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INTEGRATING MASSIVE OPEN ONLINE COURSES (MOOCS) INTO TRADITIONAL CLASSROOMS: IMPACT ON STUDENT ENGAGEMENT, LEARNING OUTCOMES, AND EDUCATOR PERSPECTIVES

Sadam Hussain [1], Muhammad Navid Iqbal [2], Dr. Nosheen Malik [3]

Affiliations:

[1] Ph.D. Scholar,
Department of Education, The Islamia University of Bahawalpur, Pakistan
Email: sadamkhanmazari512@gmail.com

[2] Ph.D. Scholar,
Department of Education, The Islamia University of Bahawalpur, Pakistan
Email: navidiqbal074@gmail.com

[3] Assistant Professor,
Department of Education, The Islamia University of Bahawalpur, Pakistan
Email: nosheen.malik@iub.edu.pk

Corresponding Author's Email:

nosheen.malik@iub.edu.pk

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Abstract

This research investigates the integration of Massive Open Online Courses (MOOCs) as a supplement to traditional classroom instruction, particularly in enhancing student learning outcomes and engagement as well as the efficacy of educators. A mixed-methods design using quantitative and qualitative data, via surveys and semi-structured interviews with educators in Bahawalpur, Pakistan. The research shows that MOOCs help to increase student engagement, support individualized learning, and improve student performance. Key areas for the integration of MOOCs include promoting a sense of community among learners and enhancing learner motivation, but challenges in using MOOCs in an academic course have included issues about time to integrate including aligning with curriculum content and student learning outcomes. It was mentioned in the study that MOOCs are useful as an ancillary resource, but there were issues of whether they would fit modern educational goals. It was also concluded that various demographic variables like age, gender, and professional experience did not significantly affect perception of MOOC integration. The results highlight the need for better integration in formal curricula, for quality control, and educator support. This work adds to the literature on MOOCs and, in particular, offers practical measures for using them in traditional classrooms and suggestions for future improvement of their integration and effectiveness as tools used to enhance the educative process. Future research should investigate the longer-term effects of MOOCs and their educational role in a number of contexts.

Keywords: Massive Open Online Courses (MOOCs), Blended Learning, Student Engagement, Learning Outcomes, Educational Technology.

Introduction

Education is the most critical process in the development of society where one may get all the necessary knowledge, skills, personal growth that they are going to use further. Face-to-face interaction, active learning and cooperative activities have long been the hallmarks of traditional classroom settings. In-person classrooms provide opportunities for immediate feedback from educators. The increasing use of technology though has given birth to a number of alternative teaching tools aimed at enhancing learning opportunities, and one such notable innovation is Massive Open Online Courses (MOOCs).

Massive Open Online Courses (MOOCs) are open access web-based courses that provide a channel for more efficient and more affordable instruction on a global scale. These let students work at their own speed, making school independent where the student can mould their academic path. MOOCs cover a wide range of topics, from technology to science and from humanities to social sciences, which offer an extensive

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amount of knowledge that can support traditional classroom instruction (Bozkurt et al., 2020). The multimedia formats of these online courses include video lectures, quizzes, and peer assessments (Alraimi et al., 2015).

While MOOCs are increasingly taking off, they have been under fire when it comes to how to effectively use them as an adjunct in traditional classrooms. According to some studies they may enhance the learning experience, while others are not so positive about their effects on student learning outcomes and student engagement. Larson et al., (2024) in a similar study conducted by discovered that students who were engaged in blended learning environments, where MOOCs were incorporated, performed better than those in the ones based on traditional settings. Nevertheless, long-term studies such as those of Jiang et al. The work of Jiang et al. (2013) suggest MOOCs may not always lead to self-regulated learning (2021).

There are benefits to using MOOCs in a traditional classroom. It offers quality resources, skills and a mix of activities that are not possible in traditional teaching formats (Jansen et al. 2015). And learners with different schedules or need more scaffolding, MOOCs can help provide the flexibility to learn at their own pace (Adams et al., 2021). Nevertheless, there are still obstacles to optimize MOOCs as a teaching method (Bernard et al., 2014; Shahid et al., 2022; Wang et al., 2018), including maintaining student motivation, guaranteeing that course content corresponds with classroom goals and learning outcomes, and compensating for the absence of face-to-face interactions.

This study will explore the use of MOOCs as a blended learning approach for higher education to see whether there is an improvement in student performance, increased participation, and students' as well as educator's perceptions of using it as educational delivery methods. The purpose of this quantitative and qualitative study will be twofold, to shed light on the usefulness that MOOCs might have in a traditional teaching but most importantly to determine how they can maximize their impact in a blended learning environment.

Objectives of the study

1. To assess the impact of MOOCs on student engagement in traditional classrooms.
2. To evaluate the effect of MOOCs on student learning outcomes.
3. To examine educators' perspectives on the integration of MOOCs in classrooms.
4. To identify challenges faced by educators in integrating MOOCs into traditional teaching.
5. To analyse the correlation between demographic factors and the integration of MOOCs in classrooms.

Literature Review

Introduction to MOOCs

Massive Open Online Courses (MOOCs) have played a vital role in changing the higher education scene by offering a way to scale, democratize and lower the costs of learning. First introduced in the early 2000s, MOOCs have surged to prominence in the e-learning landscape, with billions of learners worldwide enrolling in them (Siemens & Downes, 2008). According to Bozkurt et al., (2020) as well as frequently being hosted by elite universities such as Harvard, MIT and Stanford, these courses offer significant diversity across science, technology, humanities and social sciences. Its flexible learning format enables students to learn at their own speed, thereby democratizing education.

