VISION VIKSIT BHARAT 2047
EDUCATION 4.0

ENHANCING INDIA'S WORKFORCE FOR THE AI-POWERED FUTURE

VOLUME - III

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PREFACE

The 21st century has heralded a transformative shift in global dynamics, driven by rapid advancements in technology and the emergence of Industry 4.0. At its heart lies artificial intelligence (AI), robotics, big data, and automation, redefining the way we live, work, and learn. India, standing at the cusp of this technological revolution, has an unprecedented opportunity to align its aspirations with global progress through the visionary framework of "Vision Viksit Bharat 2047." As the nation envisions becoming a developed and self-reliant power by its centenary year of independence, the role of education in nurturing a future-ready workforce becomes paramount. Education 4.0, a forward-thinking approach to learning, seeks to bridge the gap between traditional education and the demands of an AI-powered economy, ensuring that India's vast demographic dividend is effectively utilized to achieve this ambitious goal.

The concept of Education 4.0 emphasizes an adaptive, personalized, and technology-driven learning ecosystem. It integrates cutting-edge tools like AI, machine learning, and immersive technologies to foster creativity, critical thinking, and problem-solving skills among learners. By reimagining education as a dynamic and continuous process, it aims to prepare individuals to excel in roles that demand not only technical expertise but also emotional intelligence, cultural sensitivity, and ethical judgment. This transformation is essential for India to stay competitive in a global market increasingly shaped by digital innovation. Moreover, as the world turns toward sustainable and inclusive development, Education 4.0 also promotes equity by democratizing access to quality learning resources. This preface underscores the significance of aligning education reforms with national and global priorities, setting the stage for India to emerge as a leader in the AI-driven future while ensuring social and economic prosperity for all.

The book is the outcome of the papers presented in the one Day National Level Seminar on "VISION VIKSIT BHARAT 2047 EDUCATION 4.0 ENHANCING INDIA'S WORKFORCE FOR THE AI-POWERED FUTURE-" sponsored by Indian Council of Social Science Research- Southern Regional Centre, Hyderabad held on 24th January 2025 organised by the Department of Commerce with Business Process Services, Nallamuthu Gounder Mahalingam College, Pollachi . A spectrum of different subjects covered at the seminar are included in this book. In chapters that are contextualized in contemporary Education 4.0, a number of authors have provided reliable and meaningful chapters. Beyond educators and students, there are other national policymakers who could benefit from this initiative. We express our gratitude to the Indian Council of Social Science Research-- Southern Regional Centre, Hyderabad for their Sponsorship to organize the national level seminar. We also thank the authors who whole heartedly contributed chapters to the book.

CONVENOR

CONTENTS

Education 4.0: Challenges of MOOC in imparting Constructivist teaching and Learning in India

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Abstract

MOOCs (Massive open online courses) provide India's higher education a chance to revolutionize. MOOCs are well-known for their large size and accessibility to everyone fromtheprimary level up to the higher education level. They are generally free and always designed around flexible constructivist pedagogy, which can be a crucial for aspirants with financial hurdles and specific learning needs. For the Millennial and Gen-Z youth, there is a plethora of learning potential with digital technology. Additionally, these MOOC courses maybe used to bridge the gap between industry and academia. The concerns that higher education faces because of expansion, such as equal access, individualized learning, and quality issues, may appear to be addressed by the usage of MOOCs in higher education. However, for a young developing country like India, implementation of MOOC and its potential to promote constructivistLearning is a huge challenge with many hardships and obstacles still stand in our way.

