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RESEARCH PAPER

# Use of Computers and its Influence on Students Learning at University Level

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**ABSTRACT**

The study aims to explore the use of computers and its influence on students' learning in education at the university level. The use of computers improves curriculum delivery, student engagement, instructional strategies, and learning outcomes across a range of subject areas and grade levels. Student learning" describes how people acquire, assimilate, and apply their information, skills, attitudes, and competencies in educational environments. Research was quantitative in nature. The 350 students of Lahore Leads University selected by using a stratified Proportional random sampling technique. Data were gathered by using a self-developed instrument. There was a significant difference regarding the influence of the use of Computers on Students Learning at the university level among male and female university. Regarding the findings of the study Ministry of Education should provide digital infrastructure, such as computers, laptops, internet, smart boards, and TVs, to all basic schools, colleges, and universities.

**Keywords:** Students Learning, University Level, Use of Computer

## Introduction

The use of computers in the classroom has become a crucial element in determining how well children learn in today's environment. Computers are already common place in classrooms due to the quick development of technology, and they provide a wide range of options for improving the processes of teaching and learning. This study examines the complex influence of computer integration on students' learning outcomes, including their academic performance, cognitive growth, acquisition of new skills, and overall educational experiences (Tezci, 2020).

The term "computer integration" in education describes the process of integrating digital resources, software, and technology into teaching methods in order to promote learning. Interactive multimedia presentations, online learning environments, instructional software, and virtual simulations are just a few examples of how integration may be implemented. Students are exposed to immersive learning experiences that go beyond the confines of the traditional classroom as they interact with these digital tools (Clark & Mayer, 2016).

## Literature Review

The effects of computer integration on students' academic achievement have been the subject of several research, and the results have always shown favorable connections. Wang, Hsu, Wang, and Wang (2019), for example, synthesized data from 79 research in their meta-analysis and found that computer-assisted education significantly enhanced students' learning results in a variety of disciplines and grade levels. A similar, longitudinal research conducted by Becker (2020) found that pupils who regularly used school computers scored higher on standardized tests than their peers who did not. Additionally, computer integration helps students build their critical thinking, problem-solving, and

digital literacy abilities. Students are encouraged to autonomously investigate, analyze, and synthesize material through interactive exercises and instructional games, which improves their cognitive capacities (Clark & Mayer, 2016). Furthermore, students may visualize difficult topics through the use of multimedia components like animations, simulations, and movies, which promotes greater learning and retention (Mayer, 2019).

Additionally, computer integration makes it easier to learn critical 21st-century abilities like information literacy, creativity, teamwork, and communication. Students acquire the communication and cooperation skills necessary for success in the digital age through participation in online forums, group projects, and digital presentations (Warschauer, 2022). Furthermore, students can develop into self-directed learners who are competent at accessing and assessing digital content thanks to the wealth of online resources and information (Hargittai & Hsieh, 2019).

Computer integration improves students' whole educational experiences by encouraging engagement, motivation, and personalized learning in addition to its academic and cognitive benefits. Higher levels of engagement are attained by capturing and holding students' attention using interactive multimedia material and gamified learning platforms (Gee, 2023). Moreover, computer-based learning's adaptable features allow teachers to customize lessons to each student's unique learning preferences, styles, and rates, resulting in individualized learning experiences (Pane et al., 2014).

In summary, the incorporation of computers into the classroom has a significant impact on the learning outcomes of students, including their academic performance, cognitive growth, acquisition of new skills, and overall educational experiences. In order to prepare students for success in the digital age, educators must fully use the potential of computer integration to create dynamic and engaging learning environments. This will happen as technology continues to advance (Gee, 2023).

When it comes to carrying out the teaching and learning processes, computers are a huge help. It enhances the learning process. Additionally, it facilitates the seamless running of all university-level learning operations. Even the most difficult activities are made easier for users by technology. All things considered, a computer greatly enhances the general operations of the school. Computers enable us to learn a vast amount of information in this era of expanding knowledge. We have access to the highest caliber materials online. The nice aspect is that we can easily access all of this information (Hargittai, & Hsieh, 2020).

One benefit of technology in education is that it has reduced costs. There are several materials available to stakeholders and students. And that too for less money than the standard hard copy content. With 100% online education, internet technology has further revolutionized the world. Our students' lives now have more freedom thanks to this new paradigm. We furthermore, increased the effectiveness of the overall educational system. In addition to these benefits, detach has aided in safely integrating our students with disabilities into the general education system (Honan, 2008).

