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Quantitative Study of MOOCs Awareness among Teacher Educators

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ABSTRACT

Delving into the realm of knowledge dissemination, this research focuses on Massive Open Online Courses (MOOCs) among teacher educators in the vibrant region of Punjab, India. Various demographic factors such as gender, geographical setting, institutional type and educational qualifications are taken into careful consideration. Employing a descriptive investigative approach, the study utilized well-crafted questionnaires, dispersing them amongst a cohort of 100 teacher educators hailing from both privately run and government-aided institutions. The data statistically reveals insights through mean calculations, standard deviation assessments, and t-ratio analysis. The revelations uncovered a notable disparity in awareness levels between the male and female teacher educators. Nevertheless, no glaring disparities were discerned concerning geographical spread or institutional categorization. Remarkably, teacher educators with PhDs exhibited noticeably different awareness than postgraduates. This study effectively emphasizes how crucial it is to implement interventions meant to enhance teacher educators' awareness of MOOCs. Moreover, it sheds a luminous spotlight on the need for further scholarly exploration to understand the causes behind the observed variances and

to craft efficient methodologies for embedding MOOCs within the teacher training initiatives. These insightful discoveries highlight the significance of bridging demographic divides to ensure an egalitarian scope of professional growth.

Introduction

In the realm of higher education, there has been a notable rise of Massive Open Online Courses (MOOCs), acting as a catalyst for transformation and change, presenting a wide array of adaptable and easily accessible learning opportunities to a global audience. Platforms such as Coursera, Udacity, and edX were among the initial pioneers that popularized MOOCs, which have now garnered widespread approval to democratize education and broaden the reach of top-notch learning materials. MOOCs have emerged as one of the most potential tools in providing quality education and extensive training to a vast audience globally. The reach of MOOCs extends to a broad domain of learners around the world, facilitating the dissemination of knowledge through an efficient digital platform. Additionally, it fosters a vast network encompassing students, scientists, professors, scholars, teachers, and various other stakeholders within the education sector. Despite the numerous advantages and efficacy of MOOCs, the participation from individuals in developing countries, particularly India, remains relatively low in numbers. India, recognized as a promising hub for education, presents a fertile ground for the widespread adoption of MOOCs on a large scale. While the incorporation of MOOCs has made a significant impact across various fields like business, technology, and healthcare, their application in the realm of teacher education remains an ongoing subject of exploration and discourse.

The educational landscape has witnessed a surge in the integration of technology over recent years, propelled by the necessity to cater to diverse learning requirements and enhance teaching approaches. Offering a range of courses spanning diverse subjects from curriculum structuring and evaluation to educational technology and classroom organization, MOOCs hold the promise of equipping educators with the essential knowledge and competencies to excel in the dynamic educational sphere of today. MOOCs also present a substantial opportunity to tackle the various challenges existing in the field of teacher education in India, with a specific focus on aspects such as quality, accessibility, and relevance.
The National Education Policy (NEP) 2020, a groundbreaking and transformative initiative introduced by the Government of India, places a strong emphasis on the critical importance of MOOCs in reshaping the educational landscape of the nation. MOOCs are positioned as essential tools in advancing the objectives of continuous learning and skill enhancement, catering to a diverse demographic of learners spanning

various age groups and backgrounds. The NEP advocates for the seamless assimilation of MOOCs into both school and higher education curricula. Moreover, the NEP underscores the pivotal role of MOOCs in supporting the ongoing professional development of educators, equipping them with the latest pedagogical techniques and subject matter expertise. Through the utilization of MOOCs, teachers can engage in tailor-made training initiatives that foster their growth as facilitators of knowledge transmission. Furthermore, the policy actively encourages collaborative partnerships between Indian educational establishments and global MOOC providers, facilitating the exchange of knowledge and promoting cross-cultural learning encounters. Through these collaborative endeavors, the NEP envisions MOOCs as catalysts for the democratization of education, fostering a culture of innovation, and nurturing a workforce that is well-prepared to meet the dynamic challenges of the 21st century.

