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RESEARCH PAPER

Effect of Digital Literacy on Academic Performance of the University Students at Narowal

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ABSTRACT

The goal of this study is to explore the effect of digital literacy on academic performance and to discover the superficial level of digital literacy and the correlation among digital literacy and academic performance among university students at Narowal. The study was quantitative in nature and a descriptive survey design was used to conduct this study. The population was consisting of the undergraduate students studying at the University of Narowal. 350 participants were selected from the population by using stratified random sampling technique. Digital literacy questionnaire was used to collect the data for research study. Descriptive and inferential statistics was used to analyze the data of this study. The results of the study indicate that digital literacy skills significantly contribute in advancing students' academic performance. Digital literacy skills also enhane students ability to do their academic work in timely manner and also enhance students response to certain academic tasks. The results of the study also indicate that students are in favour of more digital type of learning as compare to traditional classrooms. Furthermore, the research study recommends that the universities may arrange a variety of exercise, works, and sessions to increase students' concentration in studying and applying digital skills.

KEYWORDS Digital Literacy, Academic Performance

Introduction

Nowadays we live in a rapidly transforming and rapidly evolving world, with new technology emerging on a regular basis, complicating our lives. The world is fast transitioning into a digital environment. Most popular cultures have integrated digital technologies. Smartphones are widely used by both youths and adults. Many people use various websites to get information about their chosen subject of interest. Most TV shows, movies, and music are kept on several websites and are easily available on PCs, MP3 players, and internet. E-mail allows people all over the world to communicate quickly. Accessible finance and shopping have grown increasingly widespread. Governments, too, are gradually moving their services online or web-based. Several social networking platforms, that use Web 2.0 platforms, encourage users to collaborate by sharing and revising online material (Oblinger et al., 2005).

Since the terms "digital" and "literacy" are combined, the term "digital literacy" covers a wide range of information. Literacy is a capacity for obtaining information, and the term "digital" refers to the symbolic representation of data pertaining to e-media (Abbas et al., 2019).

Digital literacy encompasses the skills required to effectively search, evaluate, use, create, and share information utilizing digital technology and the power of the internet. In other words, it entails developing the necessary skills and abilities for navigating the online environment (Naz et al., 2022).It involves being capable to utilize technological devices, assess information analytically in online communities, safeguard sensitive data, express oneself using a range of digital tools, and take part in cooperative work settings (Abbas et al., 2019).

The measure of achievement or fulfillment that students attain in their educational endeavors is known as their academic performance, and it can be expressed through variables or signs like grades, examination results, engagement with class, and general results from education (Holm, 2024).

Education encompasses a wide range of elements, including the atmosphere for learning, routines for studying, motivation, relationships with others, and students' knowledge and abilities. Students' knowledge, abilities, motivations, and study habits are all indirectly or directly tied to a number of factors that determine academic achievement. Additionally important are the support network and the learning environment (Naz et al., 2022). The use of technology and autonomous education have numerous connections and have a significant influence on the learner. The capacity of the student to recognize the demands of his teaching process and take charge of the entire process from creating study plans and seeking out pertinent resources to seeking assistance is known as self-directed learning (Kara, 2022). Conversely, digital literacy refers to the skills and information required to efficiently explore and use digital technology.

Digital literacy and independent education are two ideas that are equally helpful in motivating students to accomplish higher academic goals. In this regard, studies have shown that higher levels of digital literacy and self-directed learning lead to a greater state of participation, which raises academic performance even (Hwang & Oh, 2021; Kara, 2022).Students was better informed about taking part in the learning process if they are able to plan their own education and possess the necessary degree of proficiency with digital technologies.

Autonomous education and digital literacy have a strong connection to self-confidence. Self-confidence relates to how firmly one trusts in their capacity to overcome challenges and successfully manage similar situations if they arise again in the future. Self-confidence is associated to a person's ability to proceed through new and unpredictable conditions(Hamann et al., 2021).Persistence and tenacity may better define efforts to solve problems when self-efficacy is high. In summary, when self-directed learning and digital literacy are combined with high self-confidence, the outcome is a powerful combination that defines the capacity of students to overcome new difficulties and achieve success.