## Material and Methods

In this study quantitative research was conducted. Sampling, instruments and data collection and analysis presented as follow:

### Nature

The study was quantitative in nature and a survey method was used to collect the data. The exploratory method was used by the researcher taking quantitative information and refining the quantitative findings. The survey method assists in obtaining the opinions

of the respondents. By purpose, the study was of the descriptive type that according to Abuhamda and Basharat (2021), described the targeted phenomenon and characteristics of the population of the research study and mainly eyes on the 'what' aspect of the research subject.

**Population**

A particular group of specific interest is called the population of the study. The population for this study consisted of all graduate and undergraduate students (1750) of Lahore Leads University.

**Sampling**

Since it is sometimes impossible to investigate the complete population, sampling entails choosing a sample for data gathering. A stratified Proportional random sampling technique was used to select 350 undergraduate and graduate Male and female students of Lahore Leads University to know the perceptions of the students.

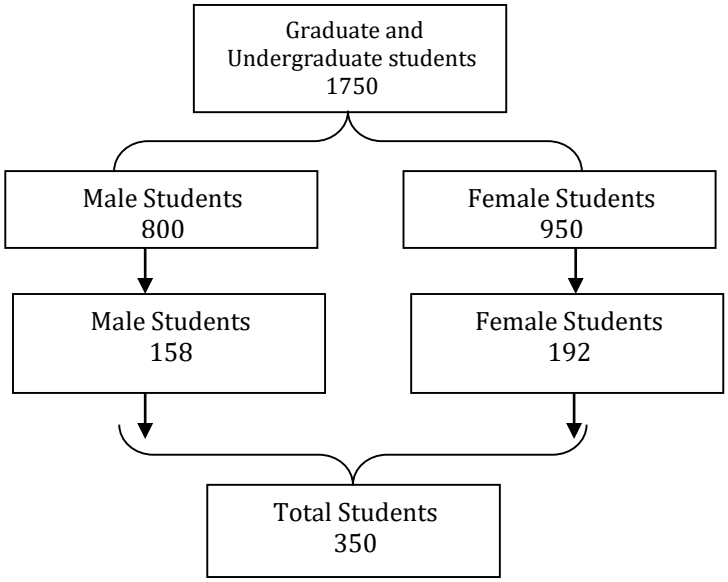


Figure 1 Framework of research methodology

**Research Instrument**

Data was gathered by using a self-developed instrument based on literature reviews. The researcher constructed an online Google form for the collection of data. The researcher developed instruments(Questionnaires) after study the difference book and article to computer integration and its influence on students learning outcome. Every responder was made fully aware that the objective of the data-gathering activity was only for research.

**Reliability and Validity of the Instruments**

A pilot study was conducted to measure the validity and reliability of the instrument. The opinions of five experts validated the instrument. The validity of the instruments (Questionnaire) was ensured by the computer-related expert and those who taught the students computer integration. 40 items were developed by the researcher regarding the two factors of computer integration and its influence it on students' learning outcomes. Expert study the questionnaires carefully and then excluded and included some items, so 30 items were finalized for the collection of the data from the participants. The

reliability of the instruments was calculated by Cronbach Alpha (Yilmaz, 2018). However, 50 students of from Lahore Leads University were taken for a pilot study. the reliability of university students' questionnaires was 0.882.

**Table 1**
**Reliability of the Influence of the Use of Computers on Students Learning at the University Level**

| Cronbach's Alpha | No. of Items |
|---|---|
| .882 | 30 |

Table 1 shows the reliability of the Influence of the Use of Computers on Students Learning at the University Level questionnaire. The number of items in the Students Learning at the University Level questionnaire was 30 and Cronbach's Alpha value of Students Learning instrument was 0.882.

**Data Analysis Techniques**

The data were analyzed through SPSS (Statistical Packages for Social Sciences). Descriptive and inferential statistics were used to calculate the data. T-test was used in inferential statistics to determine whether there was a significant difference between the demographic variables.

