IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

Utilization of SWAYAM MOOCs by Teacher Education Students: An Analysis of Awareness, Attitudes, and Barriers

Gunjan

M.Ed. Student

Department of Education

University of Delhi, Delhi, India

Abstract : This study examines B.Ed. and M.Ed. students from Delhi University (CIE) about their knowledge, attitudes, and obstacles regarding SWAYAM MOOCs. Data from teacher education students was gathered through a quantitative survey approach to gauge their understanding of SWAYAM, opinions about its educational usefulness, and difficulties using the platform. According to the results, most students are aware of SWAYAM MOOCs and appreciate their flexibility in studying; yet, there are still gaps in their knowledge of certification benefits and credit transfer regulations. Although MOOCs are usually well received by students, issues with low faculty participation, poor content quality, and little interaction in online learning environments were observed. Poor internet connectivity, insufficient MOOC usage training, time restrictions, and institutional indifference to the implementation of online learning are some of the main obstacles that have been noted. Mandatory credit recognition for SWAYAM MOOCs, training in digital literacy, and the creation of blended learning models are some of the policy ideas. The socioeconomic aspects influencing SWAYAM MOOC uptake in teacher education, faculty viewpoints, and longitudinal participation trends should all be investigated in future studies.

Keywords: **Utilization, Awareness, Attitude, Barriers, SWAYAM MOOCs, Teacher Education Students**

1. Introduction

Massive Open Online Courses (MOOCs) in various subject areas are available on the SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds) platform, which was introduced by the Indian government. Thanks to this initiative, all people, especially those in the higher education and professional development sectors, should be able to receive high-quality education. The SWAYAM project, initiated by the Indian government, aims to achieve the three guiding principles of education policy: quality, equity, and access. This project seeks to make the best teaching and learning resources available to everyone, including the most underprivileged. SWAYAM seeks to close the digital divide for students who have not been able to integrate into the knowledge economy and have not yet been impacted by the digital revolution (https://swayam.gov.in/about).

All students throughout the world have access to a wide range of excellent educational resources through MOOCs (Liu & Sun, 1995). MOOCs can be a cost-effective learning option for students because of their free or low-cost resources, especially in developing countries like India where access to educational materials is limited (Kennedy, 2014). Students can obtain credentials with minimal effort and select any course from the vast array of online courses offered by MOOCs at their own time, place, and pace (Jrall & Gupta, 2021). MOOCs, as defined by Liyanagunawardena et al. (2014), are online/blended learning environments where students can join up and communicate with mentors, instructors, and other students through discussion boards and assignments.

Four sections comprise the courses offered on SWAYAM: (1) video lectures; (2) readings that have been particularly prepared and can be printed or downloaded; (3) quizzes and tests for self-assessment; and (4) an online discussion forum for questions and answers. With the use of cutting edge pedagogy and technology, steps have been taken to enhance the educational experience using audio-video and multi-media.

SWAYAM provides free or inexpensive courses with an emphasis on the caliber of students, instructors, and course materials. The government, national agencies, educational institutions, and students must all be involved for SWAYAM to be successful. MOOCs are influencing India's educational system as they gain popularity in western nations (Vijayashekaranayaka, 2020).

Different courses are offered by SWAYAM according to curriculum, talents, and continuous education. The benefit of these courses is that, in essence, students can receive credit for completing them. The credits can be applied to the student's academic record. MOOCs' learning settings facilitate collaboration among students worldwide on shared objectives (Yeole, Nagne, & Bhaisare).

To ensure the production and delivery of the highest caliber of content, ten National Coordinators have been chosen. They're (https://swayam.gov.in/about):

1. AICTE (All India Council for Technical Education) for self-paced and international courses
2. NPTEL (National Programme on Technology Enhanced Learning) for Engineering
3. UGC (University Grants Commission) for non-technical post-graduation education
4. CEC (Consortium for Educational Communication) for under-graduate education
5. NCERT (National Council of Educational Research and Training) for school education
6. NIOS (National Institute of Open Schooling) for school education
7. IGNOU (Indira Gandhi National Open University) for out-of-school students
8. IIMB (Indian Institute of Management, Bangalore) for management studies
9. NITTTR (National Institute of Technical Teachers Training and Research) for Teacher Training programme
10. INI (Institutes of National Importance) for Non-Technical Courses

SWAYAM courses are free for students to take, but those who wish to acquire a SWAYAM certificate must sign up for the final proctored tests, which are paid for, and show up in person at defined locations on predetermined dates. Certificate eligibility will be posted on the course website, and students will only receive certificates if they meet these requirements. Certificates and grades earned in these courses can be used for credit transfer by colleges and universities.

1.1 Timeline of SWAYAM

2014: SWAYAM's conceptualization	The Honorable Prime Minister of India, Shri Narendra Modi, established the groundwork for SWAYAM at the India Digital Summit on February 7, 2014, where he presented his vision for "Digital India." The goal of this project was to reach even the most remote areas with high-quality education via digital means.
2015: Launch of the Digital India Initiative	The Ministry of Human Resource Development (MHRD) proposed SWAYAM MOOCs as a way to make top-notch education available online as part of the broader Digital India initiative**.**
2017: Official Launch of SWAYAM	The SWAYAM Portal, SWAYAM Prabha DTH Channels, and the National Academic Depository were formally inaugurated on July 9, 2017, by Indian President Shri Pranab Mukherjee at the National Convention on Digital Initiatives in New Delhi (Press Information Bureau, Government of India, 2017). According to (Gohain, 2017), SWAYAM is a "Made in India" IT platform that can host courses for students starting in Class IX and continuing through post-graduation, giving everyone, anywhere and at any time, access to educational materials. This platform provided 80,000 learning hours and more than 2,000 courses covering undergraduate, graduate, professional, and K–12 education.
2018: Expansion and Credit Transfer Policy	As of December 31, 2018, SWAYAM was a key mechanism for incorporating MOOCs into conventional academic systems, with 92 universities accepting credit transfer for

	courses taken through it. (Press Information Bureau, Government of India, December 31, 2018).
2019: SWAYAM MOOCs Participation Milestones	According to a report released by the Government of India's Press Information Bureau, more than 7.2 million students have signed up for SWAYAM MOOCs as of January 11, 2019, and almost 200,000 of them had finished the courses. This demonstrated the increasing popularity of online learning, especially in higher education.
2020: Pandemic-Driven Surge in Online Learning	SWAYAM emerged as a vital platform for maintaining educational continuity throughout the COVID-19 pandemic. Registrations and course enrollments significantly increased as a result of the change to online learning, demonstrating its value as a dependable instrument for distance learning.
2021: Integration with NEP 2020 Goals	SWAYAM was in line with the 2020 National Education Policy (NEP), which placed a strong emphasis on flexibility, lifelong learning, and technological integration in higher education. The platform began providing courses that complemented NEP goals, including skill development and transdisciplinary learning. 2022: Expanded Course Selection and Improvements
2022: Diverse Course Offerings and Upgrades	By 2022, SWAYAM offered technical, non-technical, and professional courses from eleven National Coordinators, including UGC, NCERT, AICTE, and NIOS. To improve accessibility, the platform redesigned its mobile app and added user-friendly features.
2023: Global Recognition and Collaborations	With partnerships with foreign universities to offer cross-institutional courses, SWAYAM is known as one of the biggest MOOC platforms in the world. For teacher training programs, a number of state governments started endorsing SWAYAM courses.
2024: Focus on Inclusion and Skill Development	To bridge the digital divide in the current situation, SWAYAM has extended its reach to underserved and rural regions. More than 1,000 new courses in cutting-edge subjects like artificial intelligence, data analytics, and sustainability have been introduced, and special programs have been started to increase digital literacy and provide fair access to SWAYAM MOOCs. With an emphasis on real-time doubt-solving capabilities, adaptive learning, and interaction with global credit systems, the SWAYAM 2.0 project is now in progress.

2. Significance of research

- This study evaluates how well SWAYAM is reaching its target audience in the teacher education sector by gauging students' awareness and perceptions of the platform. This information can help shape policy changes for greater accessibility.
- By exploring the attitudes of teacher education students towards SWAYAM MOOCs, the study will reveal how students perceive online learning initiatives.
- The research will focus on particular obstacles that teacher education students encounter when using SWAYAM MOOCs, like limited internet connection, low motivation, or inadequate technological proficiency. The usability and efficacy of SWAYAM MOOCs can be improved by identifying these challenges, which can also guide initiatives to remove them and make the platform more approachable and user-friendly.
- The study's results will shed further light on how teacher education students use online learning environments such as SWAYAM, emphasizing the necessity of including digital literacy into programs that prepare future educators.

3. Objectives of research

- To assess the level of awareness among teacher education students regarding SWAYAM MOOCs.
- To explore the attitudes of teacher education students towards SWAYAM MOOCs as an educational initiative.
- To identify the barriers faced by teacher education students in utilizing SWAYAM MOOCs effectively.

