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# Effectiveness of the MOOC Development of Online Courses for SWAYAM: A Critical Study

# Effectiveness of the MOOC Development of Online Courses for SWAYAM: A Critical Study

CEMCA

Commonwealth Educational Media Centre for Asia

New Delhi

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# Foreword

SWAYAM an initiative of Government of India, MHRD (now Ministry of Education) was launched in July 2017 to achieve access, equity and quality in education. It is a platform which hosts online courses from class 9 till Post Graduation so that they are accessed by anyone, anytime and from anywhere. SWAYAM with about 10 million enrolments is the fifth largest online education provider in the world.

Since the SWAYAM launch, Ministry of Education (MOE) and University Grants Commission (UGC) have brought about Guidelines and Regulations for Online Courses/ Programmes. MOE issued guidelines for creating online courses on SWAYAM with four components, namely e-tutorial, e-content, discussion forum and e-assessment. These components are necessary conditions which are backed by relevant and appropriate processes to ensure quality.

University Grants Commission revises and issues guidelines depending upon government policies and realities on the ground. UGC sought expression of interest from faculty members of higher education institutions for developing undergraduate and post graduate courses for SWAYAM Platform. Keeping in view of NEP 2020, UGC has also granted permission to 900 autonomous colleges to provide online degrees to students.

Designing Online courses is a challenge. It requires certain skills so that the courses are effective, and students adapt to the new style of learning. To prepare teachers to face the challenge of developing online courses, CEMCA developed a two-week online training course “Development of Online Courses for SWAYAM” as a MOOC which intended to motivate and provide viable process for developing courses for SWAYAM. The MOOC was developed remotely during the Covid Lockdown. by four faculty members of different Open Universities (Prof. Anirban Ghosh, Dr. Jeetender Pandey, Dr. G. Mythili and Late Dr. Nisha Singh) and coordinated by Dr. Manas R. Panigrahi. The course has been offered by Netaji Subash Open University, Dr. B.R. Ambedkar Open University, and Uttarakhand Open University and completed by more then 2000 teachers, research scholars from Higher Education institutions from India.

To understand the experiences of the learners, and to improve the design of the MOOC by knowing the viewpoints of the learners, CEMCA undertook an evaluative study. I thank Dr Manoj Kumar Dash & Dr Manas Ranjan Panigrahi for conducting this research study. The study will spread awareness on SWAYAM and motivate other teachers to take the course and develop courses for SWAYAM.

CEMCA will make changes based on the findings and promote the MOOC so that teachers’ skills, knowledge and expertise is developed for designing effective online courses.

**Professor Madhu Parhar**
**Director, CEMCA**

# Acknowledgements

We would like to express our gratitude and gratefulness to the Commonwealth Educational Media Centre for Asia (CEMCA), Commonwealth of Learning (COL) for awarding this research project to Dr Manoj Kumar Dash and Dr Manas Ranjan Panigrahi. We sincerely acknowledge the contribution of the Vice-Chancellors of Netaji Subhas Open University, Kolkata, West Bengal; Uttarakhand Open University, Haldwani, Uttarakhand; and Dr B. R. Ambedkar Open University, Hyderabad, Telangana for facilitating and promoting these new initiatives of having a MOOC for capacity building of the teachers of higher education. We are also grateful to representatives of these three open universities who are associated with the design, development, and implementation of the MOOC ***Development of Online Courses for SWAYAM***. We are also grateful to the respondents who responded to the survey questionnaire. This report is the outcomes of their active support and cooperation without which it would not have been possible to finalize this report.

We are grateful to **Professor Madhu Parhar**, Director, CEMCA for facilitating and promoting a stimulating academic environment for this research and her active support, cooperation, and guidance in the whole journey. The survey was distributed to the participants who are registered in the MOOC through emails followed by SMS alerts. We gratefully acknowledge the support and cooperation of the CEMCA team for promoting this survey through their personal and professional networks to motivate the stakeholders to participate in it and also in the focus group discussions.

Finally, we gratefully acknowledge the support and cooperation received from the officials of all the three open universities (NSOU, West Bengal; UOU, Uttarakhand; and BRAOU, Telangana) and CEMCA, New Delhi. We are thankful to CEMCA for the generous financial support for conducting this survey and preparing this report.

We hope that this report will be of value for teachers, educational planners, administrators, policymakers, and researchers for facilitating and promoting the MOOC movement in India for providing quality technology mediated education to all. We accept responsibility for any shortcomings/factual errors in this report.

We are highly grateful to everyone who associated and contributed to the success of this research study and made this publication a reality.

**Dr Manoj Kumar Dash**
**Dr Manas Ranjan Panigrahi**

# Executive Summary

In 2021 CEMCA developed a training module on ***Development of Online Courses for SWAYAM*** for capacity building of teachers of higher education in teaching with technology through MOOCs. This was the first of its kind tool to train teachers on a MOOC's design, development, and implementation aspects. Subsequently, the MOOC was implemented in the Netaji Subhash Open University, Kolkata, West Bengal; Uttarakhand Open University, Uttarakhand; and Dr B. R. Ambedkar Open University, Telangana. In 2022 an attempt was made to conduct a survey to understand the usability of this MOOC, its objectivity and effectiveness in terms of its outcomes and implications.

## Rationale and Objectives

The MOOC ***Development of Online Courses for SWAYAM*** was created to train teachers of higher education in new skills to enable them to contribute to the Government of India's new initiatives under digital learning. It aimed to create a trained and skilled workforce to design, develop, and implement online courses in general and for the SWAYAM platform in particular using the four-quadrant approach. It was a two-week course comprising of five topics (three topics in week 1 and two topics in week 2): i) Topic I:  SWAYAM's overview; ii) Topic II: Quadrant-I (e-tutorial); iii) Topic III: Quadrant-II (e-content); iv) Topic IV: Quadrant-IV (discussion forum); and v) Topic V: Quadrant-III (assessment). The MOOC was designed, developed, and implemented in a collaborative mode to address the needs and demands of higher education. Its aim was providing this benefit to all the teachers of higher education in India. Experiences of early implementation of this MOOC will provide a means for improving its overall design, development, and implementation from time to time to make it more user friendly. A study was conducted to assess all aspects/dimensions of this MOOC and evaluate its overall effectiveness for sustainable quality improvements. This study addresses the following questions:

1. How has the MOOC impacted the learners' knowledge, skills, and attitudes in designing, developing, and implementing a MOOC?
2. How has the MOOC reached the intended target group and made a difference to the participants in their work or studies?
3. How has the MOOC facilitated the learners in developing networks and engaging with them meaningfully and productively?
4. How has the MOOC ensured sustainable professional development of learners in higher education?

The objectives of this study are:

i) identifying the expectations of the participants of this MOOC in terms of acquiring knowledge, skills, attitudes, and competencies for facilitating technology mediated learning.

ii) assessing the level of knowledge, skills, attitudes, competencies, and levels of satisfaction acquired by the participants of the MOOC.

iii) reviewing all components of the MOOC and identifying the challenges.

iv) Recommending further improvements in the MOOC.

## Methodology

The study was planned and implemented using the descriptive survey research method using quantitative and qualitative data collected through multiple means. The ambit of the study was confined to a descriptive survey and following an analytical approach. The target participants included teachers, academics, and administrators of higher education including all the registered learners of this course and members of the course team. The sample comprised of 340 participants (25.8 per cent from NSOU, 36.4 per cent from UOU, and 37.9 per cent from BRAOU), selected following a random sampling technique.

## Tools and Techniques

For fulfilling the objectives of the study, the following tools were used for collecting the data:

i) Two different questionnaires were developed for collecting data from: a) registered learners, b) course design and development team, and c) administrators and implementers at the three open universities.

ii) Focus group discussions (online) through participants' observations were held with: i) selected respondents and ii) course team members.

The questionnaire (GOOGLE LINK) was emailed to all the participants followed by a SMS alert. An online FDG through participants' observations with: i) selected respondents and ii) course team members was held to collect qualitative data on various aspects of the MOOC to get their opinions, comments, and suggestions for further improvement of the whole initiative of capacity building of teachers through training, orientation, and capacity building ing the MOOC for strengthening tectechnology-enhancedarning in higher education.

## Major Findings

Based on an analysis, an interpretation of the findings of this study is presented under the following themes:



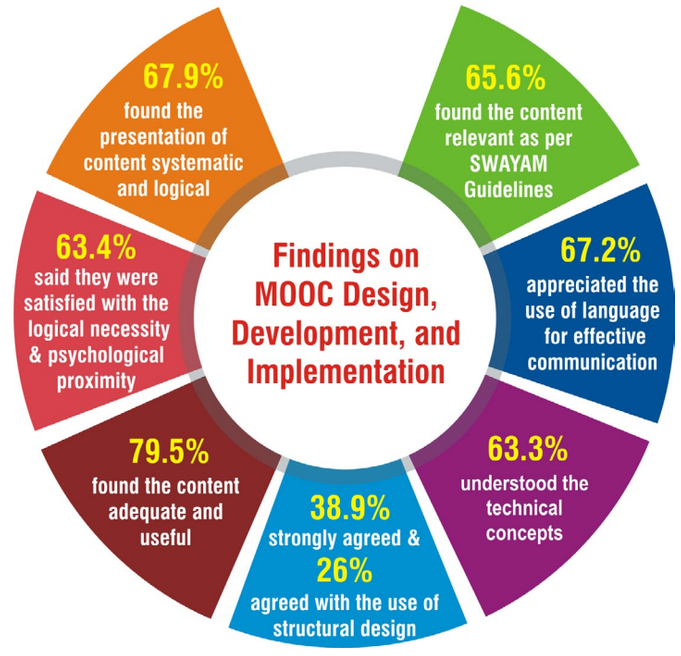
i) MOOC for SWAYAM: Design, Development, and Implementation

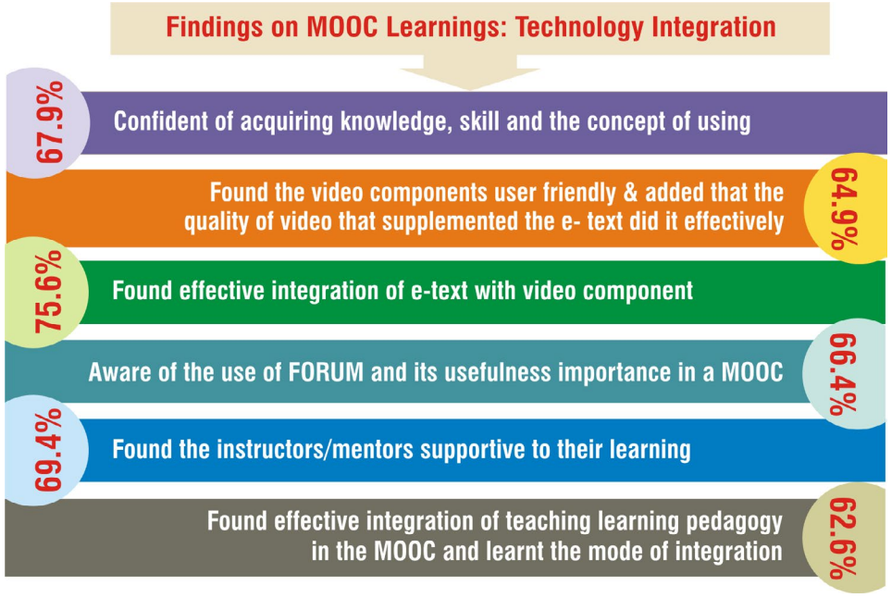
ii) MOOC Learning: Technology Integration

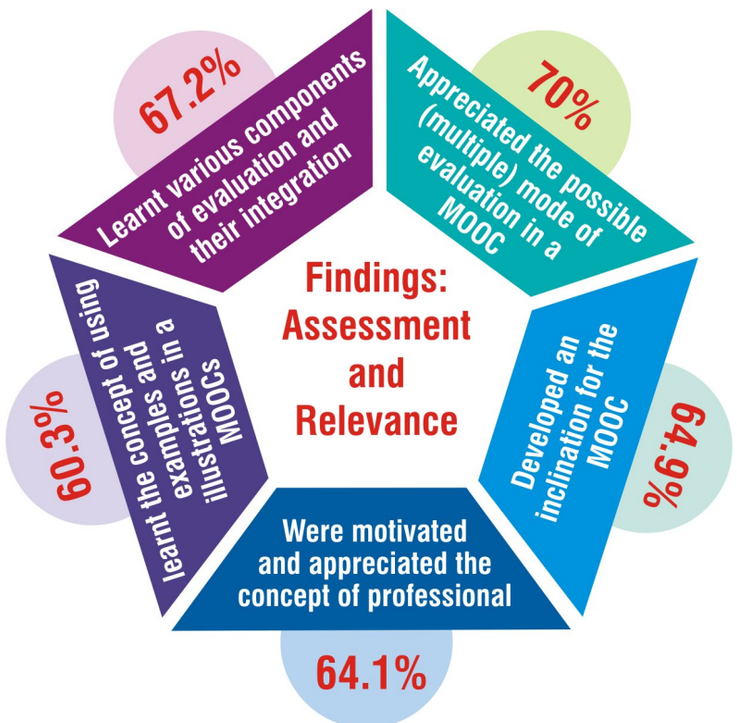
iii) MOOC Assessment and Relevance

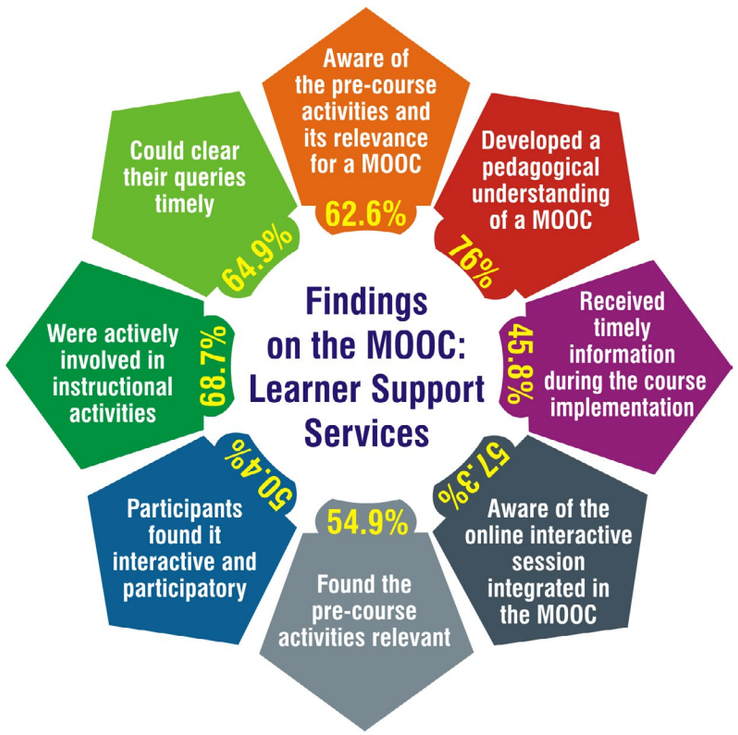
iv) MOOC: Learner Support Services

v) Outcomes of the MOOC

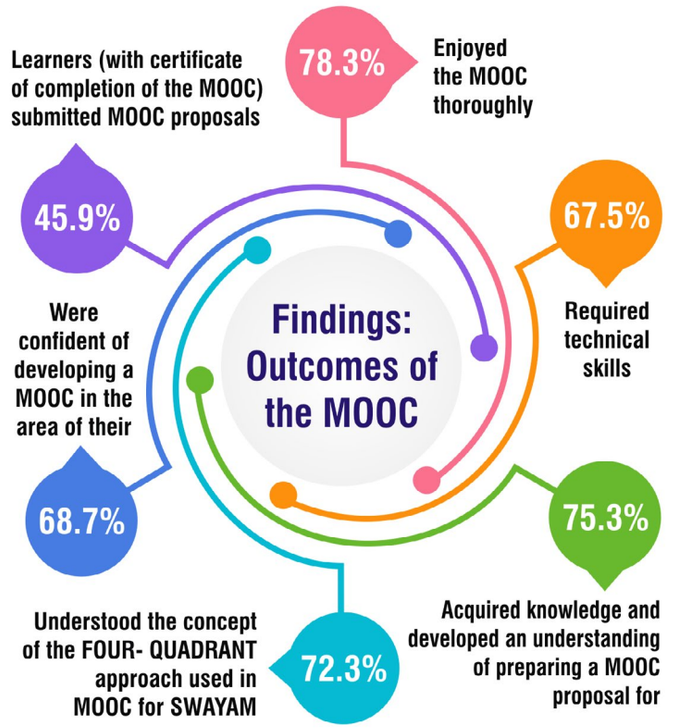


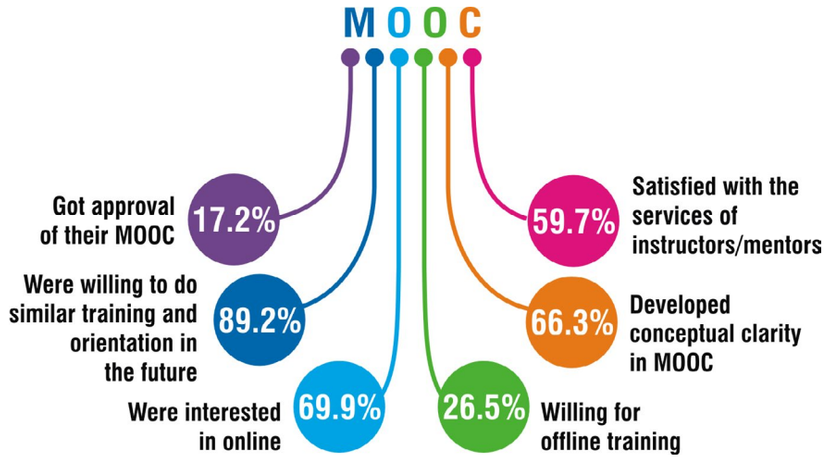








The results showed that 68.3 per cent of the participants were satisfied with the overall quality of implementation of the MOOC. It was interesting to record that only 53 per cent of the learners intended to develop MOOC proposals in the areas of their disciplines, 12 per cent had registered for acquiring some knowledge, 31.5 per cent had registered just to acquire points for their promotions, and 3.6 per cent did not have any clarity on the purpose of their registration in this MOOC.

### Recommendations and Conclusion

On the basis of the findings of this study it is recommended that more focused intensive measures are required to improve some of the areas of the MOOC and for strengthening the mode of implementation with inclusion of need-based examples, illustrations, and alternative means of evaluation in each section to ensure learners' skill development. Areas like: i) improving instructional design, ii) building partnerships and cooperation among the participants, iii) incorporating more demonstrations followed by allowing learners to practice, iv) providing online support while practicing, v) intensive measures to facilitate and promote services to the participants to address their issues/queries in a timely manner, and vi) effectiveness of training on technology enhanced learning and the use and implications of OER in the context of MOOC development.

It is important to develop a user manual incorporating an action plan for implementation for implementers and a separate manual for participants indicating sequential (step-wise) development of the MOOC's proposals. There may be a provision for following a blended approach with onsite support for ensuring participants' skill development in such training and orientation. Systematic training programmes (following a blended learning approach) should be planned at state, district, block, cluster, and institutional levels with a thorough plan of action and targets for skill development. This document provides strategies in the form of suggestions and implications for improving development, and effective implementation of this MOOC as a training module. The findings of this study as well as suggestions received from various stakeholders have implications for planning strategies in general with a focus on the needs of the teachers in terms of addressing their issues and providing them opportunities for skill development and an application of the acquired skills. More focused attention is required for improving the participation, engagement, and involvement of teachers in this MOOC and improving the quality of interaction and provision of practice sessions followed by onsite support during each phase of the development of this MOOC. Perhaps there is also a need to incorporate qualitative (practical based) assessment in each phase of the MOOC.

This document will serve as a resource document for professionals associated with designing, developing, and implementing the MOOC in various disciplines for quality education and also addressing issues of accessibility to quality content, quality teaching-learning, and equity.