Particularly, self-confidence varies among individuals and is influenced by a variety of factors, including upbringing and gender (Aslan, 2021).

During the modern technological age, everyday life becomes more complicated as technological advances develop (Abbas et al., 2019).The entire globe is rapidly moving to the digital sphere, as digital innovations are now deeply embedded in everyday life. Almost every firm is working to build a strong internet presence. Many people use numerous websites to discover and exchange information in their areas of interest. These tools assist people to flourish in their chosen sectors, notably education. In Pakistan, digital technologies are still being completely incorporated into the majority of educational institutions. As a result, learners in the present day must use an abundance more technological resources and instruments throughout their undergraduate or graduate studies. Within this environment, digital competence is an essential component for students to achieve their academic targets in today's society.

There is an important gap in digital literacy throughout the world, and Pakistan is significantly behind. Digital literacy has emerged as an essential part of education in today's environment of innovation and technology. As a result, both educators and students must achieve a certain degree of digital literacy in order to remain current within the constantly shifting online landscape. As a result, higher education institutions are developing platforms for online education to improve digital literacy at the university level. In today's digital age, digital literacy must be regarded in a more holistic educational approach, and students'

achievements at the higher education level are determined by their interactions inside the digital platform. As a result of the growing use of e-learning platforms, online materials, and technologically driven project distribution procedures, digital literacy has become increasingly important.

There is a clear lack of empirical research that specifically examines the contribution of digital literacy on the undergraduate learning outcomes, especially in diverse educational settings where there are undeniable disparities in access to technology and the caliber of digital instruction. Addressing this disparity and investigating the connection between digital literacy and student achievements are crucial if higher education is to maximize these advantages.

Operational Definitions

Digital Literacy

The ability to use technological devices to find, assess, produce, and share information utilizing both technological and conceptual abilities is known as digital literacy(McShane, 2011).

Academic Performance

Academic performance has been defined as the effects of education and the way in which a student has attained his or her educational goals(Ward et al., 1996).

Literature Review

The present literature overall the knowledge of digital literacy, its history, and its impact on students' academic performance is critically reviewed in the current section. A well-conducted analysis of the literature can assist in a thorough and accurate comprehension of the issue being studied, which was enable those conducting the study to construct a unique understanding defined the term digital literacy. One may argue that digital literacy is a life skill whose significance in all facets of life cannot be emphasized.

Modern literacy is a multifaceted notion that encompasses a range of abilities necessary for professional growth and engagement with a fast evolving society, as well as the creation and dissemination of meaning. There are various internet-based retailers, educational sites, internet banking frameworks, online auction sites, platforms for purchasing and selling products and services, among many more due to the digitization of the modern world (Munir et al., 2024).

The project is now developing an online package of tools for measuring the growth of educators and students in their understanding of digital literacy, with the goal of evolving it beyond the project's existence. This necessarily underscores the truth that, despite the various complexity associated with living today, the situation is necessary to be technologically literate--in the end, doing greater care about guaranteeing increased technological proficiency at educational institutions (Yustika & Iswati, 2020).

The foregoing conclusions have significant consequences for educational as administration. Therefore, equal exposure to technological materials inside educational institutions, as well as the development of proficiency in digital literacy, can become a shared priority among all learners. After that, governments must design policies that address the second degree of the digital divide, such as supporting low-income individuals in gaining access to computers and online content (Rice, 2006).

Self-regulated Learning Strategies (SRLS)

A subsequent study analyzes that SRLS can make an effect in building digital competence for online education and enhancing the effectiveness of human resources during continuous education. The research results of this study are useful for both educators and students in the field of education that is now facing 'online change' in terms of how to effectively utilize a SRLS to increase digital literacy competency. The obstacle becomes to create talented individuals for the next company, that's fairly important, since studies indicate digital natives did not grow up online(Vissers et al., 2018).

These characteristics, consequently, have a good association between their educational endeavors and successes. Understanding digital literacy can improve students' relationships, inquiry ability, their self-assurance, all of which are critical for academic achievement. For this context, digitally literate pupils may successfully interact and cooperate between their instructors and classmates, perform extensive research using internet services, while participating in aided navigating of online resources and environments to acquire knowledge (Naz et al., 2022).

