



## RESEARCH ARTICLE

## Embracing Digital Transformation in Learning Organizations Using Blended Learning for Academic Excellence

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ARTICLE INFO	ABSTRACT
Received: Apr 24, 2024	Digital transformation has become a significant focus in various educational, with higher educational institutions leading the charge in embracing digital tools and methods to enhance the learning experience. The fundamental strategy in this transformation is adopting blended learning, which combines traditional face-to-face instruction with online resources and platforms. The study focuses on the transformational potential of blended learning that utilises MOOCs, which focuses on educational activities. The factors that will be considered include determining whether the inclusion of MOOCs into blended learning could change and revolutionise academic excellence, reaching adequate standards. Factors that will be regarded will elaborate on learner assignment trends, online study time, computer literacy, and the inclusion of projects to enhance academic performance in MOOC-based blended learning. The purpose is to advise the learning organisation and to design the strategies for implementing blended learning instruction in course designs that can fit students' diverse needs and preferences for improving academic performance. The findings and recommendations are instrumental in shaping future research, policy-making, and advancements in online education within the region.
Accepted: Jul 23, 2024	
<b>Keywords</b>	
Digital transformation, higher educational institutions	
Blended learning	
MOOCs	
Academic excellence	
Learner assignment trends	
Online study time	
Computer literacy	
Academic performance	
Diverse needs	
Policy-making	
Online education	
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### INTRODUCTION

Learning organisations' digital transformation indicates that incorporating digital technologies improves teaching and learning processes. Technological evolution in the past decades has stimulated such a change through increased utilisation of online platforms and digital resources in classroom learning. Global connectivity through the Internet has enabled people worldwide to collaborate, share knowledge, and access various educational materials for education. Liu said the increasing demand for flexibility and easy accessibility to education led to platforms offering

academic content anytime, anywhere, according to their learning style and preferences [1]. This change has led to blended learning styles combining traditional classroom instruction with online components to enhance learning and engagement [2]. Liberalising educators through digital tools and professional development opportunities has become a key empowerment factor enabling them to develop dynamic, interactive, student-centred learning environments. The significance of quality education in the digital age cannot be overemphasised, especially since technological transformations have continued to change the educational landscape. One of the challenges of the digital age is the change in learning paradigms while preserving high-level academic quality [3]. Academic quality depicts the quality of education that prepares students to thrive in a competitive and digitally-driven world. It is a dynamic and flexible approach incorporating digital technologies to improve the teaching and learning process in a manner that preserves academic quality. Blended learning provides a framework for educators to provide students with interactive and engaging learning opportunities that meet the diverse needs of various learning styles and preferences. Incorporating multimedia content, interactive simulations, and virtual learning environments is an active participation, critical thinking, and problem-solving skills among students [4]. This technology-driven engagement is attributed to the collaboration, communication, and teamwork abilities required in the digital age. With such tools, online discussion forums, collaborative projects, and other peer learning opportunities promote a sense of community and social learning among students to become citizens of the digital age. Maintaining standards of excellence in the age of digital technology requires innovative approaches that capitalise on the merits of technology while preserving the essence of academic excellence. The rationale for blended learning and incorporating Massive Open Online Courses, MOOCs, into education is multidimensional and addresses several issues within modern education. The MOOCs offer open access to high-quality educational content, making it possible for learners from different geographical locations and socioeconomic backgrounds to participate in previously impossible learning [5]. This democratisation of education is in line with providing equitable learning opportunities for all learners, regardless of their backgrounds. To achieve academic excellence through digital transformation and blended learning, learning organisations should integrate versatile learning platforms, empower educators with robust professional development, and prioritise equitable access and engagement for diverse learners.

## 2. LITERATURE REVIEW

Digital transformation reshapes education trends that incorporate many developments on how learning occurs in modern educational settings. One of the prominent trends is personalised learning, which involves tailoring educational experiences to individual student needs, preferences, and learning styles. This trend is supported by technological advancements, such as learning analytics, artificial intelligence, and adaptive learning systems, which enable educators to gather data on student progress, preferences, and learning patterns. By leveraging this data, educators can create personalised learning pathways, offer targeted interventions, and provide timely feedback, ultimately enhancing student engagement, motivation, and academic success [6]. Educational institutions increasingly rely on data analytics and learning analytics to inform strategic decisions, improve instructional practices, and enhance learning outcomes. Through data-driven insights, educators can identify trends, patterns, and areas for improvement in teaching and learning processes. This approach facilitates evidence-based decision-making, curriculum design, and resource allocation, leading to more effective and efficient educational practices [7].

### Evolution and Impact of MOOCs in Education:

The evolution of MOOCs' impact on education in enhancing learning experiences is in Table 1.