# Abbreviations

| | |
|---|---|
| **ASER:** | Annual Status of Education Report |
| **B.Ed:** | Bachelor of Education |
| **BRC:** | Block Resource Coordinator |
| **B.T:** | Bachelor of Teaching |
| **CRC:** | Cluster Resource Coordinator |
| **COVID19:** | Coronavirus Disease |
| **CSF:** | Central Square Foundation |
| **CTE:** | College of Teacher Education |
| **CWPM:** | Correct Words per Minute |
| **DIET:** | District Institute for Education and Training |
| **D.Ed:** | Diploma in Education |
| **D.El.Ed:** | Diploma in Elementary Education |
| **EGMA:** | Early Grade Mathematics Assessment |
| **EGRA:** | Early Grade Reading Assessment |
| **FI:** | Field Investigators |
| **FLN:** | Foundational Literacy and Numeracy |
| **ICT:** | Information Communication and Technology |
| **M.Ed:** | Master of Education |
| **MDE:** | Minimum Detectable Effect |
| **MoE:** | Ministry of Education |
| **M.Phil:** | Master of Philosophy |
| **NAS:** | National Achievement Survey |

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# CHAPTER 1

# Introduction

## 1.1 Introduction

Under the digital initiative the Ministry of Education, Government of India (GoI) encourages teachers of higher education to make use of SWAYAM (online platform) effectively and efficiently for education, training, and capacity building. The University Grants Commission (UGC), Govt. of India (GoI) has been encouraging teachers to submit proposals for designing and developing Massive Open Online Courses (MOOCs) for UG/PG levels and skill development of youth under SWAYAM. Therefore, teachers of higher education must be trained, oriented, and exposed to capacity building to enable them to design and develop quality MOOCs following SWAYAM's guidelines. CEMCA designed a two-week course to empower the teachers to learn about teaching with technology using the *MOOC Development of Online Courses for SWAYAM* following an appropriate learning design and simple and accessible technology. The ultimate purpose was to enable teachers to contribute effectively and efficiently thus promoting educational resilience through technology enhanced learning (TEL) for sustainable quality education and training in India. It was implemented in collaboration with state open universities to train, orient, and guide teachers for developing quality MOOCs with the purpose of creating a skilled workforce in India to address the needs and demands of higher education.

With the completion of five cycles of implementation of this MOOC in West Bengal, Uttarakhand, and Andhra Pradesh, a research study was conducted to assess various dimensions of this initiative and evaluate its effectiveness. The findings of this study will help in: i) identifying the expectations of teachers and their difficulties; ii) assessing the level of knowledge, skills, and competencies acquired by the teachers; iii) reviewing various components of the MOOC; and iv) recommending improvements in this MOOC initiative. This study focuses on CEMCA's collaborative initiatives for promoting educational resilience in India. The thrust is facilitating TEL for sustainable quality education and training in higher education.

## 1.2 About MOOCs

Figure 1: Indigenous MOOC

MOOCs are a relatively new development in the online and ODL system of learning which is distinguished from conventional online courses as MOOCs have no limit to attendance, no pre-required qualifications, and no enrolment fees. The term 'massive' can be interpreted as a course made available to a large number of learners on one platform who interact simultaneously and at the same time each learner can learn in a self-paced manner. 'Open' refers to no fee and no entry requisites but should not be confused with open licensing of the content like OER. 'Course' may be structured content within a definite date to start and end or self-paced content accessed on learners' demand. Therefore, MOOCs vary in delivery strategies. Though accessing the content is free, some MOOCs charge fees for certificate/ or credit transfers. MOOCs are a means of following a learner-centred approach, learning through social networking, and a means of co-creating knowledge.

## 1.3 MOOCs: Philosophical Bases

MOOCs are not just a massive open online courses. They are based on the principle of connectivism where there is integration of four different principles: i) principle of autonomy, ii) principle of diversity, iii) principle of openness and iv) principle of interactivity. These are the four core principles of the teaching-learning process based on reflection and reflective practices. Active and persistent consideration of any belief or knowledge is described as reflection (Dewey, 1993). An examination of the way one teaches and takes decisions on what areas need improvement is 'reflective practices' (Jarvis, 1992). Certainly, MOOCs are based on a clear and well-defined philosophy, a paradigm shift from the traditional teaching-learning process to deal with global changes in terms of sharing information and creating knowledge. Metacognition is the ability to think about one's thoughts about teaching with an aim of improving learning (Wilson and Conyers, 2014). Instructors' self-reflections have a positive impact on improving the learning environment and lead to higher achievements among learners (Hartman, 2001). Self-reflection and metacognitive thinking are very important for course design/redesign, development, and implementation. Teachers and academics in the field of education need to



have basic knowledge and understanding of a MOOC's design, development, and implementation strategies. There is a need to assess the learning meaningfully where access to information and knowledge increases exponentially. Learners need to filter information and learn how to assess the information that they need. Therefore, in connectivism the focus is on connections to enable learners to learn rather than their current state of knowing (Siemens, 2005).

Though, there is increasing acceptance of connectivism as a learning theory, it is yet to be accepted at a wider level. Therefore, it is expected that this mode of delivery will evolve into a different form as it is an evolving teaching-learning process in the 21st century.

## 1.4 MOOCs' aims

MOOCs are online courses aimed at providing access to quality education and training to optimize learning outcomes with effective and efficient use of information and communication technologies (ICTs). MOOCs are considered a disruptive educational trend, especially in higher education and lifelong learning (Hyman, 2012; Yuman, 2013). They provide an affordable and flexible means of learning new skills. In the context of the teaching-learning initiatives of MOOCs, they more or less replicate the traditional learning approach (Siemens, 2012) and are based on connective pedagogy (Siemens, 2015). Faculties of almost all disciplines use this new technology for education, training, and capacity building to address the issues of increasing demand in the digital world. Some of the notable benefits of MOOCs are:

i) provide high-quality, cost-effective education
ii) facilitate increasing access to education and training
iii) promote self-learning following a flexible approach
iv) motivate learners to learn at their doorsteps at their own pace
v) allow learners to learn independently to achieve learning outcomes

MOOCs provide learners the option of learning over and above the constraints of the traditional system of classroom-based learning. Learning resources are all online and open to all at any time and at any place. Therefore, learners are expected to follow the course at their own pace and own time. It is an alternative means of acquiring knowledge and skills connecting thousands of learners worldwide having access to discussions through various technology mediated components such as forums and message boards. This promotes and facilitates the concept of peer and cooperative learning. MOOCs' flexible assessment strategies allow learners to assess their own learning through weekly online quizzes and peer assessed assignments. Learning resources are readily available on the online platform to review the material as required.

## 1.5 MOOCs' Core Elements

Some important elements of a MOOC are:

- Syllabus Template: Includes a course description with key learning outcomes, description of the faculty, a detailed course content outline, expectations from the participants, certification, faculty communication, netiquette guidelines, and academic integrity.
- Pre- and post- course surveys.
- Course overview to orient students on: What is the course about? What does the course include? What will they learn in the course? How will they use the course's features?
- Course timelines for scheduling learning activities (week-wise detailed plans).
- List of announcements as reminders for due dates and course transitions. Instructions on synchronous and asynchronous engagement (prompts for students to post on the discussion forum, polling questions throughout the course, and interaction with faculty/TA (eTutor) as per instructions).

## 1.6 Overall Structure of a MOOC

Generally, a MOOC is designed and developed with a four-quadrant structure based on an instructional design. The structure of a MOOC has components like:

**i) e-tutorial (First Quadrant):** There should be video and audio content in an organized form, animations, simulations, video demonstrations, and virtual labs along with the transcription of the video. There is mapping of video content on a week-to-week basis on desired learning outcomes. A multi-week mapping plan may be created and presented in the weekly plan of action.

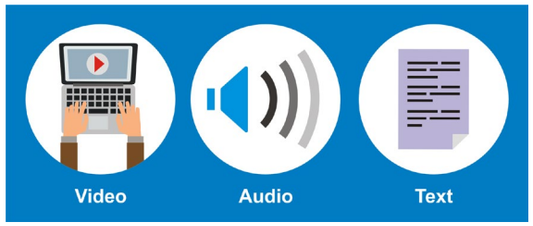


Figure 2: Components of MOOC

**ii) e-content (Second Quadrant):**
Contains self-instructional material like e-books, illustrations, case studies, presentations, web resources such as further references, related links, open source content on the internet, videos, case studies, books including e-books, researpapers and journals, anecdotal information, historical development of the subject, and articles. These are the readings and resources openly accessible to the learners.

**iii) Assessment (Third Quadrant):** Comprises of problems and solutions which could be in the form of multiple choice questions, fill in the blanks, matching questions, short answer questions, long answer questions, quizzes, assignments, solutions, discussion forum topics, and setting up the FAQs for clarifications about



general misconceptions. Assessment may be in the form of homework assignments, commentaries, reviews, comparisons, analyses, observations within the available resources, and reflections or other forms of homework. Peer assessment rubrics may be aligned with learning outcomes; and

**iv) discussion forum (Fourth Quadrant):** This is for raising doubts and queries, and clarifying them on a near real time basis by the course coordinators/instructors. MOOC's course landing page

Elements of the course landing page must include:

i) Welcome text and video from lead faculty
ii) Faculty/ TA (tutor) details (brief CV and contact details)
iii) Links to course surveys
iv) Guidance on how to get started as a student in the course
v) Handouts section including syllabus and a learning checklist
vi) Course timelines

## 1.7 MOOC: Design and Development

From the pedagogical perspective there are four important course design principles applied to MOOCs for their design and development:

1. Identification of instructional objectives with intended learning outcomes
2. Ensuring the assessment strategy
3. Developing a progression of activities
4. Ensuring a balance between instructor presence, social/peer interaction, and cognitive challenges

Teachers and academics associated with a MOOC's design and development should consider the four principles of course design to provide quality experience to learners. It is important to provide a roadmap of weekly activities to learners which include:

i) Presentation of content
ii) Mapping of activities for each week
iii) Guiding on effective instructional design
iv) Ideas for activities and discussion boards

## 1.8 MOOCs Versus OER

A comparison of a MOOC with OER depends on our perspective about the MOOC, whether we look at it as a resource or as a content-based quality course. In many cases MOOCs are not OER because it is difficult and even impossible to reuse and

redistribute them by virtue of their size and complexity. Therefore, MOOCs are generally not considered OER. However, in certain cases MOOCs are licensed to allow reuse and adaptation. However, from the instructional design and learning point of view MOOCs are potentially much more than OER. MOOCs can go beyond OER as a means of a technology mediated teaching-learning process to transform and improve the quality of education with a focus on peer learning.

## 1.9 MOOCs for Sustainable Development

Though development of MOOCs has seen rapid growth in recent times, more recent activities such as the SDG Academy (2017) and the SDG Initiative (2017) offer MOOCs with a focus on the Sustainable Development Goals (SDGs). Within the context of development education, "MOOCs (...) can offer learning resources and opportunities for people to cultivate their awareness of global environmental protection, of a sense of sustainability, and also to learn about the ways in which universities teach sustainability-related knowledge in an open online environment" (Zhan et al., 2015). MOOCs can be valuable for sharing educational content on sustainable development, open learning environments and content support, and inclusive and lifelong learning opportunities aligning with SDG 4 (UNESCO, 2017). Learners communicating on a massive scale with others from different countries and cultures encourage critical engagement and awareness of key sustainability issues. Furthermore, institutions delivering MOOCs on sustainable development address global sustainability strategic and policy objectives (Cotton et al., 2007). MOOCs can respond to one of the key challenges of sustainable development education, to: "...focus on sharing knowledge, skills, values and perspectives throughout a lifetime of learning in such a way that it encourages sustainable livelihoods and supports citizens to live sustainable lives" (UNESCO, 2005). This study describes and evaluates a MOOC on sustainable development delivered by Trinity College Dublin in 2017. It also explores MOOCs' potential to enhance public understanding of the SDGs.

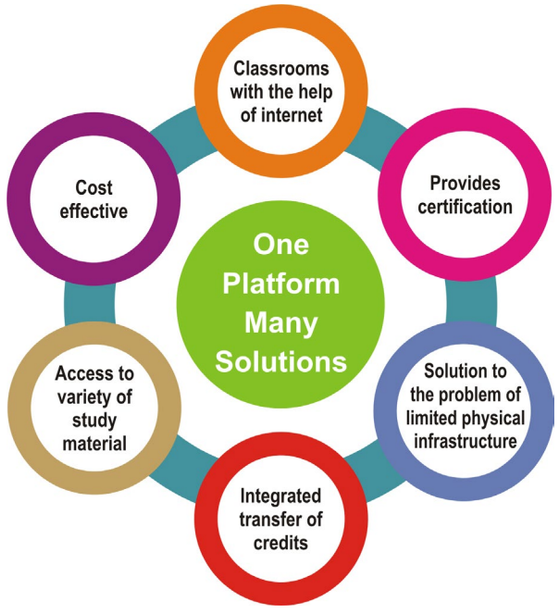


Figure 3: MOOC provide multiple solutions



## 1.10 MOOCs and SWAYAM

In India, MOOCs are an emerging concept in education. They are a key for millions of learners to access learning opportunities. For providing access to quality learning resources to all, the Government of India started the project *'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM)*. This is an indigenous integrated platform for online courses using ICTs for hosting MOOCs under the National Mission on Education through the Information Communication Technology (NME- ICT) programme.

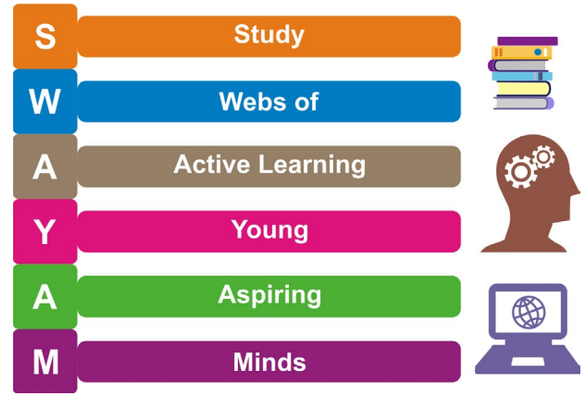


Figure 4: MOOC - SWAYAM

## 1.11 SWAYAM's Salient Features

SWAYAM is an innovative initiative of the Government of India for providing quality education to all. Its aim is addressing the issues of equity in education. Some of SWAYAM's unique features are:

i) One-stop web and mobile based interactive e-content for all courses from high school to the university level.

ii) High quality learning experience using multimedia on an anytime, anywhere basis.

iii) A state of the art system that allows easy access, monitoring, and certification.

iv) Peer groups and discussion forums to clarify doubts.

v) A hybrid model of delivery that adds to the quality of classroom teaching.

## 1.12 MOOCs' STRUCTURE on SWAYAM

MOOCs are being offered on SWAYAM with a four-quadrant instructional design approach as per MoE's guidelines:

**First Quadrant:** Engagement time: Video. 25-30 minutes per module is used with video and audio content in an organized form with animations, simulations, video demonstrations, and virtual labs along with the transcription of the video.

**Second Quadrant:** Engagement time: e-text, e-book, objectives, summary, glossary, case studies, FAQs, other learning material. There should be 15- 20 pages per module

in 12 point Arial font in single space. Counting three minutes/page, the learning engagement time is in the range of 45- 60 minutes per module. It should contain self-instructional material, e-books, illustrations, case studies, presentations, and web resources such as further references, related links, open source content on the internet, videos, case studies, books including e-books, research papers and journals, anecdotal information, historical development of the subject and articles.

**Third Quadrant:** References, web links – reference list is given in a word document. Specific links that are viable and direct a user to appropriate pages.

**Fourth Quadrant:** Assessment including quizzes- self-graded, assignments, short (up to 200 words), and two long answers (up to 500 words) depending on the course requirements.

10-15 MCQ per module comprise of a quiz with engagement time of one minute per question. Engagement time for assignment questions should be 5 minutes per short question and 10 minutes per long question. Total engagement time should be in the range 45-50 minutes per module containing problems and solutions which could be in the form of multiple choice questions, fill in the blanks, matching questions, short answer questions, long answer questions, quizzes, assignments and solutions, discussion forum topics, setting up the FAQs, and clarifications about general misconceptions.

Total engagement time for discussions and interactions: The interactions can be through video tutorials or forum moderations and participation. Learners should be encouraged to take part in the discussions. May assign marks for participation and forum interactions.

## 1.13 SWAYAM's Scope

As per the Government of India's guidelines SWAYAM will cover:

- Curricula based course content covering diverse disciplines such as arts, the sciences, commerce, performing arts, social sciences, and humanities subjects, engineering, technology, law, medicine, and agriculture in the domain of higher education, school for teacher training as well as teaching and learning aids for children in India to help them understand the subjects better and also help them in better preparedness for competitive examinations for admissions to professional degree programmes.
- Skill based courses, which cover post higher secondary school skills that are presently the domain of polytechnics and industrial skills certified by the sector skill councils of various ministries.
- Advanced curricula and professional certification under a unified scheme in higher education that can be tailored to meet the demands of a choice-based credit system (CBCS) currently being implemented in India at the undergraduate level.

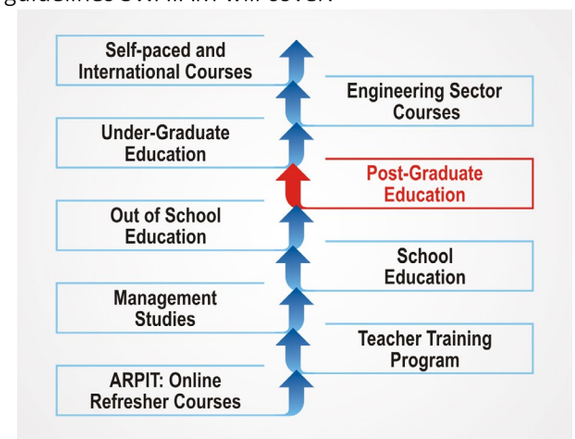


Figure 5: Scope of SWAYAM



Curricula and courses that can meet the needs of learners' lifelong learning in India and abroad.The Government of India adopted the concept of MOOCs to supplement the formal education system in the country from high school to higher education. It hosts various courses based on the curricula, continuing education, and skills. MOOCs are online courses developed as per the pedagogy following a four-quadrant approach-- video, e-text, self-assessment, and additional e-resources. MOOCs are of two types; i) credit based courses; and ii) non-credit based courses. Courses that are taught for at least one semester at the PG level in Indian universities come under credit based courses. One credit is equivalent to 10 hours of learning including participating in discussion forums and other interactions and working on assignments and activities designated for the course. Under SWAYAM a course of 1 to 3 credits is expected to be covered in 4-12 weeks including the assessment component (should be 40 hours for a 3 credit course and 80 hours for a 6 credit course) of learning from e-content, reading reference material, posting on discussion forums, and assignments.

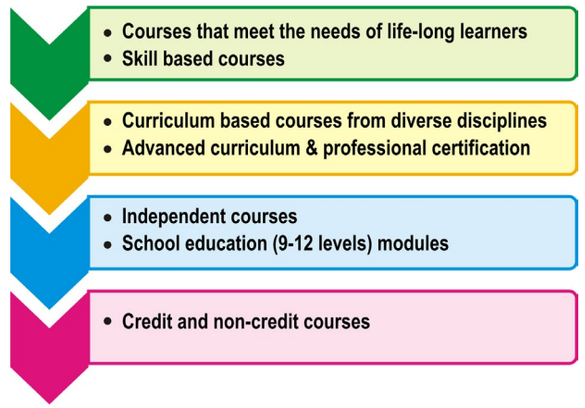


Figure 6: MOOC courses

The course objectives define the overall objectives of the complete course and its expected learning outcomes. The course description contains an outline: a) a part of approved curriculum being taught in an Indian university, b) a paper which is taught for at least one semester as a part of the master's curriculum, and c) having a proctored examination in the end resulting in an award of credits. However, there are certain independent courses which may not be part of any set curriculum and may be taught as awareness courses, continuing education programmes, and for training for specific skill sets.

An introductory video of the proposed course of 3-5 minutes to be created for the course highlighting its objectives, learning outcomes, brief structure, and engagement time. The video/ slide show should be appealing and informative for students. Under the assessment plan the weightage assigned for different elements of a MOOC are assignments percentage, practical percentage, final exam, and others (percentage).

## 1.14 Instructional Design of MOOCs for SWAYAM

The systematic and logical steps for the instructional design of a MOOC are:

**Need Analysis:** Need for offering the courses via MOOCs, possible target reach, and significance of the courses has to be established to justify selection of courses for the MOOCs. ***Content analysis:*** Preparing raw content using reference books, articles, research papers, and collection of illustrations and diagrams. ***Learner analysis:*** Defining prospective learner profiles and essential entry knowledge.

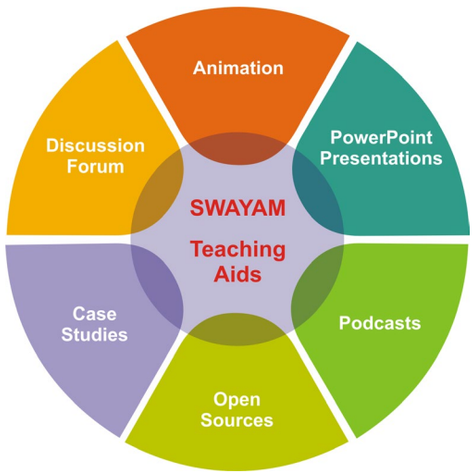


Figure 7: MOOC design

**Design:** Course outline includes main and sub-topics and the structure of topics and sub-topics following an appropriate sequence in a hierarchical manner which is the output of this exercise.

