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The Impact of Emerging Technologies on Student Engagement, Creativity, and Career Readiness in Higher Education

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Abstract

The integration and impact of the emerging technologies which comprises of MOOCs, freelancing platforms, Digital marketing, Graphic designing and video editing courses on the academic performance, creativity and career readiness of the students of higher education institutions of Punjab is investigated in the study. Amidst an increasing use of technology in the classroom, the purpose of this study is to explore the potential of these tools in promoting student learning and professional practice. The study is based on a quantitative research design and survey data were obtained, using structured questionnaires, from 150 students. The research found that such tools as WhatsApp and Facebook increased academic engagement through communication but also caused serious distractions and impaired students' academic performance. MOOCs, especially in freelancing and digital marketing, enhanced skills, but yielded limited effects on scores. Creative graphic design and video editing courses were strongly linked to increased creative output and positively impacted students' school projects. This study has implications for educators, policy makers, and institutional leaders trying to maximize technology use within higher education.

Keywords: Emerging Technologies, Higher Education, MOOCs, Career Readiness, Student Engagement.

Introduction

The incorporation of modern technologies into higher education has been a revolutionising factor worldwide, which is changing the way of teaching-learning. Punjab's schools have already begun chalking out novel tech based methods such as AI, VR and blockchain for better teaching, learning and administrative purposes (Holmes et al., 2021). It paves the way for an adaptive learning environment, a virtual immersive experience, as well as a secure academic record, replacing outdated educational practices entirely (Radianti et al., 2020). Among these trends are the adoption of Massive Open Online Courses (MOOCs), freelancing platforms and courses on creative skills such graphic designing and video editing. Such technologies improve scholastic achievement and prepare students for the changing job market. Government of Punjab has also advocated the use of these technologies by introducing various policies, reforms and several projects in order to improve infrastructure, facilitate digital connectivity and to provide

professional development programs for teacher (Punjab ICT Policy, 2019). Yet while the promise offered by these technologies is great, issues of issues of access, the digital divides, and the resistance to change that can be found in some educational settings still persist. This research paper investigates the effect of modern technologies and strategies in human resource development on enhancement in the academic/career preparedness of the students at Punjab and to minimize the disparity of technological development and its usage in the education.

Significance of the Study

There are several reasons why this study is important. In the first place, because it attempts to add up to the existing literature about the implications from the new technologies in the educative practice which promotes the development of new competences that contribute to improve the learning and to stimulate the creativity, as well as, to configure the students for their labour development. Given the widespread use of modern technology in the colleges of Punjab (India), it is important to investigate the impact of these technologies on the academic performance and career readiness of the students, in order to assist educators, policy makers, and institutional leaders (Chen et al., 2020). Second, the study offers valuable suggestions on the operational problems and prospects on the application of technologies such as MOOCs, digital marketing and graphic designing in higher education. The efficacy of these technologies in skill acquisition and career preparation will inform the design of more efficacious and targeted educational interventions. Finally, this study seeks to guide policy and curriculum development by providing evidence that educational institutions can use to improve their technology integration plans. The result will be to optimize the efficiency of technology but mitigate the challenges and to ensure that technologies can provide equal access for all students, irrespective of socioeconomic status.

Rationale of the Study

This study is motivated by the growth of new technologies in higher education and the drive to measure the effectiveness of these technologies on learning outcomes. With the emergence of popularity of MOOCs and skill-based courses such as communication, English language, digital marketing and freelancing, relatively little research has been conducted in this area regarding the effectiveness to influence academic performance and career readiness in the context of Punjab's higher education. Third, the research tries to contribute to the closure of the lack of knowledge on how technology can be creatively applied in the field of education to generate the best conditions for students to succeed academically and professionally. This study is relevant and timely being conducted in Punjab where institutions are in different phases of incorporating digital technologies. It will yield useful information for understanding the contribution of these tools to promoting academic engagement, creativity, and learning. Through an exploration of new technologies (including AI, virtual reality (VR) and massive open online courses (MOOCs)) that are shaping the current educational environment, the study will give an in depth insight into the ways in which these are being used to meet the evolving needs of the global employment market (Holmes et al., 2021).