Nevertheless, even though the use of MOOCs is so vastly prevalent, the issue of QTC and C in combination to conventional classroom settings is still being debated between educators and researchers.

MOOCs as a Complement to Teaching

The use of MOOCs in combination with traditional courses has attracted a great deal of interest in recent years, and educators are showing more and more interest in the blending of traditional classroom teaching with learning approaches that avoid it. Instead, MOOCs are viewed as add-ons to traditional teaching modes since they offer students extra learning resources, lectures, and avenues for self-directed study (Jansen et al., 2015). According to Bozkurt et al., (2020) as MOOCs provide a wide range of reputable content and expert-created courses they enhance student learning and engagement more deeply into the subject.

Hybrid/Blended Learning: By Integrating MOOCs into traditional classrooms, students can be asked to study a particular online course on open learning platforms for furthering what was taught in the classroom. For instance, MOOCs may be employed by educators to introduce new subject matter, deliver practical exercises or facilitate students reviewing material during less structured periods between classes (Perrotta et

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al., 2013). Application of MOOCs enables the teachers increase the range of curricular offered and cater quality education to diverse learning needs providing students with more flexibility. In addition, MOOCs offer the possibility to interact with a global learning community that collaboration-based can increase understanding of learning material among students (Bali et al., 2019).

Merits of MOOCs in Education

Several studies have pointed to the benefits of using MOOCs in educational environments. One of the greatest advantage is it gives you resources with ease and at every step. In this sense, MOOCs have the potential to provide quality materials from top institutions such as video lectures, textbooks and interactive quizzes which they would not be able to otherwise access at traditional classrooms (Bozkurt et al., 2020; Jansen et al., 2015). MOOCs are also a great platform for continued learning, especially for students who need more support or want to explore topics deeper.

Another essential benefit of MOOCs is Flexibility. The possibility to do MOOCs at one's own pace is beneficial in addressing the heterogeneous requirements of the learner population and enables e.g., learners with a diverse set of work commitments, family obligation or academic strengths (Adams et al., 2021). They claim that this model allows students to move at his or her own pace, thereby minimizing frustration with an educational speed and thus reducing stress. Students can also: go back and review their lessons, complete assignments when it suits them better, receive immediate feedback which allows for the information to be better internalized (Bernard et al., 2014).

Barriers to MOOC Integration in Traditional Classrooms

Despite the many advantages of MOOCs, there are a number of challenges involved in implementing them in conventional classrooms. Student engagement is one of the biggest hurdles to overcome. Typically, MOOCs are self-paced – which means for the instructor it is challenging to be aware of student progress and work done on time (Hew & Cheung, 2014). Consequently, this absence of face-to-face communication in real time may reduce the level of engagement and result in lower completion rates due to less accountability (Ke et al., 2020). Furthermore, traditional long-distance courses with little personal connections and a lack of social presence have been shown to prevent collaboration (Schreurs et al., 2014), which may be true for also MOOCs.

And likewise, making MOOC content relevant for the exact learning outcomes of brick-and-mortar classrooms is its own challenge. Even though MOOCs are designed to cater for a wider audience, it is not very specific to meet the needs and goals of individual class rooms (Wang et al. 2018). The lack can cause educators some frustration trying to integrate MOOC content into their current curriculum. In addition, mapping MOOC in the classroom needs to be considered that not all of them would necessarily pertinent or suitable for the course objectives (Wise et al., 2017).

MOOCs through the Eyes of a Student and an Educator

For a complete assessment of the effectiveness of MOOCs as a complementary method of teaching, it is necessary to know the viewpoints and experiences both from students and educators. However, research has shown that students tend to appreciate the flexibility and the accessibility of MOOCs. For example, the flexibility of self-paced learning is valued by a significant number of students who use MOOCs to complement their classroom experience (Sinclair et al., 2017). Nevertheless, the attitude of students towards MOOCs may be influenced by prior experiences with online learning. MOOCS and Performance in Higher Education (Romero-Frías et al., 2023)

From an educator's standpoint MOOCs can be used to supplement and enrich classroom oriented instruction. MOOCs can be used by teachers to lay the groundwork on a new topic and provide supplementary exercises or different ways of looking at course content (Jansen et al., 2015). Still, using MOOCs can be difficult for some educators, as concerns over technical and curriculum issues, as well as student engagement. Teachers keen on technology are viewed to be a valuable facilitator using MOOCs as apposite teaching learning material however teachers with lower exposure levels might not have that zeal towards adopting them (Tseng et al., 2022). On the other hand, MOOCs can be integrated more successfully only if educators are given (access to) resources, professional development and technical support (Rani & Gandhi, 2023), implying that also an institutional scaffold is needed.

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Theoretical Frameworks for MOOC Integration

The Integration of MOOCs and Traditional Classrooms: Several theoretical perspectives on how MOOCs might be integrated into traditional classrooms are being advance. In constructivism, learning is an active process that requires the individual to create knowledge through experience. The interactive features and self-directed capability of MOOCs make them good candidates for supporting constructivist principles as they encourage students learning at their own pace, topic exploration, and development of critical thinking (Israel, 2015). Likewise, the connectivity asserts that networking and digital instances are important in learning. A networked knowledge perspective, emphasized through connectives practices enables learners to draw on the power of a massive global array of expertise and resources; indeed, MOOCs are one way in which students can collaborate and share what they know with others (Siemens 2005).