**Table 1. Evolution of MOOCs' impact on education**

Year	Evolution of MOOCs	Impact on Education
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2008	MOOCs have emerged with platforms such as Coursera, edX, and Udacity, offering free online courses from universities [8].	Democratized education by providing access to quality courses globally, fostering lifelong learning, and supporting professional development.
2010	In MOOCs, interactive elements and basic course structures are introduced [9].	Increased awareness and online learning are laying the foundation for future advancements.
2012	Introduction of interactive elements, certificates, and paid options for enhanced learning experiences on MOOC platforms [9].	Expanded access to diverse learners promoted collaboration and knowledge sharing among learners worldwide.
2014	The integration of gamification, peer-to-peer learning, and adaptive learning features in MOOCs [10].	Enhanced engagement, personalized learning experiences, and improved retention rates among learners.
2016	Expansion of MOOC platforms to include specialized courses and partnerships with universities [11].	It increased credibility and recognition of MOOCs as viable alternatives to traditional education.
2018	Adoption of micro-credentials, stackable courses, and industry partnerships for skills development [11].	Facilitated skill enhancement, career advancement opportunities, and alignment with industry demands.
2020	Expansion of MOOC offerings to include specialized courses, master's degrees, and lifelong learning programs [11].	Continued democratization of education, global reach, and adaptation to evolving learning needs and preferences.
2022	Integration of advanced technologies such as AI, VR, and interactive simulations in MOOCs [12].	Enhanced interactivity, immersive learning experiences, and preparation for future digital learning trends.
2024	Integrating personalized learning pathways, real-time feedback, and adaptive assessments in MOOCs [13].	Tailored learning experiences, improved learner outcomes, and increased scalability of online education.

### 3. THEORETICAL FRAMEWORK

Blended learning environments translate into interactive online modules, multimedia content, simulations, and virtual labs that encourage exploration, experimentation, and application of knowledge. By actively engaging with course materials and tasks, students develop a deeper understanding of concepts and retain information more effectively. Blended learning platforms facilitate collaborative learning experiences through online forums, group assignments, and collaborative tools like wikis and shared documents. These cooperative activities promote knowledge sharing, critical thinking, and social interaction among students. Learners construct

meaning collectively and benefit from diverse perspectives by working together to solve problems and discuss ideas [14]. Implementing blended learning using Massive Open Online Courses (MOOCs) involves carefully considering various theoretical frameworks to ensure effective integration and learning outcomes. The following are some theoretical frameworks relevant to implementing blended learning with MOOCs:

(i) Technology Acceptance Model (TAM): TAM posits that adopting technology depends on perceived usefulness and ease of use. When implementing blended learning with MOOCs, it's essential to assess stakeholders' perceptions regarding the usefulness of MOOCs in enhancing learning outcomes and their ease of use [15].

(ii) Connectivism: In a blended learning environment with MOOCs, students can leverage online networks, discussions, and resources to create meaningful learning experiences beyond traditional classrooms [16].

(iii) Constructivism: Blended learning with MOOCs allows for a constructivist approach by providing access to diverse online resources, encouraging collaboration, and promoting self-directed learning [16].

(iv) Community of Inquiry (CoI) Model: CoI model emphasises three essential elements for successful online learning: cognitive presence, social presence, and teaching presence. Blended learning using MOOCs can facilitate cognitive presence through online activities, foster social presence through collaborative tools, and ensure teaching presence through instructor guidance and feedback [17].

(v) Activity Theory: When implementing blended learning with MOOCs, Activity Theory can guide learning activities that promote active participation, collaboration, and knowledge construction [18].

By integrating these theoretical frameworks, educators can design and implement compelling blended learning experiences using MOOCs, leveraging technology to enhance learning outcomes, engagement, and collaboration within a diverse learning community.

*Digital transformation in learning organisations using digital tools:* The importance of technological collaborations and integrations, such as learning management systems (LMS), digital tools, and interactive platforms, in facilitating blended learning experiences are showcased in Table 2.

**Table 2. Digital tools and uses in learning organisation**

<b>Digital Tool</b>	<b>Uses in learning organisation</b>
Learning Management Systems (LMS)	Centralise course content, assignments, assessments, grades, and communication between instructors and students.
Virtual Learning Environments (VLE)	Provide a comprehensive platform for online courses, interactive content, and collaborative activities.
Online Collaboration Tools	Facilitate synchronous and asynchronous communication, teamwork, and project collaboration among students and educators.
Multimedia Content Creation Tools	Enable creating interactive multimedia content such as videos, animations, podcasts, and infographics for learning.
Gamification Platforms	Incorporate game elements, challenges, rewards, and leaderboards to increase engagement, motivation, and learning outcomes.
Assessment and Feedback Tools	Support formative and summative assessments, quizzes, surveys, and peer reviews, and provide timely feedback to learners.