4. Hypotheses of research

H1: Teacher education students have a significant level of awareness regarding SWAYAM MOOCs.

H2: Teacher education students exhibit a positive attitude towards SWAYAM MOOCs as an educational initiative.

H3: Teacher education students face identifiable barriers in effectively utilizing SWAYAM MOOCs.

SWAYAM has the ability to completely transform education, but it is important to comprehend how well it connects with teacher education students and meets their individual needs. This leads to a more thorough investigation of previous research in the literature review, which looks at earlier studies on SWAYAM MOOCs awareness, attitudes, and impediments, especially in the context of teacher education.

5. Literature Review

According to Gaurav Singh and Rashmi Chauhan (2017), Massive Open Online Courses (MOOCs), which are largely free and do not grant credit, have become game changers due to their flexibility in terms of time and location. Both pre-service training and in-service professional development can benefit greatly from MOOCs. 156 teacher educators' awareness of MOOCs was examined under subcategories such as understanding the concept, usability, technology, present practices, and policy guidelines. There is misunderstanding about the MOOCs' function in teacher preparation. Insufficient knowledge remains regarding Indian MOOC programs such as SWAYAM. According to the study's findings, teacher educators now need to gain a thorough comprehension of MOOCs.

The major goal of the study of Sahoo et al. (2019), is to examine university and college students' knowledge of the UGC MOOC program in relation to their level and field of study was one of the study's goals. Another was to find out how beneficial the MOOC program was viewed by the student participants. The study design used was ex post facto. Thirty MOOC course participants in Educational Administration, Management, and Leadership comprised the sample for objective 2, whereas 400 University of Allahabad sample students were selected for objective 1. Data was gathered using a self-made Awareness Test, Reaction Scale, and Perception Questionnaire. Chi square and "t" tests were used to analyze the data. Students' awareness of MOOCs was found to be below average. Students' responses to MOOC courses were determined to be favorable. The MOOC program proved to be highly beneficial to the participants.

The study of Ambadkar, (2020), looks at how well-informed commerce students are about MOOCs and the SWAYAM platform, as well as the factors that affect how often students use SWAYAM and MOOCs. The study finds that while commerce students have a favorable attitude about learning through SWAYAM MOOCs, they are not well aware of them. The inability to use ICT skills was one of the main factors impacting the usage of MOOCs as a teaching method. One reported limitation of MOOC learning was the absence of in-class instruction and one-on-one interactions with teachers. The study came to the conclusion that students should be encouraged to use MOOCs as a learning tool. To increase the acceptability of SWAYAM certification in the labor market, cooperation between the government, all national coordinators of SWAYAM, universities, and industry academia will be required.

According to Sikarwar et al. (2022), the Indian government has made an effort to offer an interactive platform for open education. Despite SWYAM's proximity to the government, it is important to know how real users feel about it. Given this, it becomes crucial to understand how instructors and students view SWAYAM. A self-designed questionnaire is used to identify key dimensions for instructors' and students' perceptions of the SWAYAM Platform of learning based on a sample of both groups. Over 70% of the participants are investing time in SWAYAM courses, and they concur that it facilitates knowledge acquisition. The study identifies various factors that shape teachers' and students' perceptions. The findings showed that although Swayam courses are seen as an adaptable, creative, engaging, and simple tool, they may be challenging to use and may not increase employability. The study will serve as a reference for developing regulations that consider instructors' and students' perceptions of the beneficial use of SWAYAM. Additionally, suggestions and practical ramifications are offered to the higher education government in order to make SWAYAM MOOCs successful.

The goal of the study was to find out how much college students knew about SWAYAM courses (Bala, R.). Purposive sampling was used to choose a sample of 112 college students. The respondents were sent a self-made Google Form questionnaire. The survey received responses from 112 college students. To determine the study's conclusions, statistical analysis was performed on the gathered data. According to the survey, college students' awareness of SWAYAM courses varied significantly depending on their age groups and qualifications, but not much depending on their discipline or region.

The purpose of the study of Karthigeyan & Prapakaran (2022), is to determine prospective teachers' awareness, preparedness for learning, and use of SWAYAM MOOCs. The researchers used a survey method to conduct the study, and information was gathered from 290 participants who were chosen using random sample techniques. The study's findings showed that the aspiring instructors had a

modest level of awareness and preparedness for learning SWAYAM. It was discovered that the determining factors were a lack of digital literacy and an inability to use online resources. It was proposed that in order to improve their lifelong learning skills, aspiring teachers should be encouraged to use online learning resources and awareness-raising campaigns.

The studied research emphasizes how SWAYAM MOOCs can improve educational equity, quality, and accessibility for a wide range of learners, including teacher education students. Studies by Sahoo et al. (2019) and Singh and Chauhan (2017) highlight the growing significance of MOOCs in academic and professional growth while exposing student awareness and digital preparedness gaps. Studies by Karthigeyan and Prapakaran (2022) and Ambadkar (2020) highlight the necessity of enhancing digital literacy and removing obstacles like ignorance and inadequate ICT proficiency that prevent SWAYAM MOOCs from being used effectively. These findings align closely with the objectives of this study, which are to evaluate the awareness, attitudes, and obstacles teacher education students face when implementing SWAYAM MOOCs. By expanding on these discoveries, this research aims to aid in the discussion of how to incorporate online learning environments into teacher preparation programs and to pinpoint methods for increasing their uptake and influence.

6. Methodology

6.1 Research Design

This study employed a descriptive survey design using a quantitative approach to explore the awareness, attitudes, and barriers related to SWAYAM MOOCs among teacher education students. A thorough grasp of students' perceptions and experiences can be systematically captured with this method.

6.2 Sample selection

The teacher education students (B.Ed. and M.Ed. students) of the University of Delhi (CIE) were chosen as the sample for this study. Convenient sampling was employed to represent the population.

6.3 Tools and Tool Development

A systematic Likert-scale-based questionnaire was created especially to collect the data. Questions were designed to assess the awareness level, attitude, and perceived barriers among the teacher education students.

The questionnaire was divided into the following key sections:

Section A: Awareness of SWAYAM MOOCs

Section B: Attitude towards SWAYAM MOOCs

Section C: Barriers to utilizing SWAYAM MOOCs

6.4 Data collection methods

Data collection was administered through Google form. The questionnaire was circulated online via social media so that respondents could access it more easily. Around 15 days were dedicated to collecting the responses.

6.5 Data analysis techniques

Using Microsoft Excel, the gathered data will be examined to gain important insights on teacher education students' knowledge, attitudes, and obstacles about SWAYAM MOOCs. The data will be interpreted and summarized using descriptive analysis. That comprises:
To determine how many students are aware of SWAYAM MOOCs, frequencies and percentages were used. **Inferential Statistics:** A comparison of awareness levels between two groups, such as B.Ed. and M.Ed. students, is done using the independent t-test.

7. Presentation of findings

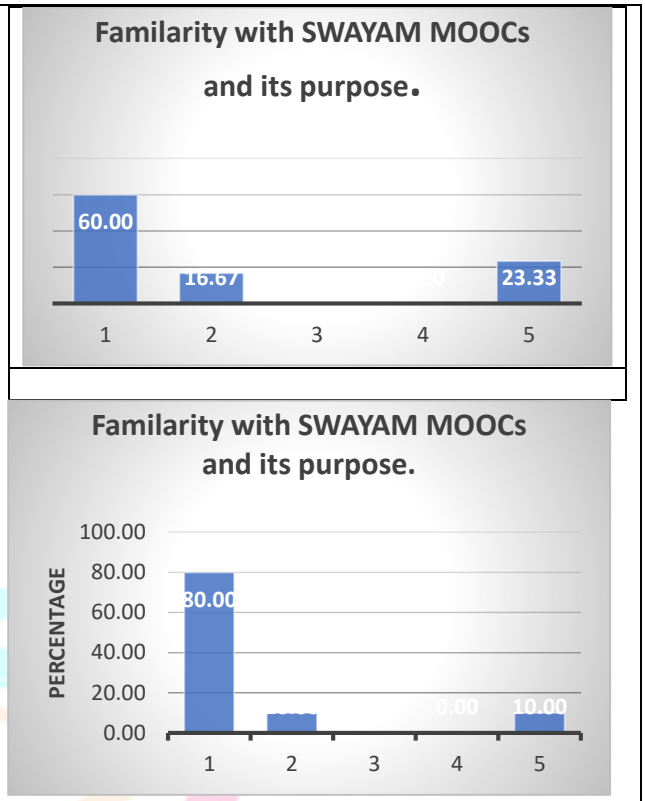
For a clear inference, the researcher has taken the percentage of both (Strongly agree+ agree) as equivalent to strongly agree.

