

DEVELOPMENT OF MOOC FOR SWAYAM: A SHIFT IN TEACHING LEARNING PARADIGM

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Abstract: *Digital India initiatives a flagship mission of Government of India encourages teachers making use of SWAYAM (online platform) effectively and efficiently for quality education, training, and capacity of all stakeholders at different levels of education under Ministry of Education. University Grants Commission (UGC), GOI at national level and all state governments at state levels encouraging the teachers for designing and developing Massive Open Online Courses. In higher education UGC invites proposals of MOOCs for UG/PG levels & skill development of youth under SWAYAM. Teachers are being trained, oriented and exposed for capacity building to enable them to design and develop quality MOOC as per the guidelines of SWAYAM. The purpose is to create a pool of skilled workforce in the country to address to the needs and demands of quality education. In this initiative we must know the expectations of teachers and their difficulties; the level of knowledge, skill, and competencies of our teachers; know various components of the MOOC, and also recommend development of MOOCs and facilitate similar the initiatives to strengthen capacity of our teachers. The present paper focuses on various aspects of MOOC in general and MOOC of SWAYAM for promoting educational resilience in India. The thrust was to facilitate TEL for sustainable quality education and training in the field of education.*

Key words: Digital India initiatives, Flagship Mission, SYAYAM.

Introduction

MOOCs are a relatively new development in the field of online and ODL system distinguished from conventional online courses by having no limit to attendance, no prerequisite qualifications, and no enrolment fees. The term massive can be interpreted as a course made available to a large number of learners at 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 in this context but should not be confused about the open licensing of the content like OER. The term course may be a structured set of content within a definite date to start and end or a self-paced set of content accessed on demand of learner. Therefore, MOOCs vary in delivery strategies. Though accessing the content is free, however, some MOOCs charge fees for certificate/ or credit transfer. MOOCs are a means of learner-centered approach, learning through social networking and a means of co-creation of knowledge.