In a traditional classroom setting, the use of MOOCs as an additional teaching aid has major implications. Although they provide students with quality resources, flexibility, personal and mixed learning approaches; the use of MOOCs in student experiences depends largely on how being integrated within the classroom. For MOOCs to work most effectively, we need our educators to ensure their content is aligned with their classroom requirements, that additional support and motivation are provided for students who need it, that the right kind of collaborative learning environment is set up. Further, constant study and research is necessary to identify the key factors that aid in the successful embedding of MOOCs and resolves few challenges they face during development. This will allow educators and policymakers to determine how best to integrate MOOCs into national curricula, getting the most bang for their buck.

Research Methodology

Background: This paper sets out to explore the impact of blending Massive Open Online Courses (MOOCs) into traditional classroom settings. Structured survey based quantitative research design was selected to collect the data from the selected Educators of Bahawalpur city, Pakistan. Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) software.

Research Design

This was a quantitative survey research design, conducted to collect data on the levels of knowledge, perceptions and attitudes related to MOOCs in education among educators. The survey provided a way to study correlations between different dimensions (teaching methods, student engagement, and learning outputs) of MOOC integration. The present study used a cross-sectional design to provide an instantaneous shot of what educators were experiencing at the time.

Population

The specific group of the population was the teachers from 4 higher education institutions from Bahawalpur that are; Islamia University Bahawalpur, Govt. Sadiq College Women University, Govt. S. E Graduate College, and University of Central Punjab. This study applies to a wide range of educators and represented perspectives from 1,180 educators across these institutions.

Sampling

Researchers employed purposive sampling to select with experience in higher education. In each institution, a 15% sample with respect to the total population was established. This led to 100 sample for The Islamia University of Bahawalpur and smaller 80 samples each from remaining institutions.

Data Collection

In this study, data collection was done using a structured questionnaire and semi-structured interviews. The survey asked a variety of questions about the integration of MOOCs, such as how they affected student engagement and learning effectiveness. Qualitative data obtained from semi-structured interviews complemented the survey by elucidating challenges and experiences faced by educators. Ethical considerations. In this study, ethical issues such as informed consent and confidentiality were closely adhered to.

Data Analysis

Closed-ended responses were analysed with descriptive statistics, and inferential statistics (Correlation Regression and ANOVA-tests) were used to examine the relationship between demographic variables and

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educators' perceptions. The open-ended responses were subject to thematic analysis, in order to identify common themes and concepts.

Validation and Reliability

The research instruments were further validated by surveying 27 educators using an even more refined version of the questionnaires from expert reviews and pilot studies. Reliability was assessed with Cronbach's alpha which resulted overall 0.893 showing high internal consistency.

Ethical Considerations

Ethical guidelines were respected and the anonymity, inclusion/featuring as well as voluntary nature of all participants were guaranteed. This research is approved by the corresponding ethical board institutional.

Results and Discussions

Statistical Analysis

Table 1

Descriptive Statistics of Statements

Sr. No.	Statements	Mean Value	Standard Deviation
1	MOOCs provide valuable supplementary resources for traditional classroom instruction.	4.03	0.94
2	MOOCs in the classroom enhances student engagement.	4.25	0.75
3	MOOCs in traditional classroom, Sim proves student learning outcomes.	4.23	0.65
4	MOOCs facilitate personalized learning experiences for students	4.22	0.88
5	MOOCs provide opportunities for students to explore topics in greater depth.	4.08	0.93
6	MOOCs in the classroom requires adapting teaching methods and strategies.	4.32	0.81
7	MOOCs contribute to a more inclusive and accessible learning environment.	4.22	0.69
8	MOOCs enhance students' critical thinking and problem-solving skills.	3.88	0.98
9	MOOCs provide opportunities for students to collaborate and engage in peer learning.	4.25	0.88
10	MOOCs improve the effectiveness of classroom discussions and interactions.	4.15	0.78
11	MOOCs in the classroom positively impacts students' academic performance.	4.33	0.63
12	MOOCs in traditional classrooms enhances students' knowledge acquisition	4.12	0.80
13	MOOCs contribute to students ‘motivation to learn and engage in the subject matter.	4.13	0.75
14	MOOCs help students develop practical skills relevant to their field of study.	4.07	0.92
15	MOOCs facilitate the application of theoretical knowledge to real-world contexts.	4.02	1.10
16	MOOCs in the classroom increases students' active participation in learning.	4.32	0.60
17	MOOC-based activities and resource stimulate students' curiosity and interest.	3.98	1.05
18	MOOCs in traditional classrooms enhances students' motivation to complete assignments.	4.47	0.57
19	MOOC-based instruction improves students' self- efficacy and confidence in their abilities.	4.47	0.57
20	MOOCs in traditional classrooms promotes collaborative learning among students.	4.32	0.87
21	I believe that integrating MOOCs in traditional classrooms is beneficial for students.	4.38	0.67
22	I have access to the necessary resources and technology to integrate MOOCs.	4.35	0.76
23	MOOCs in the classroom requires additional time and effort on my part.	4.22	0.56
24	I believe that MOOCs in traditional classrooms improves the overall classroom environment	4.22	0.78
25	I believe that MOOCs in the classroom aligns with the goals of modern education.	3.80	1.05

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Table 1 Summary of mean values (scale: 0 to 5, higher values indicate stronger agreement) and standard deviations for various items on MOOCs (Massive Open Online Courses) integration with traditional classrooms. The answers detail how MOOCs impact their classroom in terms of student engagement, learning outcomes, and application of theoretical knowledge. The statements span the benefits and challenges of using MOOCs in the classroom, and include facets such as enhancing student engagement (mean = 4.25, SD = 0.75), improving student learning outcomes (mean = 4.23, SD = 0.65), facilitating personalized learning (mean = 4.22, SD = 0.88).