Introduction

MOOCs (Massive open online courses) are a relatively new and well-studied phenomena in the field of remote learning. These were first launched in 2006, and by 2012, they had established themselves as a very popular way of learning. These courses are designed to be accessible to the common man. There is no limit on how many people can attend these classes. In addition to the traditional teaching comprising of lectures the MOOCs provide flexible evaluation systems, access to OERs and discussion forums. The interactivity between teachers and taught opens the way for constructivist teaching and learning. Digitalization in present context gives boost to the development and popularity for MOOCs. Earlier distance education was imparted exclusively through correspondence course. Initially distance education provided e-learning by broadcasting of courses on radio and television. E-Learning underwent a transformational change due to increase in the number of online learners, open e-learning opportunities and lately by development of MOOCs. The earlier MOOCs emerged because of open educational resources movement. The first course under MOOCs was led by George Siemens of Athabasca University and Stephen Downes of national research council in 2008. This course benefitted more than 2000 students without costing them any fee. Collaborative tools helped the students to participate for

the blog posts and discussions in Moodle were used. In India, MOOCs have immense potential. In India, the number of students enrolled has risen dramatically in recent years. Many notable MOOC providers, such as edX, Coursera, and Udacity, have identified India as one of the leading countries in terms of enrolment in their courses. MOOCs are currently directing many people in India to meet unmet demand for higher education. Government of India has taken many initiatives to support online education, which has proved useful in providing continuing education and help to increase enrolment ratio of the nation. NPTEL, mooKIT, edX, Coursera, and SWAYAM are the prominent online platforms in India. Although MOOCs have been introduced in many universities, awareness about MOOCs is still low in institutions located smaller towns and cities. A survey revealed that many people outside higher education did not even hear of MOOCs (The Chronical of Higher Education, 2013). People said they have awareness about online education yet did not know about MOOCs. There are various reasons why MOOCs are seen as relevant as the way forward in the 21st century education. According to Zawacki-Richter et al. (2018), MOOCs have great potentials in supporting lifelong learning, eliminating barriers in learning process, providing equality and opportunity in education and ensuring the liberalization of knowledge. In MOOCs, the courses are offered openly via an online platform. Such is the format that participants from various back ground across the globe could sign up. The learning process includes various activities aside the input provided by the course developers and instructors through various multimedia such as YouTube, links and uploaded documents and info graphics. Participants are awarded certain reward formats such as badges and certificates upon successful completion of the course. A study sought to explore students' state of knowledge and use of MOOCs in Georgian university reported that awareness and usage are quite low and the majority of the students never took any MOOCs before (Muzafarova & Kaya, 2014). Similar results are obtained from another developing country, where the majority of the students were not aware of MOOCs or MOOC providers (Aboshady et al., 2015). Understanding learners' experience, current state, and motivation will give an opportunity to set the direction and efficient planning for the future. When it comes to enrollment and usage, a study which examined condition in Columbia, Phillippines and South Africa showed completion rate of 30%, which is far higher compared to developed countries' cases reported to be less than 10% (Garridoetal., 2016) . Through an examination of students' awareness and perception, it is suggested that positive experience can lead to active participation (Aboshady et al., 2015). While others suggest that course accreditation and expectation may have a strong influence in retention (Cole & Timmerman, 2015).

Challenges faced by MOOC in India

MOOC being a new medium of education has yet to be testing on a global scale. There are still countries like India which have yet to embrace this modern constructivist learning tool fully, despite being more accessible than ever before. With several research studies proving its efficiacy in modern education settings, it has yet to be embraced effectively in our education system. The following are some factors that pose challenges towards full embracing of MOOC. MOOC is seen as a form of 'open school'. Technically its true but it is far from the open schools Indians have been acquainted with over the past few decades. The stigma associated with 'open-school' persists today among the middle- class households. Parents are often reluctant to take their wards out of a traditional school and have them fully engaged to online learning. Most parents would rather hire a private tutor over MOOC. Many of the MOOC available today provide online degrees and certification of completion but in terms of recognition and prestige they pale in comparison to conventional degrees and awards from established universities and education boards. The standards of the MOOCs need to be raised to an acceptable level to become fully main stream. With modern advancements in Ed Tech and incorporation of constructivist methods, this will inevitably happen. MOOC and traditional education systems are still very much isolated from one another. Our approach should collaboration, not competition. MOOC providers should try to integrate with universities and become official partners in providing supplementary or complimentary learning resources. Similarly, school teachers and college lecturers should encourage students to enroll in online courses to enhance their knowledge and learning capabilities The formula for a university's success applies to MOOC too. To grow and expand, international collaboration is essential for the various MOOC platforms to develop. MOOCs need to overcome the constraints of physical infrastructure and teaching resources. Some of the Ed Tech portals available in India are owned by foreign companies. They must be redesigned to conform with the needs and challenges of India. Constructivist pedagogy relies on immediate feedback and back & forth communication which requires a stable internet and electricity connection. For MOOC to be successful, the govt. needs to take initiative in improving communications and power infrastructures. MOOCs are extremely demanding on the teacher's side. Unlike the traditional courses, MOOCs requires IT related skills. Preparation of MOOCs requires at each are to be well acquainted with complicated educational software like elicit us, IMC Content Studio and Lectora. Most of the teachers imparting MOOC courses are young and tech savvy but lack knowledge and experience, while the older teachers who are the most knowledgeable and experienced tend to shy away from MOOC.