**Course Objectives:** The module's objectives in terms of performance outcomes will be the output of this task. Performance objectives and each objective will express learners' achievements only in one small area.

Figure 8: Phases of development of e-tutorial

**Instructional Strategies:** Specific learning activities for effective training (for example, case studies, scenarios, cartoon strips, analogies, individual or group activities, concept-mapping, in-text learning quizzes, interactive exercises in the learning modules, discussion forum topics, and blog postings) will be planned at this stage. Treatment of MOOCs will mainly depend on the planning at this stage. Instructional material: Nature of material in light of designed strategies will be planned. The material may comprise instructor's videos supported by slides and interactive multimedia consisting of graphics, animations, documentaries, recorded demonstrations, dramatized scenarios, cartoon strips, 3D models and animations, infographics, diagrams, sketches, maps, screen cast videos, and slides with audio narration.



**Summary:** Summary using innovative formats (for example, infographics such as concept maps, flow charts, sum up videos, and text based summaries). Evaluation strategies: Specific assessment and evaluation exercises, activities for formative assessments and module end exercises, summative auto-graded tests, and assignments for self-check and assignments for e-tutor feedbacks will be planned at this stage.

**Time-wise Course Session Plan:** It is important to define week-wise activities once all strategies and material are finalized. Here, mapping all content, activities, and tests with timelines will be done. Final selection of activities, assignments, and tests will be done only in light of the available time duration for each module. Available time duration will depend on the credits assigned to the course and its modules in the syllabus.

**Implementation:** Actual implementation with a proper announcement of the course and availability of detailed course documents will be done after all the above stages have been systematically carried out.

**Duration of the Course:** Will vary depending on the level and credit points. Format of the course may be: i) 4-10 weeks for shorter courses for 2 to 3 credits at the certificate level or for a teacher training programme, or ii) 12-16 weeks for CBCS programmes with faculty/mentor support from participating institutions/affiliations of 4 to 6 credits at diploma, UG, and PG levels. One credit will be equivalent to 13-15 hours of learning covering the course content, participating in discussion forums and other interactions, and working on assignments and activities designated for the course. Each week the learning activities will cover going through e-content and supplementary reading.

**Lectures/Topics:** The lectures/ topics are to be broken into short modules. Each module will have:

i) a clear description of the contents and expected learning outcomes; ii) objective-type assessments (to be auto-graded or assisted by instructors//mentors; and iii) activity/assignments: a discussion topic (extensive discussion in the course discussion forums). A team of instructional designers and subject experts (instructors/mentors) may work together in close coordination for designing systematic instructions based on raw content, activities, and exercises provided by the instructors. Graphics and multimedia designers may also form an integral part of this course team who will assist in the creation of graphics and multimedia. Subject experts, instructional

designers, and graphic and multimedia experts form the course team and are meant to strengthen e-content development skills.

## 1.15 Course Structure: MOOCs

Each course may be divided into week-wise sections as per the course plan. Each week of the course will comprise of a lesson on a single topic or themed topics with specified learning outcomes. A 1 to 4 credit SWAYAM course is expected to be covered in 4-12 weeks including the assessment component (should be 40 hours for a 3 credit course and 90 hours for a 6 credit course for the full course) of learning from e-content, reading reference material, discussion forum postings, and assignments. Instructors are expected to work out lesson plans for each week considering the following components:

- Introduction including learning outcomes and direct instructions delivered primarily through transcribed video content with learning objectives and faculty-provided notes. Uniquely created handouts may also be used for direct instructions, supporting e-content with graphics and animations, and case studies wherever essential.
- Provide a list of core and supplementary reading material. Other course resources may be provided via web links, auto-graded quizzes, and self-assessment questions where students compare their answers against an instructor's written responses and grade themselves. Discussion threads can be used for effectively engaging students who may communicate in discussion board threads each week on the key course concepts. These discussion forums are best focused on a case study, problem, or question(s) pertinent to the lesson and should allow the participants to share ideas and debate topics. For lessons in which students can appropriately practice skills or concepts, short interactive tools/ social media can effectively supplement other course material.
- Aligned formative assessment questions for each week's lesson comprising both objective questions (such as multiple choice, multiple mark, numerical input) and subjective questions. Formative assessments may include ungraded reflection papers, quizzes that can be re-taken, discussion forum responses, concept maps, and self and peer evaluations that are meant to help students improve or identify gaps and weaknesses.
- The conclusion and forthcoming section to include week's summary and what to expect next week.

## 1.16 Learning through SWAYAM

It is important to know about 'Learning through SWAYAM.' How does learning through SWAYAM help the learners? Learners must find new ways of learning



through online discussions, video lectures, self-assessment tests, and open education resources that give online learning an edge over traditional learning. This new form of learning proved to be very useful in the Covid-19 pandemic. It promotes an attitude of self-learning among the learners.

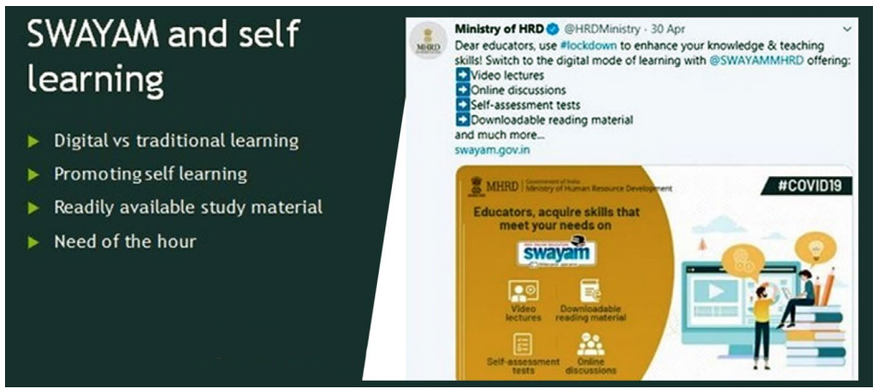


Figure 9: SWAYAM - Self learning

The SWAYAM portal is a helpful tool for learners. It provides an opportunity for both formal and informal learning. It assists the learners with a hassle free and simple process starting from registration till the completion of the course.

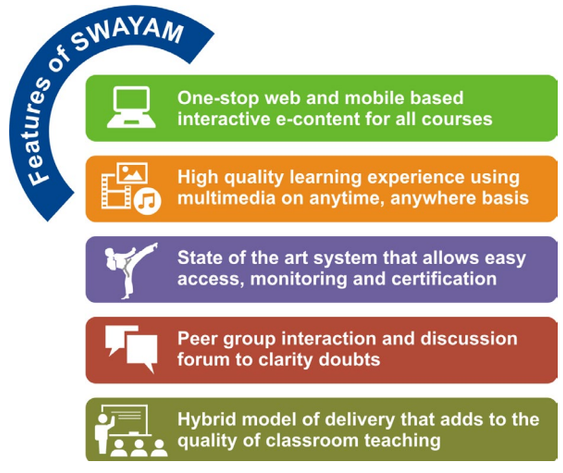


Figure 10: Features of SWAYAM

On registering on the SWAYAM platform, learners can proceed to discover the courses of interest and enrol for them. Learners have the liberty to learn the courses at their own place as per their own convenience. When they face any hiccups in pursuing a course, they can seek assistance and clarify their doubts in the discussion forums. Learners can then submit their assignments and complete their courses. There are many courses to choose from and the learners can start another course any time they want to. This promotes the culture of lifelong learning, a means of sustainable development. Once the learners complete the course within the notified timeline, they can register for the exam making an online fee payment. Then they can proceed to take an exam and acquire a certificate based on their performance. They can transfer and integrate the credits in their academic records in a certificate course, diploma, or degree. The

platform is open to learners to take up as many courses as they want and keep on adding to their academic profile throughout their lives. The host institute (the one that hosts the course) has an accepted and approved evaluation format in place to assess learners' progress. A proctored exam is conducted nationwide for all the learners in each course. By taking the exam, the learners become eligible to earn credits from the host institute. Once the credits are earned, a learner can integrate them with his/her parent institute's evaluation system.

The UGC Regulations 2016 concerning the ***Credit Framework for Online Learning Courses through SWAYAM*** have clearly laid down the guidelines for online courses through SWAYAM, evaluation and certification, credit mobility, and amendments in rules for seamless integration of MOOCs. The guidelines state that an institution can only allow up to 20 per cent of the total courses being offered in a particular programme in a semester through online learning courses provided on the SWAYAM platform and the institution is bound to provide adequate assistance to learners for a seamless learning experience. The host and parent institutions are responsible for evaluation in the MOOCs. The evaluation must be carried out based on pre-defined norms and parameters. The host and parent institutes coordinate in matters like conducting exams and credit transfers. The parent institution must give equivalent credit weightage to the credits earned through online courses on the SWAYAM platform in the credit plan of the programme. All institutions are bound by the UGC regulations and must make the necessary changes to incorporate them.

| Quadrant | Guideline 2017 |
|---|---|
| I | e-Tutorial |
| II | e-Content |
| III | Discussion Forum |
| IV | Assessment |

Figure 11: SWAYAM - Four quadrant approach

MoE has launched ARPIT, a major and unique initiative in online professional development of 15 lakh higher education faculty using the MOOCs platform SWAYAM. In ARPIT, NRCs continuously develop new refresher modules in their earmarked disciplines each year and the training material is uploaded and made available through SWAYAM. UGC stated in 2018 that the successful completion of courses offered under ARPIT with 40 hours of instruction material and a proctored exam will be treated equivalent to completing one refreshment course for the purpose of career advancement.

As we know SWAYAM has adopted the four-quadrant approach. The basic focus of this approach is providing learners with a learning environment that imitates a traditional classroom but with added advantages. This means that learners have access to everything like in a classroom and also get access to some features that were not in place before. Content load in SWAYAM courses is very important. The



content load is at an optimal level because learners might have to balance their traditional learning along with the courses taken online. SWAYAM courses are designed to offer flexibility for learners in many aspects such as place and pace of learning. Ideally, 4 credit courses may have around 40 videos of around 30 minutes each which adds up to nearly 20 hours. In addition, there will also be 40 self-learning material or reading modules of nearly 3,000 words each. A learner can complete 1-4 credit courses in 4-12 weeks without much difficulty. There is a specific weekly lesson plan for courses on the SWAYAM platform. The learning outcomes are spread across content, activities, and assessment. Learners get the content to read and learn from. Then they apply the concepts that they learnt through activities such as assignments and discussions. At the end, learners are assessed using different means like peer reviews, quizzes, and tests.

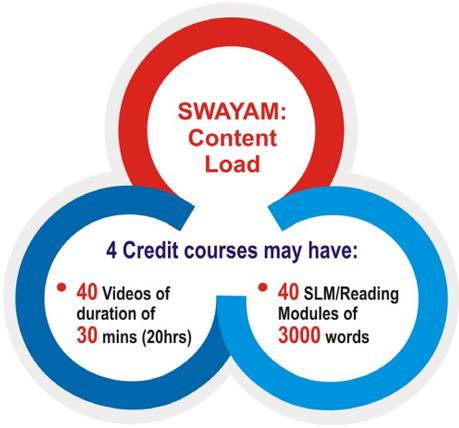


Figure 12: 1 to 4 Credit courses are expected to be covered in 4-12 week's duration

## 1.17 Teaching through SWAYAM

It is important to have complete clarity and understanding about 'teaching through SWAYAM.' There are two types of courses-- credit courses and non-credit courses. i) Credit courses are taught for at least one semester as part of a specific subject/ programme, and ii) non-credit courses are others like awareness programmes, continuing education programmes or training in a specific skill set as an independent course that is not part of any set curriculum. These can be of any duration and are often short.

The SWAYAM academic board and national and course coordinators form a part of the SWAYAM board. The SWAYAM board is a body responsible for managing SWAYAM and SWAYAM Prabha by coordinating the work of technical and academic bodies to deliver high quality education. The board is composed of a seven-set committee with members from

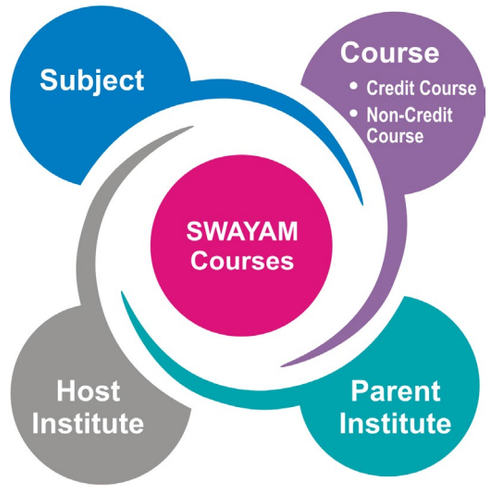


Figure 13: SWAYAM Courses

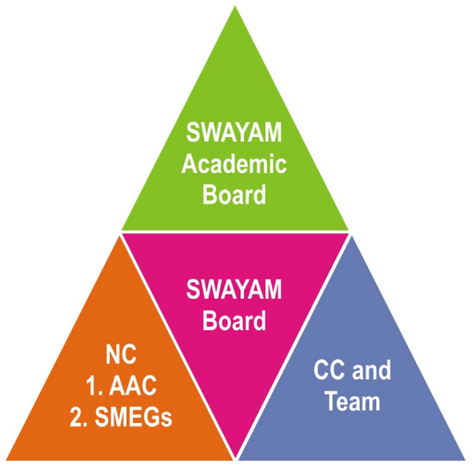


Figure 14: SWAYAM Board

different areas. The main functions of the SWAYAM board are: i) taking important decisions that are necessary for the smooth functioning of SWAYAM and SWAYAM Prabha, ii) laying down policies regarding implementation issues within the parameters laid down by the competent authority including the cost payable for developing and delivering courses, examination fees, and accepting content from foreign or private institutes and universities, iii) reviewing the progress of each NC regarding sanctions, progress, development, and delivery of various online courses, and iv) attending to any other matter that arises during the operation and delivery of SWAYAM and SWAYAM Prabha.

The SWAYAM academic board is responsible for guiding the national coordinators and for laying down quality standards. The board is composed of a six-set committee with selected members from different areas. The key functions of the academic board are:

- Monitoring the quality of the courses on SWAYAM and laying down quality standards.
- Ensuring smooth conduct and offering courses on SWAYAM.
- Responsibility for the coordinated integration of SWAYAM and SWAYAM Prabha.

The board monitors the conducting of term-end examinations for SWAYAM courses and resolves all the issues related to them. It also monitors the progress and transfer of credits and resolves related issues.

The national coordinators are institutions that have been designated by the ministry and are assigned a specific sector for preparing online courses on SWAYAM. The national coordinators constitute the following committees of the academic advisory council (AAC) and subject matter expert groups (SMEGs). The academic advisory committee consists of academicians for assisting the national coordinators to consider and take decisions on every MOOC proposal. The SMEGs for each subject

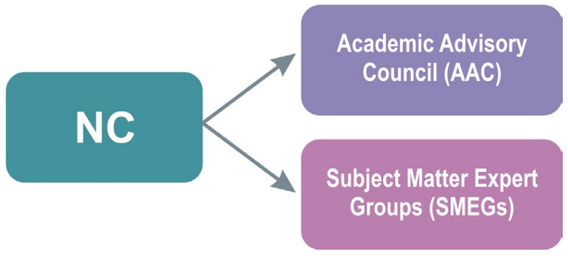


Figure 15: SWAYAM - Constitution of National Coordinator



consist of academicians for evaluating the proposals for online courses and making recommendations for their acceptance, improvement, or rejection.

The course coordinator is a subject matter expert (SME) belonging to a reputed institution/industry or a specialist in the field identified and is entrusted with the responsibility of developing online courses in a given area by the NC. Each national coordinator is assigned a specific thrust area and she/he is responsible for developing the courses pertaining to that area.

## 1.18 Steps in MOOCs' Development

STEP 1: Identification: The national coordinator identifies courses where online education is possible and preferred. It seeks expression of interest for course coordinators (CCs).

**STEP 2:** ***Pre-production activities:*** Once the CC is in place, it constitutes an academic team of educationalists with proven abilities to prepare teaching-learning material.

**STEP 3:** ***Production activities:*** Once the national coordinator approves the CCs' work, they can move on to the production of videos.

**STEP 4:** ***Post-production activities:*** Post-production activities are initiated on the material created to finalise the video.

**STEP 5:** Review the course content and acquire the necessary approvals.

## 1.19 Intellectual Property Rights and Copyright

Understanding the concept of intellectual property rights is very essential for handling the content produced for MOOCs on SWAYAM:

- The CC shall follow copyright laws for any readings, images, and video clips used as core and supplementary reading in case licensed material is issued and submit an undertaking to the NC.
- All content (texts, audios, videos, animations, quizzes) developed with funding from NMEICT is SWAYAM's property.
- All courses and content posted in SWAYAM will be copyrighted to SWAYAM. The ministry will, from time to time, announce policies for access and charges, if any (for

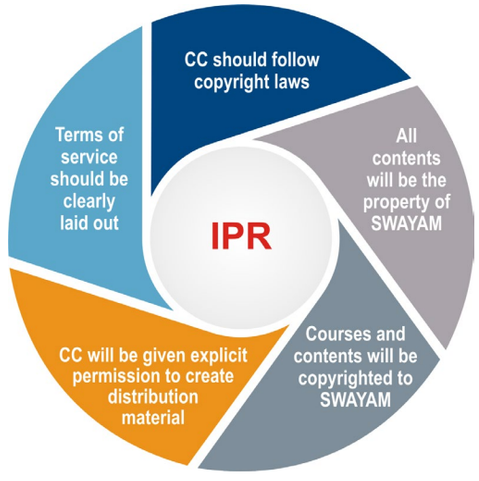


Figure 16: Intellectual property rights

certification) and will also publish an appropriate OER policy in consultation with other national and international bodies.

- The CC shall be given explicit permission for creating books and other distribution material for commercial purposes with the explicit undertaking that the content published in SWAYAM will remain there.
- The terms of service should be clearly laid out to address the following key points by the CC:
- Any disclaimers should be clearly spelt out.
- Users/students/institutions should be informed about the usage rights of the course content available on SWAYAM.

## 1.20 Evaluation of MOOCs

Evaluating the overall effectiveness of MOOCs is an attempt to improve and enhance their effective and efficient utilization. It is important to have an evidence based analysis of the impact of MOOCs on learners' knowledge, skills, and attitudes. Studies have shown that MOOCs have the potential to facilitate and promote learner autonomy and create a learner friendly learning environment (Goldie, 2016). At the same time there are studies that reflect critical issues affecting the efficacy of a MOOC such as massive dropout rates. Out of the total registered learners around 20 per cent could complete the course (Khalil, 2014). Actual social networking among learners for the teaching-learning process for learning outcomes for enhancing knowledge, skills, and attitudes is yet to be proved. As a result, there is a threat to the openness and diversity of MOOCs (Chapman et al., 2016). The facilitator's role is very significant as she/he does not just act as a stimulator in the learning of learners but maintains and ensures their active participation and their engagement (Goldie, 2016). Therefore, more research based evidence is needed to better understand MOOCs to encourage higher rates of learners' engagement (Dash and Dash, 2021). The present study evaluates the success of one MOOC in developing skills taught in the course. The overall goal of this study is assessing teachers' performance in terms of skill development and capacity building among those who have completed the two-week MOOC course ***Development of Online Courses for SWAYAM*** and at the same time improve various aspects of this MOOC (in terms of design, development, and implementation) on the basis of feedback and observations by various stakeholders.

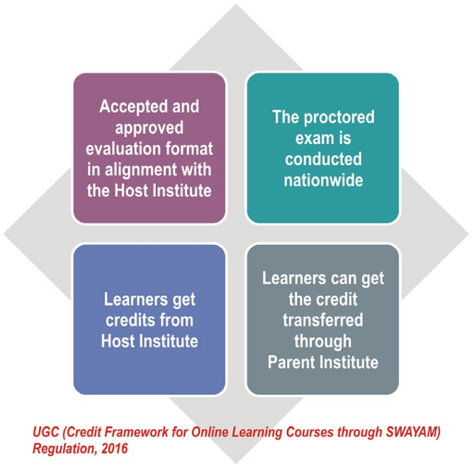


Figure 17: Certification through SWAYAM

# CHAPTER 2

# Context of the Study

The ***MOOC: Development of Online Courses for SWAYAM using an appropriate learning design and simple and accessible technology*** is a real need for creating a skilled workforce to design, develop, and implement MOOCs for various courses. This MOOC was offered by CEMCA in collaboration with various open universities in India through different online learning platforms. The duration of the MOOC was two weeks and it was available for free to all learners. The MOOC was implemented thrice for Netaji Subhas Open University, Kolkata, West Bengal, twice for Uttarakhand Open University, Haldwani, Uttarakhand, and once for B.R. Ambedkar Open University, Hyderabad, Telangana. There is an increasing demand for creating trained professionals in higher education in India particularly in training and skills in designing, developing, and implementing quality MOOCS on the SWAYAM platform with effective use of ICTs (Gallagher, 2015). Therefore, a MOOC was created for the first time to train teachers of higher education in new skills which can be used for their continued professional development. Recurrent training and orientation for skill development is important because of the rapid growth and changes in technology mediated interventions.