Objectives of the Study

The aim of this study is:

1. To assess new technologies' effects towards academic learning and relations among students in higher education.
2. To understand the issues and opportunities for the adoption of new technologies in higher education institutions of Punjab.
3. To evaluate the efficacy of MOOCs in freelancing and digital marketing for practical and

professional skill formation among higher education.

4. To study the influence of graphic designing and video editing courses in the development of creative skills of the students and their utilization in semester projects.
5. To Investigate the relationship between utilization of ICT-based technologies and academic performance and engagement of students in a higher education setting.
6. To explore the influence of skill development initiatives (such as MOOCs, freelancing, digital marketing, graphic designing, and video editing) on students' overall academic performance and career readiness.

Research Questions

The research questions guiding this study are as follows:

1. How does the usage of emerging technologies impact students' learning experiences and academic interactions in higher education?
2. What challenges and opportunities arise from the adoption of emerging technologies in higher education institutions in Punjab?
3. How effective are MOOCs, particularly in freelancing and digital marketing, in developing practical and professional skills among higher education students?
4. What is the role of graphic designing and video editing courses in enhancing students' creative skills and their application in academic projects?
5. What is the correlation between the use of emerging technologies and students' academic performance and engagement in higher education?
6. How do skill development initiatives (such as MOOCs, freelancing, digital marketing, graphic designing, and video editing) influence students' overall academic performance and career readiness?

Literature Review

The role of emerging technologies in higher education has been widely studied in recent years, with a particular focus on the application and impact of tools such as Artificial Intelligence (AI), Virtual Reality (VR), block-chain, and online learning platforms such as Massive Open Online Courses (MOOCs). They are considered transformative tools that can support teaching and learning, promote academic engagement, develop creativity and help students to be more employable (Holmes et al., 2021). Nevertheless, a detailed analysis of the extent to which such technologies affect students in Punjab's higher education institutes where formal implementation is yet to crystallize, is necessary.

Emerging Technologies in Education

The adoption of AI in educational settings has received an increasing popularity, because it can personalize learning, automate administrative tasks, and provide adaptive learning models (Chen et al., 2020). AI technologies like intelligent tutoring systems are contributing to develop personalized learning pathways tailored to the needs and performance of students. But there are still some issues on resource allocation, teacher readiness and students' preparedness for AI-based learning. AI not only provide advantages for personalized instruction, but also calls for the large-scale investments in the infrastructure and training (Holmes et al., 2021). Emerging technologies are reshaping vocational and skill-based education in powerful ways. By weaving tools like virtual reality and artificial intelligence into lessons, instructors create vivid, participatory experiences that boost student enthusiasm, spark creativity, and sharpen critical-thinking abilities. According to Rafiq-uz-Zaman et al. (2025), these technologies are particularly impactful in early childhood education, where interactive simulations and adaptive AI tutors replace rote instruction with hands-on exploration, setting a solid foundation for lifelong

learning. Another technology that has been heralded as the next big thing is Virtual Reality (VR) and this has also been one of the main buzz topics within the education landscape, particularly in subjects that involve simulation based learning, including medicine, engineering and sciences. VR has demonstrated potential to generate an immersive learning environment that lets students carry out such tasks in situations where real-world experiences may be impractical or unsafe (Radianti et al., 2020). Though VR is making its way into the higher education space, challenges of cost, scale, and the requirement for special equipment and knowledge are still present. However, VR's potential for hands-on learning and simulation in areas such as engineering and medicine has kept it in the purview of educational technology research. Block-chain technology is also being investigated in terms of offering secure, verifiable, and unchangeable academic qualifications. This capability is having much promise for disrupting credentialing by mitigating fraud, fostering trust and easier verification of qualifications (Sharples & Domingue, 2016). While there is high enthusiasm for using block-chain in education, it´s still very early days and there are institutional and regulatory obstacles to address before we reach mass adoption.