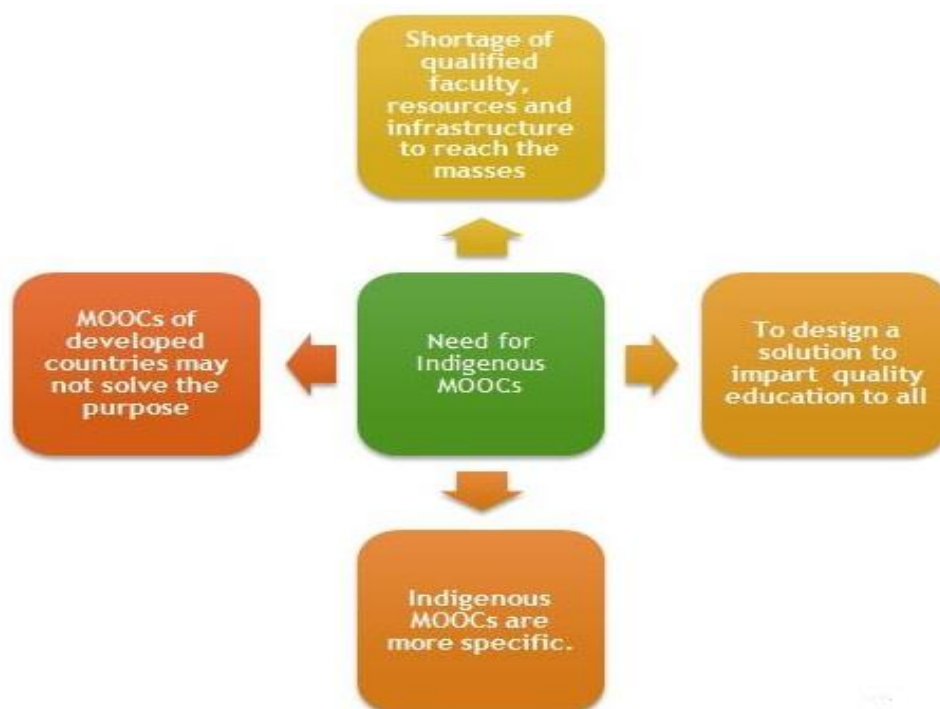


Fig A : Indigenous Mooc

Philosophical Bases of MOOC

MOOC is not just a massive, open, online, course. It is based on the principle of connectivism where there is integration of four different principles such as i) principles autonomy, ii) principle of diversity, iii) principle of openness, and iv) principle of interactivity. These are the four core principles of teaching learning process based on reflection and reflective practices. An active and persistent careful consideration of any belief or knowledge is described as reflection (Dewey, 1993). An examination of the way one teaches and takes decisions of what areas need improvement is considered as reflective practices (Jarvis, 1992). Certainly, MOOC is based on a clear and well-defined philosophy, a paradigm shift from traditional means of teaching learning process to deal with global changes in terms of sharing of information, and creation of knowledge. Met-cognition is the ability to think about one's thought about teaching with an aim

of improving learning (Wilson and Conyers, 2014). Self reflections of instructors have a positive impact on improving learning environment and lead to higher achievement of learners (Hartman, 2001). Self reflection and metacognitive thinking are very important for course design/redesign, development and implementation as well. It is the time for the teachers and academics in the field of education to have basic knowledge and understanding of MOOC design, development and implementation strategies. There is increasing need to assess the learning meaningfully, where access to information and knowledge increases exponentially. Learner needs to filter information and learn how to assess the information they need. Therefore, in connectivism, the focus is on connections to enable the learner learn rather than his or her current state of knowing (Siemens, 2005) Though, there is increasing acceptance of connectivism as a learning theory, however, it is yet to be accepted at a wider level. Therefore, it is, expected that this mode of delivery strategies would evolve into a different form, as it is an evolving teaching learning process in 21st century.

Aims and Objectives of MOOC

MOOC (Massive Open Online Course), a means of online course aims to provide access to quality education and training to optimize learning outcomes with effective and efficient use of Information and Communication Technologies (ICTs). MOOCs are considered to be a disruptive educational trend, especially in higher education and lifelong learning (Cotton, et al 2007). It provides an affordable and flexible means of learning new skills. In the context of teaching learning process initiatives of MOOCs, more or less replicating traditional learning approach (Gallagher, 2015) and based on connective pedagogy (Goldie, 2016). 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 (Hossain, et al 2015). Some of the notable benefits of MOOC are:

- i) provide high-quality cost-effective education
- ii) facilitate increasing access to education and training
- iii) promote self learning with flexible approach
- iv) motivate learners to learn at their door steps with their own pace of learning
- v) allow learners learning independently to achieve the learning outcomes.

MOOCs provide learners the option of learning over and above the constraints of traditional system of classroom-based learning. Learning resources are all online and open to all at any time and at any place (Roger, 1983). Therefore, learners are just 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 (Zhan, et al 2015) such as forums and message board etc. This promotes and facilitates the concept of peer learning and cooperative learning. Flexible assessment strategies of MOOCs allow the learners to assess their own learning through weekly online quizzes and peer assessed assignments. Learning resources are readily available in the online platform to review the materials as required.

Elements of MOOCs

The followings are some of the important elements of a MOOC

- Syllabus Template: It includes a course description with key learning outcomes,

descriptions of faculty, a detailed course content outline, expectations for participation, certification, and 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 I learn in the course? How do I use the course features?
- Course timeline for scheduling learning activities (week-wise detailed plans)
- List of Announcements to deliver reminders for due dates and course transitions.
- Instructions on synchronous and asynchronous engagement (prompts for students to post in the Discussion Forum, polling questions throughout the course, interaction with faculty/ TA (eTutor) as per instruction)