7.1 Awareness of SWAYAM MOOCs

Item 1: I am familiar with the SWAYAM platform and its purpose.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	24	80.00	18	60.00
Agree	3	10.00	5	16.67
Neutral	0	0.00	0	0.00
Disagree	0	0.00	0	0.00
Strongly Disagree	3	10.00	7	23.33
Total (N=60)	30	100.00	30	100

(Note: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

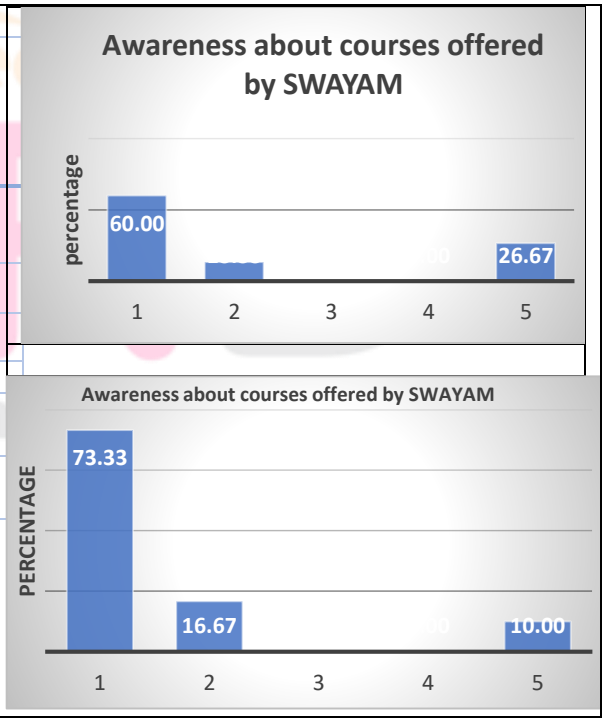


The resultant percentage of responses to ITEM 1 shows a high level of awareness: 90% of M.Ed. students (SA+A) and 76.67% of B.Ed. students (SA+A) strongly agreed that they were familiar with SWAYAM. However, 23.33% of B.Ed. & 10% Of M.Ed. students strongly disagreed, indicating that some undergraduate teacher education students may not be aware of this.

Item 2: I am aware that SWAYAM offers courses in multiple disciplines, including teacher education.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	22	73.33	18	60.00
Agree	5	16.67	4	13.33
Neutral	0	0.00	1	0.00
Disagree	0	0.00	2	0.00
Strongly Disagree	3	10.00	5	26.67
Total (N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

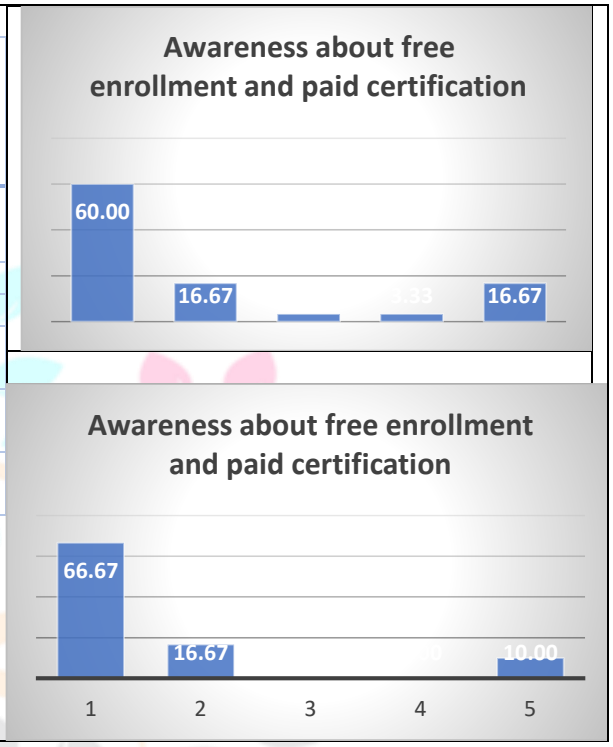


The responses of Item 2 indicate that while the majority of students 90 percent of M.Ed. students + 73.33% of B.Ed students) strongly agreed that SWAYAM offers courses in a variety of areas, 26.67% of B.Ed. students and 10% of M.Ed. students strongly disagreed, highlighting further knowledge gaps.

Item 3: I know that SWAYAM MOOCs are free to enroll in, with paid certification options.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	20	66.67	18	60.00
Agree	5	16.67	5	16.67
Neutral	1	0.00	0	3.33
Disagree	1	0.00	2	3.33
Strongly Disagree	3	10.00	5	16.67
Total (N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

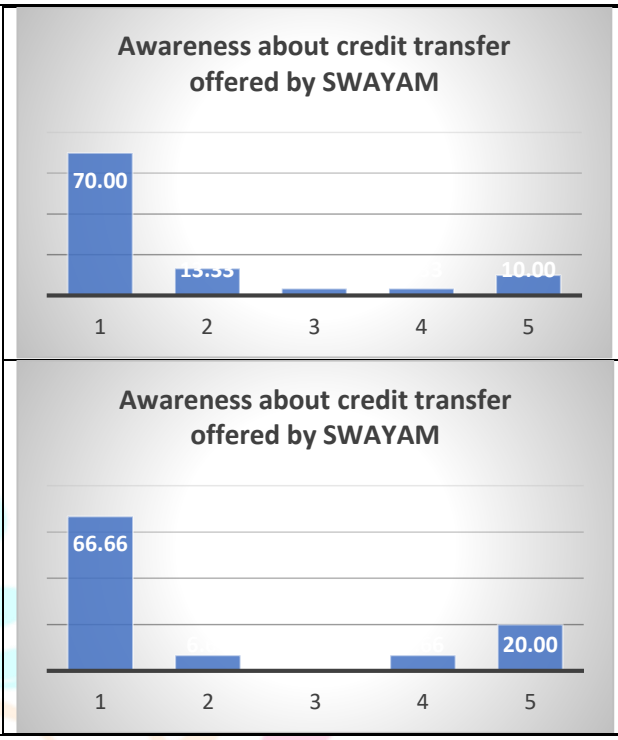


With 76.67% of B.Ed. students and 83.34% of M.Ed. students (SA+A) strongly agreeing, both groups demonstrated high knowledge. Still, 10% of M.Ed. and 16.67% of B.Ed. students disagreed, suggesting that SWAYAM's financial model needs to be clarified (ITEM 3).

Item 4: I am aware that SWAYAM MOOCs offer credit transfer for academic programs in many universities.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	21	70.00	20	66.66
Agree	4	13.33	2	6.66
Neutral	1	3.33	0	0.00
Disagree	1	3.33	2	6.66
Strongly Disagree	3	10.00	6	20.00
Total (N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

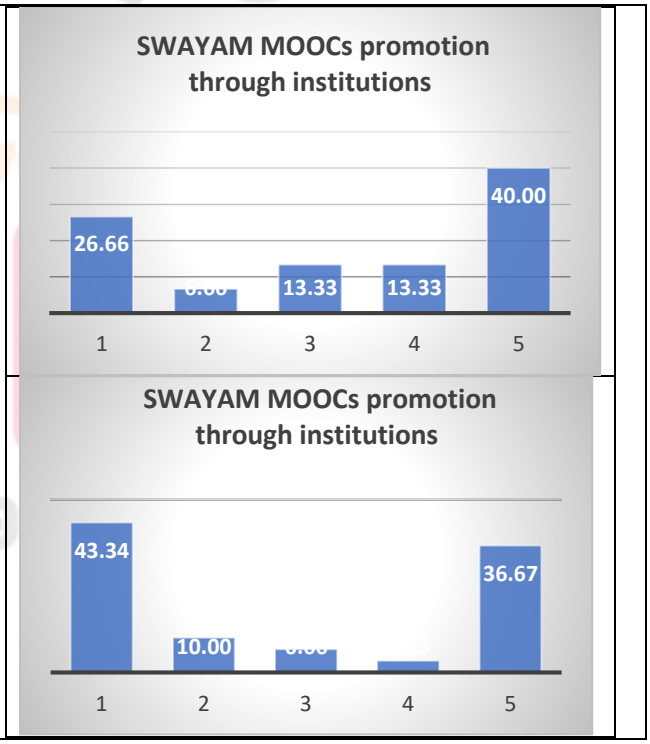


Most students knew that credit transfer was an option offered by SWAYAM MOOCs. Strong agreement was expressed by 83.33% of M.Ed. students and 73.32% of B.Ed. students. Just 20% of B.Ed. students and 10% of M.Ed. students strongly disagreed or stayed neutral, indicating some students' slight perplexity (ITEM 4).