According to Asha Kumari (2016), there is evidence to suggest that MOOCs have the capability to augment teacher professional growth and the effectiveness of in-service training initiatives. Nevertheless, there is a scarcity of research addressing the extent of MOOC adoption within the Indian educational landscape, with factors such as social environment, perceived utility, user-friendliness, and the caliber of content playing crucial roles in influencing the decision-making process (Virani et al., 2020). Various other inhibitory elements like technological challenges, financial limitations, and a lack of awareness act as deterrents to the integration of MOOCs among educators in higher education institutions (Bhaskar et al., 2021). Notwithstanding these obstacles, India stands out among developing nations for its remarkable engagement with MOOCs. In order to fully leverage the potential of MOOCs within the realm of Indian teacher education, it is imperative to tackle issues such as limited digital literacy and inadequate digital infrastructure (Chatterjee & Nath, 2014).

The examination of research data originating from various educational contexts offers valuable insights into the levels of awareness among teacher educators regarding MOOCs and the various influencing factors associated with it. Research conducted in Greece indicates that teachers demonstrate a significant degree of preparedness to leverage MOOCs for their professional development purposes; however, their levels of awareness regarding this educational tool are notably low, as highlighted in the study by Bakogianni et al. (2020). Within underserved communities in New Jersey, there appears to be a lack of emphasis on how African Americans are introduced to MOOCs, underscoring the urgent requirement for the development and implementation of strategic initiatives aimed at enhancing awareness levels and reducing educational disparities (Houston, 2020). Conversely, in India, MOOCs have proven to be effective in fulfilling the learning objectives of both students and educators in State Universities. Nonetheless, the participation rates remain relatively low, particularly among female individuals,

predominantly due to a lack of awareness and challenges related to infrastructure (Kundu & Bej, 2020). Various factors hinder the integration of MOOCs among teachers in higher education institutions in Uttarakhand, India, including obstacles such as technological limitations, financial constraints, and a general lack of awareness, as identified in the research conducted by Priyanka et al. (2021). Furthermore, an examination of B.Ed. Student teachers reveal that while they exhibit proficient internet usage and online discussion skills, their overall awareness and perceptions regarding MOOCs remain limited (Shaheen & Shaikh, 2017). Collectively, these findings strongly indicate that variables such as gender, geographical location, type of educational institution, and level of qualification can significantly shape the levels of awareness and utilization of MOOCs among teacher educators.

The exploration of potential benefits offered by MOOCs for Teacher Professional Development (TPD) is a key focus of various research papers in the field. MOOCs have emerged as a highly regarded and efficient approach for providing extensive teacher training at a relatively low cost, while also offering the convenience of access from anywhere. Moreover, they are known for their adaptability to diverse cultural and linguistic settings, as highlighted in studies by Misra (2018) and Singh (2018). Nevertheless, the willingness of teachers to engage in MOOCs can differ significantly based on a range of factors such as gender, years of experience, and subject specialization, all of which have the potential to influence their attitudes towards integrating Information and Communication Technology (ICT) into educational practices (Angadi, 2014).

Bakogianni et al. (2020) indicated that MOOCs have the capacity to complement traditional methods of TPD effectively, thereby helping to overcome the challenge of ensuring that educators remain updated with the latest advancements in their field. However, it is underscored that there is a necessity for further in-depth research to gain a comprehensive understanding of how individual characteristics impact readiness for MOOC participation and to devise strategies that can enhance their efficacy within the realm of TPD, as noted by Misra (2018) and Bakogianni et al. (2020).

The groundbreaking discoveries presented in this research shed light on the vast potential that MOOCs offer in revolutionizing the landscape of teacher education. While it is equally evident that there exist substantial obstacles that need to be overcome to fully harness their transformative power. The primary objective of this study is to delve into the levels of knowledge, perspectives, and utilization of MOOCs for higher education among teacher educators in India, as well as devising effective strategies to promote the integration of MOOCs into teacher education programs. By conducting a comprehensive analysis of these complex issues, this research endeavors to provide valuable insights that can guide the development

of policies and initiatives aimed at leveraging the capabilities of online learning to enrich the professional growth of teacher educators and elevate the standards of teacher education in India.