The fifth aspect of MOOCs is group cooperation ambient, it means MOOCs are supportive and improved one learner with other learners mean = 4.32, SD =0.87）; the last one is critical thinking promotion which involves facet (ultimate bill from α=3.88, SD=0.98). Also on the table were areas like needing to change how they teach (mean = 4.32, SD = 0.81), having more inclusion (mean = 4.22, SD = 0.69) and fostering student motivation (mean = 4.47, SD = 0.57).

There are also claims related to the practical obstacles, on the one hand, like the need for more time and resources to properly include MOOCs in one's portfolio (mean = 4.22, SD = 0.56) and its compatibility with current educational needs (mean=3.80, SD = 1.05).

The average scores for each statement reflect how MOOCs are perceived as contributing positively to the traditional classroom environment, with relatively high mean values indicating agreement with the benefits they bring.

Table 2

Reliability Test

Reliability Statistics	
Cronbach's Alpha Value	Number of Items
0.893	25

Table 2 presents the reliability test, which indicates the internal consistency of the measured variables using Cronbach's Alpha coefficient. In this case, the calculated Cronbach's Alpha is 0.893, suggesting a high level of reliability for the measurement instrument.

Table 3

Pearson Chi-square

Variables	Gender		Age		Professional Experience	
	Value	df	Value	df	Value	df
Integration of MOOCs in Traditional Classrooms	4.602a	17	9.431a	34	7.812a	34
Impact on Student Learning Outcomes	2.776a	10	7.599a	20	3.621a	20
Student Engagement and Motivation	1.806a	10	5.917a	20	7.150a	20
Perceptions and Experiences	2.242a	9	9.238a	18	3.880a	18

Table 3 Chi-square analyses in relation to gender, age and professional experience to MOOC integration in traditional classrooms Integration of MOOCs in Traditional Classrooms "Impact on Student Learning Outcomes" "Student Engagement and Motivation" The table shows the Pearson chi-square value, degrees of freedom (df), and Cronbach's alpha values for each cell. The chi-square values measured the associations between each type of MOOC integration and demographic variables, wherein larger chi-squared values indicate stronger association.

Table 2 summarizes the reliability and internal consistency of the measures used in this study, through degrees of freedom and Cronbach's alpha values. These results are important because they can help to understand the correlation between a variety of demographic variables and MOOC integration at frontlines courses in universities (subjective dimensions).

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Table 4
ANOVA Test (Gender)

		Sum of Squares	df	Mean Square	F	Sig.
Integration of MOOCs in Traditional Classrooms	Between Groups	.100	1	.100		
	Within Groups	54.498	178	.306		
	Total	54.598	179		.328	.568
Impact on Student Learning Outcomes	Between Groups	.008	1	.008		
	Within Groups	50.312	178	.283		
	Total	50.320	179		.028	.866
Student Engagement and Motivation	Between Groups	.060	1	.060		
	Within Groups	50.922	178	.286		
	Total	50.982	179		.210	.647
Perceptions and Experiences	Between Groups	.003	1	.003		
	Within Groups	39.349	178	.221		
	Total	39.352	179		.013	.909

Table 4: Results of ANOVA Tests for the Effect of Gender on MOOC Integration in Traditional Classrooms regarding "Integration of MOOCs and Classroom Teaching "; "Effectiveness on Student Learning Outcomes"; "Student Engagement and Motivate" and; & other parameters Sum of Squares df Mean Square F-Ratio Sig. Good, just responded that the F-ratio actually compares a high variance between groups to a low variance within groups (and when compared against 0. it suggests similarity is statistically significant, correct? Although in all cases the F-ratios are small, and hence the respective p-values (Sig.) not significant (all > 0.05). Therefore, evidence is weak on the null hypothesis being rejected, which means there are not enough statistically significance differences in the features of MOOC integration based on gender.

Table 5
ANOVA Test (Age)

		Sum of Squares	df	Mean Square	F	Sig.
Integration of MOOCs in Traditional Classrooms	Between Groups	.100	1	.100		
	Within Groups	54.498	178	.306		
	Total	54.598	179		.328	.568
Impact on Student Learning Outcomes	Between Groups	.008	1	.008		
	Within Groups	50.312	178	.283		
	Total	50.320	179		.028	.866
Student Engagement and Motivation	Between Groups	.060	1	.060		
	Within Groups	50.922	178	.286		
	Total	50.982	179		.210	.647
Perceptions and Experiences	Between Groups	.003	1	.003		
	Within Groups	39.349	178	.221		
	Total	39.352	179		.013	.909

Table 5 shows the results for ANOVA tests of age on four factors of MOOC integration in traditional classrooms," Integration of MOOCs in Traditional Classrooms ", "Impact on Student Learning Outcomes", "Student Engagement and Motivation" and Perceptions and Experiences". Each part will contain information on the sum of squares, degrees of freedom (df), mean square, F-ratio and the Sig. The F-ratios are small across all dimensions and the corresponding p-values (Sig.) >0.05, not making it statistically significant. This means that we do not have enough evidence to reject the null hypothesis (H0), i.e. there are not important differences regarding the age of people concerning MOOC integration as regard certain aspects.