Overall Structure of a MOOC

Generally, a MOOC is designed and developed with a four-quadrant structure based on instructional design. The structure of a MOOC will have components such as; i) **e-tutorial (First Quadrant)**: There should be video and audio content in an organized form, animation, simulations, video demonstrations, virtual labs, etc, along with the transcription of the video. There is mapping of video content on week-to-week basis on desired learning outcomes. Multi week mapping plan may be created and presented in the weekly plan of action as well;

ii) **e-content (Second Quadrant)**: It contain self instructional material, e-Books, illustrations, case studies, presentations, Web Resources such as further references, Related Links, Open source Content on Internet, Video, Case Studies, books including e-books, research papers & journals, Anecdotal information, Historical development of the subject, Articles, etc; These are the readings and resources openly accessible to learners; iii) **assessment (Third Quadrant)**: It comprised 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 and solutions, discussion forum topics and setting up the FAQs for clarifications on general misconceptions. Assessment may be in the form of homework assignment, commentary, review, comparison, analysis, observation within the available resources, reflection or other form of homework. Peer Assessment rubrics may be aligned with learning outcomes; and iv) **Discussion Forum (Fourth Quadrant)**: Discussion forum is for raising of doubts, queries and clarifying them on a near real time basis by the course coordinator/instructors

Course landing page of a MOOC

Elements of course landing page must include the following:

- i) Welcome text and video from lead faculty,
- ii) Faculty/ TA (eTutor) 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 learning checklist
- vi) Course Timeline

Design and Development of MOOC

From the pedagogical perspective there are four important course design principles applied to MOOCs for design and development of a MOOC.

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

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

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

MOOC Vs OER

Comparison of a MOOC with OER depends on the perspective of the MOOC, whether we look it (MOOC) as resources or as content-based quality courses. In many cases MOOCs are not OER because it is difficult and even impossible to re-use and redistribute by virtue of their size and complexity. Therefore, MOOCs are generally not considered as OER. However, in certain cases MOOCs are licensed to allow re-use and adaptation. However, from instructional design and learning point of view MOOCs are potentially much more than OER (Chapman, et al 2016). MOOCs can go beyond OER as a means of technology mediated teaching learning process to transform and improve the quality of education with a focus on peer learning as well.

MOOCs for Sustainable Development

Though, development of MOOC 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 issues. Open learning environments and content support 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 topics 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 case study seeks to describe and evaluate a MOOC on sustainable development delivered by Trinity College Dublin in 2017. It also explores the potential for MOOCs to enhance public understanding of the SDGs.



Fig C: MOOC Provides Multiple Solutions

MOOC and SWAYAM

In India, MOOC is an emerging concept in the field of education. It is a key for millions of learners to access the learning opportunities. In view of providing access to quality learning resources to all Government of India started the project ‘Study Webs of Active Learning for Young Aspiring Minds’(SWAYAM). It is an indigenous integrated platform portal for online courses using Information and Communication Technologies (ICTs) for hosting MOOCs (Massive Open Online Courses) under National Mission on Education through Information Communication Technology (NME- ICT) Programme.



Fig D: MOOC- SWAYAM

Salient Features of SWAYAM

SWAYAM an innovative initiative of Govt of India, providing quality education to all. It aims to address the issues of equity in the field of education. Some of the unique features of SWAYAM includes:

- i) one stop web and mobile based interactive e -content for all courses from High School to University level,
- ii) high quality learning experience using multimedia on anytime, anywhere basis,
- iii) state of the art system that allows easy access, monitoring and certification,
- iv) peer group and discussion forum to clarify doubts, and
- v) hybrid model of delivery that adds to the quality of classroom teaching.