**Table 2**
**Mean and standard deviation of Computer Integration on Students learning outcome at university level**

| Sr.no | Statements | SDA | DA | UN | A | SA | M | SD |
|---|---|---|---|---|---|---|---|---|
| 1 | University administration establish a computer lab for students | 30 | 14 | 22 | 244 | 40 | 3.71 | 1.015 |
| 2 | Student are allowed to use computer labs | 11 | 27 | 24 | 246 | 41 | 3.80 | .861 |
| 3 | University empower teachers in teaching strategies | 13 | 37 | 20 | 242 | 37 | 3.72 | .922 |
| 4 | University build a culture of use technology | 12 | 27 | 32 | 243 | 36 | 3.75 | .867 |
| 5 | University focus on use computer in education process | 6 | 22 | 42 | 229 | 51 | 3.85 | .806 |
| 6 | University invite parent involvement to facilitate the students with computer technology | 9 | 34 | 40 | 222 | 44 | 3.85 | 2.280 |
| 7 | Computer integration has improved your learning experience | 4 | 17 | 40 | 219 | 70 | 3.95 | .782 |

The table showed the mean and standard deviation of the influence of the Use of computers on Students' Learning at the university level. Statements show the mean score of 'University administration establish a computer lab for students' (*M*=3.71, *SD*=1.015), Student were allowed to use computer labs (*M*=3.80, *SD*=.861), University empowered teachers in teaching strategies (*M*=3.72, *SD*=.922), University built a culture of use technology (*M*=3.75, *SD*=.867), University focused on used computer in the education process (*M*=3.85, *SD*=.806), University invited parent involvement to facilitate the students with computer technology (*M*=3.85, *SD*=.2.280) and Computer integration had improved your learning experience (*M*=3.95, *SD*=.782). It was concluded that the majority of the respondents agreed regarding the influence of the Use of computers on Students Learning at the university level. influence

**Table 3**
**Mean and standard deviation of Computer Integration on students Learning outcome at university level**

| Sr.no | Statements | SDA | DA | UN | A | SA | M | SD |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8 | Use of computer build your confidence | 14 | 26 | 194 | 80 | 36 | 3.28 | .893 |
| 9 | Course with computer integration has better prepared you for future job | 8 | 29 | 46 | 175 | 92 | 3.90 | .961 |
| 10 | University faculty support your in computer integration during course | 6 | 55 | 67 | 149 | 72 | 3.76 | 2.344 |
| 11 | Compare with non-technology courses, would you like computer integration course | 14 | 60 | 63 | 139 | 74 | 3.57 | 1.120 |
| 12 | Computer integration in course developed your interest | 13 | 36 | 58 | 142 | 101 | 3.81 | 1.080 |

The table shows the mean and standard deviation of the influence of the Use of Computer on Students Learning at university level. Statements show the mean score of 'Use of computer build your confidence' (*M*=3.28, *SD*=.893), Course with computer integration has better prepared you for future job (*M*=3.90, *SD*=.961), University faculty support you're in computer integration during course (*M*=3.76, *SD*=2.344), Compare with non-technology courses, would you like computer integration course (*M*=3.57, *SD*=1.120), Computer integration in course developed your interest (*M*=3.81, *SD*=1.080). It is concluded that the majority of the respondents were agreed regarding for the influence of the Use of Computers on Students' Learning at the university level.

**Table 4**
**Mean and standard deviation of Computer Integration on Students' learning outcomes at university level**

| Sr.no | Statements | SDA | DA | UN | A | SA | M | SD |
|---|---|---|---|---|---|---|---|---|
| 13 | University administration is focused on problem that students face during computer integration | 17 | 28 | 77 | 153 | 75 | 3.69 | 1.048 |
| 14 | University administration insists that curriculum content is oriented towards computer integration | 8 | 61 | 68 | 125 | 88 | 3.64 | 1.106 |
| 15 | Computer integration in the course more engage as compared non technology courses | 12 | 51 | 53 | 162 | 72 | 3.66 | 1.066 |
| 16 | Computer integration easy access in learning material | 29 | 36 | 53 | 158 | 74 | 3.61 | 1.170 |
| 17 | Computer based activities motivated me to learn more independently in this course | 7 | 42 | 61 | 151 | 89 | 3.78 | 1.021 |

Table showed the mean and standard deviation of the influence of the Use of computers on Students' Learning at the university level. Statements showed the mean score of 'University administration is focused on the problem that students face during computer integration' (*M*=3.69, *SD*=1.048), University administration insisted that curriculum content was oriented towards computer integration (*M*=3.64, *SD*=1.106), Computer integration in the course more engage as compared non-technology courses (*M*=3.66, *SD*=1.066), Computer integration easy access in learning material (*M*=3.61, *SD*=1.170), Computer-based activities motivated me to learn more independently in this course (*M*=3.78, *SD*=1.021). It was concluded that majority of the respondents agreed regarding the influence of the Use of computers on Students' Learning at the university level.