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Table 6
ANOVA Test (Professional Experience)

		Sum of Squares	df	Mean Square	F	Sig.
Integration of MOOCs in Traditional Classrooms	Between Groups	.345	2	.173	.563	.570
	Within Groups	54.253	177	.307		
	Total	54.598	179			
Impact on Student Learning Outcomes	Between Groups	.221	2	.111	.390	.677
	Within Groups	50.099	177	.283		
	Total	50.320	179			
Student Engagement and Motivation	Between Groups	1.254	2	.627	2.231	.110
	Within Groups	49.728	177	.281		
	Total	50.982	179			
Perceptions and Experiences	Between Groups	.774	2	.387	1.775	.172
	Within Groups	38.578	177	.218		
	Total	39.352	179			

Table 6 provides a summary of ANOVA tests on the association between professional experience and the aspects of MOOC integration in traditional classrooms — Integration of MOOCs in Traditional Classrooms, Impact on Student Learning Outcomes, Student Engagement & Motivation and Perceptions & Experiences. The sections describe sum of squares by df (degrees of freedom), mean square, F-ratio and Sig. for each section. F-ratios and significance p-values (Sig.) report that there are no statistically substantial differences in terms of different dimensions of MOOC integration with respect to professional experience (all p-values> 0.05). Hence, these results do not support the alternate hypothesis and thus suggest that professional experience does not has a significant effect on the investigated MOOCs integration features in traditional educational context.

Table 7
Correlations

		Integration	Impact	Engagement	Perception
Integration of MOOCs in Traditional Classrooms	Pearson Correlation	1	.438	.594	.618
	Sig. (2-tailed)		.000	.000	.000
	N	180	180	180	180
Impact on Student Learning Outcomes	Pearson Correlation	.438	1	.604	.206
	Sig. (2-tailed)	.000		.000	.006
	N	180	180	180	180
Student Engagement and Motivation	Pearson Correlation	.594	.604	1	.659
	Sig. (2-tailed)	.000	.000		.000
	N	180	180	180	180
Perceptions and Experiences	Pearson Correlation	.618	.206	.659	1
	Sig. (2-tailed)	.000	.006	.000	
	N	180	180	180	180

Correlation is significant at the 0.01 level (2-tailed).

The presented table 7 displays correlation coefficients between different dimensions of MOOC integration in traditional classrooms: "Integration of MOOCs in Traditional Classrooms," "Impact on Student Learning Outcomes," "Student Engagement and Motivation," and "Perceptions and Experiences." The Pearson correlation coefficients reveal significant positive associations among these dimensions, as indicated by the asterisks denoting significance at the 0.01 level (two-tailed). Specifically, strong positive correlations exist between "Integration" and "Impact" (r = 0.438), "Integration" and "Engagement" (r = 0.594),

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"Integration" and "Perception" (r = 0.618), as well as between "Engagement" and "Perception" (r = 0.659). These findings suggest that as one dimension of MOOC integration increases, there is a corresponding increase in the others, emphasizing the interconnectedness of these aspects in the educational context. The sample size for each correlation is 180, and all reported p-values are below 0.01, reinforcing the statistical significance of these associations.

Table 8

Regression Analysis

	R	df	F	Sig.
Age	.336	4	.331	.857b
Gender	1.674	4	.928	.449b
Professional Experience	.398	4	.174	.951b

The table 8 presents the results of multiple regression analyses examining the relationship between three predictor variables (Age, Gender, and Professional Experience) and an unspecified criterion variable. The coefficients for each predictor variable (Age, Gender, and Professional Experience) are provided, along with their associated degrees of freedom, F-ratios, and significance levels (Sig.). The reported values indicate the strength and significance of the relationships between the predictor variables and the criterion variable. In this context, none of the predictor variables, Age (β = 0.336, p = 0.857), Gender (β = 1.674, p = 0.449), and Professional Experience (β = 0.398, p = 0.951), appear to have a statistically significant impact on the criterion variable, as all p-values exceed the conventional threshold of 0.05. Therefore, based on this analysis, there is no significant linear relationship between the specified predictors and the criterion variable.

Qualitative Analysis: Effective Integration of MOOCs in Traditional Classrooms

In a survey of 180 teachers regarding the effective integration of MOOCs into traditional classrooms, several key themes and examples emerged. Firstly, many teachers cited improved student engagement as a significant outcome. For instance, one teacher shared that by incorporating MOOC content related to a history curriculum, students were more engaged and enthusiastic about learning, as they could explore interactive lessons and videos outside the regular classroom hours. Another big takeaway was restructuring delivered, personalized teaching. The teachers did note that they could have the student pick and choose which MOOC sections were most needed or of interest, so it seemed both sides wanted more of an electronic pull-push on this front. And, said a teacher, one student who was not great at math, became much better after he discovered a MOOC focusing on the subject. In addition, the majority of responses mentioned that MOOCs had an effect on increasing self-efficacy and confidence in learners.

Students reportedly felt they learnt to code and said teachers found they left the courses with a new confidence in their technical ability (Vanderbilt, 2016). This encouragement was also picked by teachers in terms that a well making use of MOOCs could have on collaborative mastering. They give examples of lessons they have taught in which students drew from MOOC materials to study and present on a topic, spurning collaboration and cooperation. The survey also found that MOOCs typically led to increased discussion and critical thinking in the classroom. For example, teachers pointed to MOOC content like gripping TED talks that not only instigated lively discussions but also helped students think more critically. One participant talked about MOOCs as tools that improved their ability to perform this translation from theory to practice which leads to a better connection with the curriculum. Some of the results of this survey include: How MOOCs Positively Impacted the Teaching & Learning Environment

Increased Student Engagement: Nearly all the teachers I talked to also mentioned that MOOCs had a profound influence on student engagement. They noticed that when students began incorporating MOOC content into their lessons, they were better able to motivate and come in touch with these learners. For instance, a teacher explained that teaching complex celestial concepts suddenly became a breeze with the help of an astronomy MOOC coupled with interactive simulations and videos.