Item 5: My institution actively promotes the use of SWAYAM MOOCs among students.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
trongly gree	8	26.66	13	43.33
gree	2	6.66	3	10.00
eutral	4	13.33	2	6.66
isagree	4	13.33	1	3.33
trongly isagree	12	40.00	11	36.66
otal N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)



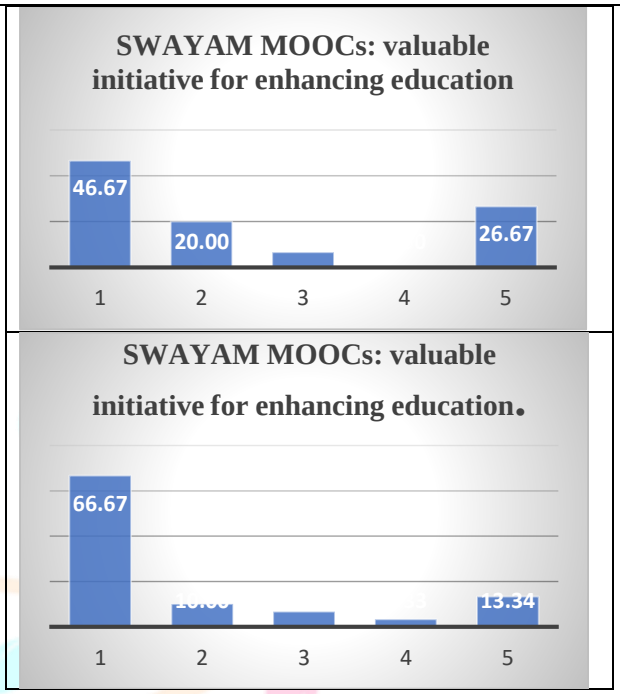
The responses showed a clear split. Just 26.67% of M.Ed. students and 43.33% of B.Ed. students strongly felt that their educational institutions supported SWAYAM. 36.66% of B.Ed. students, and 40% of M.Ed. students, however, strongly disagreed, indicating a lack of institutional backing (ITEM 5).

7.2 Section B: Attitude Towards SWAYAM MOOCs

Item 6: I believe SWAYAM MOOCs are a valuable initiative for enhancing education.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	14	46.67	20	66.67
Agree	6	20.00	3	10.00
Neutral	2	6.66	2	6.66
Disagree	0	0.00	1	3.33
Strongly Disagree	8	26.67	4	13.34
Total (N=60)	30	100.00	30	100.00

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

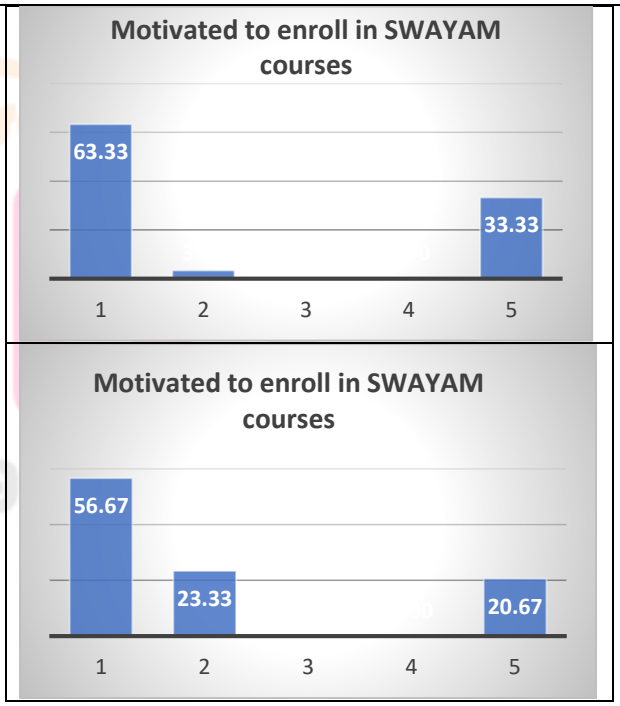


The majority of students thought SWAYAM MOOCs were beneficial; 76.67% of B.Ed. students and 66.67% of M.Ed. students (SA+A) highly agreed. Nonetheless, a sizable percentage of B.Ed. students (13.34%) and M.Ed. students (26.67%) strongly disagreed, indicating a range of opinions (ITEM 6).

Item 7: I am motivated to enroll in SWAYAM courses to improve my knowledge and skills.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	19	63.33	17	56.67
Agree	1	3.33	7	23.33
Neutral	0	0.00	0	0.00
Disagree	0	0.00	0	0.00
Strongly Disagree	10	33.33	6	20.67
Total (N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

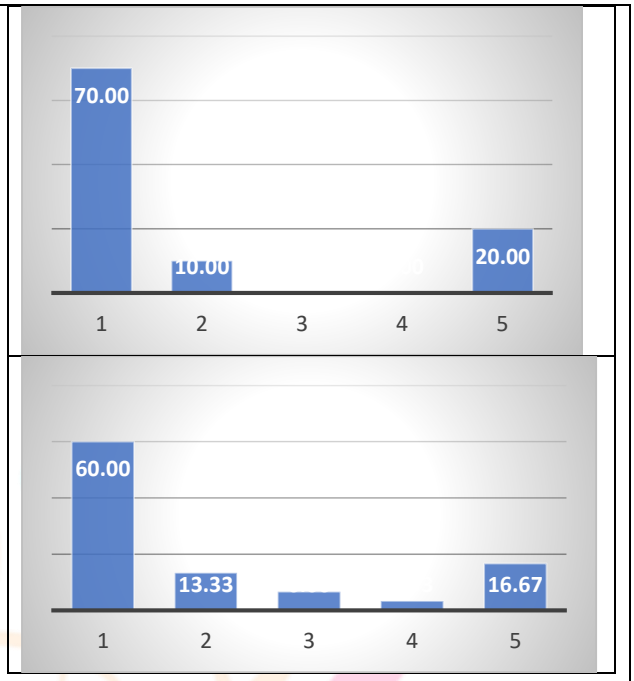


66.66% of M.Ed. students & 80% of B.Ed. students (SA+A) strongly agreed, indicating that students of both courses are motivated to enroll in SWAYAM courses to improve their knowledge and skills. Nonetheless, a significant percentage of M.Ed. students (33.33%) and B.Ed. students (20.67%) strongly disagreed (ITEM 7).

Item 8: I have faith that SWAYAM MOOCs offer high-quality instruction and content.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	21	70.00	18	60.00
Agree	3	10.00	4	13.33
Neutral	0	0.00	2	6.66
Disagree	0	0.00	1	3.33
Strongly Disagree	6	20.00	5	16.67
Total (N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

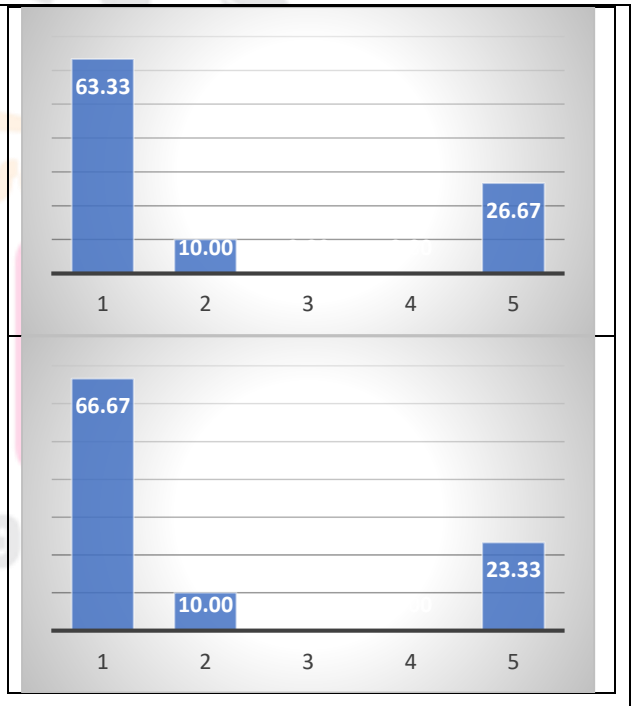


The degree of confidence was divided. 80% of M.Ed. students strongly agreed, with 20% strongly disagreeing, compared to 73.33% of B.Ed. students (SA+A). This implies that both course's students believe that SWAYAM MOOCs offer high-quality instruction and content (ITEM 8).