MOOCs and Online Learning

MOOCs have evolved into vehicles for increasing learning access, enabling learners to take courses from across the world's institutions (Shah, 2020). MOOCs are especially appealing for non-traditional and geographically remote students who do not have access to traditional education (Christensen et al., 2013). In Punjab, MOOCs availability over freelancing and digital marketing, for instance – has been found to hold potential, enabling students to gain practical skills and enhance their job-readiness. They provide flexible, self- paced learning whereby students can give time to studies when they have their free time, and yet fulfill other responsibilities such as job and family; (Hollands & Tirthali, 2014). But MOOCs have drawn their critics, as well, especially when it came to the high drop-out rates. Jordan (2014) has found that low completion is the norm for MOOCs; a large number of students do not complete courses. And the problem arises due to factors like not being engaged, the absence of support structures and the lack of personalized feedback. Although MOOCs have potential to promote educational equality, they do not have the structure and individual attention associated with in person classes. Massive Open Online Courses have democratized learning, letting anyone with internet access learn from top universities and training institutes at their own speed. This model is a game-changer for skill development, allowing courses in coding, electronic repair, and agribusiness to reach a global audience. Rafiq-uz-Zaman et al. (2024) note that the flexibility to learn anytime and anywhere has lifted enrolment, especially among women and first-generation learners in rural or underserved areas.

Skill Development Initiatives

Besides formal education, skill development platforms for freelancing opportunities, digital marketing, creative courses in graphic designing and video editing are becoming instrumental in making students job ready for the future. Freelance work is available through websites such as Upwork and Fiverr, which enable students to obtain real-world experience while still in school and start compiling portfolios they can use after they graduate (Barzilay & Ben-David, 2017). With these communities, students can make an income, get work with clients, and even usher in real world experience in areas like web development, content writing or design. Digital marketing has exploded, in terms of course focus in MOOCs in particular. While the business-to-consumer depends more on people engagement through the digital channel for organizations to connect with customers, the need for proficient digital marketers is on the rise (Stokes, 2013). MOOCs provide a low-cost way for students to build skills in fields like social media management, search engine optimization and email marketing. The scalability that online

education offer means that students can learn the latest techniques in digital marketing and other fast moving industries, and make themselves more employable. Tech and creative skills are a lot more fashionable these days; quite a canny way of summing up how graphic design and video editing are now commonplace online skills. Such skills are more appealing than ever in media, advertising and entrainment industries. Online courses shift the focus of learning from knowledge acquisition to learning through building of know-how taking place in academic activities and professional duties (Mazza & Botturi, 2007). But the difficulty is how to do that -- properly giving the students what they need, from highly specialized software to powerful hardware, to learn deeply engaging subjects. Skill development programs remain crucial as economies demand workers who can adapt and innovate. Both Pakistan and India have rolled out targeted curricula, bridging classroom theory and hands-on practice in sectors like hospitality, renewable energy, and coding, thereby closing the gap between education and employment. Skill development initiatives are essential for preparing students for the modern workforce. Both Pakistan and India have implemented various curricula to bridge the skill gap. The recent work by Rafiq-uz-Zaman and Nadeem (2024) illustrates how carefully designed skill-focused programs are reshaping opportunities for women across Pakistan, equipping them with practical capabilities that translate into economic self-reliance. Building on that foundation, Rafiq-uz-Zaman and Nadeem (2025) argue that the measurable success of these programs hinges on continual synchronization with evolving industry standards, a principle they argue should guide similar initiatives in the region at large.

Challenges and Gaps in Studies

The studies examining the use of new educational technologies in higher education have been increasing, whereas research at a micro level that specifically explores the impact of new technologies in Punjab on higher education student outcomes has been limited, such as academic performance, creative skills and work readiness. Most works concentrate onglobal trends, with less regard for how their adoption and effectiveness is conditioned on the cultural, economic and infrastructural particularities of different regions. Secondly, though the merits of MOOCs and web skill courses are well-acclaimed, their influences on learning outcomes and learning engagement are not yet clear. This gap requires further investigation to understand to what extent these educational technologies are being used in higher education in Punjab and how they are helping students to build academic and professional skills. In addition, most of the literature focus on the benefits of these two inventions, so it is necessary to investigate the difficulties and barriers experienced by students when these tools are incorporated. The digital divide, resistance to change, lack of technical know- how, inadequate infrastructure, and opaqueness are the prominent barriers which hamper the effective adoption of these technologies, particularly in rural and underprivileged spaces of Punjab. Overcoming these challenges is critical in order to ensure that the benefits of the new technologies are accessible to all students regardless of their origin. The framework underscores the possibility of disruptive technologies, such as AI, VR, block chain, and MOOCs in shifting higher education towards academic engagement, creativity and career preparedness. However, the challenges are major also relevant are the infrastructures constraints, low participation in MOOCs, and the digital gap. The paucity of literature in this regard reinforces the need of the present study amid the specific context of Punjab to see through the reality of the influence of these technologies on students' outcomes. Turning to these gaps, this study proposes to contribute to the emerging field through providing sound data-based understanding for enabling the appropriate use of emerging technology to support learning for students in Punjab's higher education. Despite the promise of these strategies, the path to wide-scale impact is obstructed by persistent, systematic barriers. Rafiq-uz-Zaman and colleagues (2024) catalogue a combination of shortages in qualified instructors, gaps in ongoing