Customized Learning: The study participants repeatedly indicated MOOCs are perfect for customized learning. This echoed the teachers who were able to have their students take specific MOOC modules that met their interests or targeted areas where they needed help. Take the example of a student who

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was baffled by chemistry and had success with a on-topic MOOC all about basic chemistry!

Promoting Self-Efficacy and Confidence: The data also revealed that MOOCs had a significant impact on self-efficacy and confidence of the students. Completing MOOC courses in different topics was creating a new self-confidence for students. A teacher described a quiet student who, after taking a MOOC about public speaking, became more confident and capable making presentations.

Promoting Collaborative Learning: There was a consensus that MOOCs have had a positive impact on collaborative learning among teachers. Several mentioned examples of group projects, where students went on to research and develop presentations using MOOC materials. This teamwork-focused learning environment not only helped to facilitate collaboration, but it also allowed students access to alternative viewpoints and resources.

Improve Class Discussion and Critical Thinking: MOOCs were seen as potential tools to enrich class discussion and develop more critical thinking skills. In the eyes of teachers, some content from MOOCs, like provocative TED Talks or philosophical debates, was fantastic for kick-starting discussions. These discussions gave the students an opportunity to discuss issues, related to or provoking more complex ideas and improve their abilities of critical thinking.

Comment: The research shows that MOOCs have made it easier to connect practical cases to the theoretical knowledge Researchers and faculty in higher education talked about MOOCs, with their use of hands-on learning methodologies and real-world case examples, as being the catalyst they needed to provide students with a way to make sense of the things they were learning in classrooms for application beyond them. The experience further cemented their understanding and inspired them to utilize their knowledge in real-world situations.

In summary, the survey results presented suggest that MOOCs have generated favourable effects on traditional classes by enhancing student engagement and providing personalized learning experiences, confidence and self-esteem, collaboration skills, and by enriching classroom discussions. In terms of these experiences, which stand in line with the objectives set by modern education as a whole, it showed the educational utility of MOOCs within contemporary classroom contexts.

Integrating MOOCs in the Classroom: A Few Challenges

We surveyed 180 educators on the roles of Massive Open Online Courses (MOOCs) in traditional classroom instruction and unravelled benefits along with challenges and obstacles. MOOCs are big hit as they have opened up vast possibilities for both students and teachers to enhance the teaching and learning process. Teaching however, as with any innovation in the field, the integration of MOOCs is not without its difficulties. This section of the report represents material drawn from interviews regarding which problems and barriers educators have faced when trying to integrate MOOCs in their teaching. In addition, we discuss some mitigation solutions that could help addressing these problems and increase the overall impact of MOOC integrated in traditional education. A survey was conducted among teachers who had attempted to implement MOOCs in the classroom, with a focus on what they struggled with most and their proposed solutions to overcome these obstacles.

Challenges Encountered

Common Challenges Lack of Access and Technology: Teachers consistently wrote about the lack of access or availability to technology and resources needed to effectively integrate MOOCs. These have been problems like poor internet accessibility and lack of enough devices for every student.

Time and Effort: All the respondents highlighted that it required extra time and effort to integrate MOOCs with conventional teaching as they have to choose suitable MOOCs, map it with syllabus or curriculum also make sure all are updated [by P1, ANUPAMA].

Different Learning Paces: One of the problems with MOOCs among teachers was that most students in their class were learning at different paces and having students using MOOC-based courses meant that they all wanted to cover different parts of the program in a very short period. The problem is that there are students who might fall behind the MOOC schedule and then you lose class cohesion.

Lack of Quality Control: Teachers were worried that MOOC content would be inconsistent or lower quality. Not all MOOCs were perceived as equally legitimate or demanding, however, they in turn became

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difficult to choose from that set for classroom use.

Potential Solutions

Increase in Access and Offerings: To address the digital divide provide infrastructure, student all tech required for successful connectivity to learning materials. Schools might also consider working with libraries or community centres to allow access for those who wouldn't be able to make the trip.

Teacher Training: It takes time and efforts, to quicken the process of MOOC integration teachers should also be trained on how best to integrate MOOCS in their curriculum. Such guidelines may pertain to choosing, customizing and embedding MOOC content.

Personalized Learning Journeys: A hybrid one to allow more in-depth and comprehensive Education suitable for mix of learning pace. It is an expandable model which enables teachers to add materials for their advanced students or additional support notes and downloads for those might need them. MOOCs can provide a way to differentiate instruction by allowing students to work at their own pace.

Quality Assurance: Setting in place a quality assurance mechanism to shortlist the MOOCs There is the opportunity for schools to appoint a review committee, which oversees the relevance, correctness and impact of MOOCs before they are deployed as a part of the curriculum. Teachers typically provide guidance on picking high-quality MOOCs as well, by sharing experiences and recommendations themselves.

To conclude, teachers have recognized such challenges as technology access, constraint of time, diverse paces of learning, and content quality when integrating MOOCs. At the same time, improved access, teacher training, differentiation of learning paths, and quality control can address these problems and boost the effectiveness of integrating MOOCs into traditional teaching practices to maintain the value of MOOCs while overcoming potential barriers.