Structure of MOOC in SWAYAM

The MOOCs being offered on SWAYAM with four-quadrant instructional design approach as per the Guidelines of MOE, Govt.of India. Details of the Quadrant are

FIRST Quadrant: Engagement time -Video. 25-30 minutes per module is used with video and audio content in an organized form, animation, simulations, video demonstrations, Virtual Labs, etc, 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 long per module with 12 font Arial, single space. Counting 3 minutes/page the learning engagement time to be in the range of 45- 60 minutes per module. It should contain self-instructional material, e-Books, illustrations, case studies, presentations, Web Resources such as further references, Related Links, Open-source Content on Internet, Video, Case Studies, books including e-books, research papers & journals, Anecdotal information, Historical development of the subject, Articles, etc.

THIRD Quadrant: References, Web links- Reference list is given in word document. Specific links that is viable and direct to appropriate pages.

FOURTH Quadrant: Assessment – It includes quizzes- self graded, Assignments, short (up to 200 words) and 2 long answers (up to 500 words) depending on the course requirements.

10-15 MCQ per module comprise of Quiz with engagement time 1 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 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 and setting up the FAQs, Clarifications on general misconceptions

Total Engagement time for Discussion and interaction: The interaction can be through video tutorial or forum moderations and participation. Learners should be encouraged for discussion. May assign marks for participation and forum interaction.

Scope of SWAYAM

As per the guidelines of Govt of India SWAYAM shall cover the following:

- Curriculum based course contents covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities subjects, engineering,

technology, law, medicine, agriculture etc. in the domain of higher education, school for teacher training as well as teaching and learning aids to children of India to help them understand the subjects better and also help them in better preparedness for competitive examinations for admissions to professional degree programmes.

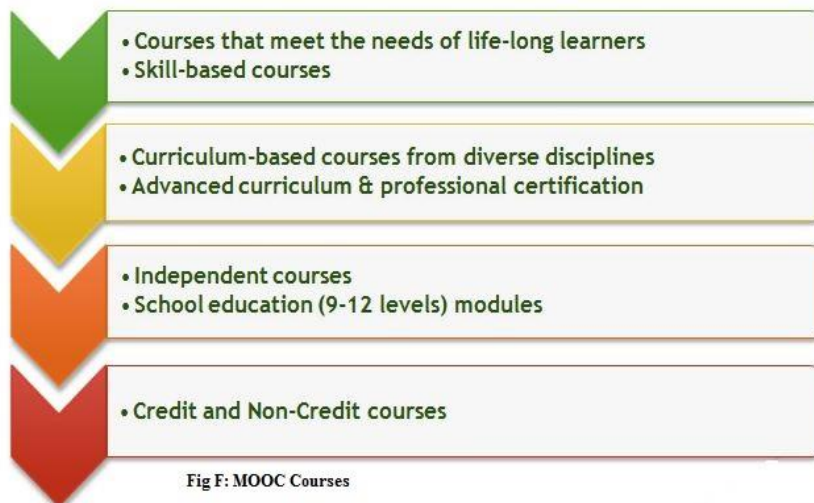
- Skill based courses, which cover both post higher secondary school skills that are presently the domain of polytechnics as well as industrial skills certified by the sector skill councils of various Ministries.



Fig E: Scope of SWAYAM

- Advanced curriculum and professional certification under a unified scheme in higher education that can be tailored to meet the demands of Choice Based Credit System (CBCS) currently being implemented in India at undergraduate level.
- Curricula and courses that can meet the needs of lifelong learners of Indian citizens in India and abroad.

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 curriculum, continuing education and skill. MOOCs are online courses developed as per the pedagogy with four quadrant approach such as 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 PG level Indian Universities comes under credit-based courses. One credit will be equivalent to 10 hours of learning including participating in discussion forums and other interactions, working on assignments and activities designated for the course etc. Under SWAYAM a course of 1 to 3 credits is expected to be covered in 4-12 weeks' duration including the assessment component in which (it should be 40 hours (for 3 credit course) to 80 hours (for a 6-credit course) of learning from e- Content, reading reference material, discussion forum posting and assignment.