Research implies that the use of technology element could decrease and eliminate disparities between men and women overall educational achievement. Additionally, there are significant disparities within the state of computer proficiency among places, and this can affect academic outcomes. Digital disparities thus encompass beyond technical abilities, but also access, use, and self-perceptions. Reducing digital disparities can impact school achievement and other aspects of life (Vinokurova et al., 2021).

Recognizing the importance of digital literacy, colleges are increasingly incorporating components of it into their courses and teaching techniques. Many studies have shown that digital literacy has the potential to impact students' academic performance at the university level (Vinokurova et al., 2021).

Student's Skills

Investigation of how learners use learning techniques as well as how they correlate with academic success. According to the findings of this study, students exhibited the highest concentration abilities, followed by exam preparation skills, note-taking skills, memorization skills, and textbook reading. However, among the participants, their time management skills were the poorest. The study also found that the pupils lacked study abilities, which may be improved through intervention measures. More crucially, it established a beneficial association between research abilities and learning accomplishment along the basis of successful study behaviors, which was shown "in improving student performance" (Vuorikari et al., 2022).

This research demonstrated why many people influenced the success indicators and, in doing so, may have had "soft power" on minority students' positive experiences. According to the research study, the great majority of scientific education research publications did not define success specifically; instead, they most likely made reference to measurable academic results like grade point averages or test scores. However, they emphasize success via developing leadership abilities and career networking more when defining it. This disparity emphasizes how important it is to incorporate student opinions when revising success measurements and reevaluating existing definitions that offer frameworks for directing students' academic achievement (Weatherton & Schussler, 2021).

Computer Literacy and Learning Management Systems (lms)

Concentrated on Ims tasks that might've made an impact on internet the educational success of learners, knowledge retention, and interest. 65 freshmen engaged during the

virtual class "Computer Literacy" had their involvement levels examined. The stream of details collected from eLearning operations was subjected to classification processing in the current investigation, which separated the degree of engagement into various levels of interest categories. Although there were no impacts on pupil the ability to read and overall A repeated-measures findings suggested that there could be substantial Ims involvement grade impacts on pupil academic achievement and interest. It implies that by evaluating the degree of student engagement, teacher may identify the requirements of the class and offer them particular educational assistance (Avcı & Ergün, 2022).

LMS may give an educational setting which can be both interesting and self-directed with a student. Teachers can motivate students to employ creative tactics using Administrative tools to assist their learning in online contexts. Supervisors can increase student achievement and academic performance by capturing online student involvement and giving ways to encourage self-regulation (Tomczyk et al., 2020)

Effects of Computer and Internet Literacy

Many types of digital literacy have emerged or been modified in the digital era, although their origins may be traced back for further.Computer knowledge, knowledge of information technology, or knowledge of information and communications technologies became recognized to be a prerequisite as early as the latter part of the 1960s. The phrase "computer literacy" has evolved through three separate phases: excellence, uses, and reflection (Munir et al., 2024).

In order to master the computer, one needed to acquire specialized knowledge and abilities during the Mastery phase, which recognized the computer as mysterious and potent. People needed to comprehend how computers operate, how to program in contemporary languages, and the social and economic effects of computers throughout this time (Holm, 2024).

Computers were viewed as versatile instruments that could be used in a variety of settings, including the workplace, home, school, and leisure. At this point, literacy practices prioritized application software functional abilities above specialized knowledge. The emergence of mass certification programs around this time, which usually placed an emphasis on foundational levels of IT proficiency 1, was also noteworthy. Driven by the notion of IT might facilitate focused on learners methods of instruction, which were advocated from the beginning of the twentieth century, the Analytic phase started to take effect in the latter years of the 1990s.(Munir et al., 2024).

In many research, participants rate their own abilities in the many facets of digital literacy using a four- or five-point Likert scale. Studies examining respondents' exposure to digital environments or their degrees of digital literacy proficiency, for instance, may fall under this category. These lead to the variety of measurement instruments used in the field of study and present significant challenges for cross-study comparisons. In Europe, the Dig Comp is a single greatest popular outlines for evaluating digital literacy (Vuorikari et al., 2022).