This challenge will be overcome soon when everyone in the teaching workforce becomes tech savvy, but for now, there is an urgent need of bringing together the valuable resource of experienced teachers into MOOC fold.

Critical Assessment of MOOC in India

It is easy to be enamored by new technology. In the field of education, new is not always better. There needs to be thorough studies in new pedagogical breakthroughs to see its utility and practicality in a particular education setting. India was introduced to the concept of online education along with the advent of the internet, yet MOOC in India seems to lag in popularity when compared to other countries. There are various issues with MOOC, inherent in its property that prevents it from achieving the educational goals it espouses. MOOC has been the pioneer in imparting constructivist pedagogy yet, in the case of India, it rarely achieves it. Several modules introduced in MOOC are video recorded lectures that is more alienated from students than a lecture hall setting. The art of teaching, or the essence of pedagogy, may be lost if we follow this path. Assessment and evaluation are pivotal for measuring a student's academic growth and development. In classrooms, teachers can explain students where they went wrong and give immediate feedback. However, in case of MOOCs with several thousands of students, enrolled in a course usually under one instructor, it is impossible. Evaluation method is almost always objective type questionnaires which is not an effective means of evaluation for all courses and subjects like language, music, art etc. Student dropout rate is very high, with nearly 90-95% student dropping out of the course midway. This can be attributed to the fact that MOOCs are free or very cheap, and neither the student nor the parents feel a sense of loss when dropping out. Other reasons could be that the learning outcome of the MOOC does not meet the requirements of expectations of the student, which could be anything from preparing one for competitive exams or awarding a degree. From an optimistic viewpoint, one can say that students reached a point in the course where they learned what they came to learn and dropped out after that. Nonetheless, this Language has been a barrier towards education since the colonial times. Most of the modules in MOOC have yet to be translated to the thousands of languages spoken by Indians. English remains the dominant medium of instruction, especially in the STEM fields followed by Hindi. In Mizoram, language is the biggest hurdle for students at the higher education. Moving from English lectures and textbooks to English MOOC modules does nothing to solve their problem.

If we are to embrace MOOC, we must also prepare ourselves to embrace social isolation. Since we haven't fully embraced online education yet, we have no firsthand experience with the impacts of separation and alienation to an entire generation over a long period of time. With a well-designed

module and experienced instructor, qualities like team cooperation, communication, collaboration etc. can be developed in student through MOOCs and virtual meetings but they will never be as effective as the real-life experience.

Conclusion

Many experts consider the growth of MOOCs as a big advancement in the field of modern education. It opens new frontiers for connectivism learning and constructivist pedagogy to a wide population. It makes use of the latest advancement in hardware-software technology and behavioural studies and aims to solve several of the problems that plagued our education system for centuries. Reputed universities around the world are making attempts to incorporate MOOC. All this has led to MOOC becoming the rising star of the education world. But behind the glitz and Glamour of MOOC lies the ugly problems that cannot be simply ignored. Sceptics have pointed out the poor quality of the online courses offered, the extremely poor retention rate, decline in the quality of pedagogy, problems with medium of instruction to name a few, that will take a lot of collective effort from the state and educational institutions. However, its shortcomings should not be a deterrent towards its adoption. MOOC like several modern contributions of educational technology can be used effectively if it is implemented in tandem with conventional, tried and testing methods of teaching.

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