professional development, and fragile infrastructure that collectively constrain operational effectiveness. They observe that without specialized preparation for teachers in both pedagogical and technological domains, and in the absence of curricula that speak to real-world job specifications, the benefits of skill development programs are at risk of dwindling. In response, the authors advance a cohesive reform agenda that centres on three interlinked priorities: first, the systematic upskilling of educators through targeted, ongoing training schemes; second, the iterative redesign of curricula to reflect the dynamism of labour market signals; and third, the cultivation of robust public-private coalitions that can underwrite the robust infrastructure necessary for contemporary educational technologies. They further advocate for the deliberate embedding of interdisciplinary learning pathways, arguing that such breadth is essential for cultivating the adaptable problem-solving skills that employers increasingly demand.

Methodology

The Methodology section describes the research design and the means utilized to find out the effects of new technologies and the skill-development initiatives on the academic achievements,creativity, and employability of the students of colleges in Punjab.

Research Area

It was carried out at the universities of Punjab, Pakistan. It centered on the varsities and academic departments throughout the region that have included modern technologies including AI, VR, Massive Open Online Courses, and others. These techs are used to improve the teaching process, to make it more effective, to develop students' skills. The study specifically explored the impact on academic achievement, creative skills and professional disposition in relation to students' academic and workplace experiences.

Research Design

Design: This study uses a quantitative design, most appropriate for examining patterns, relationships, and effects of multiple independent variables, including new technologies and skill-building tools, upon dependent variables, i.e. academic achievement and employability. Quantitative research allows for the systematic gathering and evaluation ofnumerical data and provides statistical information about the efficacy of new technology in higher education.

Population

The universe of the research has been the students of higher education institutions in Punjab, Pakistan. This demographic is heterogeneous, representing students from numerous fields of study such as engineering, business, social sciences, and the arts. The diverse nature of these subjects would facilitate an understanding of the adoption and perception of emerging technologies at the intersection of various disciplines.

Sample Size

This study involved students sample size 150. This sample selection was aimed to have a sample size that is representative of the student population of the higher education institutions of Punjab, hence making the results reliable and valid. The sample size is sufficient for obtain meaningful data with practical feasibility for data collections/analysis. The number of students of the related departments, age and gender segmentation, and distribution of academic and technological profiles should be balanced.

Sampling Technique

The respondents for the study were selected through a random sampling method. Because the

students were randomly sampled, there is an equal opportunity for every student in the population and thus minimizing selection bias and increasing the generalizability of the results. The process of random sample is very useful in seeing that the data can equivalent of varies aspects and points of view of the student community in Punjab.

Research Tools

The method used was questionnaire as a research tool. The questionnaires were designed to collect various information on exposure to emerging technologies, academic achievement, skills development, and preparation for careers. It contained both closed- ended (appetitive force driving) and Likert scale questions and this allowed for quantitative analysis of student responses. The survey was divided into different segments covering the demographics, technology usage, perceived problems, and influence of technology usage on learning. Other sources of information included institutional student performance records and reports on technology access and use within the academic environment.

Pilot Testing

A preliminary test of instrument was done for the assessing the clarity, consistency and validity of the instrument by selecting a smaller sample, comprising 20 students from a single university. The results from the pilot were used to slightly modify some of the questions to ensure the questions accurately reflected the desired constructs and were simple for respondents to understand. On the basis of findings from pilot testing, the questionnaire was revised (for the language used and structure) to enhance the quality and reliability of the research instrument.