**Table 5**
**Mean and standard deviation of influence of Use of Computer on Students Learning at university level**

| Sr.no | Statements | SDA | DA | UN | A | SA | M | SD |
|---|---|---|---|---|---|---|---|---|
| 18 | Computer integration enable me | 14 | 13 | 63 | 182 | 73 | 3.85 | .944 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | to learn at online plate form. | | | | | | | |
| 19 | University give online access to everyone of course activities. | 5 | 25 | 71 | 161 | 88 | 3.86 | .923 |
| 20 | I believe use of computer technology is helped me understand the complex concept effectively. | 6 | 20 | 67 | 162 | 95 | 3.91 | .917 |
| 21 | My critical thinking is improved by using computer technology | 11 | 49 | 45 | 156 | 89 | 3.75 | 1.080 |
| 22 | Integration of computer improved my problem solving skills | 10 | 39 | 69 | 162 | 70 | 3.69 | 1.005 |
| 23 | I feel more confident in my ability to collebrate and communication effectively by using computer technology in course | 12 | 19 | 54 | 168 | 96 | 3.97 | 1.450 |
| 24 | Integration of computer help me to retain information effectively | 15 | 47 | 61 | 142 | 85 | 3.67 | 1.112 |

Table showed that the mean and standard deviation of the influence of the Use of Computer on Students Learning at university level. Statements show the mean score of 'Computer integration enables me to learn at online plate form' (*M*=3.85, *SD*=.944), University provided online access to everyone of course activities (*M*=3.86, *SD*=.923), I believe the use of computer technology is helped me understand the complex concept effectively (*M*=3.91, *SD*=.917), My critical thinking was improved by using computer technology (*M*=3.75, *SD*=1.080), Integration of computer improved my problem-solving skills (*M*=3.69, *SD*=1.005). It was concluded that the majority of the respondents agreed regarding the influence of the Use of Computer On students' Learning

**Table 6**
**Mean and standard deviation of Impact Of Use Of Computer On Students Learning at university level**

| Sr.no | Statements | SDA | DA | UN | A | SA | M | SD |
|---|---|---|---|---|---|---|---|---|
| 25 | Study with integration of computer is better than the traditional study | 14 | 23 | 63 | 182 | 68 | 3.76 | .971 |
| 26 | carefully monitor/evaluate the use of technology has positive impact on students learning | 13 | 23 | 64 | 162 | 88 | 3.83 | 1.002 |
| 27 | encourage teacher and pupil progress to use computer during demonstrate | 15 | 19 | 59 | 162 | 95 | 3.87 | 1.014 |
| 28 | Integration of computer in course save the time as compared to manual work | 9 | 41 | 53 | 158 | 89 | 3.79 | 1.032 |
| 29 | I feel comfortable to seeking help from instructor and peer when facing technology difficulty | 8 | 36 | 59 | 161 | 86 | 3.80 | .998 |
| 30 | I would like to see more courses at university level of integration of computer technology | 13 | 12 | 58 | 154 | 112 | 3.97 | .981 |

Table showed that the mean and standard deviation of the influence of Use of Computer on Students Learning at the university level. Statements showed the mean score of 'Study with integration of computer is better than the traditional study' (*M*=3.76, *SD*=.971), carefully monitor/evaluating the use of technology has a positive influence on students' learning (*M*=3.83, *SD*=1.002), encourage teacher and pupil progress to use computer during demonstrate (*M*=3.87, *SD*=1.014), Integration of computer in course save the time as compared to manual work (*M*=3.79, *SD*=1.032), I feel comfortable to seeking help from instructor and peer when facing technology difficulty (*M*=3.80, *SD*=.998). It was concluded that the majority of the respondent agreed regarding for the Impact of the Use of computers on Students' Learning at the university level.

**Table 6**
**Independent sample T-test identifies the difference between male and female university students regarding the influence of the use of computers on Students' Learning**

| Gender | N | Mean | Std. Deviation | df | t-value | Sign. |
|---|---|---|---|---|---|---|
| Male | 158 | 117.6456 | 13.77900 | 348 | 4.979 | .000 |
| Female | 192 | 109.1875 | 18.29961 | | | |

Table showed that the *T-test* identified the difference between male and female university students regarding the influence of Use of Computer on Students Learning. There was a significant difference between males (*M*=117.6456, *SD*=13.77900) and females (*M*=109.1875, *SD*=18.29961), *t*=4.979*, p*=.000. It shows that there was a significant difference among male and female university students regarding the influence of Use of Computer on Students Learning at the university level.