Course objective defines the overall objectives of the complete course and expected learning outcome of the course as well. The course description contains 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 Masters Curriculum. c) having a proctored examination in the end resulting in 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 program and for training of specific skill sets.

Introductory video of the proposed course 3-5-minute duration, to be created for the course highlighting its objectives, learning outcomes, brief structure, engagement time etc. the video/ slide show should be appealing and informative for students. Under assessment plan the weight age assigned for different elements of the MOOCs are Assignments %, Practical %, Final Exam, and Others %

Instructional Design of MOOCs in SWAYAM

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

Need analysis: Need of offering the course via MOOC, possible target reaches and significance of the courses is to be established to justify selection of courses for the MOOC.

Content analysis: Preparing raw content with the use of reference books, articles, research papers, collection of illustrations, diagrams, etc. **Learner analysis:** Defining prospective learner profile, essential entry

knowledge

Design: Course Outline includes main and sub-topics. Structure of topics, sub-topics with appropriate sequence in hierarchical manner will be output of this exercise. **Course Objectives,** module objectives in terms of performance outcomes will be output of this task. Performance objectives may be and each objective will express learner's achievement only in one small area.



Fig G: MOOC Design

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

Summary: Summary in innovative formats (e.g., Info-graphics such as concept -maps, flow -charts, sum -up videos, text -based summary, etc.) **Evaluation Strategies-** Specific assessment and evaluation exercises, activities for formative assessments and module -end exercises, summative auto-graded tests, 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 will be designed once all strategies and material is finalized. Here, mapping all content, activities, tests with time-line will be done. Final selection of activities, assignments, tests will be done only in the light of 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 the proper announcement of course, availability of detailed course documents will be done only after all the above stages are systematically carried out.

Duration of the course: The duration of courses 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 certificate level or for teacher training program 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 level. One credit will be equivalent to 13 - 15 hours learning covering going through the course content, participating in discussion forums and other interactions, working on assignments and activities designated for the course etc. Each week learning activities will cover going through e-Content, supplementary reading.

Lectures/ topics: The lecture/ topic is to be broken up into short modules. Each module will have i) a clear description of its contents and expected learning outcomes; ii) objective - type assessments (to be auto-graded or assisted by instructors//mentors; iii) activity/ assignment: 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 instruction based on raw content, activities and exercises provided by instructors. Graphics and multimedia designers may also constitute an integral part of this course team who would assist in creation of graphics and multimedia. Subject experts, instructional designers, graphic and multimedia experts together called the course team meant for strengthening e-content development skills.

Course Structure: MOOC

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

Introduction including learning outcomes direct instruction delivered primarily through transcribed video content with learning objectives and faculty-provided notes. Uniquely created handouts may also be used for direct instruction, supporting e-Content with graphics and animations, case-studies wherever essential. Provide list of core and supplementary reading list. Other course resources may be provided via Web links Auto-graded quizzes, Self-assessment questions where students compare their answer against an instructor -written response and grade themselves. Discussion threads can be used to effectively engage students, who may communicate in discussion board threads each week on key course concepts. These discussion forums are best focused on a case study, problem, or question(s) pertinent to the lesson and should allow 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 etc.) as well as subjective questions. Formative assessments may include ungraded reflection papers, quizzes that can be re-taken, discussion forum

responses, concept-maps, as well as self- and peer evaluations that are meant to help student improve or identify gaps and weaknesses (Dash 2021). Conclusion and forthcoming section to include week's summary and what to expect next week.

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 thru online discussions, video lectures, self-assessment tests, open education resources etc are factors that give online learning an edge over traditional learning. This new form of learning has proved very handy in the ovid19 pandemic situation. It promotes an attitude of self-learning in the learners.