This MOOC's aim was building capacities of faculty members to create a trained and skilled workforce to design, develop, and implement online courses on the SWAYAM platform in general and on any other LMS in particular using the four-quadrant approach. The MOOC was inaugurated on 18 May 2021 and its six cycles of its implementation have been completed with the seventh cycle being implemented from 5 May 2021 at the Kalinga Institute of Social Science, Deemed to be University, Bhubaneswar, Odisha. Details of the cycles of implementation are given in Table 1.

**Table 1: Implementation of MOOC Development of Online Courses for SWAYAM**

| Sl. No. | Duration | Implementing Open University | Cycles | Enrolled | Courses completed |
|---|---|---|---|---|---|
| 1 | 19/05/2021 to 02/06/2021 | Netaji Subhas Open University, Kolkata, West Bengal | 1 | 219 | 94 |
| 2 | 16/08/2021 to 31/08/2021 | Netaji Subhas Open University, Kolkata, West Bengal | 2 | 395 | 125 |
| 3 | 16/11/2021 to 01/12/2021 | Netaji Subhas Open University, Kolkata, West Bengal | 3 | 242 | 42 |
| 4 | 26/06/2021 to 05/07/2021 | Uttarakhand Open University, Haldwani, Uttarakhand | 1 | 1476 | 635 |
| 5 | 14/09/2021 to 28/09/2021 | Uttarakhand Open University, Haldwani, Uttarakhand | 2 | 801 | 252 |
| 6 | 20/12/2021 to 02/01/2022 | BR Ambedkar Open University, Hyderabad, Telangana | 1 | 1717 | 166 |

This two-week course had five topics (three topics in week 1 and two topics in week 2):

i) **Topic I:** Overview of SWAYAM;
ii) **Topic II:** Quadrant-I (e-tutorial);
iii) **Topic III:** Quadrant-II (e-content);
iv) **Topic IV:** Quadrant-IV (discussion forum); and
v) **Topic V:** Quadrant-III (assessment).

## 2.1 Rationale for the Study

The *MOOC Development of Online Courses for SWAYAM* was designed, developed, and implemented in a collaborative mode to address the needs and demands of higher education in India with a broad objective to train and orient teachers of higher education in their capacity building and skill development to enable them to develop and implement online courses (MOOCs) on the SWAYAM platform. The mission is providing this benefit to all the teachers of higher education in India with a unique initiative for their capacity building and skill development through technology enhanced learning. Experiences of early implementation of this MOOC will help improve its overall design, development, and implementation to make it more user friendly and motivate the learners optimally. A research study was done to assess all aspects/dimensions of this MOOC and evaluate its overall effectiveness for improvements in sustainable quality.



## 2.2 Research Questions

The following research questions were framed for the study:

1. How has the MOOC impacted learners' knowledge, skills, and attitudes in designing, developing, and implementing the MOOC for facilitating learning among learners on the SWAYAM platform?
2. How has the MOOC reached the intended target group and made a difference to the participants in their work or studies?
3. How has the MOOC facilitated the learners in developing networks and engaging them meaningfully and productively in the course of study?
4. How has this MOOC ensured sustainable professional development of learners in higher education?

## 2.3 Objectives of the Study

The objectives of this study are:

ii) Identifying the expectations of teachers, academics, and other stakeholders from this MOOC course in terms of acquiring knowledge, skills, attitudes, and competencies for facilitating technology mediated learning.
ii) Assessing the level of knowledge, skills, attitudes, competencies, and level of satisfaction acquired by the registered (participated and completed) learners from this *MOOC Development of Online Courses for SWAYAM*.
iii) Reviewing all components of the *MOOC Development of Online Courses for SWAYAM* currently in use in India and some other Asian countries for further improvements.
iv) Recommending improvements in the MOOC Development of Online Courses for SWAYAM to prepare teachers, academics, and administrators of higher education in India for facilitating and promoting online learning.

# CHAPTER 3

# Methodology

This study was planned and implemented using the descriptive survey research method with quantitative and qualitative data collected through multiple means. It aim was studying the effectiveness of the MOOC Development of Online Courses for SWAYAM in enhancing the professional competencies of teachers at the higher education level in India. The scope of the study was confined to a descriptive survey and analytical approach. The study also determines the typical situation/condition with regard to the design, development, and implementation of MOOCs for SWAYAM of higher education institutions in India.

## 3.1 Population and Sample

The study population included teachers, academics, and administrators of higher education including all the registered learners of this course and members of the course team. The sample comprised of 324 participants (registered learners, learners who have got certificates of participation/completion, and dropout learners) of this course, all the members of the course team (course developers/ teachers and mentors), and selected members (teachers and administrators) from the implementing agencies associated with this MOOC in different phases of its development and implementation. The random sampling technique was used for identifying the sample from three open universities in India (Table 2).

**Table 2: Distribution of the Sample**

| Sl. No. | Name of the University | No. of Respondents |
|---|---|---|
| 1 | Netaji Subhas Open University, Kolkata, West Bengal | 83 (25.8 per cent) |
| 2 | Uttarakhand Open University, Haldwani, Uttarakhand | 118 (36.4 per cent) |
| 3 | BR Ambedkar Open University, Hyderabad, Telangana | 123 (37.9 per cent) |
| **Total Sample** | | **324 (100 per cent)** |

The survey had more male (68.7 per cent) respondents than female ones (30.5 per cent); 37.9 per cent respondents were from the Dr B.R. Ambedkar Open University, Hyderabad, Telangana; 36.4 per cent from Uttarakhand Open University, Haldwani, Uttarakhand; and 25.8 per cent from Netaji Subhas Open University, Kolkata, West Bengal. More than 70 per cent of the respondents were associated with teaching-learning processes at the higher education level; 64.2 per cent of the respondents had completed the MOOC (out of which 54.2 per cent had certificates of completion and 45.8 per cent had certificates of participation); 28.2 per cent of the respondents had not completed the MOOC; and 7.6 per cent had dropped out. Some of the important reasons for dropping out as stated by the respondents are: i) found it difficult to cope (4.6 per cent), ii) could not spare considerable time (11.5 per cent), could not clear doubts /confusions (2.3 per cent), did not find it interesting (0.8 per cent), not interested, just registered (0.8 per cent), difficult un understanding and applying (1.5 per cent), lack of practical work/activities (3.1 per cent), mismatch between theory and practice (2.3 per cent), not interested in the certification (2.3 per cent), and other reasons (14.3 per cent). Other details of the respondents' demographic profiles are presented in Table E.

## 3.2 Tools and Techniques used for Data Collection

For fulfilling the objectives of the study, the following tools were used for data collection:

i) A questionnaire was developed for collection of data from: a) registered learners, b) the course design and development team, and c) administrators and implementers of three open universities. The questions included those about learners' background, reasons for joining the MOOC, participants' interactions with other learners, design, development, evaluation, and relevance of the MOOC, technology integration (MOOC learning), and earner support services while implementing the MOOC. Each part of the questionnaire comprised of closed-end items on a five point scale (strongly agree, agree, agree to some extent, disagree, and strongly disagree) and open-ended items to collect qualitative data (observations, issues, difficulties, and suggestions) from the respondents (details of the structure of the questionnaire are presented in Tables A- E).

ii) Focus group discussions (online) through participants' observations with: i) selected respondents, ii) course team members.

A newly developed questionnaire based on: i) design, development, and implementation of the MOOC, ii) relevance and evaluation of the MOOC, iii) MOOC learning (technology integration), and iv) learner support was used for assessing the learners performance. For collection of data the questionnaire (GOOGLE LINK)



was emailed to all registered learners followed by a SMS alert. Necessary rapport was established through personal and professional networks of the authorities in the three sample universities. The purpose of the study was explained to them. The general instructions for responding to the items were thoroughly explained. All respondents were requested to respond to all the items in the questionnaire. The respondents were assured than their responses will be kept confidential. The investigator organized the data and checked it to see its accuracy, utility, and completeness. After editing, the data was classified and tabulated for an analysis as per the stated objectives.

**Online Focus Group Discussions (FDGs)** through participants' observations with: i) selected respondents and ii) course team members were held to collect qualitative data on various aspects of the MOOC. A discussion with experts of the ODL system was held to collect expert opinions, advise, and suggestions for further improving the initiative of training, orientation, and capacity building of teachers through the MOOC for strengthening technology enhanced learning in higher education.

# CHAPTER 4

# Analysis and Interpretation

An analysis, interpretation, and presentation of the results is provided systematically. The focus of the study was to see the effectiveness of the MOOC especially designed for capacity building of teachers of higher education in India. To maintain the logical sequence and ease of presentation of results and the findings (quantitative and qualitative), the analysis was divided into seven sections. **Section (A)** dealt with background of the sample of the study (respondents). **Section (B)** related to design, development, and implementation of the MOOC. **Section (C)** focused on MOOC learning (technology integration). **Section (D)** related to the relevance of the MOOC and its evaluation. **Section (E)** was on learner support services while implementing the MOOC. **Section (F)** dealt with the qualitative analysis and an interpretation of opinions and perceptions of learners obtained through the online FGDs. **Section (G)** concentrated on ODL experts' observations of the qualitative analysis, suggestions, and comments obtained through an online panel discussion with a theme based analysis and interpretation to assess the perspectives of learners, organizers, and implementers the MOOC's various dimensions.

## 4.1 Section A: Analysis and Interpretation of the Sample's Background

The study comprised of working professionals from institutions of higher learning who were associated with the teaching-learning process at different levels in different disciplines. Out of the respondents about 26 per cent were registered with the Netaji Subhash Open University, Kolkata, West Bengal, 36.6 per cent with the Uttarakhand Open University,

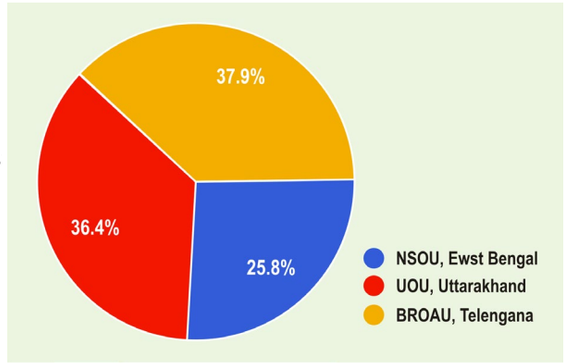


Figure 18: Distribution of Sample

Haldwani, Uttarakhand, and 37.4 with the Dr B.R. Ambedkar Open University, Hyderabad, Telangana.

It is found that 64.1 per cent completed the MOOC, 28.2 per cent did not complete and 7.6 per cent dropped out.

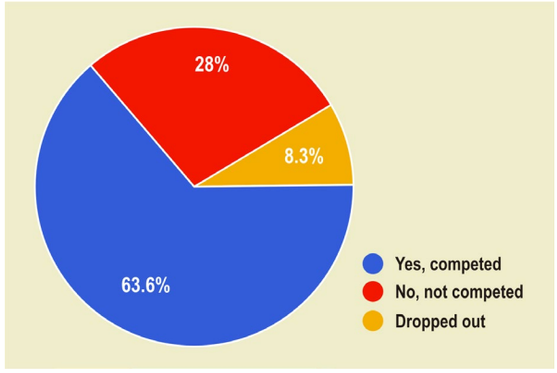


Figure 19: Status of completion of MOOC

Some of the important reasons of dropping out of the course as stated by the respondents are: i) they found it difficult (4.6 per cent), ii) could not spare considerable time (11.5 per cent), iii) found it difficult to clear their doubts and confusion (2.3 per cent), iv) did not find it interesting (0.8 per cent), v) mismatch between theory and practice (2.3 per cent), vi) not interested in the certification (2.3 per cent); and vii) other reasons (14.3 per cent).

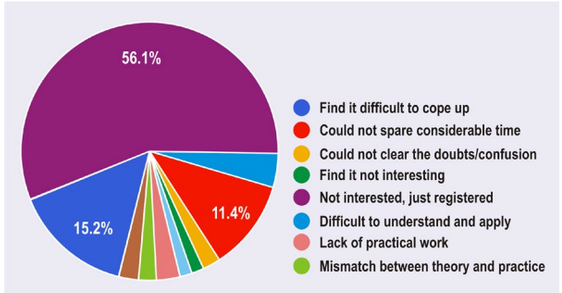


Figure 20: Causes of drop outs

Some of the respondents (20.6 per cent) were in the age group 41-45 years. About 25 per cent were above this age (41-45 years) and the remaining were below this age group. Only 30.5 per cent were females.

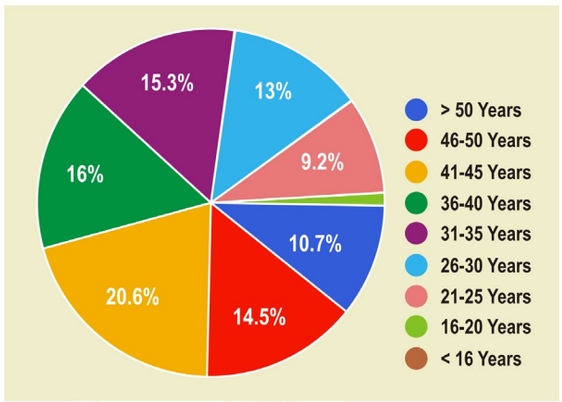


Figure 21: Age group of sample

It is important to note that 41.2 per cent of the participants had PhD qualifications and an equal percentage of the participants (41.2 per cent) had PG degrees with the remaining having other qualifications such as UG (14.4 per cent) and pre-university (2.5 per cent).

About 7.6 per cent of the participants had more than 25 years of experience in higher education and 21.4 per cent had less than 5 years of experience. Highest percentage of participants (20.6 per cent) had 10-15 years of experience.



All participants were exposed to this training programme of designing and developing online courses through this MOOC. Sub-themes were created to know the respondents' understanding of the basic knowledge and skills in designing and developing online courses (MOOCs) on the SWAYAM platform. Participants joined this MOOC because of its relevance for their professional development in the context of UGC and the Government of India's new guidelines under the New Education Policy 2020. Once equipped with this knowledge and skills, one can contribute more effectively and efficiently in the context of technology mediated learning in the 21st century's new paradigm of the teaching-learning process.

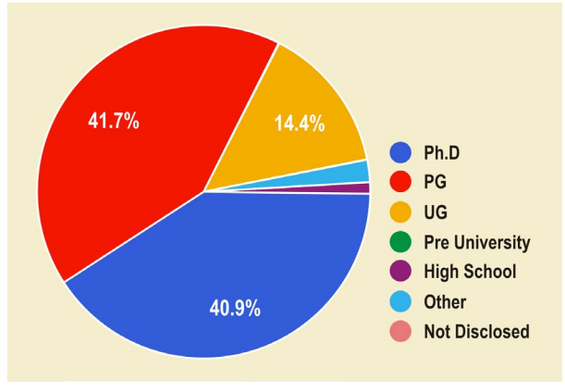


Figure 22: Educational qualification of sample

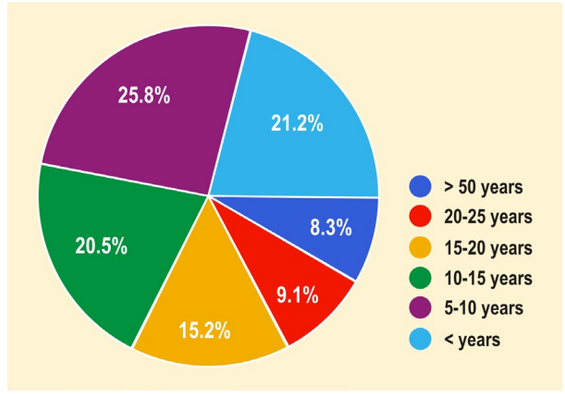


Figure 23: Professional experience of sample

## 4.2 Section B: An Analysis and Interpretation of the Learners' Opinions about the MOOC's Design, Development, and Implementation

### Content

About 79.5 per cent of the participants maintained that the content was adequate for better understanding the utility of the SWAYAM platform; 44.3 per cent strongly agreed, 23.7 per cent agreed; and 11.5 per cent agreed to some extent with this. According to the participants the MOOC covered a wide range of content. 18.3 per cent did not agree, 8.4 per cent disagreed, and 9.9 per cent strongly disagreed with this. About 17.6 per cent of the participants partially agreed (agreed to some extent) about the wide coverage of content in this MOOC.

Level of difficulty of the content is very important for a better understanding of the MOOC and its utility in the real sense; 65.7 per cent of the participants found that the content was as per the levels and standards of the participants and rightly addressed

the needs of developing online courses while 12.2 per cent of the respondents partially agreed with an equal percentage of the respondents disagreeing. Further, 9.9 per cent strongly disagreed. This shows that there is a need to reassess the coverage of content with respect to standard/level of the participants and their real needs as 34.3 per cent of the respondents did not agree with this statement. Hence, it should be re-examined for providing benefits to more learners in the future. It is encouraging that the content of each module was updated as per the expectations of the participants. However, 16 per cent of the respondents partially agreed, 10.7 disagreed with an equal percentage strongly disagreeing.

Content and its planning for implementation are the most important aspects in the teaching-learning process. More than 60 per cent of the participants said that the content was helpful in instructional planning of online courses. This is a positive sign which reflects the efficacy of the selection of the content. At the same time, it is alarming that about 36.7 per cent of the participants had a different opinion. Having a positive attitude and thinking for online courses is very important on the part of the teachers to design, develop, and implement online courses effectively. From this survey it was found that about 60 per cent of the participants said that the content covered in this MOOC helped in developing a positive attitude towards learning through online courses, as it is very important for the success of MOOCs. Though the remaining partially agreed (16 per cent), disagreed (15.3 per cent), and strongly disagreed (9.2 per cent). This is an important aspect which needs further improvements and requires a rethink on the part of the course team to further enhance the utility of this type of a MOOC. With respect to developing basic knowledge and understanding about online courses, about 64.9 per cent of the participants appreciated the content of the MOOC and 14.5 per cent partially agreed. Therefore, it is proposed to have a need analysis for identifying content and its finalization in such types of MOOCs to make them more relevant and effective for the target groups. The ultimate purpose is ensuring that teachers' competencies are enhanced with appropriate and relevant content.

## Language used in the MOOC

Language used in the various modules of the MOOC is very important and crucial for making the teaching-learning process easy and effective for the learners. About 67.2 per cent of the participants felt that the language used in this MOOC was easy to understand which made the teaching- learning process effective. However, about 19.1 per cent respondents did not agree with this. This reflects that care must be taken to improve this aspect to attract the attention of more learners towards this MOOC. It was also found that 13.7 per cent partially agreed (agreed to some extent) that the language used in the MOOC was easy to understand. More than 30 per cent of the respondents felt that the language of the MOOC needed improvements to make it more user friendly.



With respect to the simplicity of the language 63.4 per cent of the respondents reported that the use of language in the MOOC was simple which effectively communicated the message. However, 16 per cent partially agreed and 20.6 per cent did not agree. Explaining the technical concepts of the MOOC's design and development using an easy and simple language is important in an online course. This aspect is very important for effective communication through technology mediated learning in general and through MOOCs in particular. Only 59.5 per cent of the respondents responded positively to the use of language in this MOOC whereas about 40.1 per cent of the respondents responded differently. This shows a big challenge in the effective and efficient presentation of the technical concepts in the modules of the MOOC. At the same time, 61.8 per cent appreciated the wording/language used for explaining the technical terms meaningfully and 63.3 per cent said that the technical concepts used in the MOOC were very clear and easy to understand. This reflects the efficacy of the MOOC in the use of the language effectively and at the same time providing a clear message to the course team to focus on explaining the technical concepts using a simpler language and giving more examples and illustrations. About 38.2 per cent of the respondents had a different opinion. Though about 64.2 per cent of the respondents found that the language used was easy to understand and comprehend about 17.5 per cent did not agree with this. This is an important finding and must be handled carefully while updating this MOOC to avoid chances of dropouts and for attracting more learners to enhance their technical capabilities in the use of the MOOC, particularly its design and development in their areas of specialization.

