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RELATIONSHIP BETWEEN UTILIZATION OF ICT AND ACADEMIC ACHIEVEMENT OF STUDENTS AT SECONDARY LEVEL

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ABSTRACT

This research study was conducted to find out relationship between utilization of information and communication technologies and achievement of students during the study at secondary level. The basic purpose of this study is to find out the status of availability of ICTs resources in public secondary schools, also to determine the extent of utilization of available ICTs resources for teachers of computer science at secondary level and to find out the relationship between the utilization of ICTs and the academic achievement of students at this stage. For this purpose, 200 IT teachers and head teachers of secondary school's levels are randomly selected to collect the information. Data were collected through the questionnaire from the respondents. Data was analyzed by using SPSS tool to find out percentage of collected data also find the correlation to check the relation between utilization of ICTs and academic achievements of the students. The results were shows that the calculated value of correlation coefficient r, is +0.694, so we conclude that there is a positive and moderate strong relationship between the utilization of ICTs and academic performance of students at secondary level.

INTRODUCTION

Education is the basic right and need of the nation for mental growth and the growth of a nation depends upon qualified human recourses (Khalid, 1998).The qualified citizens contribute a vital role in the improvement of the society as well as in the improvement of the state (Tukkahraman, 2012).In this research paper, ICTs refer to the use of internet, databases, satellite system computer and networks, hardware and software, multimedia projector, scanning machine, printer, video recorder, televisions, radios, audio-visual systems and different

services and applications connected with them such as video conferencing and distance education are all part of ICTs use at in the learning process of public secondary schools. ICTs can improve the retentive memory of student, teacher can easily explain the more complex instructions through ICTs and make cooperative classes to make the lesson pleasurable (Singh, 2005). Computers and networks, hardware and software, cell phones, televisions, radios, audiovisual systems and satellite systems, as well as various services and applications associated with them, such as videoconferencing and distance learning, are part of ICT (Tariq, 2016).

The problem under study was the relationship between utilization of information and communication technologies (ICTs) and academic achievements of students at secondary level. The objectives of current study were to find out the status of availability of ICTs resources in public secondary schools in Rawalpindi district. To determine the extent of utilization of available ICTs resources by IT teachers in teaching of computer science at secondary level. To find out the relationship between the utilization of ICTs and the academic achievement of students at secondary level.

LITERATURE REVIEW

Bosamia (2013) explained that ICTs has an impact on everyone who gets them, and the Internet has changed our society and way of life. ICTs bring people from all over the world to interact with all over the world. It provides opportunities to improve communication, meet new online people, and share online information, increase educational opportunities. The Age of Information is the era of the ICT, the era of the electronic or the modern media, is a historic period of the 21st century in which the production of the industrial revolution of the world shifts from traditional industry to economical information systems. This change is very fast and surprising and is based on electrical inventions. Akram et al. (2021c) said that information and communication technology has progressed at a rapid pace and has become a partial integrator of computers, internet, communication planets, fiber cables and other electrical appliances economics. Ainleyet al. (2000) concluded that ICTs includes all the devices nowadays used for information and communication. However, the most commonly used devices include computers, laptops, multimedia, hard disk, internet, central and secondary memory, keyboards, mouse, printers, communication media such as cable and wireless media and network devices.

Tahir (2005) studied the use of computers for mathematical and computer learning, He concluded the effect was equal or more effective than traditional teaching. Few teachers considered the computers as necessary for encouraging indulgent in professional learning. Tahir hypothesized that the more will be the usage of technology, the better will be the mathematical skill among students. Akram et al. (2021b) admitted that the use of information technology has become compulsory for students learning. We must adopt modern education and use computers, projectors, and tabs. Students have to provide guidance in daily affairs through the internet and cell phones. Anderson (2005) reported that communications technology will change the learning habit of students in the institution and the potential for communication technology is to change students and help then effectively. So, it is essential to introduce communication

technology tools that are effective in promoting secondary education. Bossaert et *al.* (2011) stated that student's achievement shows that a student's doing well academically, obtaining life skills and giving back to their community.

