there was a significant difference between ICT services and academic development.

Table 9

Mean difference between public and private sector teachers effect of ICT on student's development

	educational	N	Mean	Std. Deviation	df	f	t	sig
ICT	public	350	5.72	2.338	522	3.406	1.197	.066
	private	174	5.47	2.114				

Table 9 shows the mean difference between public and private university teachers" perceptions of ICT. Teachers' mean in the public sector is 5.72, while teachers' mean in the private sector is 5.47. The mean of teachers in the public sector is greater than the number of teachers in the private sector. When the P-value is greater than 0.05, the mean difference of 0.25 is statistically significant. This means teachers in the public sector have better insights than teachers in the private sector.

Table 10

Mean difference between public and private sector teachers regarding the effect of ICT on student's development

	Educator	N	Mean	Std. Deviation	df	f	t	sig
IT	public	500	5.53	2.284	898	11.18	4.308	.001
	Private	400	6.22	2.526				

The table shows the mean difference between public and private university students " perceptions of ICT. The mean of the public sector students is 5.53, while the students' mean in the private sector is 6.22. The means the private sector is greater than the number of students in the private sector. When the P-value is greater than 0.05, the mean difference of 0.69is statistically significant. This means students in the private sector have better insights than students in the private sector.

Conclusion

1. It was concluded ICT services are available in the higher education.
2. There was a strong relationship existed between ICT services and students 'academic development.
3. There was significant effect of ICT services on students' academic development. development.
4. It was found that the opinion of public sector teachers is better than private-sector teachers. The opinion of the Private sector is better than public sector students regarding ICT opportunities in the universities. It is concluded that ICT is available at the universities. It is

concluded that there was a significant effect on students' academic development at the university level. It is further concluded that ICT is better in the public sector as well as the private sector.

Discussion

The notable purpose of the study to measure the effect of ICT on student's development at the university level. The first objective of the study was to explore the availability of ICT at the university level. It was found that ICT is available in universities. This result consistent with (Schwier, and et.al., 2005), (Lynch, 2002), (Power, et al., Alias 2005), (Choudhry et al., 2008), (Fahy, 2004), (Garriso, 1989), (Hipp, 1997), (Kirkup & Von-Prummer, 1990), (Lynch, 2002), (Power, et al., Tait 2000), (Ludeman, R. B. 2001), (Charlito P. Cadag, 2017), (Harrell, C. B. 1989), were found that "ICT is available in the higher Education Institutes like universities.

The second objective of this study measures the effect of ICT on student's development at the university level. The study found ICT has a positive impact on student's academic development. These results are consistent with These results follow the results of (Dynarski & Scott-Clayton 2013), (Angrist et al., 2009), (Bettinger, 2015), (Scott-Clayton 2012), (Castleman & Long, 2012), (Lane, 2008).

The third objective of study was to compare the views of the respondent regarding ICT service at the University Level. These results consistent with (Tyler, L. ,2005), (Aypay, 2010), Shaikh, (2009).

Recommendations:

1. University administrators may provide ICT facilities equal to students and provide speedy flow of information and easy access to information.
2. Universities may provide Fiber interlink services so that students can complete their work without hindrance. May university to ensures the security and confidentially of students records.
3. May university ensure the ICT infrastructure and reduce the time barriers for users.

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