## Presentation of content

Presentation of content in a MOOC is very important and significant for a better understanding of the concept and acquiring appropriate skills through MOOCs. The study showed that 67.9 per cent of the respondents found the presentation of content of the MOOC to be systematic and logical. However, 32.1 per cent of the respondents had reservations about this particular aspect – 13 per cent partially agreed and 19.1 per cent disagreed. This draws the attention of the course team towards improving the presentation of the content in the MOOC. The sequence of the content in the module plays an important role in ensuring learning. It should be appropriate and accurate to the context for optimum learning by learners; 66.4 per cent of the respondents saw the sequence as accurate and appropriate for the content. However, 10.7 per cent did not agree and 2.9 per cent strongly disagreed with the appropriateness and accuracy of the sequence used in this module. At the same time, 15.3 per cent partially agreed. The flow of the content in the module should maintain a logical sequence and psychological proximity. It is important for the course team to ensure that this is maintained in each module. About 63.4 per cent of the respondents agreed while 13.6 per cent of the respondents viewed it differently (10.7 per cent disagreed and 2.9 per cent strongly disagreed) and 15.3

per cent partially agreed with it. From the analysis it is found that the responses for the sequence of the content, logical necessity, and psychological proximity in the presentation of content almost matched each other. Therefore, it is important that the respondents' opinions are considered to ensure effective and efficient learning of all participants while updating a course. 40.5 per cent of the respondents strongly agreed and 24.4 per cent agreed with the effective use of examples in the MOOC in terms of simplicity and clarity of the context. 15.3 per cent partially agreed and 19.8 per cent did not agree. The order of presentation of the idea in the content is considered an important motivating factor for the learners to learn. About 38.2 per cent strongly agreed and 26 per cent agreed with the appropriate order used in the MOOC for presentation of the concept. This shows that 64.2 per cent respondents were in favour of the use of an appropriate order in the presentation of the ideas/ concepts in the MOOC. This rightly reflects the efficacy of this MOOC in terms of psychological considerations based on which the presentation of content, ideas, and concepts is done in this MOOC. This is supported by the statistics obtained from the responses about the presentation of content which facilitated a better understanding of the concepts. 38.2 per cent of the participants strongly agreed and 26.7 per cent agreed with this proposition. A small percentage of the respondents (about 17.5 per cent) did not agree and 17.6 per cent partially agreed. While appreciating the appropriateness and accuracy of the sequence (66.4 per cent of the participants), logical necessity and psychological proximity in presentation was also found in the content (63.4 per cent of the participants). An almost equal percentage of the participants found that examples used in the MOOC were simple and clear. Presentations of content facilitated better understanding and comprehension of the concept as responded by 65 per cent of the participants.

### Organization of the content

Overall organization of content is an important means of motivating the learners in online education. Quality of the content and its language and presentation yield better results if the organization of content is effective and efficient. This study found that about 66.4 per cent of the respondents found that the content was in order and its organization facilitated and promoted a better understanding of the concept in the MOOC (39.7 per cent strongly agreed and 26.7 per cent agreed). This is found to be positive and motivating for the course team. However, 19.1 per cent disagreed and 14.5 per cent partially agreed with this. This is certainly a learning experience for the members of the course team as there are challenges in orderly organizing the content more effectively. The overall organizational structure of this MOOC was based on the principle of instructional design of online learning as stated by 68.7 per cent participants (42 per cent strongly agreed and 26.7 agreed). However, 31.2 per cent of the respondents had a different opinion (13.7 per cent partially agreed, 5.3 did not agree, and 12.2 strongly disagreed) about maintaining the organizational structure of the content based on the principle of instructional design of online learning.



Therefore, care must be taken to address the needs and expectations of 31.2 per cent of the participants as this is an important aspect of the online learning paradigm.

The structure of the module is an important means of motivation in online courses. It was found that 63.3 per cent of the participants agreed with the proposition that the organization of content and structure used in the module motivated online learning. At the same time, 17.6 per cent of the participants partially agreed and 19.1 per cent did not agree with this proposition. This is a serious concern as about 36.7 per cent of the participants had a different opinion. About 64.9 per cent participants appreciated the examples and illustrations in the MOOC as they rightly matched the online pedagogy (39.7 per cent strongly agreed and 25.2 per cent agreed). While organizing the content, the structural design is very important which ultimately facilitates and motivates online learning. About 67.9 per cent of the respondents felt that the structural design of the MOOC rightly facilitated and motivated them to gain insights about the MOOC (38.9 per cent strongly agreed and 26 per cent agreed).

Overall, it was found that about 19.1 respondents disagreed and 13-17 per cent partially agreed with the organization of content and its various aspects in the MOOC. Therefore, the course team and organizers should consider relooking at all aspects and take initiatives to address these learners with modifications wherever possible. This will widen the reach of this MOOC for the benefit of a larger section of society in general and higher education in particular.

## 4.3 Section C: Analysis and Interpretation of the Perceptions of Learners about MOOC Learning (Technology Integration)

### E-text of the MOOC

In online courses the role of e-text is crucial and it is a powerful means of developing learners' knowledge, understanding, thinking, and attitudes with effective teaching-learning processes. About 38.9 per cent of the respondents strongly agreed and 24.4 per cent agreed with the important role of e-text in this MOOC and developing technical knowledge and required skills in designing and developing online courses in SWAYAM. This shows that 63.3 per cent of the respondents had positive perceptions about the e-text of this MOOC and considered it a powerful means for developing learners' technical knowledge, thinking, and attitudes through effective teaching-learning processes. At the same time 19.9 per cent did not agree with the potential of the e-text (10.7 per cent disagreed and 9.2 per cent strongly disagreed) and16.8 per cent partially agreed with it.

61 per cent of the respondents were confident of acquiring training and developing their capacities using the e-text in the MOOC (38.9 per cent strongly agreed and

22.1 per cent agreed). An equal percentage of respondents (61 per cent) said that the e-text of this MOOC was appropriate in terms of its use and relevance for online courses and 60.3 per cent stated that their issues and difficulties were effectively addressed during the online learning process. Further, 61.8 per cent of the participants agreed that the e-text rightly supplemented the other components (34.6 per cent strongly agreed and 25.2 per cent agreed). As we know, an effective instructional design and development contribute to the success of online courses in MOOCs. About 67.9 per cent of the participants were confident of acquiring this concept through this MOOC, about 20.6 per cent were not and 11.5 per cent partially agreed. This certainly necessitates thinking about alternative means / or adding on features for better understanding and comprehension of instructional design through online learning.

In an online course addressing learners' issues/difficulties are very important. On the basis of a critical analysis of the findings of the study it is shown that 60.3 per cent of the respondents were of the opinion that the e-text was presented effectively, addressing learners' issues and difficulties (35.9 per cent strongly agreed and 24.4 per cent agreed). About 23.7 per cent did not agree with this proposition. Similar results were found in case of difficulties /technicalities in using the e-text and achieving instructional objectives of the online course design and development. At the same time 16-18 per cent of the respondents partially agreed with all the aspects pertaining to the use of e- text in this MOOC. This shows that the quality of the e-text needs to be reassessed for addressing the needs and expectations of about 38-40 per cent of the respondents.

## Video component of the MOOC

This is an important quadrant in the four-quadrant approach used in the MOOC. There are a lot of technicalities involved and associated with the design, development, and integration of this component in the e-text of the MOOC. Developing appropriate knowledge and a better understanding of the use of videos and its implications for the MOOC will help teachers of higher education to design their own online courses. On the basis of a critical analysis of the findings of the study it was found that about 62.6 per cent of the respondents expressed a positive opinion about the availability of appropriate devices to make use of the video components of the MOOC (42 per cent strongly agreed and 20.6 per cent agreed). However, a small percentage of the respondents (14.5 per cent) partially agreed and 22.9 per cent did not agree (9.9 per cent disagreed and 13 per cent strongly disagreed) with the availability of appropriate resources to make use of the video component. This is a serious concern in terms of the use of technology and its effectiveness. Availability of resources is the basic minimum requirement for making use of technology mediated interventions meaningful.



With regard to the awareness of participants in terms of integration of the video component and its relevance in enhancing their knowledge and skills, 64.9 per cent found the video component user friendly (44.3 per cent strongly agreed and 20.6 per cent agreed). This is an encouraging and positive indication for the course team in terms of design, development, integration, and implementation of the video component in the MOOC. About 22.2 per cent of the participants did not agree and 13 per cent partly agreed with this proposition, perhaps due to unavailability of adequate resources (devices) to access the video component. Similar results were obtained about participants' watching the entire video component (64.9 per cent watched all the videos). It is also important to note that the video component effectively supplemented the e-text used in the MOOC (75.6 per cent of the participants-- 43.5 per cent strongly agreed and 22.1 per cent agreed). This is considered an important outcomes of this MOOC in terms of training, orientation, and capacity building of the participants in this initiative.

On examination it was also found that about 60 per cent responded positively to: i) the provision of interactions while watching the video (38.9 per cent strongly agreed and 21.4 per cent agreed) and ii) usefulness of the content of the video in understanding the design and development of online courses (38.2 per cent strongly agreed and 22.1 per cent agreed). It is also encouraging that 64.9 per cent of the respondents found the course content to be very useful with quality video to supplement the e-text in the MOOC (39.7 per cent strongly agreed and 25.2 per cent agreed). This reflects the real efficacy of this MOOC in terms of integration of technology components with e-text and achieving the outcomes of the MOOC. However, care must be taken to further enhance the benefits of this important aspect for those participants who partly/partially benefited (13 per cent) / or not benefited (22.2 per cent). Though catering to the needs of all learners is important and challenging care must be taken to further improve this in future interventions.

## The MOOC's forum

Forum is one of the important components of a MOOC which facilitates discussions and interactions between the participants and between the participants and instructors. It is a means of bridging the gap between the teachers and learners and is a way of breaking the isolation between the participants. This study shows that about 66.4 per cent of the participants were aware of its forum (42 per cent strongly agreed and 24.4 per cent agreed). However, 29.9 per cent did not agree (10.7 per cent disagreed and 9.2 per cent strongly disagreed) and 13.7 per cent partially agreed. This shows that a large section of the participants (about 43.6 per cent) were not aware of the forum, its importance, and its usefulness in the context of the MOOC. This is alarming for the course team and organizers of this MOOC. It raises questions about the pre-course information provided and its utility. Care must be taken to have a mechanism for better awareness of all participants on various aspects/

dimensions of the components of the MOOC. In a MOOC, the forum serves the purpose of a two-way interaction just like the interactions in a classroom situation. Therefore, there must be a serious effort on the part of the organizers to ensure that all the participants are aware of its availability and its usefulness in the context of learning through MOOCs. This will be a serious concern in enhancing the utility of a MOOC and developing teachers' skills. More than 61.8 per cent of the participants agreed that the forum is a means of discussing and interacting in a MOOC and a means to break the isolation of distance in the online teaching-learning process. Though 16 per cent partially agreed with this and 22.1 per cent did not agree. This may be because of lack of awareness about the forum. About 68.7 per cent of the participants appreciated the use of this MOOC in understanding the concept of a forum (45.8 per cent strongly agreed and 22.9 per cent agreed). It was also found that 17.6 per cent of the participants partially agreed and 19.1 per cent did not agree with this proposition. Internalizing the importance and relevance of a forum in a MOOC is a means of a better understanding of the forum and its implications. This MOOC rightly helps develop knowledge and skills as reported by 63.4 per cent of the participants (38.2 per cent strongly agreed and 25.2 per cent agreed). Effective use of the forum is important for an instructor. About 64.1 per cent of the participants said that MOOC teachers/instructors used the forum effectively and were active during the implementation. This is a positive sign in terms of effective involvement of instructors/mentors during the implementation (36.6 per cent strongly agreed and 27.5 per cent agreed). About 13.7 per cent agreed to some extent and the remaining 22.2 per cent did not agree (12.2 per cent disagreed and 9.9 per cent strongly disagreed). At the same time, it was also found that the participants of this MOOC learnt and understood the role of instructors/mentors in facilitating the teaching-learning process in a MOOC. This will help them in exploring the uses of the MOOC in areas of their discipline/specialization. About 68 per cent of the participants said that forum was very important and relevant in the MOOC. This shows that most of the participants understood and internalized the component (forum) and stated that it was very important and significant for the success of a MOOC.

## Teaching-Learning in the MOOC

Effective instructional design and an appropriate teaching-learning process are important for result oriented outcomes, be it in face-to-face classroom or online classroom outcomes. The pedagogical interventions are planned, designed, developed, and implemented by instructors/mentors. Instructors/mentors shared the schedule of activities (pre-course activities) in a timely manner while implementing this MOOC as reported by 68.7 per cent of the participants (45.8 per cent strongly agreed and 22.9 per cent agreed). However, 13.7 per cent of the participants agreed to some extent and 17.6 per cent did not agree (8.4 per cent disagreed and 9.2 per cent strongly disagreed). From this it is concluded that careful planning of pre-course activities is as important as the activities planned during the implementation of



the MOOC. 31.3 per cent of the participants were not clear about the schedule of activities. This is not a good sign for developing a MOOC of this type. This is a major area which needs to be taken seriously in subsequent cycles of implementation of this MOOC. The instructors/moderators are meant to facilitate the teaching- learning process for the success of a MOOC. About 69.4 per cent of the respondents said that the instructors/mentors were supportive and rightly facilitated their learning during the implementation. This study also shows that about 30.6 per cent of the participants were yet to understand the role of moderators and instructors. This was found to affect the overall effectiveness of the MOOC. Specific interventions must be planned and implemented meticulously to make sure that the participants understand the role of instructors/mentors and differentiate it from the role of a classroom instructor/teacher.

Similar results were obtained with respect to learning about the role of an instructor/moderator in a MOOC in terms of facilitating and promoting the teaching-learning process. 64.1 per cent of the participants said that this MOOC taught them the role of instructors/moderators in a MOOC. In an online course addressing learners' issues and difficulties effectively and in a timely manner it is important to sustain their motivation. About 64.1 per cent of the participants were satisfied with the role of instructors/moderators in resolving their issues and difficulties (38.9 per cent strongly agreed and 25.2 per cent agreed). However, 19.1 per cent did not agree (7.6 per cent disagreed and 11.5 per cent strongly disagreed) and 16.8 per cent partially agreed. This may lead to dropouts which will adversely affect enrolments in this MOOC. At the same time effective integration of various components of a MOOC is an important deciding factor about the relevance of a MOOC of this type and ensuring an effective teaching-learning pedagogy (blending). Most of the participants (about 62.6 per cent) said that the teaching-learning pedagogy was effectively integrated in the MOOC and it helped them in learning the mode of integration (41.2 per cent strongly agreed and 21.4 per cent agreed). However, 18.3 per cent partly agreed and about 19.2 per cent did not agree with this (8.4 per cent disagreed and 10.7 per cent strongly disagreed). About 63.4 per cent of the respondents said that this course taught them how to integrate each component of a MOOC in terms of the teaching- learning pedagogy (about 37.4 per cent strongly agreed and 26 per cent agreed). This is found to be one of the major achievements of this MOOC as integration is very important and relevant in all MOOCs. However, specific intensive initiatives should be planned in view of the remaining group of learners who partly agreed (14.5 per cent) and did not agree (22.2 per cent).

In all forms of learning, the instructional design is very important. Instructional design of online courses is different from that of a MOOC. MOOC is not just a typical online course. It is important to understand this concept well to be able to design and develop a MOOC which has an appropriate instructional design. The findings of this study show that about 64.1 per cent of the respondents felt that this course was

effective in understanding the concept of instructional design of a MOOC. This seems a major advantage of this MOOC in developing knowledge and skills of teachers of higher education in designing and developing MOOCs for the SWAYAM platform. However, 35.9 per cent did not agree (15.3 per cent partially agreed, 9.9 per cent disagreed, and 10.7 per cent strongly disagreed). From this it is concluded that more specific measures should be taken to address the needs of these 35.9 per cent learners to ensure optimum utilization and effectiveness of the MOOC.

## 4.4 Section D: Analysis and Interpretation of the Evaluation in the MOOC and its Relevance

### Evaluation in the MOOC

Evaluation is an important dimension of the whole teaching-learning process and one of the core components of instructional design. Teachers must have sound knowledge and understanding of various aspects of evaluation in general so that they can make use of their skills in evaluating the performance of the learners in MOOCs effectively and efficiently. 67.2 per cent of the respondents said that this MOOC taught them various components of evaluation and each of the components was rightly integrated in this MOOC which provided them an opportunity make use of the components effectively (44.3 per cent strongly agreed and 22.9 per cent agreed). This shows the usefulness and relevance of the MOOC in catering to the knowledge and understanding of about 70 per cent of the learners on various aspects of the evaluation done through the MOOC. Though the remaining 32.8 per cent had a different opinion (15.3 per cent partially agreed, 6.1 per cent agreed, and 10.7 per cent strongly disagreed) for various reasons. However, it was encouraging as 70 per cent responded positively to this important question.

Sharing information timely during every phase of the evaluation helped participants' better understanding. About 64.1 per cent respondents said that the: i) information was shared in a timely manner by the instructors and mentors in each component of evaluation followed by constant guidance by mentors which helped them in understanding the concept of online evaluation in the MOOC and ii) this MOOC taught them various concepts of online evaluation. 16 per cent of the respondents partially agreed with both these propositions (i & ii) and about 19.8 per cent did not agree with both. The analysis showed that 63.4 per cent of the respondents appreciated the guidance given by the instructors during the process of implementation though about 36.6 per cent did not agree (17.6 per cent partially agreed, 7.6 per cent disagreed, and 11.5 per cent strongly disagreed). Therefore, this aspect must be taken care of with better planning in future implementation of the MOOC to cater to a large number of learners.



Instructors' guidance is very useful and meaningful for the learners in MOOCs. About 60.3 per cent of the respondents appreciated the use of examples and illustrations in this MOOC for better understanding and skill development (42 per cent strongly agreed and 18.3 per cent agreed). 16.8 per cent partially agreed and 23 per cent did not agree. The findings of this study pertaining to the use of examples and illustrations in the MOOC can be used for further improving this aspect to address the varied needs of learners. These can be made more user friendly for a large number of learners.

One of the objectives of the instructional design is helping learners understand how timely feedback is given in online learning. This aspect is rightly taken care of in this MOOC. About 63.3 per cent of the respondents felt that this MOOC taught them how to give appropriate feedback to learners during each phase of the evaluation (32.8 per cent strongly agreed and 30.5 per cent agreed). This reflects the outcomes of this MOOC in developing learners' knowledge and understanding about online evaluation. About 61 per cent of the learners were of the opinion that the technical aspects of the evaluation were clearly explained in this MOOC and were addressed by the instructors and mentors. This is strength of this MOOC in helping participants gain clarity in understanding the concept of online evaluations in MOOCs and also the feedback system. It also pertinent to note that more intensive planning should be done and integrated in the MOOC so that the needs of the remaining learners can also be addressed with required modifications to the design and its implementation. Our ultimate objectives are providing the benefits of this MOOC to all registered learners.

### Relevance of the MOOC

Overall relevance of a MOOC has a strong bearing on the effectiveness of its evaluation system. It is important to know the extent to which the intended objectives of this MOOC are achieved in its successive implementation. About 64.9 per cent of the participants said that the content of this MOOC helped them in developing an inclination towards design and development of online courses (38.9 per cent strongly agreed and 26 per cent agreed). A large proportion of learners (about 35.1 per cent) had a different opinion- 15.3 per cent partially agreed; 10.7 per cent disagreed; and 9.2 per cent strongly disagreed in terms of developing an inclination for the design and development of online courses. Hence, we can conclude that the entire content may be thoroughly analysed in terms of enhancing the MOOC's relevance. Almost similar results were obtained for appropriateness of examples and illustrations in understanding technical aspects and developing a right attitude for online courses. In the current MOOC, this aspect was just supported by 63.3 per cent of the respondents. At the same time the content included in the MOOC was as per the needs of new learners (teachers of higher education) and helped them address their practical difficulties (64.9 per cent of the participants- 38.9

per cent strongly agreed and 26 per cent agreed). 16 per cent of respondents agreed to some extent and 19.1 per cent did not agree. Together, a major proportion of the respondents had a different level of expectations from the MOOC. Perhaps this is the group of teachers facing difficulties with access to appropriate devices or facing issues and difficulties in understanding the basic use of technology and its integration. A separate module may be developed to address such groups of learners to help them gradually learn and understand the MOOC's concept and its use and implications in today's context.