Validity and Reliability

Expert opinion validity was established to ensure the trustworthiness of the study. The questionnaire was reviewed by experts in educational technology, higher education, and research methodology to ascertain it indeed captures key data elements. The experts evaluated the content validity, specifically whether the items tested whether the items appeared to correspond to the research questions and adequately measured the constructs (e.g., technology use, academic performance, career readiness). To assess the reliability of the questionnaire, Cronbach's alpha was used to measure the internal consistency. A preliminary inquiry survey was made and Cronbach's alpha value was identified for the reliability of the questionnaire. The alpha value of Cronbach, was higher than the minimum (0.7) suggesting that the instrument was internally consistent and reliable for this study.

Data Collection

The information was gathered by asking the questions using the survey tool. The structured questionnaires were administered to the sample of students, who were either issued the paper questionnaire or asked to complete it in electronic format depending on their and the institution's preference. The questionnaire was spread during a two-week period, so that students were able to cover the questions freely. In order to have as high response rate as possible reminders and assistance for some participants was given. The data collection was conducted with due ethical concerns, always receiving the informed consent from all the participants. The privacy of respondent information was protected and respondents remained anonymous throughout the study.

Data Analysis

Descriptive and inferential statistics were employed in the analysis of the survey responses. Descriptive statistics, such as percentages, means, standard deviations were used to describe

participants' demographic characteristics as well as trends in the usage of technology and engagement of students. The relationship between emerging technologies and academic performance, creative skills and career readiness were analyzed using inferential statistics such as correlation and regression analyses. Correlation analysis was employed to investigate the strength and direction of relationships among the variables, and regression analysis was used to examine the predictive power of technology use for academic achievement. The data analysis took advantage of Statistical Software (SPSS) to process semi- automatically the massive quantity of data automatically and rapidly.

Ethical Considerations

Ethical Issues The ethical implications were taken into consideration in the course of this study. The purpose of the study was made known to all participants, who participated on a voluntary basis. All participants provided grinded consent and indicated that they knew they could discontinue the trial of their own volition at no cost. Information obtained was used for research purposes only and kept confidential. The integrity of the data was also rigorously maintained in terms of any possible data manipulation or falsification. Respondents were guaranteed anonymity and that their data was for research purposes only.

Results and Analysis

The findings of the research were gathered from the questionnaire survey of 150 respondents, selected from different higher education institutions of Punjab. Descriptive and inferential statistics were used to analyse the data. Results are then discussed in-depth according to each objective.

Objective 1

Eighty-five percent of students said that they used emerging technologies such as Viber, Bebo and MOOCs to explore or enhance their learning. Among the tools, WhatsApp (70%) and Facebook (65%) were primarily used for peer interactions and communication with instructors. However, 60% of students also indicated that these technologies could be distracting, as the constant flow of social messages on platforms like WhatsApp often diverted attention from academic work. About 55% of the respondents felt that the use of these tools led to a reduction in face-to-face academic interactions, which they considered a drawback. Emerging technologies had a mixed impact on students' learning experiences. While these tools promoted peer-to-peer communication and the sharing of resources, they also contributed to distractions. The positive aspect of increased connectivity was offset by concerns about reduced academic focus, especially in environments where students were already struggling with time management.

Objective 2

When asked about the challenges of adopting emerging technologies, 78% of students cited lack of infrastructure (e.g., high-speed internet and access to advanced technologies like VR) as the primary barrier. Additionally, teacher resistance (65%) and insufficient technical training (58%) were identified as significant challenges. On the positive side, 82% of students acknowledged the opportunities for skill development, especially through MOOCs in digital marketing and freelancing. Additionally, 68% reported that technologies like AI and VR improved their understanding of complex subjects, such as medical simulations and engineering concepts. The findings highlight that while there are significant opportunities to integrate emerging technologies into the curriculum (particularly in skill development), challenges likeinfrastructure limitations, resistance to change among faculty, and insufficient training remain major barriers. Overcoming these obstacles is essential to fully realize the potential of these technologies in

higher education.

Objective 3

The study also revealed that 75% of students who enrolled in MOOCs focusing on freelancing and digital marketing felt that the courses increased their practical abilities in a way that could be directly applied towards their career ambitions. 40% of these students went on in to gain freelance employment during or after their course. Despite this, 65% of students considered that the content of MOOCs was current, but only 35% thought that it had a good impact for grade improvement. Perhaps the lack of an effect on academic scores was due to the fact that the specific set of skills that were taught carried a less direct contribution to orthodox academic performance such as assessments and tests. MOOCs (especially those in freelancing and digital marketing) were equally successful in offering students practical, career-oriented skills. Yet these do not appear to have large effects on academic performance, meaning that they work well in terms of making people prepare for professional life, but not so well in other educational dimensions. Such a gap should therefore be bridged through the integrated teaching of practical courses and traditional exams.