## Discussion

The findings of the study explored the influence of the Use of computers on Students' Learning at the university level. The Majority of the respondents agreed that the Impact of computers on student learning positively affected student learning outcomes at the university level. So that there were many types of research had different results regarding the influence of computer integration on student learning outcomes. Due to its potential to enhance learning in general, augmented reality has become more and more common in educational contexts (Lin, Wang, P& Lin, 2012). According to McMahon (2009), augmented reality facilitates high-quality, interactive learning anywhere and provides environments that encourage inclusive education. Many research has emphasized the educational advantages of implementing and utilizing augmented reality in teaching and learning activities (Lu., Hou, & Huang, 2010). Combining gamification, serious games, and augmented reality can enhance these beneficial learning outcomes and educational advantages (Lou, Abrami, & Apollonia, 2001). These results are consistent with the study's conclusions. Several beneficial learning outcomes in education, particularly in computer science education, can result from the integration of gamification, serious games, and augmented reality. Prior research has shown that effective instructional technologies may be used to generate more engaging and joyful learning experiences (Hutchison & Reinking, 2011).

Students have a favorable opinion of these programs and resources, which enhance and enrich the learning experience (Tezci, 2011). Students' motivation and aid in their understanding of the material being taught (Sanchez, & Alemán, 2011). The findings of earlier research are further supported by this study, which also goes into further detail across a variety of variables. 117 postsecondary students from a five-year information and electronic engineering degree programme participated in the study. The 49 items in the paper-based questionnaire generally employed Likert scales with a range of 1 to 5.

## Conclusion

Most students utilized their desktop or mobile devices to play games and either spend at least 2 h gaming or less than 30 min. These results are undoubtedly influenced by each person's everyday activities, games they play, and gadgets they utilise. Nonetheless, it can be argued that the players were all experienced with playing digital games. Most students said using and learning the program was simple. Therefore, it follows that effective educational applications that are simple to use and learn can be made, even with the use of multiple technologies, functions, and modules, as long as a student-centered approach is taken and students' feedback is taken into account throughout the design and development process. These findings are consistent with previous recent research that has shown the benefits that co-creating and co-designing educational apps and successful learning experiences with students may have in higher education.

Additionally, the GEQ questionnaire's results were favorable. Students had a high degree of creative and sensory immersion (Ward & Parr 2010), which suggests that they were actively participating in the application's learning activities. The low level of student stress (1.62) indicates that the students felt at ease using the program and completing the assigned tasks. The questions and exercises were sufficiently complicated and tough, as evidenced by the students' near-neutral levels of challenge (2.81) and competence (3.69).

Additionally, the flow component's value (2.83) was almost medium. Students were actively involved in the program's learning activities while also interacting and communicating with their friends and the surrounding environment because the application was centered on augmented reality experiences. These findings demonstrate how augmented reality may be used to establish cooperative learning settings that enhance academic achievement, learning outcomes, socioemotional growth, and social skills. Additionally, several studies have demonstrated the benefits of collaborative learning for academic pursuits (Wang et al, 2019).

In comparison to their negative affect (1.85), students' positive affect (4.01) was substantially higher. Therefore, it can be concluded that the application had a largely good socio-emotional impact on the kids. Furthermore, the overall evaluation of the gaming experience was favorable (3.55) with the negative features kept to a minimal (1.62). The results showed that serious games may be a source of fun and amusement in addition to producing great learning outcomes because the application was primarily focused on educational activities and elements rather than entertainment (Sang et al, 2010).

Because of this, their familiarity may have shaped their perceptions of the application's usability and learnability. Furthermore, the experiment was conducted using mobile and tablet devices, and other technological constraints might be attributed to the concentration on the Android and iOS operating systems. There are undoubtedly some technical issues that need to be fixed going forward, even though they haven't affected the study's outcomes.

**Recommendations**

The recommendations of the study were the following:

Regarding the findings of the study Ministry of Education should provide digital infrastructure, such as computers, laptops, internet, smart boards, and TVs, to all basic schools, colleges and universities.

According to findings of this study for increasing teachers' capability, education service might be to plan frequent in-service training sessions for school, college, and university instructors.

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