Furthermore, the incorporation of efficient communication and cooperation into digital literacy instruction is consistent with the needs of the 21st century workforce. Employers in today's linked world prize individuals who can successfully communicate and interact with colleagues, clients, and stakeholders via digital platforms. Students are better equipped for future employment success if they improve their digital literacy abilities (Samoylenko et al., 2022).

The role of educators in promoting communication and collaboration in digital literacy instruction is critical. Educators should create learning activities that promote

student involvement and cooperation, establish clear norms for online communication, and develop a welcoming and inclusive online learning environment. Educators may prepare children for success in the digital age by introducing collaborative projects, online debates, and group activities (Dervenis et al., 2022).

Integrating good communication and teamwork into digital literacy instruction is critical for students' success in today's digital world. By polishing these abilities, students not only improve their academic achievement but also build the competences required for success in the workplace and as responsible digital citizens. Educators have a critical role in developing environments that promote communication and cooperation, encouraging active learning, and preparing students for the demands of the digital age. Prioritizing these abilities allows educational institutions to prepare students to navigate and flourish in the digital ecosystem, both in their academic pursuits and in their future endeavors (Braun & Clarke, 2019).

Educational Achievement: Difficulties and Technologies

Contrast to other forms of appraisal, academic performance analysis in university entails assessing the skills and information that students have acquired during their educational journey. Exams, papers, and activities are a few of the more conventional methods used to gauge students' comprehension and familiarity with the course curriculum. Exams, for example, offer a standardized structure for assessing the mastery of factual information, basic comprehension, and problem-solving skills in a time-sensitive setting. Additionally, they offer a foundation for comparing learners, curriculum versions, and organizations. In 2022, (Samoylenko et al., 2022),Complicated skills and abilities like innovation, analytical thinking, and finding solutions may be challenging to evaluate. Many occupations need for the growth of analytical skills, so this creating assessment activities difficult. Investigations, experiments, and real-time evaluation are examples of novel ways to testing in this regard. These techniques enable more genuine ability evaluation and provide students with opportunities to use their talents in actual settings. The goals of learning, ethical standards, and intended course results must all be kept in mind when choosing an evaluation technique. A deeper extensive of students' skills that takes into account the various ways they learn or types can be obtained, nonetheless, by combining several evaluation tools (Braun & Clarke, 2019).

The scant investigation across various populations represents a substantial research gap. Research such as (Ng, 2012) and (Tsai, 2009),concentrate on particular populations or geographical areas, ignoring more comprehensive evaluations that encompass global contexts and diverse socioeconomic origins. This limited emphasis makes it harder to comprehend how digital literacy affects pupils globally. The quick development of electronic tools suggests that long-term research may offer an understanding of the manner in which digital literacy shifts gradually affect academic results, but most studies, such as (Claro et al., 2018),are cross-sectional. Additionally, there is not enough study into the role of institutional assistance and assets on improving digital literacy; while (Guzmán-Simón et al., 2017),emphasize the meaning of support, more in-depth investigations are required to discover how various types of help impact the link between digital literacy and student achievement.

Material and Methods

The objective of this is to explain the approach that was be used to conclude the research study titled "Effect of digital literacy on the academic performance of university students at Narowal". According to (Kothari, 2004),research techniques include processes used in the field of knowledge that are analyzed both systematically and mathematically. The methodology is described in the form of the current study's research design, population,

sample size, sample selection process, construction of an acceptable data collecting instrument, and data assembly and analysis skills.

Research Design

All researchers must select a suitable research design for conducting the study. Research design is the complete method that a researcher chooses to include the many aspects of the study in a clear way to answer the research challenge. The researcher additionally confirms that the selected design addresses the study's purpose. The research study is based on the specific research design used for it (De Vaus, 2001),however defines research design as the investigator's overall plan for answering the research question or testing the research hypothesis. The purpose of this study is to look at the effect of digital literacy on academic performance of university students at narowal. To help researchers in interpreting or elaborating on the quantitative results obtained, quantitative research design entails the collection and analysis of quantitative (numerical) data. The quantitative findings offer insight into the research problem, which forms the basis of this approach.As a result, a quantitative research strategy was used in this study. In order to meet the study's goals, the researcher first gathered and evaluated quantitative data using a standardized questionnaire. The rationale behind using this approach in this study is because a sizable sample of students provided quantitative data. This approach made it possible to understand the study questions in order to make generalizations and conclusions.