Yusuf (2004) stated that each classroom of the college should have an E-Classroom, which facilitates the use of projectors for teachers. Pittard et *al.* (2003) concluded that Teachers need to use instructional tools such as blackboards, tea cups, books, maps, photographs, and other models throughout the course to make their lessons interesting and informative. And he is not aware of many things in the world. Use of these teaching resources is essential. In addition, nowadays some madrassa is equipped with modern technology at the primary level. And by teaching each classroom a projector, laptops and educational CDs are teaching their lessons better. This type of class is being called smart class.

Shaikh (2009) found that Students was improved in results by using computer technology in mathematics at the secondary level. Providing technology in distance learning processes has better educational results. It can be concluded from his study that new technology improves learning and teaching techniques among teachers. Emeka*et al.* (2011) admitted that the use of ICT enhances the academic performance of high school students. Administrators of private schools and government schools must provide ICT services in secondary schools to improve student grades. ICTs are powerful educational media for improving student learning skills. His study found that there is a correlation between the use of ICT and the academic achievement of high school students and shows a significant positive relationship between various variables. A positive relationship indicates that with the increased use of ICT, grades of students will also increase Studies suggest that teachers should continue to use ICT teaching materials during teaching to increase efficiency and attract students' attention. Using ICT helps to make learning more interesting and leads to better learning outcomes.

Younis (2013) stated that students in private school with good writing skills will help promote student independence and self-discovery skills, such as searching for online learning materials. Most respondents from private schools received better grades / grades for oral expression tests, while the number of respondents from public schools received fewer marks / scores compared to the private sector. These statistics indicate that while private schools use new teaching methods to improve communication skills as well as to improve student knowledge, they have true speaking skills and can confidently interact with others. With students of public schools, the conclusion shows that most respondents in private schools have better listening skills and provide more accurate answers in discussions than respondents in public schools.

Akram et al. (2021a) found that teachers' use of ICTs in teaching is seen as an important predictor of student performance and there is an important relationship between the use of ICT in the classroom and student academic performance. The grades of computer science students are from 88.18% to 87.80% and most of them receive very satisfactory results. Ali *et al.* (2013) stated that teachers have a strong desire to include ICTs into teaching methods

of education. The use of ICTs has changed all sectors. The innovations introduced by ICTs in learning methods, rapid access to media, online registration has reduced the burden. In the education sector, the above-mentioned elements have improved the effectiveness of the ICTs in teaching. Information communication technology is becoming a motivating force for educational improvements.

Saleem and Zahra (2017) concluded that access to ICTs resources, sufficient ICTs assets, and user's ability play a key role in student learning. Study found strong relationships between safer learning and students learning to obtain access to ICTs resources in schools.

Student academic performance means the engagement of a student which he spent during the time and effort that student invest in mutual activities, it is often linked with the achievement of positive student learning outcomes, such as individual student development and critical thinking.

METHODOLOGY

In this research study quantitative method was used for collect the information from the respondents. From the 200 respondents data were collected by using the sample size formula by (Gay, 2005).The Non-probability purposive sampling was used to select the respondent. In this study it was ensured that all the categories of schools in the area of study were represented in the sample.

Research tools were constructed on the basis of objectives of the study. Questionnaire is considered to the most appropriate tool for the data collection from the highly educated respondents. Important information about the population is commonly collected by use of questionnaires where each question or item is used to address a specific objective and research question of the study. The data were collected through the questionnaire from the respondents at public secondary schools of district Rawalpindi. One questionnaire is drafted on the basis of review of literature, and one data sheet drafted of 9^{th} class result for data collection. To find the reliability of items and questionnaire, Cronbach Alpha coefficient was calculated using SPSS software Version 23. The obtained Cronbach Alpha value for IT teacher's tool was 0.90.To take more accuracy in data, the data were collect by hand personal visits in near secondary schools. Also the questionnaires were sent through E-mail, WhatsApp and by Pakistan postal service in remaining sample schools and collected back from IT teachers and Head teachers of secondary school included in the sample.