Objectives of the study

- To compare awareness about usage of MOOCs among teacher educators with respect to their gender.
- To compare awareness about usage of MOOCs among teacher educators with respect to their locale.
- To compare the awareness about usage of MOOCs among teacher educators with respect to their institutes (private or government aided).
- To compare awareness about usage of MOOCs among teacher educators with respect to their qualification level.

Hypotheses of the study

- There exists no significant difference in awareness about MOOCs among male and female teacher educators.
- There exists no significant difference in awareness about MOOCs among rural and urban teacher educators.
- There exists no significant difference in awareness about MOOCs among private and government teacher educators.
- There exists no significant difference in awareness about MOOCs among teacher educators with respect to their qualification level.

Using a survey method and descriptive study strategy, the study's objectives were met. Through convenience sampling, 100 male and female teacher educators from both urban and rural areas were chosen from among the several private and government-aided colleges in Punjab. A self-created survey on teacher educators' awareness of MOOCs for higher education was used to gather data. The study was limited to teacher educators working in universities in both rural and urban areas that solely offered Bachelor of Education (B.Ed.) degrees. The four primary factors- gender, location, type of institution, and educational qualification are measured, and statistical methods like mean, standard deviation, and t-ratio are used to calculate each variable's individual score.

Findings and Interpretation

Out of a sample size of 100, there were 29 male and 71 female teacher educators as shown in Figure 1. The mean awareness score for females stands at 69.142, with a standard deviation of 10.852, while for males, the mean is 74.517, accompanied by a standard deviation of 11.422.

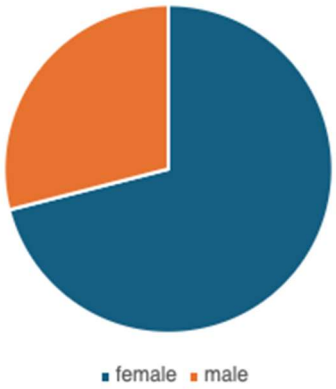

Figure 1: Gender Distribution of Sample for MOOCs Awareness Study (29% Male, 71% Female)

Subsequently, following the computation of means and standard deviations in Table 1, the t-ratio between these two groups is determined to be 2.110 at 0.05 significance level. This demonstrated a significant disparity in awareness scores between male and female teacher educators leading to the rejection of the null hypothesis. Consequently, it can be inferred that there exists a statistically significant gap in the understanding and familiarity with MOOCs based on the gender of teacher educators.

VARIABLES		MEAN	SD	t- ratio (0.05 level)
GENDER	FEMALE	69.142	10.852	2.110
	MALE	74.517	11.42	

Table 1: MOOCs Awareness by Gender – Mean, SD, and t-Ratio Analysis

The second objective of this research was to evaluate and compare the awareness levels concerning MOOCs among teacher educators by considering their geographical location. Figure 2 shows that 52 out of 100 teacher educators are from rural areas and 48 are from urban areas.

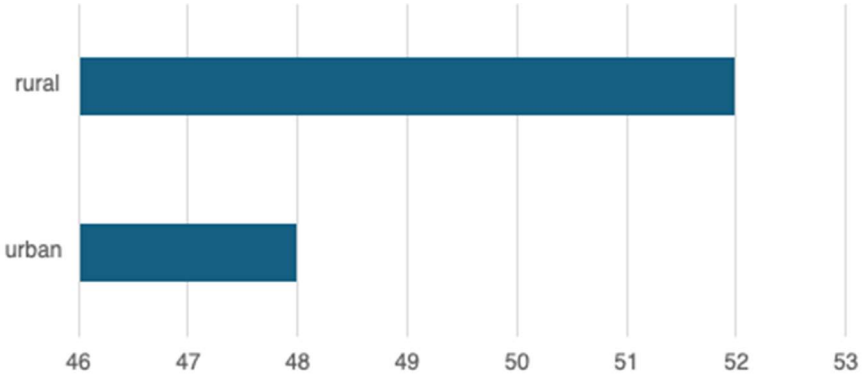

Figure 2: Locale Distribution of Sample for MOOCs Awareness Study (48% Rural, 52% Urban)

The average awareness score for rural teacher educators is calculated at 71.653, with a standard deviation of 12.360, whereas for urban counterparts, the mean is 69.680, with a standard deviation of 9.837 as shown in Table 2. Following the mean and standard deviation calculations, the t-ratio between these two groups is computed to be 0.798 at 0.05 significance level. This indicated no significant variance in awareness scores between rural and urban teacher educators, the null hypothesis was accepted. This acceptance signifies that there is no substantial disparity in the understanding and knowledge about MOOCs influenced by the locale of teacher educators.