Objective 4

About 68% of students studying graphic designing or video editing saw a noticeable hair growth in their creative work. Many students applied their new skills to enhance academic projects, particularly in fields like media studies, marketing, and communication. Of the students who participated in these creative courses, 52% indicated that these skills contributed to better presentation quality and greater innovation in their academic work. However, 40% of students expressed that the availability of software and equipment was a barrier to fully utilizing the skills gained from these courses. Courses in graphic designing and video editing have proven effective in fostering students' creative skills, which were subsequently applied in their academic projects. These skills were particularly valuable in courses requiring visual communication and digital content creation. However, the lack of access to required software and hardware (e.g., Adobe Creative Suite, high-performance computers) limited the ability of some students to fully leverage these technologies.

Objective 5

A correlation analysis revealed a weak positive correlation ($r = 0.25$) between the use of emerging technologies (such as MOOCs, freelancing, digital marketing, and graphic designing) and academic performance. This suggests that while emerging technologies contribute to increased engagement and skill development, their direct effect on academic performance, as measured by grades and test scores, is limited. In contrast, a strong positive correlation ($r = 0.45$) was found between the use of these technologies and student engagement, particularly in terms of increased participation in class discussions, online forums, and project collaboration. Emerging technologies primarily enhance student engagement, which in turn can lead to improved academic outcomes in terms of participation and collaboration. However, their direct effect on academic performance, such as grades, remains limited. This is in line with the view that technologies support learning by motivating a learner and developing a skill but that they are in addition to traditional modes of academic evaluation.

Objective 6

Most (85%) of the students felt that skill enhancing efforts such as MOOCs, freelancing platforms, and digital marketing courses had positively impacted their job readiness. They claimed to have learned specific job-related skills such as digital marketing, content creation and

client management. Nonetheless, 55% of participants reported that, while they perceived these interventions to have a high utility in enhancing their professional competences, the absence of formal recognition of these competences by their academic institutions hampered further translation into academic credit or formal certification. Skill development programmes are important for bridging the skill gap and readying the students for the industry. But these skills are not formally accredited inside traditional academia - which is a hurdle for students who want to use the certificates for career progression. Institutions need to legitimise non-academic skills, either through formal curriculum or systems to recognise non-academic experiences. The implications of this study are that although new technologies such as MOOCs, freelancing platforms and creative courses have value in helping support student engagement, creativity and employability, they do not yet appear to have notable implications for traditional academic outcomes. Thanks to the advent of technology there are plenty of learning options and unexplored careers in the field of,like digital marketing, freelancing, and creative design. But these technologies face limitations such as lack of infrastructure, aversion to technology and technology-based tools, and inadequate acknowledgment of non-academic skills by formal education systems which must be tackled for the technologies to function effectively.

Findings

This study's results reveal the link between integrating new technology and the effects on student in HEIs of Punjab. These findings originate from questionnaire data collected on 150 students of different curriculum. The main results are as follows:

The influence of new technology on learning experiences:

Most students (85%) reported that use of the likes of WhatsApp and Facebook helped them become more academically engaged through the sharing of resources and better communication.However, these tools were also seen as distractions, with 60% of students reporting that they were more prone to social distractions while using these platforms for academic purposes. Technologies such as MOOCs, especially in freelancing and digital marketing, were highly valued for their career-oriented content but showed limited impact on traditional academic performance, such as exam results or GPA.

Challenges in Technology Adoption:

Infrastructure challenges were the most significant barrier to the adoption of emerging technologies in educational institutions. High-speed internet and access to advanced technologies like VR were frequently cited as limitations (78% of students). Teacher resistance and lack of training were other substantial challenges, with 65% of respondents mentioning that faculty members were often slow to adopt new technologies in their teaching methods.

Skill Development through MOOCs and Freelancing:

The study found that MOOCs focused on freelancing and digital marketing had a positive impact on students' professional skill development. 75% of students reported that these courses enhanced their employability, particularly in digital marketing and content creation. Despite this, only 35% of respondents felt that these online courses contributed to improving their academic performance, highlighting a gap between skill development and traditional academic assessments.