Virtual Reality (VR) and Augmented Reality (AR)	Create immersive learning experiences, simulations, virtual labs, and interactive 3D models for hands-on learning.
Learning Analytics Tools	Collect and analyse data on student performance, engagement, and learning patterns to inform instructional decision-making.

#### 4. Methodology

This case study is based on a comprehensive analysis of MOOC adoption in blended learning at one of the universities in Dehradun, India.

##### Research Design

The research plan involved engaging with undergraduate and graduate students, specifically looking into how they progressed academically while using online courses alongside their traditional classroom learning. We employed diverse methods to approach different groups of students, such as selecting some randomly, choosing others based on specific criteria, and targeting a few based on their expertise in the subject matter. We collected detailed information by asking them specific questions through surveys to gather quantitative data about their online learning using MOOC experiences. This data was then carefully analysed to identify any notable trends or correlations. Throughout this process, we ensured that ethical standards were upheld by obtaining consent from participants and maintaining confidentiality regarding their information. The entire research timeline spanned four months, including two months for data collection, one month for analysis, and another month for compiling and reporting our findings. Our research specifically targeted students enrolled in Computer Applications programs at a university in Dehradun, India, intending to reach out to approximately 600 students. We only included students who willingly participated during the academic year of 2022–2023. The initial phase of our inquiry included gathering basic demographic information such as age and background and exploring their perspectives on integrating online courses into their traditional classroom learning experiences.

#### 5. RESULT

The alignment of MOOC adoption with academic performance and institutional strategies provided actionable recommendations for policymakers and educational institutions. Analysing attributes related to Massive Open Online Courses (MOOCs) structure variables reveals intriguing patterns and insights into the preferences and behaviours of students exhibiting higher academic performance.

- (i) Among the reasons cited for choosing particular MOOCs, a significant proportion (60%) of subjects opt for courses related to their university curriculum, irrespective of whether the subject is part of the syllabus. This inclination suggests a proactive approach among students to supplement their academic learning with additional online resources that align with their educational goals. On the other hand, 40% of respondents choose MOOCs based on personal hobbies or interests, indicating a diverse range of motivations driving MOOC adoption among high-performing students.
- (ii) Gender differences also emerge in MOOC selection preferences. Female students show a higher tendency (38%) to choose MOOCs related to their university course but not included in the syllabus, compared to their male (26%). Conversely, males exhibit a stronger preference (42%) for MOOCs aligned with their hobbies or interests, surpassing female students (32%). These variations underscore the nuanced factors influencing MOOC adoption based on individual backgrounds, interests, and educational needs.
- (iii) Age and academic program enrollment further influence MOOC selection trends. Older students and those enrolled in master's programs, such as MCA, demonstrate a greater

- propensity (64%) to choose MOOCs related to their university courses than those in bachelor's programs like BCA (50%). This trend suggests a higher relevance of course-related MOOCs for students pursuing advanced degrees, potentially driven by their career aspirations and academic pursuits. Additionally, freshers show a relatively equal distribution among reasons for choosing MOOCs. At the same time, higher-year students exhibit a decline in selecting non-syllabus-related MOOCs, indicating a shift in preferences as students progress through their academic journey.
- (iv) Computer literacy also plays a role in MOOC selection. A minimal percentage (2%) of subjects report low computer literacy, with the majority considering themselves to have high computer proficiency. Interestingly, those with high computer literacy (44%) prefer MOOCs related to their hobbies or interests, suggesting a comfortable exploration of diverse online learning content. Conversely, students with medium computer literacy levels exhibit a balanced approach to MOOC selection. In contrast, those with low proficiency levels are less represented in the sample, aligning with the nature of their enrollment in computer applications programs.
  - (v) Influence factors such as peer recommendations and faculty guidance impact MOOC selection decisions. Friends influence a notable percentage (10%) of research subjects, while faculty influence accounts for a significant portion (42%) of MOOC selections. Friends influence tends to steer students towards MOOCs related to their hobbies or interests (44%), while faculty influence leads to a higher preference for course-related MOOCs (37%). These findings highlight the multifaceted nature of decision-making processes among high-performing students, shaped by social interactions, academic guidance, and personal interests.
  - (vi) Regarding device preferences, there is a clear indication that laptops are the preferred device for accessing MOOCs, with approximately 60% of research subjects opting for laptops. However, mobile devices also play a significant role, with more than 35% of research subjects using mobiles to access MOOCs. This highlights the importance of device compatibility and mobility in facilitating online learning experiences, catering to diverse learner preferences and accessibility needs.
  - (vii) Regarding course structure preferences, most research subjects favour MOOCs with limited quizzes and assignments, particularly opting for courses with five or fewer quizzes and assignments. This inclination towards streamlined course structures suggests a focus on content relevance and manageable workload, aligning with the efficient utilisation of online learning resources alongside traditional classroom activities. Additionally, specific course categories such as programming-based MOOCs garner significant interest, indicating a demand for practical, skill-oriented content among high-performing students.
  - (viii) Platform preferences also emerge as a key aspect of MOOC adoption. Prominent platforms like SWAYAM, COURSE ERA, and GREAT LEARNING attract a substantial percentage of research subjects, reflecting their popularity and perceived value among high-performing students. This preference for established platforms underscores the importance of platform reputation, course variety, and user experience in driving MOOC engagement and satisfaction.