VARIABLES		MEAN	SD	t- ratio (0.05 level)
LOCALE	URBAN	69.680	9.837	0.798
	RURAL	71.653	12.360	

Table 2: MOOCs Awareness by Locale – Mean, SD, and t-Ratio Analysis

The third objective of the research was to assess and compare the level of awareness regarding MOOCs among teacher educators based on the nature of their institutes, whether privately owned or government-funded, to gain insights into potential disparities. Figure 3 shows that within the sample of 100 participants, 39 are affiliated with government-aided establishments, while 61 belong to private institutions.

Figure 3: Distribution of Sample by Type of Institution (39% Government-Aided, 61% Private)

The mean awareness score for government-aided educators is determined to be 69.868, with a standard deviation of 14.551, whereas for private educators, the mean is 71.245, with a standard deviation of 8.653 as shown in Table 3. After the mean and standard deviation calculations, the t-ratio between these two groups is found to be 0.446 at the 0.05 significance level. This indicates that the disparity in awareness scores between teacher educators affiliated with private institutions and those associated with government establishments did not reach a statistically significant threshold, thereby leading to the acceptance of the null hypothesis. Thereby indicating the notion that there is a lack of substantial divergence in awareness levels regarding MOOCs, emphasizing a uniformity in their understanding and knowledge of both government aided and private teacher educators on the subject matter.

VARIABLES		MEAN	SD	t- ratio (0.05 level)
Type of institution	GOVERNMENT	69.868	14.551	0.446
	PRIVATE	71.245	8.653	

Table 3: MOOCs Awareness by type of Institution – Mean, SD, and t-Ratio Analysis

The fourth objective of this study was to compare the levels of awareness regarding MOOCs among teacher educators, considering their respective qualification levels. Figure 4 shows that 65 out of 100 teacher educators were postgraduates and 35 were doctorate holders.

Figure 4. Distribution of Sample by Educational Qualification (65% Postgraduates, 35% Doctorate holders)

The hypothesis initially proposed posited that there would be no substantial difference in the awareness levels about MOOCs among teacher educators based on their qualification level. However, upon careful interpretation of the findings in Table 4, where the t-ratio of 5.798 at the 0.05 significance level highlighted a significant gap in awareness scores between teacher educators with postgraduate degrees and those with doctorates, the null hypothesis was rejected. This rejection indicates a statistically significant disparity in the understanding and familiarity with MOOCs influenced by the educational qualification level of teacher educators.

VARIABLES		MEAN	SD	t- ratio (0.05 level)
EDUCATIONAL QUALIFICATION	POST GRADUATE	66.523	9.692	5.798
	DOCTORATE	78.735	9.583	

Table 4: MOOCs Awareness by Educational Qualification – Mean, SD, and t-Ratio Analysis

Discussion

The present quantitative study explored the level of awareness regarding Massive Open Online Courses (MOOCs) among teacher educators in Punjab, considering four major demographic variables: gender, locale, type of institution, and educational qualification. The findings reveal that awareness of MOOCs among teacher educators is not uniformly distributed and is influenced by certain demographic characteristics, while others show no noticeable impact.

The analysis based on gender indicates a statistically significant difference in awareness levels. Male teacher educators demonstrated a higher mean awareness score compared to their female counterparts, and the obtained t-value confirmed that this difference is significant. This finding suggests that gender

plays an important role in influencing exposure to and familiarity with MOOCs. The difference may occur due to variations in access to digital tools, confidence in using technology, opportunities for professional development, or participation in online learning environments. This result highlights the need for special attention towards increasing awareness and digital engagement among female teacher educators to ensure equitable professional growth opportunities.