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

On registering with the SWAYAM platform, learners can proceed to discover the courses of his or her interest and enroll for the same. Learners have the liberty to learn the course at their own place as per their own convenience and pace. When they face any hiccups in the pursuit of the course, they can always seek assistance and clarify their doubts in the discussion forums. The learners can then submit their assignments and complete their course. There are so many courses to choose from and the learners can start another course anytime 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 exam making online fee payment. Then, they can proceed to take an exam and acquire a certificate based on their performance. They can then transfer and integrate the credits towards their academic records in Certificate Course, Diploma, Degree etc. The platform is open to the learners to take up as many courses as they want and keep on adding to their academic profile throughout their life. The Host Institute (the one that hosts the course) has an accepted and approved evaluation format in place to assess the learner's 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 then proceed to integrating it with his/her Parent Institute's evaluation system.

The UGC Regulations 2016 concerning the **Credit Framework for Online Learning Courses through SWAYAM** has clearly laid down the guidelines regarding Online Courses through SWAYAM, Evaluation and Certification, Credit Mobility, Amendments in rules for seamless integration of MOOCs etc. It states that an institution can only allow up to 20% of the total courses being offered in a particular program in a semester through online learning courses provided on the SWAYAM platform and the Institution is bound to provide adequate assistance to the learners for a seamless learning experience. The host institute and parent institution are responsible for evaluation in the MOOCs. The evaluation must be carried out based on pre-defined norms and parameters. The host and parent institute coordinate in matters like conduction of exams, credit transfer etc. 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 program. All institutions are bound by the regulations of UGC and must make the necessary changes to incorporate them.



Fig J: Features of SWAYAM

The MOE, Govt of India launched ARPIT a major and unique initiative of online professional development of 15 lakhs higher education faculty using the MOOCs platform SWAYAM. In ARPIT, NRCs will continuously develop new refresher module in their earmarked discipline each year and the training material will be 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 proctored exam will be treated as equivalent to completing one Refreshment course for the purpose of career advancement.

As we all know four quadrants approach is adopted in SWAYAM. The basic focus of this approach is to provide the learner with a learning environment that imitates a traditional classroom but with added advantages, which means that the learner will 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 the learners might have to balance their traditional learning along with the courses taken online. SWAYAM courses are designed to offer flexibility to the learners in many aspects such as place and pace of learning. Ideally, 4 Credit Courses may have around 40 videos of around 30 mins which adds up to nearly 20 hours. In addition, there will also be 40 self-learning materials or reading modules of nearly 3000 words each. A learner can complete 1-4 Credit Courses in a span of 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. The learners get the content to read and learn from. Then, they apply the concepts they learnt through activities such as assignments, discussions etc. At the end, the learners are subject to assessment through different means like peer review, quizzes, tests etc.

Teaching through SWAYAM

It is important to have a complete clarity and understanding about 'Teaching through SWAYAM.' There are two types of courses- Credit Courses and Non-credit Courses; i) Credit Courses are those courses that are taught for at least one semester as part of a specific subject/program and ii) non-Credit Courses are those that shall courses like awareness program, continuing education programme or training of specific skill set as an independent course that are not part of any set curriculum. It can be of any duration, which is often short. There is the SWAYAM Board of which the SWAYAM Academic Board, National Coordinators and Course Coordinators are a part. 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 different areas. The main functions of the SWAYAM Board are i) takes the important decisions that are necessary for the smooth functioning of SWAYAM and SWAYAM Prabha, ii) lays down Policy regarding implementation issues within the parameters laid down by the competent authority that include the cost payable for development and delivery of courses, examination fees, and accepting content from foreign or private institutes and universities, iii) reviews the progress of each NC regarding sanction, progress, development and delivery of various online courses, and iv) attends to any other matter that arises during the operation and delivery of SWAYAM and SWAYAM Prabha

SWAYAM Academic Board is the body that is responsible for guiding the National Coordinators and for laying down quality standards. This Board is composed of a six-set committee with selected members from different areas. The key functions of the Academic Board are:

- Monitors the quality of the courses on SWAYAM and lays down quality standards.
- Ensures smooth conduct and offering of courses on SWAYAM. and
- Responsible for the coordinated integration of SWAYAM and SWAYAM Prabha.