It was also found that about 67.2 per cent of the respondents said that the content included in this MOOC equipped them for meeting the demands of online learning in higher education. This is encouraging, as the MOOC facilitated and prompted the use of the MOOC at different levels in higher education. Hence, this MOOC can contribute significantly to making the online teaching-learning process interesting for teachers of higher education. The content of the MOOC made the online teaching-learning process interesting and relevant. This proposition was supported by 64.1 per cent participants. Though 13.7 per cent partially agreed and the remaining 22.2 per cent disagreed. However, on the basis of the overall analysis we can say that 64.1 per cent of the participants were self-motivated and developed an interest in realizing the relevance of MOOCs in the teaching-learning process. With minor modifications in successive cycles of implementation we can reach a larger number to meet their individual needs and expectations as a means of continuous improvement. Further, about 63.3 per cent of the respondents said that exposure to this MOOC will certainly develop their professional competencies in the design and development of online courses (strongly agreed by 38.2 per cent and agreed by 29.8 per cent of the respondents). This is motivating and encouraging for the course team and organizers as it shows that the content of this MOOC was informative and highly relevant for training, orientation, and capacity building of teachers for design, development, and implementation of MOOCs in their disciplines.

## 4.5 Section E: An Analysis and Interpretation of the Opinions and Perceptions of Learners on Learner Support Services while Implementing the MOOC

### Online services for learners

Learner support services in online courses are meant to cater to a large number of learners on matters related to enrolments, courses, schedule of exams, learning material, and use of technology and technology mediated components. Success of online courses (MOOCs) depends on effective and efficient support services provided to learners. Instructors/mentors should know and recognize why learners need support, what kind and nature of support the course team should provide, and how



services are to be provided to learners. Learners are dispersed, physically isolated from the institution and peer groups. They hardly get an immediate response to their queries related to their learning. The learning package is self-explanatory but they need human support for better adaptation to the new system of learning. All these aspects are considered carefully in the MOOC to help the learners learn effectively.

There is a provision for providing pre-course information (we call it a zero week) to enable the registered learners to learn about various aspects of the MOOC, expected learning outcomes, and use of various components of the MOOC. On the basis of a critical analysis it was found that only 62.6 per cent of the learners were aware of the zero week of this MOOC and the remaining 37.4 per cent were not aware of it. In a MOOC this time period (pre-course information) is very important and crucial to make the learners aware of the features of the MOOC, enable them to know and understand the expectations of the course team from the learners, and how to make the learners responsive towards their roles and responsibilities during the course of study. However, 37.4 per cent of the learners were not aware of the pre-course information and its effect is rightly observed in the findings obtained from the other components of this study.

Understanding the pedagogy of a MOOC is very important for the learners which ultimately help them complete the course making desired efforts. About 76 per cent of the respondents benefited from the zero week of this course in understanding the pedagogy of the MOOC (36.6 per cent strongly agreed and 28 per cent agreed). However, 21.4 per cent partially agreed and 20.6 per cent did not agree. In MOOCs, learners who understand and comprehend their pedagogy will have a better chance to complete the course successfully. During the zero week of the course, diverse information should be shared with the learners in a timely manner as this will help them get clarity and subsequently do mind mapping and completing the activities and assignments easily. Only 45.8 per cent of the learners confirmed that they received the information during the zero week on time (32.8 per cent strongly agreed and 13 per cent agreed). A large proportion of learners (about 54.2 per cent) responded differently. About 25.3 per cent partially agreed and 29 per cent did not agree (13 per cent disagreed and 16 per cent strongly disagreed). This is a serious drawback/limitation in terms of facilitating learning of learners providing timely information during the course of implementation. Care must be taken about these aspects during the future course of action. Only 57.3 per cent of the respondents agreed that interactive sessions were organized during zero week while 23.6 per cent did not agree and 29 per cent partially agreed. This shows that there is a need for strong coordination and communication between the learners and the course team (instructors) to enable the learners to make use of the facilities being provided to them as a means of learner support services for facilitating their learning. It a matter of concern that only 45.1 per cent of the learners said that the instructors/mentors attended the zero week and were available for interactions. About 29 per cent of the

participants partially agreed that the instructors/mentors attended the zero week and were available for interactions and 26 per cent did not agree. This is perhaps a reflection of lack of seriousness of the instructors/mentors in the zero week. This requires a thorough re-examination of the role of mentors/instructors for better facilitation of learners in this MOOC. About 50.4 per cent said that zero week was interactive and participatory. However, 26.7 per cent agreed with this to some extent and the remaining 22.9 per cent did not agree. This is another area which requires improvements by the course team and organizers to get better outcomes. About 54.9 per cent of the respondents felt that the zero week was relevant and important in a MOOC of this type (30.5 strongly agreed and 24.4 agreed). About 22.1 per cent of the participants partially agreed and an equal percentage did not agree. This may be because this group of learners was either aware of some of the basic aspects of a MOOC or were not interested/willing to learn through the MOOC.

### Online mentoring while offering the MOOC

MOOCs success depends on effective and efficient online mentoring by instructors/mentors during implementation. Instructors/mentors are expected to play a crucial role in the process of implementation. 68.7 per cent of the respondents felt that for better learning in a MOOC the role of instructors /mentors was important (47.3 per cent strongly agreed and 21.4 per cent agreed). However, 9.9 per cent of the respondents partially agreed and 21.4 per cent did not agree. Perhaps these are high motivated self-help learners who do not require interventions by instructors/mentors. On the other hand, this group of learners (21.4 per cent) may not have understood the pedagogical principles of a MOOC. Active involvement and engagement of mentors/instructors is always beneficial for optimum outcomes in terms of achieving the learning objectives. This study showed that 68.7 per cent of the respondents agreed that involvement of instructors/mentors was good during implementation (45.8 per cent strongly agreed and 22.9 per cent agreed). This is a positive indication in terms of active engagement of instructors in the MOOC. About 11.5 per cent of the respondents partially agreed and 19.9 per cent did not agree.

A clear explanation of the concept in each module using various technology mediated interventions is challenging for the instructors. It is encouraging to note that 66.4 per cent of the respondents said that the instructors/mentors explained the concepts clearly. This shows the level of satisfaction of learners in understanding and comprehending the concepts. About 42 per cent of the learners strongly agreed and 24.4 per cent agreed about the active role of the mentors and instructors in making the concepts clear to them. Timely addressing learners' difficulties, issues, and queries is an important aspects of retaining the learners in the process of learning through the MOOC. It automatically checks the dropout rate. The findings of the study showed that 64.9 per cent of the respondents were of the view that the instructors/mentors addressed their queries timely (41.2 per cent strongly agreed and 23.7 per cent agreed). About 12.2 per cent partially agreed and 22.9 per cent did not agree that their queries were resolved in a timely manner. Though the percentage of such learners is small, however, instructors/mentors must take care to make specific interventions to ensure that queries of all the learners are addressed within a specific time period. This will boost the morale of the learners and encourage them to get involved and engage actively in the MOOC.



## 4.6 Section F: Findings Pertaining to the Design and Development of MOOC for SWAYAM in terms of Outcomes of the *MOOC Development of Online Courses for SWAYAM*

On the basis of the critical analysis and interpretation of the findings of this study it is concluded that 78.3 per cent of the respondents enjoyed the MOOC thoroughly though 16.9 per cent said that they enjoyed it partially and 4.8 per cent did not enjoy it. In one way this shows the strength of the MOOC in facilitating the growth and development of a large percentage of the target group (78.3 per cent). Since a small percentage of the learners were not satisfied there is a need to review various dimensions of this MOOC to cater to the needs and expectations of this group of learners. In terms of the effectiveness of this MOOC about 75.3 per cent of the participants acquired knowledge of preparing MOOC proposals for SWAYAM and the remaining 21.7 per cent did partially and 4.8 per cent did not. In both the propositions discussed above more than 75 per cent of the learners expressed their satisfaction and were confident of having a positive and forward looking approach for better utility of this MOOC as a training and learning tool for beginners intending to work in the areas of design, development, and implementation of MOOCs. About 67.5 per cent of the participants developed required skills from this MOOC for developing MOOCs for the SWAYAM platform. This shows the efficacy of the MOOC Development ***of Online Courses for SWAYAM*** and its positive impact on developing learners' knowledge and skills.

The findings are supported by the responses of 72.3 per cent of the learners who said they were confident of the four- quadrant approach of MOOCs after undergoing training through this initiative. At the same time 20.5 per cent were partially confident. This is found to be quite encouraging and motivating in terms of the effectiveness of a MOOC of this type.

The ultimate purpose of this MOOC was developing a trained workforce for the design, development, and implementation of MOOCs on the SWAYAM platform so that teachers of higher education can develop confidence and contribute to this initiative effectively. ***About 68.7 per cent of the learners maintained that they could develop MOOCs in areas of their specialization for SWAYAM***. This is supported by

one of the findings of the study that ***69.9 per cent respondents submitted proposals on SWAYAM*** after completing this MOOC. ***21.7 per cent of the participants said that their proposals for SWAYAM*** had been approved by the competent authority. This is found to be the real strength of this MOOC in terms of making a contribution to the Government of India's initiative of popularizing MOOCs to pave the way for realizing the vision of NPE 2020 for facilitating technology mediated learning in the 21st century and addressing the issues of quality, access, and equity in a country like India.

About 89.2 per cent of the respondents were interested in undergoing similar training and orientation (69.9 per cent in favour of online training, 26.5 per cent inclined towards face-to face training, and 3.6 per cent could not decide the mode of training that they required) for developing their competencies and updating their skills periodically. This shows the impact of this MOOC in facilitating lifelong learning for sustainable development.

Having conceptual clarity about the development of online courses for SWAYAM is very important. 66.3 per cent of the participants had complete clarity about the concept while 30.1 per cent did so partially and only 3.6 per cent did not have clarity. Similar results were obtained for developing confidence about various technicalities associated with the development of online courses. Hence, we can conclude that there should be recurrent training and orientation of this type to further support the 30.1 per cent learners who were yet to get complete clarity about the development of online courses for SWAYAM and at the same time revised and updated content may be incorporated to further enhance the scope of knowledge and skills of learners in the other group (66.3 per cent who had complete clarity). Hence, it is essential to have a graded (level-wise) approach for having a training package for learners in different categories.

Learners' interest and motivation and purpose play a significant role in capacity building in this type of training and orientation programmes. From the study, it is found that 12 per cent of the learners were just enrolled in this MOOC to acquire points for their career advancement. They wanted to complete the MOOC as a procedural requirement of FDP. About 31.5 per cent of the respondents wanted to gain some knowledge and 3.6 per cent did not have any clarity about this. Only 53 per cent of the participants responded favourably and said that they intended to develop MOOC proposals for SWAYAM and wanted to take it as a means of an active teaching-learning process in the new digital age. This aspect (aims and objectives of the participants) is very important in achieving the real objective of training through MOOCs.

Active role of instructors, facilitators, and mentors is very important for outcome oriented training programmes. About 74.7 per cent of the learners were completely satisfied with the instructors /mentors, 21.7 per cent were partially satisfied, and



only 3.6 per cent were not satisfied. From this we can conclude that though a very large percentage of the respondents supported this proposition there is scope for improvements to further sharpen the services of instructors/mentors in view of the responses given by 21.7 per cent of the respondents. This part of academic support services has a great bearing on the learning of learners. It is motivating for the implementers and organizers that 78.3 per cent of the respondents were completely satisfied with the quality of implementation of this MOOC. This will also be encouraging for the host institution to update and upgrade the overall aspects of this MOOC with challenging activities, assignments, and evaluation strategies for further improvements as a means of continuous systematic development.

## 4.7 Section G: Online Focus Group Discussions with Participants and Course Team Members

Online FDGs were organized in two phases. In phase one, there were 21 participants (out of 112 who joined willingly) who got a certificate of participation and responded to the questionnaire designed for this study. In phase two, it was with four instructors of this MOOC. The purpose of these FDGs was collecting qualitative data so that a clear picture of the effectiveness of the MOOC in the professional development of teachers of higher education emerged. Important points of discussion were shared with the participants in advance. The investigator acted as a facilitator for the discussion and interaction in each phase.

The important findings of the discussions were presented systematically in two phases.

### Phase 1: Findings of the FDG with participants

Participants were of the view that they were under the learning curve as it was a new concept for them and it involved a lot of technical aspects and their application. The content of the MOOC was adequate and need based. However, because of heavy dependence on theoretical aspects and lack of integration of activities, illustrations, and a practical approach, it was difficult to sustain the same level of motivation and encouragement. The participants enjoyed the MOOC as far as the new ways and means of learning using the four-quadrant approach were concerned. However, as far as skill development and its application were concerned they were of the opinion that there was hardly any scope for this. They expected demonstrations, practice, and follow-up sessions with a provision for resolving their individual issues, difficulties, and queries to enable them to get a start taking particular examples/illustrations from the areas of their specialization. At the same time there should also be a provision for assessment and follow-up of their work and provision of individual support to make them competent and confident. It was interesting to record that many of the participants demanded a number of evaluation strategies (objective and qualitative)

be incorporated in the MOOC which could allow them to work in the area of skill development.

Some of the important suggestions received from the participants during the discussions and interactions are:

- The MOOC may be implemented in a blended mode to make it more relevant and important in terms of achieving the objectives of preparing a skilled workforce in the teaching-learning process in higher education.
- A pilot project may be taken up providing opportunities to participants who have certificates of completion to provide them intensive training and orientation on design, development, integration, and implementation of e-content.
- Attempts may be made to make this MOOC's content available in different languages during the course of implementation.
- There should be ample opportunities for developing knowledge, an understanding of pedagogical principles, and instructional design taking content based examples and illustrations.
- Learning exercises (in video and e-text) should have been incorporated in each module of the MOOC to sustain motivation and curiosity among the participants.
- More clarity on awareness of OER, its use, and implications is required for teachers working in rural, remote, and inaccessible areas. There should be a strategic and focused initiative for developing an understanding of the use of OER as a means of quality enhancement in the teaching-learning process.
- Teachers of science disciplines found issues and difficulties in the design and development of the content as there were lot of equations, mathematical / scientific symbols, diagrams, and practical illustrations. So, there should be a provision in the MOOC to have discussions for addressing such issues.
- Standard mode with examples and illustrations should be made available to learners for: i) design, development, and implementation of a MOOC (instructor's perspective) and ii) use of this MOOC (learners' perspective).
- Perhaps there should be a provision for individual work, group work, and presentations followed by interactions as a means of assessment incorporated in the MOOC in each module to optimize quality.

*Follow-up work to support the learners in a timely manner should be made mandatory and accordingly, the mode of implementation may be redesigned.*

## Phase 2: Findings from the FDG with the course team

Instructors of this MOOC expressed clearly that it had unique content and implementation strategies for a faculty development programme (FDP) in higher education. Quality content had been incorporated in each module of the MOOC to



enable the participants to develop awareness and knowledge about the MOOC, the SWAYAM platform and its guidelines which made this MOOC unique. However, they are found to be salient about various technical aspects of design and development of the MOOC, skills associated with design, development of various components of the MOOC and its application as well. The instructors were of the opinion that components like draft formats, draft proposals, practical/practice based activities, and the different exercises could have been incorporated to further strengthen the MOOC. An attempt is yet to be made for bringing changes/modifications in the content, design, development, and implementation even after six cycles of implementation of this MOOC.

Some of the important suggestions received from the participants during discussions and interactions are:

- Though the content was found to be satisfactory and convincing there should be a serious effort to further develop it with more activities, illustrations, and with practical components to facilitate skill development and an application of acquired skills.
- In such types of courses where skills and applications are important, there should be multiple means of assessment instead of having MCQs only.
- Instructors found to have their own reservations about introducing the concept of qualitative assessment to provide the participants an opportunity to develop their skills and also assessing their skills and applications in view of the instructional objectives of this MOOC.
- As this MOOC is being implemented in different languages, it is advisable to make it multilingual for the benefit of target groups.
- Perhaps more facilitators are needed to provide timely support to the participants during implementation. This is one of the major issues (non-availability of timely support) in implementation which is the cause of de-motivation leading to drop outs.
- Instructors maintained that there may be provisions for follow-up programmes for selected participants by organizing training/orientation through the face-to-face conventional mode to provide them intensive inputs with one-to-one monitoring sessions at the individual/institutional level.
- Instructors were yet to assess the reasons for the dropouts from this course and also yet to take any initiatives to assess the level of performance of learners in their modules.

From the FDGs it was found that during the course of implementation of the MOOC, instructors and facilitators should spare considerable time to ensure that the learners' queries are addressed in a timely manner. Support, cooperation, and motivation to the learners should be provided with a strategic plan be the instructors so that during

a day there are one or two instructors active online all the time. Besides, qualitative assessment strategies should be incorporated to make the implementation more meaningful and productive in achieving the instructional objectives of this MOOC.

## 4.8 Overall findings of the qualitative analysis and their interpretation

Intensive planning needs to be done for developing skills with examples and illustrations based on the areas of specialization of the concerned learners. This online mode of learning is a convenient means of enhancing professional growth and development for continuous progress in learning. More such trainings and orientations are required with onsite support. It is good, informative, and useful for the working class and the young tech savvy generation and will promote access, equity, and employability. Many of the learners raised questions about its subjectivity, lack of full proof, and reliable and valid assessment strategies including technical glitches. It provides opportunities to integrate social media facilitate social networking, use online resources, and involvement of quality resource persons from the particular field of study. The platform was appreciated for enhancing learner knowledge and skill development. Some of the learners suggested having practical assignments rather than weekly quizzes for better learning outcomes. Some of the learners suggested including both weekly quizzes and practical assignments.

Some of the other suggestions are: i) increase the time limit (duration) of this course; ii) ensure availability of appropriate devices and network facilities including speed of connectivity; iii) integrate online group discussions with the course content; iv) simplify the course design to facilitate learning of each component of the course; v) incorporate practice as a means of developing technical skills; vi) more such trainings following a content based approach; vii) make provisions for the availability of technical facilities in the institutions of higher education; viii) allocate budgets for teachers/academics with a flexible approach; ix) such courses should be offered bilingually to widen reach; x) this package may be contextualized incorporating components of hands-on experience; xi) provision of notifications about the answers to the quizzes; provision for learners to assess themselves, and developing clarity in the assessment; xii) real time discussions and interactions with co-learners and instructors may enhance motivation; xiv) certain subject specific (content based) training may be planned for better understanding and developing skills; xv) alternative means of providing updated information (may be through mobile SMS alerts) along with email communication would be much better; and xvi) there should be more live sessions and open discussion sessions for clearing doubts and resolving the queries to reduce dropout rates and enable more learners to complete the course on time.

# CHAPTER 5

# Results

## 5.1 Major Findings

Massive open online courses (MOOCs) are gaining momentum and have gained significant attention worldwide. They are the focus area of development at all forums of education and training and capacity building activities at all levels of education. The basic concepts of MOOCs such as accessible structured content, free enrolments and no pre-enrolment requirements are some of the important reasons why MOOCs provide quality and cost effective education. They are an alternative for addressing the issues of access and equity for sustainable development. Learners can gain global experience with open education and open educational resources to support effective and efficient adaptations to meet the increasing demand for education and training.

Some of the important findings of this study for attracting the attention of the course team, organizers, implementers, and policymakers for further improving the quality of this initiative are:

## 5.2 MOOC Design, Development, and Implementation

- About 79.5 per cent of the participants perceived that the coverage of content was adequate for better understanding and its utility on the SWAYAM platform. A wide range of content was covered in this MOOC as reported by 64.1 per cent of the participants (37.5 per cent strongly agreed and 26.7 per cent agreed).
- 65.7 per cent of the participants found that the content was as per the levels and standards of the participants and rightly addressed the needs in developing online courses (34.4 per cent strongly agreed and 31.3 agreed). The content of each module of the MOOC was updated as per the expectations of the participants (62.6 per cent).
- More than 60 per cent of the respondents said that the content was helpful in the instructional planning of online courses (36.6 per cent strongly agreed and 26.7 per cent agreed). 60 per cent of the participants (41.2 per cent strongly agreed and 18.3 per cent agreed) said the content covered in the MOOC helped

in developing a positive attitude and thinking among learners about learning through online courses. About 64.9 per cent of the participants appreciated the content of the MOOC (37.4 per cent strongly agreed and 27.5 per cent agreed).