RESULTS AND DISCUSSION

SPSS version 23 was used for the analysis of data related to the relationship between utilization of ICTs and academic achievement of students at secondary level in public school of Rawalpindi District. From the data, percentage and meanscore were calculated. Calculate correlation value "r" for find the relationship between variables, like utilization of ICTs and academic achievement of students.

This section deals with the analysis regarding availability of ICTs resources in district Rawalpindi, like availability of computer labs, internet services, type of

internet, smart board, multimedia projector, tablet and available memory devices.

Table-1: Available ICT Resources

Name of ICT Resources	**Yes**	**No**
Computer Labs	100.%	0.0%
Internet Services	91.0%	9.0%
Multimedia Projector	54.0%	46.0%
Smart Board	60.5%	39.5%
Tablets	100.0%	0.0%
Memory Devices	79.5%	20.5%
Other ICT Devices	52.5%	47.5%

Table-2: Correlation between use of computers and academic performance

Correlations			
Statement		Computer is enhance the academic performance	Computer is used by me for teaching and learning process
Computer is enhance the academic performance	Pearson Correlation	1	.694**
	Sig. (2-tailed)		.000
	N	200	200
Computer is used by me for teaching and learning process	Pearson Correlation	.694**	1
	Sig. (2-tailed)	.000	
	N	200	200
**. Correlation is significant at the 0.01 level (2-tailed).			

The above table indicates that availability of computer labs and tablets in public secondary schools is 100.0%, availability of internet services in public secondary schools is 91.0%, availability of multimedia projector is in public secondary schools is 54.0%, availability of smart boards in public secondary schools is 60.5%, availability of memory devices in public secondary schools is 79.5% and availability of others ICT devices in public secondary schools is 52.5%.

A high majority i.e. 100% respondents always used tablet for School Information System (SIS) application, 90.5% respondents used computer for record keeping of students, 95.5% respondents used computer for preparing results of students and 94.5% respondents used computer for preparing question papers for students, 97.0% respondents are used computer, for performing practical work, 96.5% used for teaching and learning process and 97.5% used

for online education for students, 98.0% respondents used computer for preparing presentation, 94.0% respondents used computer for presentation of learning material, 94.0% respondents used computer to develop the interest of students in education, 95.0% used computer for watching educational videos, 98.0% respondents used internet to download educational videos, 95.5% used internet to download videos animations, 89.0% respondents used internet for online education and 88.0%, internet for improvement of knowledge of students, 93.5% respondents to communicate with students and 96.0% respondents used tablet for record keeping of student's attendance assessment.

A bare majority i.e. 55.0%) respondents used internet for E-Mail to communicate with parents of students, 54.0% respondents used projector for presentation of lesson, 52.0% respondents used projector for videos animations, 51.0% for showing of slides, 50.0% used projector for performing practical work in computer lab and 53.0% respondents used projector for videos animations and lectures for students in others subjects.60.0% respondents for presentation of lesson,58.5% used smart board like as video player,59.0% respondents used smart board for playing video animation/slides, 58.0% used smart board for watching online video uploaded by PITB,57.5% respondents used smart board for presenting information in an interesting way to students,58.5%respondents used smart board for transferring the content to the students,59.0% respondents used smart board to increase effectiveness of students learning,60.0% used smart board to develop learning skills of students, 55.0% respondents used smart board for variety of teaching methods, 77.0% respondents for data storage of students, 69.5% used for displaying audio video material during class and 79.5% respondents used memory devices for data transfer.

The value of r in table-2 is 0.694 which indicates that a positive moderate strong relationship between utilization of ICTs and academic performance of students in subject of computer science at secondary level in Rawalpindi district.