These insights provide a comprehensive understanding of the complex dynamics influencing MOOC adoption among students with higher academic performance. Educators, administrators, and policymakers can design targeted strategies to enhance MOOC integration, improve student engagement, and optimise learning outcomes in blended learning environments by considering factors such as course relevance, personal interests, platform features, and influence sources.

*Analysing academic performance categories:* MOOC-infused blended learning reveals several noteworthy trends and implications for educational practices. As academic performance categories transition from below average to above average, distinct patterns emerge regarding assignment completion, project involvement, study habits, online access preferences, and device usage among research subjects.

- (i) Firstly, regarding assignment completion trends, there is a notable decrease in the proportion of research subjects completing many assignments as academic performance shifts from below average to above average compared to previously gained results.. Specifically, this proportion decreases from 84% to 74%. This trend suggests a potential shift in priorities or workload management strategies among higher-performing students, indicating a nuanced approach to task completion and engagement with course materials.
- (ii) Similarly, the inclusion of projects in MOOCs shows a decreasing trend as academic performance categories increase. The number of research subjects choosing MOOCs with projects and the completion rate of these projects decline notably among higher-performing students. This trend, with a decrease from 38% to 30% in choosing project-based MOOCs and from 32% to 25% in project completion rates, implies a potential preference for courses with less project-based work among above-average academic performers.
- (iii) Moreover, study time and online access patterns reveal a more robust dedication to online learning among above-average students. Approximately 78% of above-average students tend to spend a medium to high amount of time studying online, compared to 63% among average performers and 66% among below-average performers. This dedication underscores the importance of self-directed learning and digital engagement, particularly among higher-performing students.

These trends and patterns underscore the nuanced relationship between academic performance categories and engagement with MOOC-infused blended learning. Educators and administrators can leverage these insights to tailor instructional strategies, course designs, and support mechanisms to meet student's diverse needs and preferences across different academic performance levels, ultimately enhancing the effectiveness and inclusivity of blended learning environments.

## **5. CONCLUSION:**

The analysis reveals trends in MOOC adoption and preferences among students based on their academic performance categories. Higher-performing students may exhibit different preferences regarding assignment workload, project involvement, study habits, and device usage compared to their peers. Understanding these patterns can aid in tailoring MOOC offerings and support mechanisms to better meet the diverse needs of students across different academic performance levels. The findings and recommendations are instrumental in shaping future research, policy-making, and advancements in online education within the region.

## **6. Limitations**

There are several limitations to the current research. The most significant is the possibility of sampling bias. Although the study used different approaches, including random, stratified, and purposive sampling techniques, to include as diverse a group of students as possible, there is a possibility that certain groups, issues, or perspectives were not covered or underrepresented. This limits the findings' generalizability since it cannot be extended to a broader student population beyond this specific group of students. The other limitation is that responses were collected via structured questionnaires. These can be influenced by social desirability bias or student's recall

ability, leading to prejudice or inaccuracies in the data. Quantitative methods may overlook nuanced qualitative insights that could provide a deeper understanding of students' experiences with blended learning and MOOCs. The research focused specifically on students from one university, Dehradun, India. While this targeted approach allowed for a detailed examination within this context, it may limit the generalizability of the findings to students in other academic disciplines or institutions, as the experiences and challenges related to blended learning could vary across different fields of study and educational settings.

## 7. Future direction and conclusion

In terms of future directions, the presented study can be extended to include an enormous scope of the student body throughout various disciplines and institutions to provide more general insights into the efficiency of blending MOOCs into the learning process. Furthermore, adopting a longitudinal approach to monitor students' performance through multiple academic years can present a more profound perspective of the long-term implications of the practised model. To sum up, the study indicated that integrating MOOCs into the blended learning model may have an immense potential to increase student involvement and academic achievements. Nevertheless, several limitations identified throughout the research process imply a necessity for further investigation into filling the gap to enhance educational opportunities within the academic pathway. This research is the basis for future initiatives designed to improve teaching practices and outcomes through innovative pedagogical experiences.

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