- About 67.2 per cent of the participants felt that the language used in this MOOC was easy to understand which made the teaching-learning process effective. Nearly 63.4 per cent of the respondents reported that the use of language in the MOOC was simple which effectively communicated the message (about 41.2 per cent strongly agreed and 22.2 agreed).
- About 61.8 per cent of the respondents appreciated the words/language used for explaining the technical terms meaningfully and 63.3 per cent said that the technical concepts used in this MOOC were very clear and easy to understand and about 64.2 per cent of the respondents found the language used easy to understand and comprehend. 67.9 per cent of the respondents found the presentation of content in the MOOC systematic and logical.
- 66.4 per cent of the respondents saw the sequence as accurate and appropriate to the context (38.2 per cent strongly agreed and 28.2 per cent agreed). 63.4 per cent of the respondents said that logical necessity and psychological proximity in the presentation was maintained in the presentation of content which facilitated a better understanding and comprehension of the concept.
- About 66.4 per cent of the respondents found that the content was in order; it facilitated and promoted a better understanding of the concept of the MOOC (39.7 per cent strongly agreed and 26.7 per cent agreed). 68.7 per cent stated that overall organizational structure of this MOOC was based on the principles of the instructional design of online learning
- About 63.3 per cent of the participants agreed that the organization of content and structure was used rightly in the module which motivated online learning. About 64.9 per cent of the participants appreciated the examples and illustrations in this MOOC as they matched the online pedagogy (39.7 per cent strongly agreed and 25.2 per cent agreed).
- 67.9 per cent of the respondents felt that the structural design of the MOOC rightly facilitated and motivated them to gain insights about the MOOC (38.9 per cent strongly agreed and 26 per cent agreed).

## 5.3 MOOC Learning (Technology Integration)

- About 38.9 per cent of the respondents strongly agreed and 24.4 per cent agreed that the e-text of this MOOC in developing technical knowledge and skills in designing and development of online courses in SWAYAM was good. Nearly 61 per cent of the respondents were confident of acquiring training and developing their capacities using e-text in this MOOC (38.9 per cent strongly agreed and 22.1 per cent agreed).



- 61.8 per cent of the participants agreed that the e-text of this MOOC rightly supplemented other components and 67.9 per cent of the participants were confident of acquiring this concept through the MOOC. About 60.3 per cent were of the opinion that the e-text was presented effectively, addressing learners' issues and difficulties (35.9 per cent strongly agreed and 24.4 per cent agreed).
- About 62.6 per cent of the respondents expressed a positive opinion about the availability of appropriate devices to make use of the video component of the MOOC. 64.9 per cent found the video component of this MOOC to be user friendly (44.3 per cent strongly agreed and 20.6 per cent agreed). Similar results were found with reference to watching the video component in this MOOC (64.9 per cent watched all the videos).
- 75.6 per cent of the participants viewed the MOOC as effectively supplementing the e-text used in the MOOC and 60 per cent responded positively to: i) provisions for interacting while watching the video and ii) usefulness of the content of the video in understanding the concept of design and development of online courses.
- About 64.9 per cent of the respondents said that the course content was very useful with quality video to supplement the e-text (39.7 per cent strongly agreed and 25.2 per cent agreed).
- About 66.4 per cent of the participants were aware of the forum of this MOOC and about 43.6 per cent were not aware about the forum, its importance, and its usefulness in the context of the MOOC.
- More than 61.8 per cent of the participants agreed that the forum was a means of discussion and interaction in a MOOC and a means to break the isolation of distance in the online teaching-learning process. About 64.1 per cent of the participants said that MOOC teachers/instructors used the forum effectively and were active during the implementation.
- About 69.4 per cent of the respondents said that the instructors/mentors were supportive and rightly facilitated their learning during the implementation and about 30.6 per cent learners were yet to understand the role of moderators and instructors.
- Approximately 64.1 per cent of the participants maintained that this MOOC taught them the role of instructors/moderators in a MOOC. About 64.1 per cent of the participants were satisfied with the role of instructors/moderators in resolving their issues and difficulties (38.9 per cent strongly agreed and 25.2 per cent agreed).
- Most of the learners (about 62.6 per cent) said that the teaching-learning pedagogy was effectively integrated in the MOOC and helped them learn the mode of integration (41.2 per cent strongly agreed and 21.4 per cent agreed).

- About 64.1 per cent of the respondents felt that this course was effective in understanding the concept of a MOOC's instructional design. However, 35.9 per cent viewed it differently (15.3 per cent partially agreed, 9.9 per cent disagreed, and 10.7 per cent strongly disagreed).

## 5.4 Evaluation of the MOOC and its Relevance

- 67.2 per cent of the respondents said that the MOOC taught them various components of evaluation and each of the components was rightly integrated in the MOOC which provided them an opportunity to make use of the components effectively. 70 per cent of the learners viewed the various aspects of evaluation in the MOOC positively.
- About 64.1 per cent of the respondents said that: i) information was shared in a timely manner by the instructors and mentors in each component of the evaluation followed by constant guidance by mentors which helped them understand the concept of online evaluation in the MOOC and ii) the MOOC taught them various concepts of online evaluation.
- Nearly 63.4 per cent of the respondents appreciated the guidance given by the instructors during the implementation. About 60.3 per cent of the respondents appreciated the use of examples and illustrations in the MOOC for better understanding and skill development.
- About 63.3 per cent of the respondents felt that the MOOC taught them how to give appropriate feedback to learners in each phase of the evaluation and about 61 per cent of the learners were of the opinion that the technical aspects of evaluation were clearly explained in the MOOC and were addressed by the instructors and mentors.
- About 64.9 per cent of the participants said that the content helped them in developing an inclination towards the design and development of online courses and nearly 67.2 per cent of the respondents said that the content included in this MOOC equipped them for meeting the demands of online learning in higher education.
- Nearly 64.1 per cent of the respondents were self-motivated and developed an interest in realizing the relevance of MOOCs in the teaching-learning process and 63.3 per cent of the respondents said that exposure to this MOOC will certainly help them in developing their professional competencies in the design and development of online courses.



## 5.5 Learner Support Services while Implementing the MOOC

- Only 62.6 per cent of the learners were aware of the zero week of this MOOC while the remaining 37.4 per cent were not. About 76 per cent of the respondents benefited from the zero week in understanding the MOOC's pedagogy.
- Only 45.8 per cent of the learners confirmed that they received information on time during the zero week. A large proportion of learners (about 54.2 per cent) did not agree.
- Only 57.3 per cent of the respondents agreed that interactive sessions were organized during zero week and 45.1 per cent of the learners said that the instructors/mentors attended the zero week and were available for interactions.
- About 50.4 per cent of the participants found the zero week to be interactive and participatory and about 54.9 per cent respondents felt that it was relevant and important in a MOOC of this type.
- 68.7 per cent of the respondents felt that for better learning in a MOOC the role of instructors /mentors was important and 68.7 per cent respondents said that the instructors/mentors were active during the implementation of the MOOC
- 66.4 per cent of the respondents said that instructors/mentors explained the concepts clearly. 64.9 per cent said that the instructors/mentors addressed their queries in a timely manner.

## 5.6 Outcomes of the MOOC Development o*f Online Courses for SWAYAM*

- About 78.3 per cent of the respondents enjoyed the MOOC thoroughly. However 16.9 per cent said that they enjoyed it partially and 4.8 per cent did not enjoy it.
- Nearly 75.3 per cent of the participants acquired knowledge about preparing a MOOC proposal for SWAYAM. The remaining 21.7 per cent partially agreed and 4.8 per cent did not agree.
- About 67.5 per cent of the participants developed required skills from this MOOC in developing MOOCs for a SWAYAM proposal. 72.3 per cent of the learners were confident of the four-quadrant approach of the MOOC after undergoing training through this initiative; 20.5 per cent were partially confident.

- About 68.7 per cent of the learners said that they could develop a MOOC in the area of their specialization for SWAYAM and 69.9 per cent respondents submitted proposals for SWAYAM after completing the MOOC.
- 21.7 per cent of the participants said that their proposals for SWAYAM had been approved by the competent authority. This is a positive development in view of the Government of India's initiative and NPE 2020's vision for facilitating technology mediated learning.
- About 89.2 per cent of the respondents were interested in undergoing similar training and orientation (69.9 per cent were in favour of online training and 26.5 per cent were inclined towards face-to-face training and 3.6 per cent could not decide the mode of training that they required) for developing their competencies and updating their skills periodically.
- Nearly 66.3 per cent of the participants developed complete clarity about the concept, 30.1 per cent were partially clear and only 3.6 per cent did not have a clear concept.
- About 12 per cent of the learners had enrolled in this MOOC to acquire points for their carrier advancement, 31.5 per cent wanted to gain some knowledge, and 3.6 per cent did not have any clarity. Only 53 per cent of the respondents responded favourably and said that they intended to develop MOOC proposals for SWAYAM and wanted to take it as a means of an active teaching-learning process in the new digital age.
- About 74.7 per cent of the learners were completely satisfied with the services of the instructors /mentors while 21.7 per cent were partially and only 3.6 per cent were not satisfied.
- 78.3 per cent of the respondents were completely satisfied with the quality of implementation of this MOOC.

## 5.7 Findings of the Qualitative Analysis and their Interpretation (Suggestions and Comments by Participants)

- Need intensive planning for developing skills with examples and illustrations based on the areas of specialization of the concerned learners.
- Online mode of learning is a convenient means of enhancing professional growth and development for continuous progress in learning.
- Many of the learners raised questions about its subjectivity, lack of full proof, and reliable and valid assessment strategies including technical glitches.
- The platform was appreciated by the learners for knowledge enhancement and skill development.



- Practical assignments and activities for evaluation rather than weekly quizzes for better learning will broaden learners' minds and facilitate creativity. Both weekly quizzes and practical based assignments may be integrated to further facilitate this.
- Increasing the time limit (duration) of this course and ensuring availability of appropriate devices and network facilities including speed of connectivity are important in such training initiatives.
- The MOOC may be offered bilingually to widen its scope and it should be contextualized incorporating components of hands-on experience.
- There should be more live sessions and open discussion sessions for clearing doubts and resolving queries to reduce dropouts and enable more learners to complete the course in time.

## 5.8 Findings of the Qualitative Analysis and their Interpretation (Suggestions and Comments by the Course Team)

- All the members of the course team agreed that it is a specialized MOOC as: i) it targets teachers of all disciplines, ii) is integrated with online synchronous sessions, iii) it is a capacity building programme (called faculty development programme) for development of online courses, and iv) the outcomes of this MOOC will contribute to facilitating SWAYAM's initiatives.
- All the members of the course team (100 per cent) were satisfied with the content, method, and design of the MOOC. 75 per cent were satisfied with the quality of implementation. This shows that there is scope and an opportunity to streamline the implementation strategies more meticulously.
- 75 per cent of the course team members said that they gave their best during the implementation. However, 25 per cent partially agreed with this proposition. This shows that there are strong reservations and rigidity among 75 per cent of the members in terms of putting in more effort and bringing some changes and modifications for further development. This is not a positive sign in terms of learning and learning to learn. There should always be scope for learning based on the feedback and perceptions of the target audience.
- Timely support to learners during implementation is an important aspect and deciding factor for obtaining positive outcomes. It was found that 75 per cent of the respondents agreed completely with the fact that non-availability of timely support and guidance made the participants drop out.
- About 75 per cent of course team members said that they analysed what percentage of learners failed to complete the quizzes, though they had

completed all other components. This is a good sign as it shows actual involvement and engagement by the instructors in the assessment.

- 50 per cent of the course team members were associated with informal follow-up measures both during and after implementation. No structured means of assessment were taken up for the follow-up activities.
- 50 per cent of the course team members did not think the MOOC required any changes/modifications in its content. This shows the rigidity among 50 per cent of the course team members. For continuous improvements and development there should be an open mind to accepting changes/modifications.
- All the members of the course team said that no changes/modifications in the module had been made even after completion of six cycles of implementation in three different states in India. In terms of assessing achieving the instructional objectives of this MOOC 75 per cent rated it at 4 points (out of 5) and 25 per cent rated it at 5 points.
- Course team members suggested incorporating the following if there was an opportunity for course development/revision:
    i) Developing an introductory video and preparing a draft proposal in the line with SWAYAM guidelines.
    ii) Integrating more live sessions.
    iii) Provision of hands-on practice in each module with a dedicated LMS.
- All the members (100 per cent) of the course team rated the proposition that assessment of skill development and application was neglected in this MOOC at 3 (out of 5). 50 per cent the course team members rated this at 4 (out of 5) and 25 per cent rated it at 3. Another 25 per cent also rated how satisfied they are in terms of registrations of learners in the MOOC against number of learners who completed it at 3 (out of 5).

# CHAPTER 6

# Discussion

This study explored the factors that affect learners' acceptance of MOOCs to understand the concepts of design, development, and implementation of online courses on the Government of India's SWAYAM platform. It is important to identify factors that affect learners' acceptance and their adaptability in using online courses. Therefore, an assessment of the learning environment, design and development of course content, participation, interactions, and guidance from the course team (instructors) are some of the important factors that contribute to learners' acceptance of online courses in the form of MOOCs. Hence, creating a trained workforce in institutions of higher learning with better understanding and insights to manage their online courses is very crucial in the context of the new paradigm of the teaching-learning process and also with reference to New Policy of Education 2020. The findings of this study will be beneficial in providing insights for institutions to implement MOOCs.

With effective and efficient strategies in the design, development, and implementation, MOOCs will have a strong impact in the professional development of teachers of higher education. Important factors that affect acceptance of online courses in the form of MOOCs are the quality of the learning environment, design of course content, interaction and guidance, and overall support services by mentors and instructors during the course of implementation. As there are elements of flexibility, learners can choose and select the content they wish to learn (personalized learning). Learners can collaborate and communicate with their peers through an effective and efficient use of the forum. Learner support services and guidance are important for meeting the expectations of diverse learners (Rogers, 1983). Perceptions of the participants depend on their background, level of training, working experience, and level of literacy in ICT.

This study was conducted using a broad range of learners without focusing on learners' specific groups and backgrounds. Most of the participants in this study had little to no prior experience in the design, development, implementation, and use of MOOCs. Rate of participation and time required to use MOOCs are also important

considerations for assessing the level of acceptance of MOOCs among teachers of higher education institutions.

This study addressed how the MOOC can be made a successful means of creating a trained workforce for addressing the issues of sustainable quality development in higher education across the globe in general and in India in particular. Encouraging a multidisciplinary development of learning content, supporting critical thinking, and enabling social learning can rightly address the challenges of education for quality sustainable development. Teachers, academics, and administrators associated with policymaking should consider the value of MOOCs for sharing educational content and ensuring learning outcomes. With the availability of technology resources this is doable in a country like India though there are much diversity in the country. Implementing a MOOC may not be feasible for many institutions due to constraints of resources, time, and technology. However, the approach will help learners make use of other forms of online courses or face-to-face courses in a blended mode. It will encourage two-way communication between learners and teachers. This will facilitate critical thinking, motivation to learn, and for teachers to understand the learners and their parents. Learners can read comments that may offer them a different perspective and also interact with others from around the world.

It is true that there are issue of exclusivity and accessibility in India. This MOOC was accessed by learners from different states in India and by learners from many different countries as well. To register for the course, learners needed to have access to a computer and high speed internet. To adequately address learners of various categories English language MOOCs could provide subtitles in different local languages or offer automatic translations for comments. Higher education institutions providing MOOCs should be cognizant of the diverse needs of learners when developing, implementing, and promoting MOOCs.

# CHAPTER 7

# Recommendations and Conclusions

MOOCs offer many benefits to organizations seeking to disseminate learning content in the context of development education. This study described how the successful design of a multidisciplinary MOOC can generate learner satisfaction, lead to an interaction between the learners, and disseminate education to large number of learners. In addition, the use of social learning tools to encourage learner interaction and commentary demonstrate the benefits of MOOCs for sustainable development professionals. In effect, learners not only learn from the content being provided, but educators and institutions can also learn from the learners. In this way, MOOCs are highly effective means of disseminating sustainable development educational content to a large international learner cohort. However, challenges also remain in attracting those with little connection to the sector, those in non-English speaking countries (a strong focus of this MOOC's content), and those with poor access to digital resources. Hence, equality and equity of access are challenges which need to be addressed.

The analysis, interpretations, and findings of this study highlight that the MOOC provided much-needed access to relevant information, knowledge, and skills to benefit the learners immensely. It is a means of disseminating learning tools (knowledge, information, and skills) for training and capacity building. Based on the findings and discussion of this study, the key recommendations are:

- Promoting technology enhanced learning and the blended learning process (BLP) providing training and orientation to teachers at all levels of education in general and higher education in particular in a country like India despite its cultural and geographical diversities.
- Considering using and applying MOOCs for creating a trained and oriented skilled workforce with a focus on content that is relevant, easily accessible, and transferable.
- Developing innovative plans of action (implementation strategies) to suit local needs for effective information and communication technologies to train working professionals at school, college, and university levels.

- Blending of MOOCs with other online models or MOOCs with the face-to-face model of imparting education may prove to be effective and efficient in training and capacity building of functionaries to bridge isolation gaps.
- Training on OER, BLP, and TEL may also be made available in the form of a package so that participants can develop a better understanding of the concept of a MOOC design and identify resources for their MOOCs and integrate them effectively.
- MOOCs are considered a beneficial resource to learn new skills and for updating and upgrading current competencies. These are learning opportunities for working professionals, though certifications and recognition remain a challenge in terms of acceptance of skills acquired through MOOCs.
- Effective and efficient learner support is very important for MOOCs' success. Instructors and moderators should have a positive mindset to understand and comprehend the use and relevance of learner support services in the success of a MOOC.
- Developing basic infrastructure at the grassroots level is important and considered to be the prime requirement to initiate MOOC based training and orientation. With the implementation of NEP 2020 in India efforts should be made to ensure that alternative means of learning opportunities such as use of MOOCs is facilitated and promoted at a wider level.
- The quality of the MOOCs should be monitored throughout the design, development, and delivery stages. General course curricula/standards to be followed for the credited courses. Suggested language and formatting styles and suggested image pools to be used for SWAYAM courses. Similarly, the video quality parameters should also be maintained throughout.

Finally, this study aimed to evaluate whether MOOCs can be a means of understanding sustainable development issues and a means of addressing the issues of higher education in the present context. From the findings it is concluded that MOOCs on sustainable development can generate a rich level of understanding for teachers, educators, and institutions as a means of lifelong learning. This study was an attempt at evaluating the quality of this MOOC and its impact on the participants. Now it is important to see how much of the learning they will apply in their professional domains. The findings of this study will help in developing manpower to create more such MOOCs for recurrent professional development of teachers. MOOCs of a similar type can improve learning and contribute to the attainment of knowledge leading to skill enhancement.

One of the implications of this study is recognizing elements that facilitate and motivate learners in the design and implementation of MOOCs. The findings show that factors that affect learners' engagement are quality lecture videos,



self-assessment tools, and networking devices (forums). Support and availability of appropriate resources is essential (Sinclair et.al. 2015). Networking through the forum is an important component which facilitates mutual discussions and interactions among the participants. This will attract more learners to MOOCs (Liyanagunawardena et al., 2013), and can increase learner satisfaction (Hossain et al., 2015). Therefore, there should be more effort on the part of the instructors and mentors to ensure more participation in discussion forums and their active involvement and engagement in discussions and interactions. Developing skills to design quality MOOCs and implementing them effectively will contribute to continued professional development.