Creative Skills Development:

Courses in graphic designing and video editing had a significant positive impact on students' creative skills. 68% of students used these skills in their academic projects, leading to more

innovative and visually appealing work. However, a lack of access to essential software and hardware (such as Adobe Creative Suite) limited the ability of some students to fully utilize these creative technologies, with 40% of students expressing dissatisfaction with the tools available to them.

Correlation between Emerging Technologies and Academic Performance:
The study found a weak positive correlation ($r = 0.25$) between the use of emerging technologies and academic performance, suggesting that while these tools enhance engagement and learning experiences, they have a limited direct impact on traditional academic metrics like grades. In contrast, there was a strong positive correlation ($r = 0.45$) between technology usage and student engagement, particularly in terms of participation in online discussions, group work, and project collaboration.

Influence on Career Readiness:
85% of students reported that skill development initiatives, such as freelancing platforms and MOOCs, significantly improved their career readiness by equipping them with practical skills applicable to the job market. However, the study also found that these skills were not formally recognized in academic assessments, which limited their value in students' overall academic profiles.

Discussion
The findings of this study align with several previous studies on the impact of emerging technologies in higher education, but they also reveal some unique challenges and opportunities specific to the context of Punjab's educational environment.

Technological Distractions vs. Engagement:
The findings of this study, where 60% of students reported that WhatsApp and Facebook acted as distractions, support similar findings in the literature. For instance, Bere (2012) noted that the use of WhatsApp for educational purposes often leads to social distractions. However, despite these distractions, the tools were also found to foster engagement and communication, which echoes the findings of Gon and Rawekar (2017) that WhatsApp facilitates real-time interaction and collaboration among students. Unlike the studies in more developed regions, where the negative effects of such distractions are mitigated by higher levels of digital literacy, students in Punjab are still grappling with the balance between using digital tools for academic work and socializing. This is probably compounded by low levels of digital literacy, a significant problem in the region (Holmes et al., 2021).

Infrastructure and Teacher Resistance:
The barriers related to the infrastructure including slow internet that are reported in this study and the resistance to teachers are also similar to global challenges of Radianti et al. (2020) and Chen et al. (2020). But, whereas the literature on this topic seems to imply that barriers are relatively easily surpassed by investment and CPD, the Punjab case study indicates that such challenges are deeply embedded within this system. This serves as an evidence to signify that more precise measures, in terms of physical infrastructure and teacher training, are required to facilitate the successful introduction of new technologies.

MOOCs for Career Readiness:
The positive effect of MOOCs on career preparedness is congruent with worldwide data. According to Shah (2020), MOOCs especially in a specific domain such as digital marketing and

freelancing also enable students to learn certain skills that makes them employable. Last, the lack of significant impact of MOOCs on academic performance is consistent with Jordan's (2014) concerns that MOOCs seem to be better at delivering skills rather than enhancing traditional academic outcomes. Though MOOCs can be useful for career advancement, they can also not count as formal education when applying to a college or university. And this gap has been also pinpointed in that study, in order that 55% of students considered that the practical skills that they acquired by working with the MOOCs have not been successful enough to be taken into account for their academic grades. The disconnect between skill attainment and academic awareness is an important area of focus that must be remedied for these courses to find a home in higher education.

Creative Skills and Software Access:

The results that graphic designing and video editing courses play a positive role in forming students' creative skills, are consistent with the work of Mazza and Botturi (2007)), as they underlined the role of creative courses in improving the students' design and media skills. However, the restricted availability of essential software and hardware reflects the digital divide lamented by Bhagat and Kim (2020) where students from rural or financially starved institutions struggle to access the tools needed for meaningful learning. This challenge is particularly pronounced in Punjab, where institutions lacking resources are unable to provide infrastructure to allow students to have access to creative technologies. This inequity in accessibility has to be rectified if all students are to benefit from the use of these technologies (Hew & Cheung, 2014). Our findings have implications on the role of emerging technologies to improve student engagement and creativity and prepare them for careers, as their impact does not significantly influence traditional academic performance. The research reveals that while the students of Punjab are getting benefit from skill development tools such as MOOCs and freelancing platform, infrastructure, teacher's resistance and the availability of resources do not allow the technology to be utilized to a full potential. In the future, there is a need for the schools of Punjab to start investing in technological infrastructure as well as teacher training and to devise ways to start measuring the nonacademic skills and integrate the same with the formal assessments in the schools.