In contrast, the comparison based on geographical location (rural and urban) showed no statistically significant difference in awareness levels. Although it is commonly assumed that urban educators may have greater access to digital resources and online learning platforms, the findings of this study suggest that such a gap is gradually narrowing. The growing availability of internet connectivity, mobile devices, and online educational platforms even in rural regions may have contributed to similar exposure levels among rural and urban teacher educators. This reflects a positive shift towards digital inclusiveness in professional learning opportunities.

Similarly, analysis based on the type of institution, whether government-aided or private, did not reveal any statistically significant difference in awareness levels. Teacher educators from both sectors displayed almost comparable levels of familiarity with MOOCs. This indicates that the open and freely accessible nature of MOOCs enables individuals from diverse institutional backgrounds to access the same learning resources. As a result, MOOCs appear to be reducing traditional barriers related to institutional affiliation and are emerging as an equalizing platform for professional development.

On the other hand, educational qualification emerged as a strong factor influencing awareness of MOOCs. Teacher educators holding doctoral degrees demonstrated a significantly higher awareness level than those with postgraduate qualifications. This may be attributed to their greater engagement in academic research, professional networking, self-directed learning, and higher exposure to digital scholarly platforms. Doctoral-level educators are also more likely to explore diverse learning opportunities to support their academic and professional advancement, which may explain their greater familiarity with MOOCs.

Overall, the findings suggest that while MOOCs are gaining recognition among teacher educators, awareness is still uneven across certain groups. The significant differences based on gender and academic qualification point to the need for targeted awareness programs, digital training sessions, and institutional support mechanisms. If such interventions are introduced in teacher education institutions, they can help bridge existing gaps and promote greater participation in MOOCs.

The study also reflects the potential of MOOCs as a valuable tool for continuous professional development in teacher education. By improving awareness and encouraging participation among all

categories of teacher educators, MOOCs can contribute significantly to enhancing teaching quality, updating subject knowledge, and strengthening digital competencies in alignment with the changing demands of modern education

Conclusion

The overall findings shed light on the connections between different variables and the achieved scores, revealing statistically significant differences in scores based on gender and educational level, rather than location or institution type. The initial inquiry uncovered a substantial disparity in awareness ratings between male and female teacher educators, pointing to a gender-related unusuality in awareness and familiarity with MOOCs. This highlights the need for targeted interventions to enhance awareness among both male and female educators and promote gender equality in accessing professional development opportunities provided through MOOCs. Following this, although no significant variations in awareness levels were observed based on location, indicating a consistent understanding of MOOCs among educators regardless of their urban or rural setting, this finding emphasizes the widespread availability of information and resources in the digital age. Moreover, the research found no substantial differences in awareness levels based on the type of educational institution to which teacher educators were affiliated, suggesting a uniform comprehension of MOOCs across privately managed and government-funded establishments. This highlights the potential of online learning platforms in democratizing access to professional development opportunities and bridging gaps between various educational institutions. Lastly, the study revealed a notable difference in awareness scores between teacher educators with postgraduate degrees and those with doctoral qualifications, indicating a positive relationship between higher academic credentials and a deeper understanding of MOOCs. This underscores the importance of continuous professional development and advanced academic opportunities for better comprehension of emerging educational technologies. By utilizing these findings, policymakers and education stakeholders can develop focused strategies to integrate MOOCs into teacher training programs, ultimately enhancing the professional development and effectiveness of educators in the digital age. In conclusion, the integration of MOOCs into teacher education programs in Punjab requires a comprehensive approach. Awareness and training initiatives accompanied with integration of MOOCs into the curriculum through blended learning modules and acknowledging course credits will further encourage participation. Institutional support, including designated MOOC coordinators and incentive mechanisms, along with robust technological infrastructure, ensures accessibility and participation. Establishing support networks and tailoring content to local contexts will enrich the learning experience. Continuous research and assessments, combined with proactive policy advocacy and securing financial resources, will uphold and

enhance these efforts. Through the implementation of these strategies, a more equitable and enhanced professional development environment for teacher educators in Punjab can be cultivated, ultimately leading to a more efficient and contemporary educational landscape.

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