Item 9: I feel that SWAYAM MOOCs are suitable for teacher education students.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	19	63.33	20	66.67
Agree	3	10.00	1	10.00
Neutral	0	0.00	3	0.00
Disagree	0	0.00	2	0.00
Strongly Disagree	8	26.67	4	23.33
Total (N=60)	30	100.00	30	100.00

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

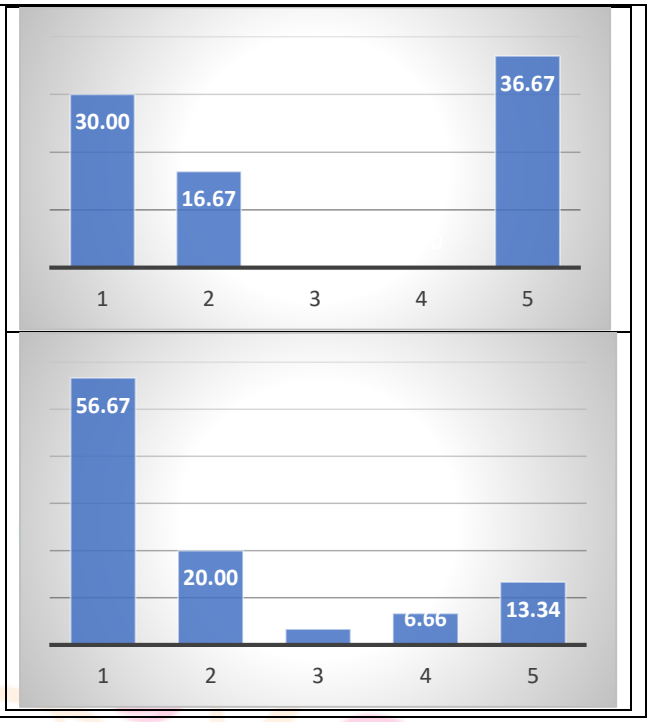


The percentage of responses indicates that both M.Ed. and B.Ed. students feel that SWAYAM MOOCs are suitable for teacher education students. While 26.67% of M.Ed. students & 23.33% Of B.Ed. students strongly disagreed, demonstrating skepticism regarding SWAYAM's applicability for advanced teacher education (ITEM 9).

Item 10: I view SWAYAM as a platform that can transform traditional education methods.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	9	30.00	17	56.67
Agree	5	16.67	6	20.00
Neutral	4	13.33	1	3.33
Disagree	1	3.33	2	6.66
Strongly Disagree	11	36.67	4	13.33
Total (N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)



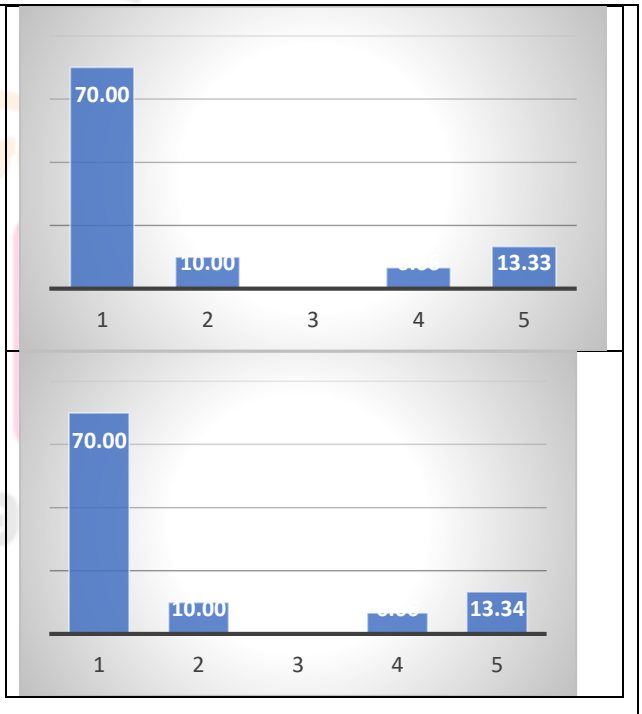
56.67% of B.Ed. students strongly agreed, indicating a more upbeat attitude. However, 36.67% of M.Ed. students strongly disagreed, expressing doubt about its capacity to change things at a higher level (ITEM 10).

7.3 Section C: Barriers to utilizing SWAYAM MOOCs

Item 11: Limited internet access prevents me from utilizing SWAYAM effectively.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	21	70.00	21	70.00
Agree	3	10.00	3	10.00
Neutral	0	0.00	0	0.00
Disagree	0	0.00	2	6.66
Strongly Disagree	4	13.34	4	13.34
Total (N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

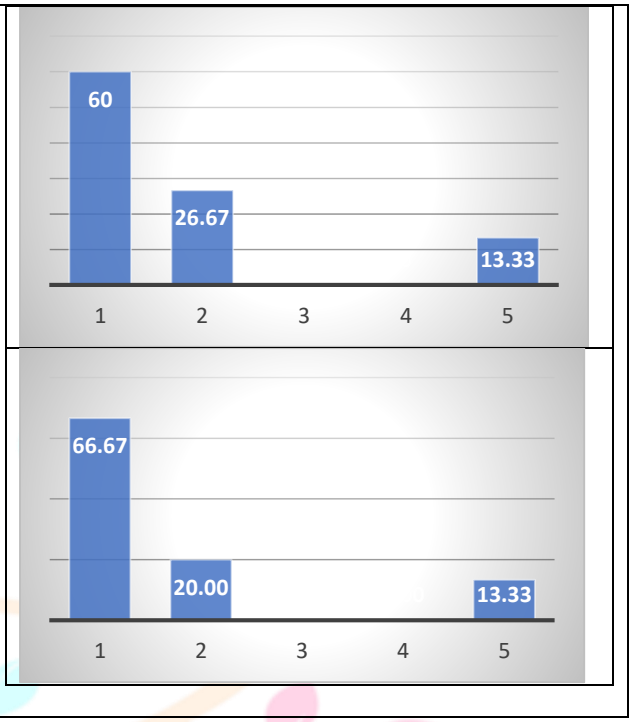


70% of M.Ed. and B.Ed. students strongly believe that having limited internet connection makes it difficult for them to use SWAYAM efficiently, indicating that this is still a major problem. This emphasizes the necessity of better accessibility and digital infrastructure (ITEM 11).

Item 12: Lack of awareness about SWAYAM MOOCs is a challenge for many student.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	18	60.00	20	66.67
Agree	8	26.67	6	20.00
Neutral	0	0.00	0	0.00
Disagree	0	0.00	0	0.00
Strongly Disagree	4	13.33	4	13.33
Total (N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

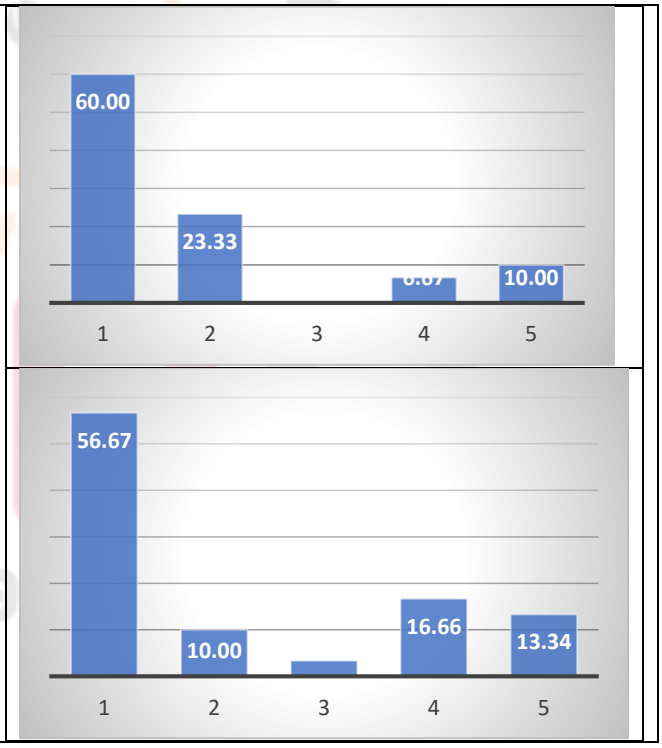


Lack of awareness was cited as a major difficulty by 66.67% of B.Ed. students and 60% of M.Ed. students. This demonstrates that in order to expand SWAYAM's reach, significant marketing initiatives and institutional-level support are required (ITEM 12).

Item 13: Inadequate training on using the SWAYAM Platform.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	18	60.00	17	56.67
Agree	7	23.33	3	10.00
Neutral	0	0.00	1	3.33
Disagree	2	6.67	5	16.67
Strongly Disagree	3	10.00	4	13.34
Total (N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

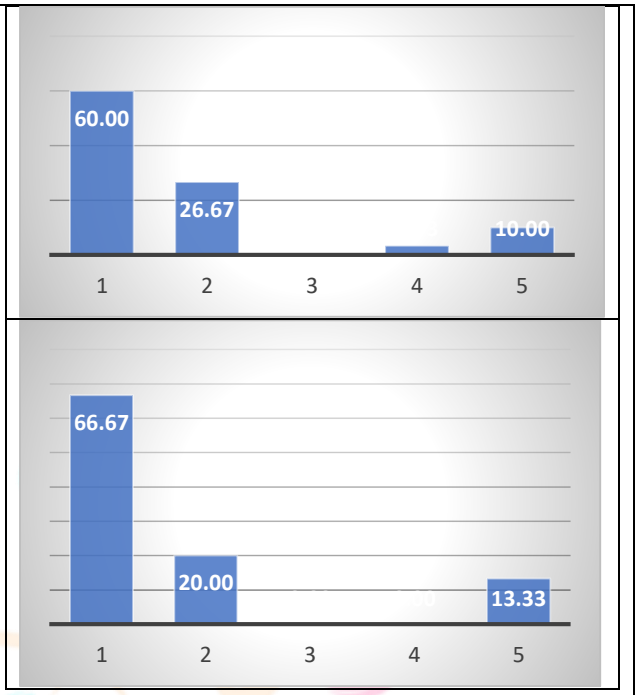


60 percent of M.Ed. students and 56.67 percent of B.Ed. students believed they were not sufficiently trained to use the SWAYAM platform. According to these results, educational institutions ought to provide workshops or training courses to assist students in effectively utilizing the platform (ITEM 13).