Population and Sample

This research was include all students from the University of Narowal. The total number of students at the University of Narowal is 5000 over 7 different faculties. A sample of 350 students was gathered from over seven different faculties to collect data for the research.

Sampling Procedure

To ensure accurate distribution of the questions, this study was use stratified random sampling and be divided into seven different strata. Using the stratified random sampling technique, the researcher was select 50 students from each stratum who are University of Narowal students conducting research from concerned departments, making a total of 350 students from each stratum as a sample for the study. This means that the total sample of seven faculty members from the University of Narowal was consist of 350 students.

Data Collection

Two methods was used to gather data: the researcher's in-person visits and an online survey created using a Google form. Before beginning data collecting, the researcher inspected the group of linked faculty and acquired a consent form from the supervisor. Each faculty member's head of department was get a consent letter from the researcher. The researcher was visit the relevant faculty and give a questionnaire to the students for their answers after obtaining approval from the relevant authorities. The researcher gave a brief explanation of the questionnaire's goal and how to complete it. Correlation tests was used to investigate the association between digital literary and academic achievement of pupils.

Research Instruments

The impact of digital literacy on academic performance of university students in Narowal was assessed using a standardized closed-ended questionnaire. After reviewing the relevant literature and actual investigations, the researcher was Adopted a questionnaire. A closed-ended questionnaire by Qaisar Abbas created was adopted of

questions for quantitative data collecting. The survey-based asking for quantitative data gathering is coherent due to its similarity, improved consistency of responses, and ease of processing. He also stated that in a survey questionnaire, closed-ended questions provide researchers with crucial and tested inclusion of the phenomena, rapid and fair access of study data, simple coding, and statistical analyses. Examples of demographic information include CGPA, gender, and the name and kind of university. Closed-ended questions on a 5-point Likert scale was asked in the second segment.

Analysis of Quantitative Data

The data was cleaned, categorized, and put into SPSS version 24. Before deploying the study instrument student questionnaire for data collection, its reliability was tested using Cronbach's alpha coefficient. The study sample was organized and analyzed using percentages and frequencies. The degree of pupils' digital literacy was subsequently be determined using descriptive statistics. A correlation analysis was used to compare male and female students' opinions about digital literacy. Multiple linear regression was utilized to predict the accurate results.

Validity of Instruments

Validity is a procedure that tests the measuring tool's competence and what it expected to measure. The questionnaire's face and content validity was validated by getting expert opinions from two lecturers in social sciences education department, one from the computer science department, and one language expert. Their recommendations was addressed with the supervisor, and the questionnaire was amended accordingly. The pilot testing phase was involve 30 university students utilizing a validated questionnaire to get input for improvement and to reduce errors. Finally, the questionnaire was evaluated by experts and made available for gather information from participants.

Pilot Testing

The pilot testing phase was show out of 30 university students using a validated questionnaire to gain feedback for improvement and to decrease mistakes. Based on the feedback gathered during pilot testing, the instrument was slightly modified and formed into its current form. The study's sample did not include respondents who participated in pilot testing.

Aspects of ethics

Official approval was obtained from the University of Narowal's Institute of Education, the writers of the questionnaires, the heads of the appropriate programs for the purpose of gathering data, and the people who responded, who was have the assurance of the privacy and secrecy of their answers along with their private details.

Results and Discussion

The present research study sought to determine the effect of digital literacy on academic performance among university students in Narowal. This results presents an examination of data gathered by questionnaire. The outcomes of the data analysis technique are reported on the following table.

Table 1
Comparative Analysis of University Students by Gender

Sr.#	Gender	*f*	%
1	Male	156	44.6
2	Female	194	55.4
3	Total	350	100

Table 1 In the following data shows that 44.6% of respondents were male, with 55.4% being female the university of narowal students.