CONCLUSION AND RECOMMENDATIONS

Conclusions were drawn on the basis of findings. It was concluding that all the secondary schools have computer laboratories and tablets, and majority of schools have other ICTs resources like multimedia projectors, smart board and memory devices. IT teachers usually used ICTs tools in teaching learning process. And majority of the IT teachers believe that ICTs tools help to improve their efficiency and enhance their teaching skills. There is positive and moderate relationship between utilization of ICTs and academic achievement of students in subject of computer science. Refresher courses may be conducted for IT teachers to develop motivation for use of ICT. Use of ICTs tools in others subjects for improvement of student's abilities may be arranged. This research study has opened new opportunities for others researchers to conduct research on the relationship between utilization of ICTs and academic achievements of students on division, province or national level.

REFERENCES

Ainley, M., Bourke, V., Chatfield, R., Hillman, K. and Watkins, I. (2000). Laptops, computers and tools. Melbourne: ACER Press

Akram, H., Yingxiu, Y., Al-Adwan, A. S., &Alkhalifah, A. (2021a). Technology Integration in Higher Education During COVID-19: An Assessment of Online Teaching Competencies Through Technological Pedagogical Content Knowledge Model. *Frontiers in psychology*, *12*, 736522.

Akram, H., Yingxiu, Y., Aslam, S., & Umar, M. (2021b, June). Analysis of Synchronous and Asynchronous Approaches in Students' Online Learning Satisfaction During Covid-19 Pandemic. In *2021 IEEE International Conference on Educational Technology (ICET)* (pp. 203-207). IEEE.

Akram, H., Aslam, S., Saleem, A., & Parveen, K. (2021c). The Challenges of Online Teaching in COVID-19 Pandemic: A Case Study of Public Universities in Karachi, Pakistan. *Journal of Information Technology Education: Research*, *20*, 263-282.

Ali, G., Haolader, F. A. and Muhammad, K. (2013). The role of ICT to make teaching-learning effective in higher institutions of learning in Uganda. International Journal of Innovative Research in Science, Engineering and Technology; 2(8): 4061-4073

Anderson, J. (2005). IT, e-learning and teacher development. International Education Journal; 5(5): 1-14

Bosamia, M. (2013) Positive and negative impacts of information and communication technology in our everyday life. Accessed from: https://www.researchgate.net

Bossaert. G., S. Doumen, E. Buyse and K. Verschueren (2011).”Predicting Students Academic Achievement After to transition to first grade. A two years longitudinal study, Journal of Applied Development Psychology. 32(2): 47-52

Emeka, O. E., Ushie, N. G. and M. F. Micheal (2011). ICT Utilization and Student’s Academic Performance in Christian. Religious Studies in Calabar Municipality, Nigeria. The International Journal of Social Sciences and Humanities Invention; 3(11): 2925-2932

Gay, L. (2005). Educational Research 5th Edition Page No 125. England.

Khalid, M. (1998). An Intoduction to Eduction Philosophy and History. National Book Foundation, Islambad.

Pittard V., B. Phil and D. Jessica. 2003. The big picture: ICT and attainment, motivation and learning. Department for Education and Skills.https://www.education.gov.uk

Saleem, M. and Zahra, M. (2017). An effect of ICT on student’s learning at secondary level in private schools of the Punjab. International Journal of Distance Education and E- Learning (IJDEEL); 2(1):69-89

Singh, K. (2005). Teaching of computer science with the use of ICT. APH Publishing Corporation, New Delhi.

Shaikh, Z. A. (2009). Usage, acceptance, adoption and diffusion of information and communication technologies in higher education: A measurement of critical factors. Journal of Information Technology Impact (JITI); 9(2): 63-80

Tahir A.Q. (2005). A comparative study of the effect of use of information and communication technology in varied teaching approaches on achievement and retention of students of mathematics. Unpublished Thesis for Ph.D. Gomal University, Pakistan

Tariq, M. (2016). Ph.D Thesis Hamdard University Karachi. Availibilty and use of ICT by university reseach students.

Tukkahraman, P. D. (2012). The role of Education in the societical Development. Journal of Educational and Instrutional Studies In The World.

Yusuf, M. O. and Onasanya, S. A. (2004). Information and communication technology (ICT) and teaching in tertiary institutions (pp. 67-76). Retrieved from: http://unilorin.edu.ng