Item 14: Resistance to online learning one of major barrier.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
ongly ree	18	60.00	20	66.67
ree	8	26.67	6	20.00
utral	0	0.00	0	0.00
sagree	1	3.33	0	0.00
ongly sagree	3	10.00	4	13.33
tal =60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)

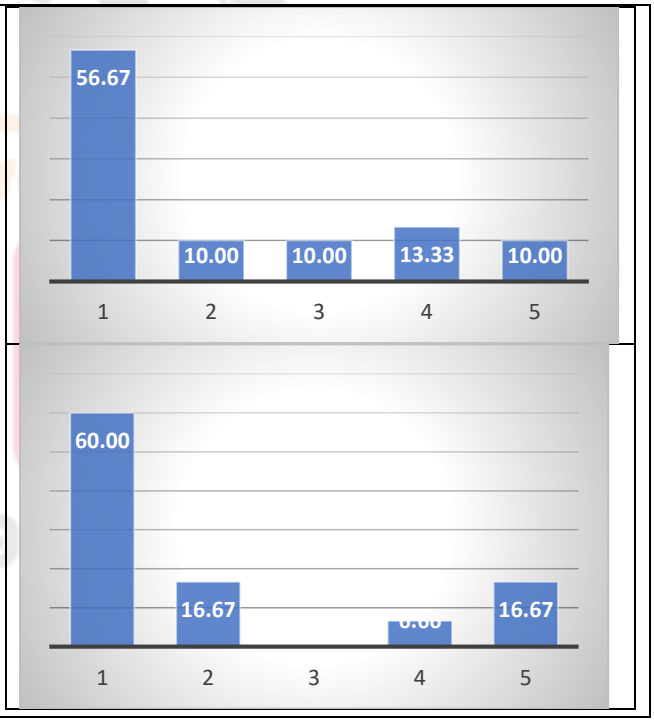


With 60% of M.Ed. and 66.67% of B.Ed. students firmly agreeing that they have difficulty adjusting to online learning, resistance to digital learning is still a barrier. This emphasizes how blended learning approaches are necessary to help students gradually move into digital learning settings (ITEM 14).

Item 15: I find it difficult to allocate time to complete SWAYAM courses alongside my regular academic workload.

	FREQUENCY (M.Ed. students)	PERCENT (M.Ed. students)	FREQUENCY (B.Ed. students)	PERCENT (B.Ed. students)
Strongly Agree	17	56.67	18	60.00
Agree	3	10.00	5	16.67
Neutral	3	10.00	0	0.00
Disagree	4	13.33	2	6.66
Strongly Disagree	3	10.00	5	16.67
Total (N=60)	30	100.00	30	100

te: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disgree, 5-Strongly Disagree)



60% of B.Ed. students and 56.67% of M.Ed. students said they had trouble juggling SWAYAM coursework with their other academic obligations. Modular learning choices and more adaptable course architectures are needed to address this (ITEM 15).

The results show that although students are largely aware of and have positive sentiments about SWAYAM MOOCs, several obstacles still prevent full use. The platform can have a much greater influence on teacher education students if problems with awareness, institutional promotion, internet access, and reluctance to online learning are addressed.

Table: Intensity Index & t-test value for different items

Items	INTENSITY INDEX (M.Ed. students)	INTENSITY INDEX (B.Ed. students)	df	t-value
I am familiar with the SWAYAM platform and its purpose.	1.50	2.10	58	0.11
I am aware that SWAYAM offers courses in multiple disciplines, including teacher education.	1.56	2.06	58	0.17
I know that SWAYAM MOOCs are free to enroll in, with paid certification options.	1.73	2.03	58	0.42
I am aware that SWAYAM MOOCs offer credit transfer for academic programs in many universities.	1.70	2.06	58	0.35
My institution actively promotes the use of SWAYAM MOOCs among students.	3.33	2.80	58	0.24
I believe SWAYAM MOOCs are a valuable initiative for enhancing education.	2.40	1.86	58	0.19
I am motivated to enroll in SWAYAM courses to improve my knowledge and skills.	2.86	2.00	58	0.04
I have faith that SWAYAM MOOCs offer high-quality instruction and content.	2.90	2.03	58	0.04
I feel that SWAYAM MOOCs are suitable for teacher education students.	3.06	1.90	58	0.006
I view SWAYAM as a platform that can transform traditional education methods.	3.00	2.00	58	0.01
Limited internet access prevents me from utilizing SWAYAM effectively.	2.10	2.03	58	0.86
Lack of awareness about SWAYAM MOOCs is a challenge for many student.	1.76	2.03	58	0.46
Inadequate training on using the SWAYAM Platform.	1.76	2.20	58	0.24

Resistance to online learning one of major barrier.	1.90	1.90	58	1.00
I find it difficult to allocate time to complete SWAYAM courses alongside my regular academic workload.	1.90	2.00	58	0.78

8. Data analysis and interpretation

To assess the awareness, attitudes, and perceived barriers of M.Ed. and B.Ed. students with relation to SWAYAM MOOCs, an independent t-test was used. The study used a t-test to investigate whether there was a significant difference between B.Ed. and M.Ed. students' awareness, attitude, and barriers encountered when using the SWAYAM platform. The significance level for the t-test analysis was set at the recommended $p<0.05$ at 58 degrees of freedom. The estimated intensity indices and t-value were used to evaluate the significance of the proposed hypotheses.

The value of t-critical at 0.05 significance level (df=58) is 1.671 (from t-table).

8.1 Awareness of SWAYAM MOOCs

The indices for awareness items gauge how well students understand SWAYAM. In Item 1 (familiarity with SWAYAM), high indices which exhibit around 90% M. Ed and 76.67% B. Ed strongly agreeing, indicate awareness particularly among M. Ed. students. Item 4 (credit transfer) also indicates high agreement (83.33% M. Ed and 73.32% B. Ed) but Item 5 (promotion by institution) has lower indices (26.67% M. Ed and 43.33% B. Ed), implying lack of institutional support.

The t-values give comparison of different groups with regards to their level of awareness. A value above 1.671 would mean there is a difference of significance. In the case of Item 1, a t-value above 1.671, would mean M. Ed students are significantly more aware than B. Ed students. In case of Item 5, significant t-value could mean B. Ed students perceiving some support from the institution more than M. Ed students. For some items, like Item 3 (free enrollment) where t-values are below the 1.671 threshold, indicates that 83.34% of M. Ed students and 76.67% of B. Ed students hold the same level of awareness.

8.2 Attitude toward SWAYTAM MOOC

The indices for attitude items depict students perceptions on the worth of SWAYAM. With regard to the item 6 (enhancing education), there is high positivity (76.67% B.Ed., 66.67% M.Ed.) and for item 10 (transforming education) the responses are mixed (56.67% B.Ed. agree; 36.67% M.Ed. disagree), showing that B.Ed. students are slightly more positive. Item 7 (motivation to enroll) also indicates high agreement (80% B.Ed., 66.66% M.Ed.).

Significant t-values (greater than 1.671) for item like item 7 would suggest B.Ed. students are indeed more motivated than M.Ed. students. For item 10, a significant t-value would strengthen B.Ed. students belief that SWAYAM has a more transformative effect. Non-significant t-values of item 8 (quality of instruction 80% M.Ed. and 73.33% B.Ed.) suggest that both groups had the same level of confidence regarding the content.

8.3 Barriers to utilizing SWAYAM MOOCs

The challenges are underscored by high indices. For example, internet access in Item 11 shows strong agreement for both groups (70%). Item 12 scoring high (66.67% B Ed., 60% M Ed.) indicates lack of awareness and Item 15 (time constraints) scored high as well (60% B Ed, 56.67% M Ed), reflecting workload pressures.

Item 11 with the low t-value (1.671) suggests both groups have similar problems with connectivity. The significant t-value on Item 14 (resistance to online learning, 66.67% B Ed., 60% M Ed) suggests B Ed students resist more and's because of unfamiliarity with self organized learning. The absence of significance on t-values for other Items 15 is aligned with the concerns over time available.

9. Support for the research hypotheses

H1: Teacher education students have a significant level of awareness regarding SWAYAM MOOCs.