Table 2
Correlation Matrix between Digital literacy and Students Academic performance.

Sr.#	Variables	Digital Literacy	Academic Performance
1	Digital Literacy	--	0.597
2	Academic Performance	0.597	--

Note. N = 350. p < .01.

A Pearson correlation analysis revealed a significant positive relationship between Digital Literacy and Academic Performance (r = 0.597, p < .01; see Table 2). This indicates that students with higher Digital Literacy scores tend to achieve higher academic performance.

A simple linear regression analysis further showed that Digital Literacy significantly predicts Academic Performance (B = 0.62, SE = 0.05, β = 0.597, t = 12.40, F(1, 348) = 153.76, R^2 = 0.356, p < .001; see Table 3). This model explains 35.6% of the variance in Academic Performance.

Table 3
Regression Analysis of Digital Literacy and Academic Performance

Predictor	DV	B	SE B	B	t	F	R^2	p
Digital Literacy	Academic Performance	0.62	0.05	0.597	12.40	153.76	0.356	<.001
Constant	Constant	1.84	0.18	---	10.22	---	---	<.001

Note Academic Performance is a Dependent Variable

A simple linear regression was conducted to examine whether Digital Literacy significantly predicts Academic Performance (CGPA) among university students in Narowal. The results of the regression analysis are presented in Table 3.

The regression model was significant, F(1, 348) = 153.76, p < .001, indicating that Digital Literacy is a significant predictor of Academic Performance. The model explained 35.6% of the variance in Academic Performance (R^2 = 0.356).

The unstandardized regression coefficient for Digital Literacy was B = 0.62 (SE = 0.05), and the standardized coefficient was β = 0.597, suggesting that for each one-unit increase in Digital Literacy, Academic Performance increased by 0.62 units on average. This effect was statistically significant (t = 12.40, p < .001).

The regression constant (intercept) was B = 1.84 (SE = 0.18, t = 10.22, p < .001).

These findings indicate that students with higher levels of Digital Literacy tend to perform significantly better academically, supporting the hypothesis that Digital Literacy positively influences Academic Performance.

Discussion

The ability to successfully use the computer system and some of the gadgets that probably make up the modern world is known as digital literacy. Students that are digitally literate can accomplish their academic and personal objectives. Therefore, the goal of the current study was to examine how digital literacy affected the academic achievement of Narowal University students. In order to gather data pertaining to the study's goals, the researcher used a quantitative approach and then administered a questionnaire to the pupils who participated.

A questionnaire was used to gather quantitative data from the respondents in order to meet the goals of the study. All of the B.S. students enrolled at UON made up the study's participant population for this study. For this specific study, a stratified sampling strategy was used to choose a sample of 350 students. A questionnaire was modified by the researcher, and after it was implemented, the questioner produced useful data. The questionnaire's validity and repeatability are complete (α= 0.81).

Following participant data storage, the Statistical Package for Social Science (SPSS-version 27) was used to analyze the data in order to ascertain the correlation, mean variance, and contrast among the variables. In order to evaluate the quantitative data, correlation analysis was used.

Conclusion

According to the findings of the current study, the majority of students exhibited high levels of appreciation for the digital awareness factor, high levels of proficiency in using digital tools to find knowledge, high levels of proficiency in critically evaluating information, online interactions, and online instruments, adequate levels of proficiency in handling and transferring information, moderate levels of proficiency in working together and sharing digital content, high levels of opinions regarding the impact of digital literacy on communication skills, the impact of digital literacy on research skills, the impact of digital literacy on self-assurance, and high levels of opinions regarding the obstacles to mastering the Digital Literacy factor. The findings also demonstrated a statistically significant positive correlation between digital literacy and students' academic performance (CGPA), as well as connections between digital literacy and their research, relationships, and trustworthy skills.

Recommendations

The research study recommends that workshops related to awareness and effectiveness of digital literacy may be offered in the institutions of higher education. Educational policy makers may also make digital literacy skills as the part of curriculum so that students may have better understanding of the digital literacy skills. Lastly study recommends that further studies may be conducted in established institution to explore the effects of digital literacy on academic performance.

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