

# Improving E-learning in MOOC to meet Challenges in 21<sup>st</sup> Century

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eLearning has been practicing for more than a decade, it is evolving and changing rapidly to meet the needs of users. Many countries are moving from an industrial-based to information-based economy and the education systems must respond to this change. The skills needed in a modern world are critical thinking, creativity, collaboration, metacognition, and motivation. Last couple of decade eLearning focused more towards the individual development and literally assessing the student’s lower order thinking. The pedagogy supports to achieve learning outcomes based on individual performances leaving the learner in an isolated learning environment. The latest disruption in online learning is the Massive Open Online Courses (MOOC). Many researchers assert that it provides sound pedagogical change leading to many advantages.

TABLE I  
MOOC FEATURES AND ITS ADVANTAGES

MOOC Pedagogy	Pedagogical Advantage
1. Online Mode of delivery	Efficacy of online learning
2. Online Quizzes and Assessments	Retrieval of learning
3. Short Videos and Quizzes	Mastery Learning
4. Peer and self-assessment	Enhance Learning
5. Short videos	Enhance attention and focus
6. Online Forums	Peer assistance/ collaboration

Although the MOOCs are appearing to provide an effective pedagogy, concerns are emerging among researchers claiming that it does not lead empowering the learners with the skills required in 21<sup>st</sup> century. It is crucial to achieve collaborative problem solving skills and to promote higher order thinking of a student in a learning environment.

This research initially gathered evidence that eLearning practices in MOOCs display a lack of collaboration to achieve a common goal, lack of group base learning, lack of inquiry base learning & lack of adaptive learning. These practises are crucial as it results the creative thinking, collaborative problem solving skills, increase higher order thinking. Most importantly skills were assessed using very few variables such as quizzes, assignments whereas the researchers found multi variable assessments will project the best outcome of any student.

Our research aims to address the gap between current and past outcomes produced by eLearning with that of next few decades to come. We used qualitative method Grounded theory to identify the factors affecting to an effective eLearning and ranked them according to the priority by using quantitative method Principle Component Analysis (PCA) in SPSS (Version 10.0 for Windows). Those factors from high rank to low rank are

- Interactivity
- Collaboration
- Motivation
- Network of opportunity
- Pedagogical change
- Content /Material
- Assessment
- Usability
- Technology
- Support for Learners

This result of the preliminary investigation indicates that what the users required from an eLearning experience correlates with the skills required to succeed in a dynamic world. In other words the results of the investigation prove that the existing eLearning systems are not adequately capable of supporting many of the above factors effectively thereby leading to an ineffective eLearning outcome. Our primary goal is to provide effective eLearning experience where the learner will develop the skills required to face future challenges. In order to achieve this goal, our research focuses on integrating the factors resulted from the initial investigation.

Research methodology to integrate these factors will lead to a theory and a conceptual framework which incorporates a novel pedagogy featuring project based group work, multivariable assessment, peer reviews, peer instructions, reviews from mentors. The framework will be implemented as a prototype of an eLearning platform and will be tested with A/B testing method. Design and testing of the prototype will incorporate Human Computer Interaction (HCI) methodologies. Major outcomes of this research will be

- A theory and a conceptual framework to formulate a novel pedagogical framework
- A working prototype of a eLearning platform based on the novel pedagogical framework

Finally, we intend to prove that as a result of learning through the platform we propose, the learner will be equipped with the skills demand of this dynamic world.