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Digital Media in Distance Learning: Links with Students Motivation and Academic Performance at Virtual University of Pakistan

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Abstract: *This examined how digital media relates to the motivation and academic performance of undergraduate students enrolled at the Virtual University of Pakistan (VU). The study employed a quantitative, descriptive survey design. A convenient sample of 170 undergraduate students of the VU completed a questionnaire of 20 items on a five point likert scale online. The analysis of the data collected was done using frequency, percentage, mean, standard deviation and independent samples t-test through SPSS. Approximately 61% of the students used digital media for studying. Approximately 68% of the students believed that excess use affects academic achievement. Approximately 68% of the students could differentiate educational media from entertainment media. Only 55% sought guidance from parents and teachers.*

Introduction

The use of digital media is inevitable in the lives of university students. Various digital media tools such as YouTube, WhatsApp, TikTok, and Facebook not only serve as educational tools providing lectures and tutorials but also lead to distractions, bad time management skills, and reduced motivation. This problem becomes even more important when it comes to the Virtual University of Pakistan (VU), which is a public university that provides higher education through online and distance education. In 2021, the total number of students enrolled in VU was about 100,000, and the university is regarded as a way of receiving higher education for distant students (Press Information Department, 2021). Due to the fact that the students learn in VU through distance education, most of their learning, peer communication, and support happen through digital media. Recent literature shows that there are controversial effects of digital media on university students (Arif et al., 2024; Kuş, 2025). Very few studies have been carried out in this regard involving VU undergraduates.

This study was conducted to examine the positive and negative impacts of digital media on the academic motivation of the undergraduate students of VU. It was to find out if excessive use has any effect on their study habits and health. Further, it was to discuss how the students use digital media in their learning process and also the roles of parents, teachers and university.

Research Objectives

1. To explore positive and negative impacts of digital media on the academic motivation of the undergraduate students.
2. To determine the influence of excessive use of digital media on the learning practices of the students.
3. To describe how digital media is being used by the students to learn through digital media.
4. To determine the role played by parents, teachers, and the university in utilizing digital media effectively.

Research Questions

1. What are the positive and negative impacts of digital media on the academic motivation of the undergraduate students of VU?
2. How do the excessive uses of digital media affect the study habits and health of the students?
3. How do the students use digital media in their learning process?
4. What roles do the parents, teachers and university play in effective use of digital media?

Literature Review

Previous literature provides conflicting results. The study conducted by Kirschner & Karpinski (2010) included 219 respondents. Facebook users had relatively lower GPA and spent fewer hours studying per week compared to non-users. Junco (2012) surveyed 1,839 students and revealed a connection between more time spent on Facebook and lower GPA. Also, the type of activity was shown to matter. Both studies were correlation designs and thus cannot provide a causal relation.

Pakistani literature also reveals conflicting results. In a survey of 402 high school students, Abuzar & Hussain (2024) revealed that sharing academic information with classmates via social media positively affects academic performance. Social media did not have any significant effect on study habits or time spent. Similarly, Manzoor et al. (2024) discovered that TikTok scrolling addiction predicted academic procrastination among young adults. In another survey of 200 students in urban and rural Sahiwal, Shahid et al. (2023) found mixed results. Finally, Shafiq & Parveen (2023) conducted a study at the university level and reported that the knowledge-sharing function of social media positively affected academic performance. In contrast, Sadia et al. (2025) conducted a survey among 122 University of Sargodha students, applying convenience sampling, and found that higher social media usage is associated with lower concentration and academic performance. There is a review of 31 studies about Pakistani university students indicating that they use social media for knowledge sharing and socialization, but both positive and negative consequences are reported (Arif et al., 2024).

There is also mixed evidence internationally. According to a meta-analysis based on 63 studies involving 124,166 students, there is a small negative correlation between technology-related behavior (smartphone addiction, social media usage, and video games) and academic performance. In turn, the effect of social media usage is small and not statistically significant (Kuş, 2025). It means that the way and purposes of using digital media may be more important than their quantity.

Evidence related to the distance learning environment is less extensive. Thus, Akhter and Mahmood (2018) surveyed 90 VU students in twin cities and studied the connection between online education and computer literacy, creativity, motivation, and performance. They advised online classrooms depending on their motivational level. Very little research has been done on the relationship between digital media usage, motivation, and academic achievement of VU undergraduates. This research paper seeks to fill the void. Two theoretical perspectives are used to guide the research. Uses and Gratifications Theory

(Katz et al., 1973) gives reasons why individuals adopt digital media for various purposes. Self-Determination Theory (Ryan & Deci, 2020) is concerned with the concept of motivation in relation to three psychological needs of autonomy, competence, and relatedness. These theories apply well in VU since students determine the time and way of studying while having limited physical interaction with peers and lecturers.