The area under discussion is the concern supported by the data showing awareness but with some distinction among B. Ed. and M. Ed. students as t-value comparisons highlight. For Item 1 (familiarity with SWAYAM), there was a much higher agreement with 90% of M. Ed. and 76.67% of B. Ed. students suggesting that if the calculated t-value goes beyond 1.671, then it can be considered that the M. Ed. students are significantly more aware than their B. Ed. counterparts, which is a reflection of their advanced exposure to scholarship

settings. Similar t-value standards of 1.671 would indicate significant difference for Item 4 (credit transfer- 83.33% M. Ed., 73.32% B. Ed.) making a case for M, considering both, as knowledge on academic benefits would be better for them. However, Item 3 (free enrollment: 83.34% M. Ed., 76.67% B. Ed.), if t value is less than 1.671, is said not to differ significantly implying that awareness is equally aware with regard to money matters of SWAYAM. Item 5 (institutional promotion, 26.67% M. Ed., 43.33% B.Ed.) is likely to have t-value more than 1.671 which implies that B.Ed. students perceive more of institution support. This means that an awareness is significant but differentiated according to programs mainly as limited by the significant t-values for key items (like Items 1 and 4), thus supporting H1.

H2: Teacher education students exhibit a positive attitude towards SWAYAM MOOCs as an educational initiative.

H2 dimensional comparisons are supported by the t-value difference comparison, keeping in mind that there would be differences in the attitude of subjects in terms of Item 6 being viewed as SWAYAM enhancing education for 76.67 percent B.Ed. students and 66.67 percent M.Ed. students. If the t-value falls below 1.671, it indicates no significant difference in views and is interpreted as both groups viewing SWAYAM positively, whereas Item 7 (motivation to enroll, 80% B.Ed., and 66.66% M.Ed.) indicates that in order to confirm the significant difference, the t-value must exceed 1.671 in favor of B.Ed. students, probably because they are still at the career stage. Item 10 (transforming education, 56.67% B.Ed. agree to 36.67% M.Ed. disagree) would have a t-value more than 1.671 indicating that B.Ed. students would be significantly more optimistic about the potential transformation that SWAYAM may bring about than the M.Ed. students, who might still prioritise the traditional pedagogy. For Item 8 (quality of instruction, 80% M.Ed., and 73.33% B.Ed.), lower than 1.671 t-value suggests similarity in confidence of content quality. The conflict between several significant (e.g., Item 7, 10) and non-significant (e.g., Item 6, 8) t-values supports H2 that proves positive attitudes with differences across program.

H3: Teacher education students face identifiable barriers in effectively utilizing SWAYAM MOOCs.

H3 enjoys quite good support since results about t-value comparisons indicate almost the similarity of barriers among various groups. It shows that item 11 (limited internet access), which stood at 70% for both, has its t-value at below 1.671 which does not prove any significant otherwise encouraging the resolution that connectivity is a universal problem. Likewise, regarding item 12 (lack of awareness, 66.67% B.Ed, 60% of M.Ed) and item 15 (time constraint, 60% B.Ed, 56.67% M.Ed), t values below 1.671 meant that these two groups undergo similar knowledge gaps and workload conflicts. For item 14 (resistance to online learning, 66.67% B.Ed, 60% M.Ed), if t value exceeds 1.671, that means B.Ed. students have much more resistance, which possibly comes from limited exposure to learning at their own pace. Item 13 (inadequate training, 60% M.Ed, 56.67% B.Ed) probably also has a t-value below 1.671 which indicates about similar training needs. Most of the barriers with non-significant t values (for example, items 11, 12, 15) are strongly in favor of H3 as they confirm that these are systemic issues within both groups because of similar effects.

10.Discussion

The results of this study add to the increasing amount of research that looks at how Massive Open Online Courses (MOOCs) might be incorporated into teacher education, particularly in India using the SWAYAM platform.

10.1 Awareness of SWAYAM MOOCs

The research supports H1 by showing that teacher education students are significantly aware of SWAYAM MOOCs. SWAYAM has garnered significant reputation among pre-service and in-service educators, as seen by the majority of students reporting knowledge with the platform (90% of M.Ed. students and 76.67% of B.Ed. students). These results are in line with past studies by Singh & Chauhan (2017) and Sahoo et al. (2019), which found that MOOCs were more well known in Indian higher education. Even with this widespread awareness, there are still gaps in knowledge of particular SWAYAM properties. Even though SWAYAM's credit transfer policy was acknowledged by 83.33% of M.Ed. and 73.32% of B.Ed. students, a sizeable percentage (20% of B.Ed. students and 10% of M.Ed. students) voiced doubt or disagreement. This suggests that although students could be aware of the platform's existence, they might not completely understand its advantages for their academic performance. Ambadkar (2020), who highlighted that students frequently have difficulty comprehending the accreditation and certification criteria of MOOCs, noted similar phenomena. The study's main finding is that SWAYAM MOOCs are not being promoted by institutions. Just 43.33% of B.Ed. students and 26.67% of M.Ed. students said that their schools actively promoted SWAYAM enrollment. On the other hand, 36.66% of B.Ed. students and 40% of M.Ed. students strongly disagreed, indicating a significant lack of institutional-level lobbying. These results support a study by Sikarwar et al. (2022) that highlighted the importance of institutional support in determining students' propensity to participate in MOOCs. In order to increase adoption, universities and colleges must more methodically incorporate SWAYAM into their curricula while providing academic guidance and credit incentives.

10.2 Attitude Towards SWAYAM MOOCs

H2 was confirmed by the study's finding that teacher education students generally have a favorable opinion of SWAYAM MOOCs. SWAYAM is a worthwhile attempt to improve education, according to the majority (76.67% of B.Ed. and 66.67% of M.Ed. students). According to Vijayashekaranayaka (2020) and Karthigeyan & Prapakaran (2022), students are becoming more aware of MOOCs' ability to democratize access to education. These findings are consistent with such findings.

A considerable number of students are still reluctant to actively enroll in SWAYAM courses, despite generally positive attitudes. Although 66.66% of M.Ed. and 80% of B.Ed. students said they were motivated to join SWAYAM, 33.33% of M.Ed. and 20.67% of B.Ed. students strongly disagreed, indicating reluctance to switch to self-paced online learning. This is consistent with research by Ambadkar (2020), which found that students frequently prefer traditional learning methods because of the structured classroom environment, faculty guidance, and peer interactions.

Additionally, there were differing opinions among students regarding the caliber of SWAYAM MOOCs. 20% of M.Ed. students and 16.67% of B.Ed. students strongly disagreed with SWAYAM's high-quality content, despite the fact that 80% of M.Ed. and 73.33% of B.Ed. students agreed. According to previous studies, this skepticism may be caused by worries about the reliability of evaluations, a lack of direct faculty involvement, and a lack of real-time feedback (Yeole et al., 2021). Students' trust in SWAYAM MOOCs may be bolstered by more openness about course accreditation, expert participation, and industry recognition.

10.3 Barriers to SWAYAM MOOCs utilization

The study supports H3 by confirming that teacher education students encounter major obstacles when trying to use SWAYAM MOOCs efficiently. Time constraints, opposition to online learning, lack of training, and restricted internet connection are the main obstacles. A significant obstacle mentioned by 70% of M.Ed. and B.Ed. students was inadequate internet connectivity. This finding is consistent with research by Singh & Chauhan (2017), who identified a significant obstacle in India's online education ecosystem: the constraints of digital infrastructure. According to 66.67% of B.Ed. students and 60% of M.Ed. students, a major barrier is ignorance. Likewise, 56.67% of B.Ed. students and 60% of M.Ed. students reported insufficient SWAYAM instruction. To increase students' digital literacy, our results emphasize the necessity of faculty-led mentoring, organized orientation programs, and approachable tutorials (Sikarwar et al., 2022). It was challenging for 60% of M.Ed. students and 66.67% of B.Ed. students to adjust to online learning environments. As Ambadkar (2020) also points out, this hesitancy implies that traditional in-person teaching styles continue to dominate teacher education.60% of B.Ed. students and 56.67% of M.Ed. students said they had trouble juggling their academic burden with SWAYAM classes.

This is consistent with research by Bala (2022), which discovered that students frequently find it difficult to balance their academic obligations with their online assignments.

11. Implications of the research

One significant result is that SWAYAM MOOCs must be more effectively promoted by institutions and included into teacher education programs. The platform is well-known to many students, but they are unclear about the benefits of certification and credit transfer procedures. MOOCs should be actively supported by universities through structured course integration, academic credit recognition, and faculty assistance in order to increase student engagement.

The results also highlight the significance of developing digital infrastructure. Inadequate internet connectivity continues to be a major obstacle, especially for students in semi-urban and rural locations. To guarantee fair access to online education, government measures should concentrate on increasing broadband connectivity and offering financial support for digital learning tools.