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# APPENDIX 1

# Questionnaire for Participants

## E-sign and Development of MOOC

**Table 3: Content of the MOOC X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Disagreed | Strongly Disagreed |
| i) | The MOOC gave adequate coverage of content for understanding the SWAYAM platform | 44.3 | 23.7 | 11.5 | 11.5 | 9.2 |
| ii) | The MOOC covered a wide range of content for developing online courses | 37.4 | 26.7 | 17.6 | 8.4 | 9.9 |
| iii) | The content covered in the MOOC was up to the standard of the participants and addressed their needs in developing online courses | 34.4 | 31.3 | 12.2 | 12.2 | 9.9 |
| iv) | The content of each module was updated to meet the expectations of the participants | 37.4 | 25.2 | 16 | 10.7 | 10.7 |

| | | | | | | |
|---|---|---|---|---|---|---|
| v) | Selection of content helped in instructional planning to facilitate learners' learning | 36.6 | 26.7 | 16 | 13.7 | 6.9 |
| vi | The content included in the modules developed a positive attitude and thinking towards learning online courses | 41.2 | 18.3 | 16 | 15.3 | 9.2 |
| viii) | The content was adequate for enhancing knowledge and understanding for developing online courses (MOOCs) | 37.4 | 27.5 | 14.5 | 9.9 | 10.7 |

**Table 4: Language used in the MOOC X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Strongly Agreed | Strongly Disagreed |
| i) | The language used in various modules, to make the T- L process effective was easy to understand | 41.2 | 26 | 13.7 | 8.4 | 10.7 |
| ii) | Simple language used for communicating the of design and development of the MOOC | 41.2 | 22.2 | 16 | 12.2 | 8.4 |
| iii) | Language used did not misinterpret/misrepresent the technical concepts of designing and development | 32.8 | 26.7 | 21.4 | 9.9 | 9.2 |
| iv) | Technical concepts used in the design and development of the MOOC had their own language making the message clearer and understandable | 35.1 | 28.2 | 16 | 10.7 | 9.9 |



| | | | | | | |
|---|---|---|---|---|---|---|
| v) | Technical terms meaningfully represented with proper words/ language | 30.5 | 31.3 | 16.8 | 13 | 8.4 |
| vi | Language used in the various modules of this MOOC was easy to understand and comprehend | 34.4 | 29.8 | 18.3 | 5.3 | 12.2 |

**Table 5: Presentation of Content in the MOOC X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Strongly Agreed | Strongly Disagreed |
| i) | Presentation of content was systematic and logical | 42.7 | 25.2 | 13 | 9.9 | 9.2 |
| ii) | Sequence used in the modules was appropriate and accurate to the context | 38.2 | 28.2 | 15.3 | 7.6 | 10.7 |
| iii) | Logical necessity and psychological proximity was maintained in the presentation of the content | 34.4 | 29 | 16.8 | 10.7 | 2.9 |
| iv) | Examples were simple and clear | 40.5 | 24.4 | 15.3 | 9.9 | 9.9 |
| v) | Ideas/concepts were presented in an appropriate order | 38.2 | 26 | 14.5 | 11.5 | 9.9 |
| vi | Presentation of content facilitated a better understanding | 38.2 | 26.7 | 17.6 | 7.6 | 9.9 |

**Table 6: Organization of Content in the MOOC X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Strongly Agreed | Strongly Disagreed |
| i) | The content was organized orderly in the modules of the MOOC | 39.2 | 26.7 | 14.5 | 9.9 | 9.2 |
| ii) | Organizational structure was based on the principle of instructional design of online learning | 42 | 26.7 | 13.7 | 5.3 | 12.2 |
| iii) | Organization of content and structure in the modules motivated online learning | 36.6 | 26.7 | 17.6 | 6.9 | 12.2 |
| iv) | Presentation of examples and illustrations matched the online pedagogy | 39.7 | 25.2 | 16 | 9.9 | 9.2 |
| v) | The structural design of the content facilitated and motivated online learning | 38.9 | 26 | 15.3 | 9.2 | 10.7 |

## Tables on MOOC Learning

**Table 7: e-text of this MOOC X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Disagreed | Strongly Disagree |
| i) | E-text of each module is a powerful means for developing technical knowledge, thinking, and attitudes of the learners through an effective T-L process | 38.9 | 24.4 | 16.8 | 10.7 | 9.2 |



| | | | | | | |
|---|---|---|---|---|---|---|
| ii) | It can be used by teachers and trainers for training and capacity building to make the online T-L process effective | 38.9 | 22.1 | 14.5 | 14.5 | 9.9 |
| iii) | E-text of this MOOC was appropriate in terms of use and relevance for online courses in each module | 35.1 | 26 | 17.6 | 10.7 | 10.7 |
| iv) | E-text was presented effectively to address learners' issues and difficulties | 35.9 | 24.4 | 16 | 14.5 | 9.2 |
| v) | E-text rightly supplemented the other components in the MOOC | 36.6 | 25.2 | 17.6 | 10.7 | 9.9 |
| vi) | There were not many difficulties/ technicalities involved in using the e-text during the course of study | 34.4 | 25.2 | 16.8 | 13.7 | 9.9 |
| vii) | The instructional objectives of an online course design and development can be achieved through the e-text | 39.7 | 28.2 | 11.5 | 10.7 | 9.9 |

**Table 8: Video component of this MOOC X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Disagreed | Strongly Disagreed |
| i) | You have facilities (appropriate devices) to make use of the video component of this MOOC | 42 | 20.6 | 14.5 | 9.9 | 13 |
| ii) | Video component of this MOOC was user friendly | 44.3 | 20.6 | 13 | 10.7 | 11.5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| iii) | You watched all the videos during the course of study | 42 | 22.9 | 15.3 | 9.9 | 9.9 |
| iv) | The video component rightly matched/ supplemented the e-text | 43.5 | 22.1 | 14.5 | 9.2 | 10.7 |
| v) | There is a provision for interaction while watching a video | 38.9 | 21.4 | 13 | 14.5 | 12.2 |
| vi) | The content of the video was helpful in understanding the concept of design and development of online courses | 38.2 | 22.1 | 17.6 | 11.5 | 10.7 |
| vii) | Course content helped develop quality video material to supplement e-text in the MOOC | 39.7 | 25.2 | 13 | 9.2 | 13 |

**Table 9: Forum of this MOOC X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Disagreed | Strongly Disagreed |
| i) | Are you aware of the forum of this MOOC (forum as a component of a MOOC)? | 42 | 24.4 | 13.7 | 10.7 | 9.2 |
| ii) | Forum of a MOOC is a means of discussion and interaction | 39.7 | 22.1 | 16 | 12.2 | 9.9 |
| iii) | Forum of a MOOC is a means to break the isolation of distance in the online T-L process | 45.8 | 22.9 | 13.7 | 6.1 | 11.5 |



| | | | | | | |
|---|---|---|---|---|---|---|
| iv) | This MOOC helped understand the concept of the forum | 40.5 | 22.9 | 17.6 | 7.6 | 11.5 |
| v) | This MOOC internalized the relevance of the forum | 38.2 | 25.2 | 17.6 | 7.6 | 11.5 |
| vi) | This MOOC taught how to use the forum effectively | 36.6 | 27.5 | 13.7 | 12.2 | 9.9 |
| vii) | Use of the forum is very important and relevant in a MOOC | 42 | 26 | 12.2 | 7.6 | 12.2 |
| viii) | Instructors and mentors were active in the forum during the course | 41.2 | 22.9 | 12.2 | 13.0 | 10.7 |
| ix) | This course taught the role of instructors and mentors in the forum to facilitate the T-L process | 41.2 | 22.9 | 13 | 11.5 | 11.5 |

**Table 10: Teaching- Learning in this MOOC X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Disagreed | Strongly Disagreed |
| i) | Information about the schedule of activities was shared by the instructors/ moderators in a timely manner | 45.8 | 22.9 | 13.7 | 8.4 | 9.2 |
| ii) | Role of instructors/ moderators was supportive and facilitative | 47.3 | 22.1 | 12.2 | 9.2 | 9.2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| iii) | This course taught the role of instructors/ moderators in a MOOC | 42 | 22.1 | 16 | 9.9 | 9.9 |
| iv) | Instructors/ moderators addressed learners' issues/ difficulties during the course effectively | 38.9 | 25.2 | 16.8 | 7.6 | 11.5 |
| v) | The T-L pedagogy was effectively integrated in each component of the MOOC | 41.2 | 21.4 | 18.3 | 8.4 | 10.7 |
| vi) | This course taught us how to integrate the T-L pedagogy in each component of the MOOC | 37.4 | 26 | 14.5 | 13 | 9.2 |
| vii) | The course effectively made the learners understand the concept of a MOOC's instructional design | 39.7 | 24.4 | 15.3 | 9.9 | 10.7 |

## Tables on Relevance and Evaluation

**Table 11: Relevance of this MOOC X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Disagreed | Strongly Disagreed |
| i) | The content of this MOOC helped learners to develop an inclination towards the design and development of online courses | 38.9 | 26 | 15.3 | 10.7 | 9.2 |



| | | | | | | |
|---|---|---|---|---|---|---|
| ii) | Examples and illustrations included helped learners to develop technical knowledge and attitudes towards online courses | 41.2 | 22.1 | 16.8 | 7.6 | 12.2 |
| iii) | The content included was as per the needs of new learners and to meet the difficulties faced by the teachers | 38.9 | 26 | 16 | 9.2 | 9.9 |
| iv) | The content can equip teachers to meet the demands of online learning in higher education | 37.4 | 29.8 | 11.5 | 9.9 | 11.5 |
| v) | The content included is a means to make the online teaching-learning process interesting and relevant for learners | 31.7 | 24.4 | 13.7 | 10.7 | 11.5 |
| vi) | Exposure to such material can develop professional competencies in designing and developing online courses | 42.7 | 20.6 | 16 | 9.9 | 10.7 |
| vii) | The content of the modules was informative and relevant for capacity building of teachers for designing, developing, and implementing the MOOC | 38.2 | 29.8 | 11.5 | 10.7 | 9.9 |

**Table 12: Evaluation in MOOC X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Disagreed | Strongly Disagreed |
| i) | This MOOC taught various aspects (components) of evaluation in a MOOC | 44.3 | 22.9 | 15.3 | 6.9 | 10.7 |
| ii) | Evaluation as one of the components in a MOOC was rightly integrated in this MOOC for understanding the concept | 47.3 | 21.4 | 12.2 | 9.9 | 9.2 |
| iii) | Timely information was shared by the instructors and mentors at each stage/phase of evaluation | 44.3 | 19.8 | 16 | 10.7 | 9.2 |
| iv) | This MOOC taught the various means of online evaluation in a MOOC | 41.2 | 22.9 | 16 | 9.9 | 9.9 |
| v) | Instructors/ mentors provided appropriate guidance to understand the concept of online evaluation in the MOOC | 42 | 21.4 | 17.6 | 7.6 | 11.5 |
| vi) | Examples/illustrations were used in the MOOC to make the concept of evaluation clear to the learners | 42 | 18.3 | 16.8 | 11.5 | 11.5 |
| vii) | This MOOC taught how to give feedback to learners during each phase of the evaluation | 32.8 | 30.5 | 16 | 9.9 | 10.7 |
| viii) | Technical aspects of the evaluation were clearly explained and addressed by the instructors | 41.2 | 19.8 | 19.8 | 6.9 | 12.2 |



## Tables on Learner Support Services

**Table 13: Pre-Course Information X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Disagreed | Strongly Disagreed |
| i) | Are you aware of the zero week of this course? | YES- 62.6 | | | NO- 37.4 | |
| ii) | Zero week of a course helps understand the pedagogy of a MOOC | 36.6 | 21.4 | 21.4 | 6.1 | 14.5 |
| iii) | Information about the zero week is provided in a timely manner | 32.8 | 13 | 25.2 | 13 | 16 |
| iv) | Interaction (live) sessions are organized during zero week of this course | 25.2 | 22.1 | 29 | 9.9 | 13.7 |
| v) | Course instructors and mentors attended the zero week and were available for interactions | 26 | 19.1 | 29 | 10.7 | 15.3 |
| vi) | Zero week was interactive and participatory | 26.7 | 23.7 | 26.7 | 9.9 | 13 |

| | | | | | | |
|---|---|---|---|---|---|---|
| vii) | Zero week was relevant and important in the MOOC | 30.5 | 24.4 | 22.1 | 8.4 | 14.5 |

**Table 14: Support Services in X Response (%) of Participants**

| SL. No. | Particulars | Response in % | | | | |
|---|---|---|---|---|---|---|
| | | Strongly Agreed | Agreed | Agreed to some extent | Disagreed | Strongly Disagreed |
| i) | Role of instructors and mentors was important and relevant for better learning | 47.3 | 21.4 | 9.9 | 10.7 | 10.7 |
| ii) | Instructors and mentors were active during the course of the MOOC | 45.8 | 22.9 | 11.5 | 8.4 | 11.5 |
| iii) | Instructors and mentors explained the concepts clearly | 42 | 24.4 | 13 | 9.9 | 10.7 |
| iv) | Instructors and mentors addressed the queries of learners in a timely manner | 41.2 | 23.7 | 12.2 | 9.2 | 13.7 |
| v) | Instructors and mentors were supportive during each phase of the MOOC | 43.5 | 23.7 | 15.3 | 6.1 | 11.5 |
| viii) | This MOOC helped understand the role of instructors and mentors in the real success of a MOOC | 41.2 | 22.1 | 16 | 6.9 | 13.7 |



# APPENDIX 2

## Overview of Respondents

The demographic profile of the respondents is presented in Table E below.

**Table 15: Respondents Demographic Profile**

| Gender | |
|---|---|
| Male | 68.7% |
| Female | 30.5% |
| Not Disclosed | 0.8% |
| **Total** | **100%** |

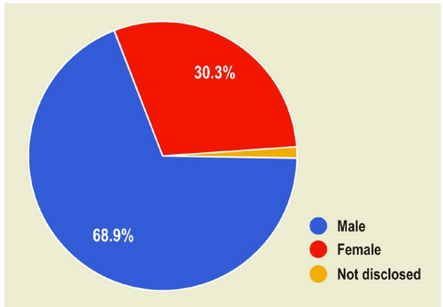



Figure 24: Demographic profile of sample

**Table 16: Distribution of Sample X Qualification**

| Qualification | |
|---|---|
| Doctorate | 41.2% |
| Post Graduate | 41.2% |
| Under Graduate | 14.5% |
| Pre University | 2.5% |
| High School | --- |
| Other | --- |
| Not Disclosed | 0.6% |
| **Total** | **100%** |

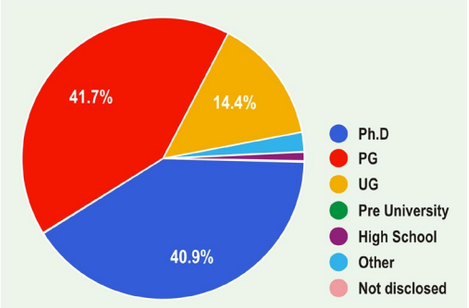



Figure 25: Distribution of sample X Qualification

**Table 17: Distribution of Sample X Age**

| Age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| More than 50 Yrs | Betn 46-50 Yrs | Betn 41-45 Yrs | Betn 36-40 Yrs | Betn 31-35 Yrs | Betn 26-30 Yrs | Betn 21-25 Yrs | Betn 16-20 Yrs | Less than 16 Yrs | Not Disclosed |
| **10.7%** | **14.5%** | **20.6%** | **16%** | **15.3%** | **13%** | **9.2%** | **--** | **--** | **0.7%** |

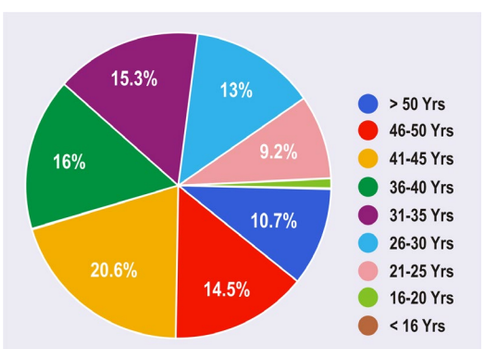



Figure 26: Distribution of sample X Age

**Table18: Distribution of Sample X Experience**

| Teachers in Higher Education | Academics in Higher Education | Administration/ Management in Higher Education | Community Organizations | Government | Non-Profit Organizations | Teachers in School Education | Others |
|---|---|---|---|---|---|---|---|
| **50.4%** | **11.5%** | **1.5%** | **0.8%** | **7.6%** | **2.3%** | **10.7%** | **15.2%** |

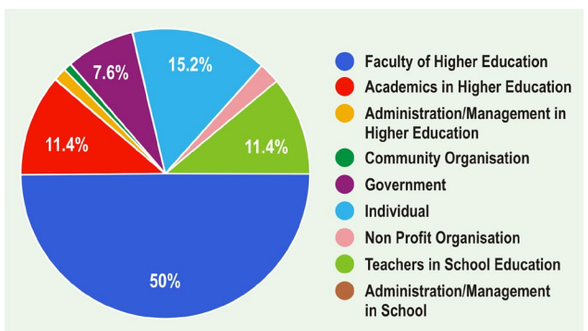



Figure 27: Distribution of sample X Experience



**Table 19: Distribution of Sample X Years of Experiences**

| Years of Experience | |
|---|---|
| More than 25yrs | 7.6% |
| Between 20-25yrs | 9.2% |
| Between 15-20 yrs | 9.2% |
| Between 10-15yrs | 20.6% |
| Between 05-10 yrs | 26% |
| Less than 05 yrs | 21.3% |
| **Total** | **100%** |

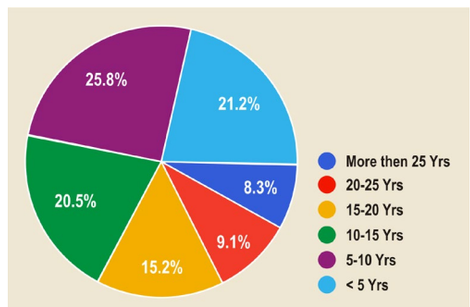



Figure 28: Distribution of sample X Years of Experiences

# A Brief About the Document...

The document Effectiveness of the ***MOOC Development of Online Courses for SWAYAM:*** A Critical Study assesses the overall design, development, and implementation of the MOOC Development ***of Online Courses for SWAYAM.*** This will contribute to the professional competencies of teachers of higher education and enhance their skills in developing competency based MOOCs in their areas of specialization. The study addresses the issues in developing quality MOOCs with specific objectives: i) identifying the expectations of the teachers, academics, and other stakeholders in terms of acquiring knowledge, skills, attitudes, and competencies for facilitating technology mediated learning, ii) assesses the level of knowledge, skills, attitudes, competencies, and level of satisfaction, iii) reviews all components of the MOOC for further improvements, and iv) suggests and recommends improvements in the MOOC to prepare teachers, academics, and administrators of higher education in India for facilitating and promoting online learning.

On the basis of an analysis and interpretation of the study's findings it was found that the role of the course team (instructors, moderators, facilitators) during implementation in facilitating and promoting learning of learners through the MOOC and ensuring required skill development were significant. The overall findings show that there exists a gap between the conceptualization of instructional objectives and their real acquisition through this MOOC. Based on the recommendations the design, development, and implementation of the MOOCs for higher education can be improved to prepare the digital learners needed for higher education in India.

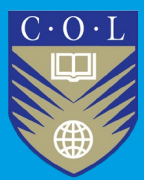


# About the Researchers

***Dr Manoj Kumar Dash***, Regional Director, IGNOU Regional Evaluation Centre at Bhubaneswar was awarded a Ph.D (Education) from Utkal University, Odisha. He has completed MPhil, MA Distance Education, PG Diploma in Higher Education, PG Diploma in Guidance and Counselling, and PG Diploma in Special Education. Dr Dash started his career as a lecturer in education in the Berhampur University, Odisha in 1999. He has been associated with technology mediated training of teachers and teacher educators countrywide through multimedia support, teleconferencing, and IRCs at DEP-SSA IGNOU (2005-2011). Since 2011 he has served as Regional Director at Regional Centres Delhi 3 (Dwarka), Jaipur (Rajasthan), and Bhubaneswar (Odisha). Dr Dash has designed, developed, and implemented skill development projects with the Government of Rajasthan for skill development of UG/PG students, with NHM, Government of Odisha for capacity building of anganwadi workers, with the Skill Development Institute, Government of India for skilling its trainees, and with the Ministry of Health & Family Welfare, Government of Odisha for capacity building of youth. His areas of specialization are Teacher Education, Technology Enhanced Learning, the Blended Learning Process, Open Education Resources, Measurement and Evaluation and Research Methodology. He has to his credit 48 articles published in various national and international journals, 25 units published in various SLMs, 4 books in the area of education and technology mediated teacher education. Dr Dash has participated and presented papers in many national and international seminars and conferences and is actively associated with various national and international agencies for the cause of education of disadvantaged, marginalized, and deprived sections of society in general and teacher education in particular.

***Dr Manas Ranjan Panigrahi*** is a Senior Programme Officer (Education) for Asia in Commonwealth Educational Media Center for Asia (CEMCA), New Delhi. In the capacity, he is closely working with Education Ministries, Civil Societies, Higher Education Institutions, Teacher Education Institutions of 8 Commonwealth Asian countries for achievement of Learning for Sustainable Development. In CEMCA he is promoting OER, developing institutional policies on OER/ ODL including various quality assurance toolkit, implementing Higher Education Integrated Model, developing MOOCs and online learning through participatory approach. One of his MOOC "Life Skills for Engineers" is reached more than 10k learners of 71 countries. He designed and

developed another MOOC on “Academic Counselling for ODL Learners” and reached 5000 learners of 51 countries. He has been awarded Ph.D. degree in Education by Jamia Millia Islamia Central University, New Delhi, India. Further, he has been also completed two MOOCs on Technology Enabled Learning from Athabasca University, Canada and Positive Psychology from the University of North Carolina at Chapel Hill, USA. His area of interest, he quoted innovative research strategies, educational leadership and management, educational technology and pedagogical analysis in online and blended learning. He has supervised more than 70 PG and Ph.D. level research scholars. During his stay in Africa, he has been associated in National Curriculum Development and introduced the Ph.D. Programme in Education with various specialization. To his credit, Dr. Panigrahi has published 48 research articles, conceptual papers, monograms on education in reputed National and International journals and author of 9 textbooks and reference books for higher education. Most notable is that he is a designer and organizer of national and international level seminars, conferences, and training programme. He is also a trainer of different workshops and capacity building programme for OER, Blended Learning, Technology Enabled Learning and Online Learning.

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