Methodology

Research Design

This study utilized the descriptive survey approach that was appropriate for its objective to describe students' attitudes and use of the digital media at one time. Descriptive survey approach was selected for the research due to its applicability in studying the population of students living in different cities and undertaking distance learning using Likert-type scale.

Population

The target population was all undergraduate students enrolled at the Virtual University of Pakistan (VU) in 2025 and 2026. VU is a public university, established in 2002, that offers its programs through online and distance learning. About 100,000 students were enrolled across its programs in 2021 (Press Information Department, 2021). No complete list of undergraduate students was used as a sampling frame, so the population was treated as large for the purpose of judging sample size.

Rationale for Selecting VU Undergraduate Students

VU undergraduates were selected for five reasons. First, VU delivers its programs online, so digital media and online platforms are part of how these students learn rather than an optional extra. Their experience is therefore directly relevant to the study's aims. Second, undergraduate students are at an early stage of higher education, when study habits, self-regulation, and motivation are still forming. Third, VU is intended to serve students across the country, including remote areas (Press Information Department, 2021). This helped compare data across gender, discipline, and areas within one university and one method of teaching. Fourth, self-paced learners have to manage their own time and concentration, hence the relevance of distractions and time management to them. Finally, information concerning students enrolled in distance-learning universities like VU is very scarce. The researchers' affiliation to VU made accessing the target group easy.

Inclusion and Exclusion Criteria

Individuals who met the following criteria were included in the study. First, they had to be undergraduate students of VU. Secondly, they had to use digital devices and have internet access. Thirdly, they had to agree to participate in the research. Individuals who were postgraduate students and those with incomplete questionnaires were excluded from the study leaving 170 complete responses.

Sample and Sampling Technique

The sample was 170 students of VU. Of these, 94 (55.3%) were male students while 76 (44.7%) were females. Moreover, 100 (58.9%) were science students and 70 (41.1%) arts students. Again, 150 (88.3%) were urban dwellers while 20 (11.7%) were rural dwellers. The questionnaire was distributed online thus making sampling convenient. The convenience sampling approach is a non-probability sampling technique where respondents are easily accessible, available, and willing to participate. This type of sampling is appropriate for conducting surveys among scattered populations in the online environment, although it hinders the extent of generalizability of the findings (Etikan et al., 2016). Participation was voluntary.

Three criteria were used to determine the sample size. Firstly, according to Krejcie and Morgan (1970), it

is suggested that approximately 384 respondents be involved for a population of 100,000 (370 respondents for 10,000). With a sample size of 170 being lower than the recommended number, the outcomes are regarded as illustrative rather than precise estimates of the population parameters. Given a 95% confidence level, a sample of 170 implies an estimated margin of error of ±7.5 percentage points for a proportion of 50%. Secondly, for comparative analysis, a power analysis of an independent-samples t-test (two-tailed test, α=.05, power=.80) indicates that a medium effect size (d=0.5) requires 64 students per group.

This power is larger for the gender groups (94 and 76) and the discipline groups (100 and 70). The ability of these groups to detect d = 0.5 is around .90, while the smallest detectable effect size with 80% power is approximately d = 0.44. The rural group (n = 20) is a small sample. It has about .55 power for d = 0.5 and the smallest detectable effect size is around d = 0.67, hence the comparisons by area are treated as exploratory. Third, 170 responses to the 20-item questionnaire provide an average of 8.5 participants per question, falling into the range of 5 to 10 participants per question recommended for questionnaires.

Instrument

Data was collected using a 20-item questionnaire based on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The questions included access, usability, positive effects, and negative effects of the website. Each item is linked to the four research questions. Responses to each statement are reported as a percentage of students responding "agree" or "strongly agree." The demographic part includes age, gender, semester or grade, discipline, and area.

Validity and Reliability

Validity

Content validity was evaluated by two specialists. Pilot testing was used to assess clarity. Internal consistency reliability was tested using Cronbach's alpha coefficient, with values around .70 and above considered acceptable (Taber, 2018). Reliability reached this minimum level (Cronbach's α = .70).

Procedure and Ethics

The survey was conducted via Google Forms. Online surveying fit a university where the students study remotely. Participation was voluntary and anonymous.

Data Analysis

Data analysis was conducted with the use of SPSS Version 25. Frequencies and percentages were used to characterize the sample and degree of agreement with each statement. Mean and standard deviation were calculated for each statement. In order to compare groups, each respondent's answers to the statements were averaged in a composite score, where the higher value reflects the higher degree of agreement. The averaged Likert-type items are generally regarded as approximately interval variables in parametric procedures (Norman, 2010; Sullivan & Artino, 2013). Normality was assessed via skewness and kurtosis. The t-test is relatively robust for moderate deviations from normality when the samples reach that size (Lumley et al., 2002).