Faculty participation is also essential for MOOC acceptance. In order to create blended learning models that combine the advantages of both online and offline education, teachers need receive training on how to integrate SWAYAM information into regular classroom instruction. Mentoring by faculty members can help boost MOOC completion rates and student engagement. Lastly, this study emphasizes the necessity of student support programs, such as workshops on time management, digital literacy instruction, and organized advice on self-paced learning. By addressing these issues, SWAYAM MOOCs can better realize their potential to revolutionize teacher education and encourage educators to pursue lifelong learning.

12. Limitations of research

It is crucial to recognize the limitations of this study even if it offers insightful information about teacher education students' understanding, attitudes, and obstacles about SWAYAM MOOCs. These restrictions draw attention to possible directions for future study and advise using caution when extrapolating the results to a larger population.

The sample size and selection process are two of the study's main drawbacks. The study may not be entirely typical of all teacher education students in India because it only looked at Delhi University B.Ed. and M.Ed. students. Because respondents to the survey may have had varying degrees of interest and knowledge about SWAYAM MOOCs than those who did not, the convenience sample method further limits the findings' generalizability. A more thorough grasp of SWAYAM's reach and efficacy might be possible with a larger, more varied sample drawn from several colleges and geographical areas.

The fact that the data is self-reported is another drawback. The study's reliance on survey responses raises the risk of social desirability bias, in which participants might have given answers they thought were positive rather than ones that accurately reflect their experiences. Furthermore, replies can have been impacted by subjective interpretations of survey topics, especially when it came to attitudes and motivations about SWAYAM MOOCs. To learn more about students' perceptions and actual difficulties in adopting SWAYAM MOOCs, future research could use qualitative techniques like focus groups and interviews.

Additionally, the study's relevance to other student demographics is limited because it just focuses on teacher education students. Although the study offers valuable insights into the experiences of aspiring teachers, students from other fields (including engineering, business, or the sciences) can face different obstacles and motives. Comparative studies could be carried out in the future to investigate variations in MOOC adoption and use by discipline.

Lastly, because the study is cross-sectional, it records students' opinions at a certain moment in time. The long-term effects of SWAYAM MOOCs on students' academic and professional development, as well as shifts in consciousness and attitudes over time, cannot be analyzed because of this. Longitudinal studies provide a promising avenue for future study to monitor student engagement, completion rates, and the long-term efficacy of SWAYAM in career development.

13. Conclusion

According to the findings, there are still knowledge gaps about certain aspects of SWAYAM MOOCs, like certification procedures and credit transfer policies, even though the majority of teacher education students are aware of them and appreciate their educational benefits. One major obstacle was found to be a lack of institutional promotion, indicating that in order to guarantee more participation, schools and institutions need to actively support and include SWAYAM MOOCs into their curricula.

According to the survey, SWAYAM MOOCs are typically well-liked by students, who see them as helpful for lifetime learning and skill development. However, some students, particularly those pursuing doctoral degrees, have doubts about MOOCs taking the place of traditional education, pointing to issues with engagement, teaching quality, and the reliability of assessments. In order to ensure that MOOCs enhance traditional teacher education rather than replace it, our findings emphasize the necessity of blended learning strategies that incorporate both online and in-person instruction.

Even if SWAYAM MOOCs are seen favorably, a number of obstacles prevent their full potential. The main challenges were limited internet access, poor MOOC navigation instruction, reluctance to learn online, and trouble juggling coursework with other academic obligations. Policy changes to enhance digital infrastructure, faculty-led training initiatives, and institutional tactics that offer academic freedom for MOOC participation are all necessary to address these issues.

Broadly speaking, this study highlights how SWAYAM MOOCs have the potential to transform teacher education in India, supporting the goals of the National Education Policy (NEP) 2020 for equal access to high-quality education and digital learning. However, legislators, academic institutions, faculty, and students must work together to realize this promise. To improve student participation, universities must strive for smooth credit transfer procedures, improved MOOC integration, and institutional support systems.

14. Recommendations for the future research

The study's narrow focus on B.Ed. and M.Ed. students from a single university limits the generalizability of the results; future research should include participants from multiple states, rural and urban areas, and different categories of teacher education institutions (government, private, and autonomous colleges). Comparative studies across regions would help identify context-specific challenges and strategies for MOOC adoption, especially in areas where digital access is limited.

Deeper understanding of learning trends, completion rates, and the long-term effects of MOOCs on professional growth would also be possible with a longitudinal research that followed students' participation in SWAYAM MOOCs over time. Concerns over dropout rates and the efficacy of self-paced learning are raised by the large number of students who sign up for MOOCs but never finish them. Future studies should look at what influences teacher education students' MOOC completion rates as well as retention-boosting tactics like faculty mentorship programs and blended learning models.

Future studies should also look at how instructors view MOOCs and how they help incorporate SWAYAM into teacher preparation courses. Understanding faculty members' perspectives, training requirements, and desire to integrate MOOCs into their pedagogy could result in more successful institutional strategies for the adoption of digital learning, as they play a critical role in leading students. To close the gap between online and offline learning, faculty-led interventions like hybrid learning models—in which MOOCs are augmented with class discussions or assignments—might be investigated.

The policy-level examination of MOOC integration in teacher education programs is another crucial subject for further study. Even though credit transfer is an option for SWAYAM MOOCs, not all colleges have fully adopted this approach. Future studies should evaluate the administrative and institutional obstacles to MOOC credit recognition and certification, and they should suggest policies that would improve the incorporation of online learning into official teacher education programs.

In the changing context of digital education in India, academics may improve the impact, efficacy, and accessibility of SWAYAM MOOCs by tackling these issues and contributing to evidence-based initiatives.

References

Ambadkar, R. S. (2020). E-Learning through Swayam MOOCs awareness and motivation among commerce students. *International Journal of Scientific & Technology Research*, *9*(2), 3529-3538.

Bala, R. Awareness of Swayam Courses among College Students: A Survey.

Gohain, M. P. (2017, July 9). Education to go digital with 'Swayam'. The Times of India. Retrieved from https://timesofindia.indiatimes.com/home/education/educa tion-to-go-digital-with-swayam/articleshow/59509319.cms

Jrall, R., & Gupta, J. (2021). Awareness About The MOOCS Platforms And Its Usage : Need Of An Hour In Pandemic. 8(11), 197–205.

Karthigeyan, K., & Prapakaran, N. N. (2022). Online Learning through SWAYAM MOOCS: Awareness, Learning Readiness and Utilisation among Prospective Teachers.

Kennedy, J. (2014). Characteristics of massive open online courses (MOOCS): A research review, 2009- 2012. Journal of Interactive Online Learning, 13(1), 1–16.

Liu, Z., & Sun, F. (1995). Recent progress in the studies on weight reduction by acupuncture and moxibustion. Journal of Traditional Chinese Medicine = Chung i Tsa Chih Ying Wen Pan / Sponsored by All-China Association of Traditional Chinese Medicine, Academy of Traditional Chinese Medicine, 15(3), 224–230. www.ed.gov/about/offices/list/opepd/ppss/reports.html

Liyanagunawardena, T. R., & Williams, S. A. (2014). Dropout: MOOC participants'perspective Conference or Workshop Item. Proceedings of the European MOOC Stakeholder Summit 2014, 95–100. http://www.emoocs2014.eu/sites/default/files/ProceedingsMoocsSummit2014.pdfwww.reading.ac.uk/centaur

Press Information Bureau, Government of India. (11th Jan, 2019). Year End Review 2018- Ministry of Human Resource Development.

Press Information Bureau, Government of India. (2017, July 9). President of India attends the launch of Swayam, Swayam Prabha DTH Channels & National Academic Depository.(P. Secretariat, Compiler) Retrieved from http://pib.nic.in/newsite/PrintRelease.aspx?relid=167264

Press Information Bureau, Government of India. (31st Dec, 2018, December 31). 92 Universities have come forward in accepting credit transfer for courses done through SWAYAM Platform. Retrieved from http://mhrd.gov.in/sites/upload_files/mhrd/files/lu3191.pdf

Sahoo, P. K., Sahoo, N., & Devi, U. (2019). A study of higher education students awareness of MOOC (SWAYAM) programme and usefulness of a teacher education course offered through SWAYAM.

Sikarwar, P., Singh, T., Gupta, D. M., & Vishnoi, D. S. (2022). SWAYAM platform of distance learning: A perceptual study. *International Journal of Management and Humanities*, *8*(8), 1-6.

Singh, G., & Chauhan, R. (2017). Awareness towards massive open online courses (MOOCs) and their usage for teacher education in India. *Asian Journal of Distance Education*, *12*(2), 81-88.

Vijayashekaranayaka, J. R. (2020). SWAYAM: The Way to Success MOOCs in Idnia. International Journal of Creative Research Thoughts. 8 (9): 4266-4271.

Yeole, S. M., Nagne, P., & Bhaisare, C. ASSESSING THE EFFECTIVENESS OF SWAYAM AND MOOC IN ENHANCING STUDENT ENGAGEMENT: A SYSTEMATIC STUDY IN INDIAN HIGHER EDUCATION CONTEXT.