Findings

Table 1 below shows the mean values and standard deviation for separate statements related to MOOCs integration into traditional classrooms: Based on the information in Table 1, the following trends can be identified: High student engagement is noted; MOOCs contribute significantly to student engagement, with a mean of 4.25 and SD of 0.75; Learning outcomes have improved. It is evident that the use of MOOCs in this context positively affects learning outcomes based on a mean of 4.23 and an SD of 0.65; personalized learning opportunities exist; MOOCs can provide personalized learning opportunities with a mean of 4.22 and SD of 0.88; Collaboration is enhanced. Such courses have a meaningful impact on collaboration, with a mean of 4.32 and an SD of 0.87; Improvement in motivation and interest is achieved; As it is not and the importance of MOOCs may require additional effort and time, high readings were obtained: motivation to complete assignments and participate in course activities, mean values 4.47 and high, a deviation is 0.57. Alignment with Modern Education Goals: The integration of MOOCs was perceived as less aligned with modern education goals, with a lower mean of 3.80 (SD = 1.05).

The table 2 shows the reliability of the instrument used in the study was high, with a Cronbach's Alpha value of 0.893, indicating strong internal consistency for the measurement tool used in this research.

The table 3 examines the relationships between demographic variables (gender, age, and professional experience) and various aspects of MOOC integration. Key findings include:

1. Integration of MOOCs: There is a significant association between demographic factors (gender, age, professional experience) and the integration of MOOCs in classrooms (p-value ≤ 0.05 for all).

2. Impact on Student Learning Outcomes: The demographic variables also show significant relationships with the perceived impact on student learning outcomes (p-value ≤ 0.05).

3. Student Engagement and Motivation: Significant associations were found between demographic variables and student engagement and motivation (p-value ≤ 0.05).

4. Perceptions and Experiences: Demographic factors were also associated with educators' perceptions and experiences regarding MOOCs' integration.

The table 4 analyses whether there are significant differences in the impact of gender on the integration of MOOCs. Key findings include:

1. No Significant Differences by Gender: The p-values for all aspects (Integration of MOOCs, Student Learning Outcomes, Engagement, and Perceptions) are not significant (all > 0.05), indicating no statistically

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significant differences between male and female educators' perceptions and experiences of MOOC integration.

The table 5 assesses the impact of age on various dimensions of MOOC integration. The findings indicate:

1. No Significant Differences by Age: Similar to gender, there are no significant differences in any of the aspects of MOOC integration (Integration of MOOCs, Student Learning Outcomes, Engagement, and Perceptions) based on age, as all p-values exceed 0.05.

The table 6 explores how professional experience affects the integration of MOOCs. Key findings include:

1. No Significant Differences by Professional Experience: The results show no significant differences in any of the dimensions (Integration of MOOCs, Student Learning Outcomes, Engagement, and Perceptions) based on educators' professional experience (p-values all > 0.05).

The table 7 shows the Pearson correlation coefficients between various dimensions of MOOC integration:

1. Positive Correlations: Strong positive correlations exist between:

Integration and Impact ($r = 0.438$, $p < 0.01$)

Integration and Engagement ($r = 0.594$, $p < 0.01$)

Integration and Perception ($r = 0.618$, $p < 0.01$)

Engagement and Perception ($r = 0.659$, $p < 0.01$)

2. Statistical Significance: All correlations are significant at the 0.01 level, showing that as one dimension increases, others tend to increase as well. This indicates the interconnectedness of the aspects of MOOC integration in traditional classrooms.

The table 8 presents regression analyses examining the relationship between predictors (Age, Gender, Professional Experience) and an unspecified criterion variable. The findings are:

No Significant Predictive Impact: The p-values for all predictors (Age, Gender, Professional Experience) are not significant (all p-values > 0.05), indicating that these variables do not significantly predict the criterion variable.

Discussion

The findings of this study provide valuable insights into the integration of MOOCs in traditional classroom settings. The structured survey and the statistical analyses (including descriptive statistics, ANOVA, and correlation tests) provide a complete picture of the influences MOOCs have upon instruction and learning. This post discusses the main results, contrasts them with earlier studies and considers their implications.

Student Engagement and Motivation

MOOCs enhanced student engagement and motivation (Mean = 4.25, SD=0.75). Study participants were in agreement that the incorporation of MOOCs into the classroom increased student engagement and excitement for learning.

This result is consistent with other studies where MOOCs contribute to the enhancement of student engagement. For example, Bali et al. MOOCs allow students greater exposure to diverse content and engagement, which results in higher level of motivation as stated by Brooker et al. (2018). Similarly, Bernard et al. For example, according to calculations done by Lan & Hew (2020), MOOCs can substantially increase learner engagement by providing interactive features like video lectures, quizzes, and peer assessments. Building on the above observation, we note how MOOCs play a significant role as well where collaborative learning is promoted and such enriched engagement necessarily has implication for keeping the classroom vibrant.

Impact on Learning Outcomes

MOOCs integrated into classrooms increased learning outcomes (Mean = 4.23, SD = 0.65). MOOCs were perceived to enhance academic achievements and knowledge gained according to educators.

This study lends support to research that has demonstrated the effectiveness of MOOCs on student learning (Witten, 2014). For example, Students scored better when they participated in a blended learning environment, utilizing MOOCs (streetcar named MOOC), than their peers in traditional settings (Zakaria et

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al., 2019). Likewise, Bozkurt et al, (2020) Secondly, MOOCs can be used as a tool for increased learner success in blended learning environments, providing the learners with access to thousands and thousands of resources and expert content (de Moura et al. 2021). While not related to this project, our results also corroborate the value of using MOOCs as supplements within some classroom settings (when carefully aligned with the curriculum and other learning needs).

Personalized Learning

A personalized learning experience was found in Key Finding (Mean = 4.22, SD = 0.88). Teachers observed that MOOCs made it possible for students to pursue learning activities associated with their individual interests or making up residual knowledge gaps.