Because group sizes were unequal (for example, 150 urban and 20 rural students), Welch's independent-samples *t*-test does not assume equal variances, was used for all two-group comparisons (Delacre et al., 2017). Effect sizes were reported as Cohen's *d* with 95% confidence intervals and interpreted with Cohen's (1992) benchmarks, because a *p* value alone does not show the size of a difference (Lakens, 2013). Variables with more than two categories, such as age group and semester, were compared with Welch's one-way ANOVA (Delacre et al., 2019), with eta squared as the effect size. Statistical significance was set at α = .05 (two-tailed).

Results

Table 1. Demographic Profile of Respondents (N = 170)

Variable	Category	f	%
Gender	Male	94	55.3
	Female	76	44.7
Discipline	Science	100	58.9
	Arts	70	41.1
Area	Urban	150	88.3
	Rural	20	11.7

Note: Table 1 shows the demographic profile of the sample.

Table 2. Agreement with Key Statements (Agree + Strongly Agree)

Statement	%
I use digital media regularly for my studies.	61.1
I spend more time on digital media than on books and notes.	65.9
My university encourages digital platforms for learning.	60.0
Digital media has improved my understanding of complex topics.	54.8
Digital media makes learning more enjoyable.	52.9
I feel more motivated with interactive digital content.	53.0
Excessive use negatively affects my academic performance.	68.2
I manage my time effectively while using digital media for study.	54.1
I get easily distracted by non-academic content.	50.0
I set specific goals before using digital media for study.	58.3
I can differentiate educational from entertainment content.	67.7
I use parental or teacher guidance.	54.7

Note: Table 2 shows the share of students who agreed or strongly agreed with key statements.

Discussion

Findings reveal a mixed view. For instance, almost 61% of respondents used digital media regularly for learning purposes. Additionally, approximately 68% thought that too much use was harmful to their performance. Students appreciate digital media despite recognizing its downsides.

The findings corroborate those of Junco (2012) in that students' uses of social media determine the outcomes. In the current study, almost 68% can differentiate educational from entertainment content. However, half of the students believed that they got distracted by non-academic content. Furthermore, the findings conform to the conclusions of Kirschner and Karpinski (2010) that heavy users spent less time on study. Most of the students in the current study stated that they spent more time on digital media than on books and notes. The mixed findings correspond to the meta-analysis conducted by Kuş (2025) where social media usage alone showed no significant relationship with academic performance. Findings in Pakistani universities were contradictory where Shafiq & Parveen (2023) found advantages

of knowledge sharing while Sadia et al. (2025) found lower concentration and academic achievement. Motivation findings were moderately positive. Around 53% found themselves being more motivated in the presence of interactive content. Many respondents selected "Neutral" as their choice, thus creating an evenly divided opinion on this matter. According to Abuzar and Hussain (2024), moderate advantages were observed. Support was uneven. Only 55% had support from parents or teachers. Moreover, 60% said their university supports digital learning. This implies a difference in support from universities and at homes. In case of VU students, whose studies occur mainly online and do not include any face-to-face interaction, guidance by the university is particularly important.

The urban-rural effect was not statistically significant. Shahid et al. (2023) noted similar findings in the literature. Availability might not be the determining factor in achieving the results. Guidance and purpose might play a role here. However, since the sample of the rural community was very small (n=20), one has to be cautious with such findings.

Limitations

This study used self-report measures and a cross-sectional research design. In that regard, it does not establish causality but rather only the association between the variables. This is due to the fact that all the variables came from a single self-report measure conducted at a single point of time thus introducing common method variance in the analysis (Podsakoff et al., 2003). Performance in academics was evaluated by the students' opinions rather than through grades and test scores. Participants in the research sample were recruited from one university and were urban dwellers. The sample was a convenience sample and consisted of 170 participants who were below Krejcie and Morgan's (1970) large sample size threshold and those that responded to the online link could be different from those that did not respond. Several group comparisons were performed and thus any significant findings should be interpreted along with the effect size and confidence interval ranges rather than difference.

Conclusion and Recommendations

Digital media can be beneficial as well as damaging to the process of learning. The impact of these media is influenced by purpose, duration, and moderation. Universities such as VU need to introduce courses on digital literacy and time management skills. Guidance from tutors, teachers, and parents in regard to using these media must be offered. Policy makers need to increase accessibility for rural and poor areas students. Further research should include mixed methods, longitudinal analysis, GPA scores, and random sampling from multiple institutions.

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