Conclusion

The purpose of the current study was to investigate the influence of new technologies like MOOCs, freelancing platforms, digital marketing, graphic designing and video editing courses on students' academic achievement, creativity, and career preparedness in higher education institutions among Punjab, Pakistan. The results suggest that these technologies increase students' involvement, skill development, but the direct effect on academic performance is low. The MOOCs such as freelance and digital marketing were extremely helpful in developing student's practical skills, making students more career ready and enhancing creativity. But impediments such as poor infrastructure, teacher push-back, and the absence of formal accreditation for skills learnt outside the classroom also hinder their development for full benefit. The analysis also pointed out that although technologies such as WhatsApp and Facebook have supported communication and learning engagement, they also raised many distractions. All of the above indicates that use of technology in higher education needs to be managed as to keep a balance between engagement and distraction. Further students fell short of access to the essential software and hardware for creative-based courses such as graphic designing, and video editing, which is a reflection of the larger problem of digital disparity that many students especially in white rural areas encounter. Ultimately, there is promise in how current innovation may positively impact teacher practices and student learning, but it continues to be predicated on

thoughtful integration, robust infrastructure, and professional preparation to maximize its effect on student learning.

Recommendations

The following recommendations are suggested according to the results of the present study:

Enhanced Infrastructure and Access:

Schools, colleges, and universities in Punjab need to invest in technology infrastructure, particularly in underprivileged, rural schools. This includes high-speed internet, up-to-date computers and access to software such as Adobe Creative Suite for creative courses that enable students to fully engage with new technologies.

Teacher Training and Professional Development:

Teachers' resistance to new technologies and instructionally effective use of emerging technologies can be alleviated, and this factor can be improved by implementing comprehensive professional development programs for teachers. These programs should concentrate on enhancing teachers' digital literacies and supporting their capacity to successfully incorporate technology into their pedagogies.

Recognition of Non-Academic Skills:

It is necessary for higher education to acknowledge and include the competencies that students gather with the help of MOOCs and freelance platforms in a coherent academic recognition framework. This might involve issuing certificate, credit, or other credits for the recognition of non-academic skills.

Enforcing Policy on the Balanced Use of Technology:

Policies for education must be such that technology is used usefully and not for distractions. Policies around using in moderation, like monitoring the use of technology in the classroom, might maximize the benefits of technology and minimize the risk.

Encourage Industry and Academic Collaboration:

Collaboration between universities and industry must be encouraged for skilling programs to be responsive to market demands." Partnering with freelancing companies and digital marketing tools could also provide students with hands-on experience and keep them abreast with the trends in the industry.

Future Studies

Although this study has contributed useful information about the influence of the new technologies on the students in Punjab, there are a number of unexplored terrains, which could be exploited in future research:

Longitudinal Studies on Technology Adoption:

It would be interesting for future research to study the long-term effects of new technologies on student academic performance and career success. Moving to a longitudinal model could have aided in the problem of how these skills learned in the context of MOOCs and in online platforms in general translate to career success and employability.

Comparative Studies Across Regions:

Comparative studies of the integration and effects of ICT in higher education throughout different parts of Pakistan or other developing countries may offer a more complex interpretation of barriers and successes under different circumstances.

An Empirical Study on Distractions of Technology Use:

Additional studies are required to examine the underlying sources of disruption resulted from technology such as WhatsApp and Facebook in educational environment. Identifying factors associated with an increased risk of being distracted may be useful in devising interventions to reduce the harmful effects of these sources.

Influence of Teacher Training on Technology Integration:

Future lines of research may include examining how successful training programs are in helping teachers to incorporate new technologies in classroom teaching. More importantly, future studies could investigate how different teaching styles affect the success of the adoption of technology.

Investigating Gender Gap in Technology Utilization:

Future studies can explore gender unbalances in the use and effective use of technology, especially in settings such as Punjab, where sociocultural elements may shape the access and use of digital tools. Such findings might support when planning gender-fair policy to provide equal opportunities for accessing education to all students. These guidelines and recommendations for future research are expected to contribute to the seamless incorporation of technology in higher education and to ensure that its potentialcan be maximized, benefiting students and educational institutions in Punjab, and elsewhere.

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