The Board monitors the progress of the conduct of term-end examinations for SWAYAM courses and resolves all the issues related to it. It also monitors the progress and matters of transfer of credits and resolves related issues. The National Coordinators are those institutions that have been designated by the Ministry and are assigned a specific sector for the preparation on online courses on SWAYAM. The National Coordinators constitute the following committees of Academic Advisory Council (AAC) and Subject Matter Expert Groups (SMEGs). The Academic Advisory Committee consists of academicians for assisting the National Coordinator to consider and take decision on every MOOC proposal. The SMEGs for each subject consists of academicians for evaluating the Proposals for Online Courses and make recommendations for its 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 course in each area by the NC. Each of the National Coordinators is assigned a specific thrust area and they are responsible to develop the courses pertaining to these areas.

MOOC Development: Steps

STEP 1: Identification: The National Coordinator identifies courses where online education is possible and preferred. It seeks Expression of Interest for Course Coordinators (CC).

STEP 2: Preproduction activities: Once the CC is in place, they constitute an academic team of educationalists with proven abilities to prepare Teaching Learning Material.

STEP 3: Production activities: Once the National Coordinator approves the CC's work, they can move on to production of videos.

STEP 4: Post-production activities: Post production activities are initiated on the material created to finalize.

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

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 if licensed material issued, and submit an undertaking to the NC.
- All contents (text, audio, video, animation, quiz etc.) developed with the funding of NMEICT will be the property of SWAYAM.
- All courses and contents posted in SWAYAM will be copyrighted to SWAYAM. Ministry will, from time-to-time, announce policies for access and charges, if any (for certification) and will also publish appropriate Open Educational Resources policy in consultation with other national and international bodies.
- The CC shall be given explicit permission for creating books and other distribution materials ever for commercial purposes with the explicit undertaking that contents published in SWAYAM shall 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.
 - User /student/ institutions should be informed about the usage rights of the course content available on SWAYAM.

Evaluation of MOOC

Evaluating the overall effectiveness of Massive Open Online Courses (MOOCs) is an attempt to improve and enhance its 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 revealed that MOOCs have the potential to facilitate and promote learner autonomy and create learner friendly learning environment (Goldie, 2016). At the same time there are studies that reflect critical issues effecting efficacy of a MOOC such as massive dropout rates. Out of the total registered learners around 20% of learners could complete the course (Khalil, 2014). Actual social networking among learners for teaching learning process towards learning outcomes for enhancing knowledge, skills and attitude is yet to be proved. As a result, there is a threat to the openness and diversity of a MOOC (Chapman et al., 2016). Role of facilitator is

very significant. They just not act as a stimulator for the learning of learners but maintain and ensure active participation of learners and their engagement (Goldie, 2016). Therefore, it is, thought to have more research-based evidence to better understand these MOOCs to encourage higher rates of learner's engagement (Dash and Dash, 2021). The present study was an attempt to evaluate the success of this MOOC in developing skills taught in this course. The overall goal of this study is to assess the performance of teachers in terms of skill development and capacity building who have completed this 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 from various stakeholders.

Conclusion

In the context of a paradigm shift in teaching learning process, development of MOOC for SWAYAM using appropriate learning design, simple and accessible technology is a real need of the hour to create skilled workforce to design, develop and implement MOOCs in various courses under different disciplines. Therefore, more MOOCs should be created to train teachers of higher education and school education new skills for their continued professional development. Recurrent training and orientation of teachers and all other stakeholders are important because of the rapid growth and changes in technology mediated interventions. MOOCs should aim to build the capacities of the teachers at all levels of education to create a pool of trained and skilled workforce to design, develop and implement online courses on SWAYAM platform and also in other similar LMS platforms. It is all about building capacity of teachers for skill enhancement using online platforms.

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