The results for personalization are supported by work demonstrating MOOCs capacity to be personalized (Adams et al, 2021). Digital skills are required to learn via MOOCs (Rafiq-uz-Zaman & Nadeem, 2025). In the case of MOOCs, Perkins et al. (2022) highlighted that MOOCs offer a better way for students to progress through the learning path at their own speed, invoking flexibility and autonomy beneficial for students with varying learning preferences. Similarly, Perrotta et al. (2013) commented that MOOCs should provide a range of courses that will meet student needs for exploring topics more in depth and their own personal style of learning. Results from our experiment indicate that MOOC can greatly improve the customization of learning in classes.

Challenges in Integration

Result: Educators stated multiple barriers to the undergraduate adoption of MOOCs in face-to-face classrooms despite their potential benefits. There was a concern raised that MOOCs demanded extra time and effort to align with the curriculum, with mean of 4.22 (SD = 0.56).

The time and effort element of this challenge for tertiary educators is a well-worn theme in the literature. One of the largest barriers to integrating MOOCs is not only creating a space in their courses, but also allowing time for teachers to modify course content and add it into the curriculum (Ma & Lee, 2019). Not only MOOC even internet facilities are not available for madaris students (Rafiq-uz-Zaman & Ashraf, 2025). Yu, (2024) also discovered that not all MOOC content aligns perfectly with the desired learning outcomes; instructors sometimes struggle to monitor student progress in a self-paced environment. Similarly, Schreurs et al., (2014). Moreover, the preparation and adjustment required in order to ascertain that course content meets current educational standards can present a new challenge to even the most experienced instructors (Garrison, & Vaughan, 2008). Our findings imply that despite the numerous advantages offered by MOOCs, these benefits should be balanced with well-structured content and learning goals in order to supplant traditional teaching techniques.

Alignment with Modern Education Goals

Results: Using MOOCs to supplement traditional courses was somewhat less on point with more contemporary goal of learning in higher education (M = 3.80, SD = 1.05), suggesting an overarching skepticism about how MOOCs might or might not fit into a larger educational picture.

This discovery echoes certain literature-based worries about the coexistence of MOOCs and traditional educational patterns. According to Annabi & Wilkins, (2016) a considerable hurdle is to make sure MOOCs are in line with former authorized educational systems, the challenge pertains to validating the credit hours and that prior learning will conform to the standards set by institutions. Wang et al. Ultimately, Song et al. (2018) also noted that MOOCs are not always explicitly designed to be in lock step with specific curricular goals within traditional classroom settings. Nonetheless, other studies e.g. Bali et al, (2019), however, believe that MOOCs can be beneficial in the field of education if they are rightly blended together noting curation and pedagogical strategies lift happen to eliminate alignment issues which unfortunately cannot be addressed by other existing learning solutions.

The quality of MOOCs and choosing content

Finding: Educators expressed concern about the inconsistent quality of MOOCs, as some were viewed to be more rigorous than others and could make course selection complicated.

Quality Qualitative results of Bozkurt et al., 2014 in alignment with the experiences of those questioning the quality of MOOCs. In their report, quality and rigor as well as educational value of the many

MOOCs available differ widely. Jansen et al. Similarly, Dessart et al., (2015) highlighted issues of non-standardization within MOOCs and the difficulty this posed for educators trying to identify appropriate MOOC courses that might be integrated into formal classroom contexts. Our findings could serve to remind stakeholders that quality assurance measures need to be built into MOOCs in order for them to comply with classroom-style educational standards.

The results of the current study are consistent with prior research on MOOC integration into traditional classroom activities. MOOCs are understood to be useful adjuncts, which can increase student time on task, personalize instruction and amplify engagement with existing resources and instructional approaches. However, integration of these processes is challenging especially in relation to curriculum alignment, content quality and educators time and effort. The literature highlights these challenges and leads to the conclusion that MOOCs show promise, but set in a wider context can only start by being planned for carefully with adequate support/confidence building mechanisms and resources.

Implications for Practice

The key takeaways here are that educators will need substantial training to use MOOC effectively and technological infrastructure needs to be made available by institutions to support this. In addition, MOOCs need to be selectively chosen and integrated with the curriculum such that they dovetail seamlessly with traditional methods of teaching.

Future Research

Future research is needed to investigate the integration of MOOCs according to a discipline and in primary/secondary education. Longitudinal studies should also be considered to determine the long-term impact that MOOCs have on student engagement and learning outcomes. More broadly, we might wonder if MOOCs help with learning to problem solve, or work together when tackling problems. Future research can certainly explore this area as well.

Recommendations

The study has proposed the followings;

1. Deliver training to teachers and professional development on how best to incorporate MOOCs at school.
2. Infrastructure: Invest to ensure students have the technology and tools they need (internet, devices)
3. Integrate MOOCs into regular curricula so that MOOCS can supplement and support classroom teaching.
4. Make use of group projects and peer assessments using content from a MOOC to encourage people to learn together.
5. Provide personalized, self-paced learning paths to suit a range of student learning speeds and requirements.
6. Put a selection of MOOCs for consideration through some quality assurance process, to ensure they match up with the academic standards and goals for that particular course.
7. Ensure teachers are supported institutionally, with resources, learning and tech help.
8. Develop a mechanism that allows for continuous assessment of MOOC integration to evaluate impact on student engagement and learning outcomes.
9. Encourage MOOCs in lifelong learning programs that stress adult flexibility and accessibility.
10. Call for further work to explore a range of MOOC integration models in different educational scenarios, disciplines.

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