Blended learning using agMOOCs as a tool for professional development: A case of students of agriculture in India

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Abstract
According to University Grants Commission (a body of Government of India) Blended learning is an instructional methodology, a teaching and learning approach that combines face-to-face classroom methods with computer mediated activities to deliver instruction. agMOOCs a learning platform for students of agriculture and allied sciences has developed 22 MOOCs so far on agriculture and allied sciences since 2015. The platform was developed by Indian Institute of Technology, Kanpur (India) in collaboration with Commonwealth of Learning, Vancouver. Of which the author has offered three courses on agricultural extension. More than two million students have accessed the courses on agMOOCs platform and benefitted in their learning activities. In the last couple of years during the global pandemic period the educational activities were also facing difficulties. An effort was made to adopt the blended learning methodology for masters’ students of agriculture at Institute of Agricultural Sciences, Banaras Hindu University, Varanasi. The method of participant observation and discussion with learners were used to collect the data. Whole enumeration was the sample size. The data was analysed using descriptive qualitative methods by adopting steps viz., i. quick data, ii. Coding data, iii. Qualitative analysis and Quantitative analysis iv. Interpretation of results. Students were asked to go through the videos, PPTs and transcripts available on the platform before coming to the class. The classes were organised in hybrid mode (online as well as offline). The respective topics scheduled for the day were discussed in the class instead of explaining the contents as in case of regular classes. The results of the study reveal that 1. Enhancement in the grasping ability of students 2. Improvement in analysing the concepts and contents of the course 3. Enhanced interaction with course instructor 4. Surge in academic discussion abilities of learners 5. Augmentation in framing questions to be asked in the classroom. The challenges while using the methodology include maintaining learners interest over a period of time, preparation of contents for circulation before to be brief enough and providing exhaustive resources for the learners.

Key words:
Blended learning, agMOOCs, e-Extension, grasping ability, academic discussion, framing questions
Introduction:

University Grants Commission, a nodal body of Govt. of India defines Bended learning is an instructional methodology, a teaching and learning approach that combines face-to-face classroom methods with computer mediated activities to deliver instruction. During pre-pandemic era the methodology was in use on limited scale. But the post pandemic era has seen surge in utility of the approach. The second decade of 21st century has witnessed the beginning and spread of Massive Open Online Courses (MOOCs) in India. Also the efforts in using social media as educational platform, creation of educational contents as Open Educational Resources (OER), designing digital educational resources etc paved the ways for alternative sources of education. With all these sources in operation, there is no alternative for formal face to face (direct teaching) approach of education. These technological developments paved the way for creation of blended modes of learning as an additional platform for learners.

The concept of blended learning should not be limited to sheer blending of online and offline mode of teaching. Rather it is a well designed activity in consultation with learners. The contents of the entire course/programme should be made available to the learners well in advance through structured, predesigned online access and the learner must be able to access the sources without any hindrances.

According to UGC the benefits of blended learning include
• Opportunity for collaboration at a distance:
• Increased flexibility:
• Increased interaction:
• Enhanced learning:
• Learning to be virtual citizens:
• Blended Learning provides making learning resources and experiences repeatable, reliable and reproducible.

agMOOCs is a platform developed by Indian Institute of Technology, Kanpur, India in collaboration with Commonwealth of Learning, Vancouver. Since 2015 till date, agMOOCs has developed 22 MOOCs in agriculture and allied sciences. The author has offered three courses on the platform with more than 30, 000 registrations. Jirli et al. (2019) reports that there was an increasing trend in number of registrations on agMOOCs platform. An enhanced registration was an indicator of effectiveness of the courses and penetration among agricultural fraternity. More than 65 per cent offered courses to enhance their knowledge. About 60 percent learners preferred the agMOOCs app to access course contents. There exists association between range of learners and pace of content delivery. Looking into the participation of learners it was planned to use the platform for the purpose of blended learning.

Attributes of agMOOCs platform: the unique features of agMOOCs which makes it different from other platforms are as follows. As the numbers of restrictions are minimum, the acceptability of the application is more.
Review of student engagement and performance

The studies reveal that the learners were prepared for dual mode of accessing educational contents. Dangi and Jirli (2021) reported that the majority of learners (89.52%) are satisfied with teaching and learning by digital mode. It was found that about 20 per cent respondents agreed that there was more than 50 per cent increase in marks and the majority of respondents found Digitised Educational Efforts found effective. When the educational contents are accessed using web resources, copyright issues play a key role. The reviews divulge that students are aware of the issues. Aditya aet.al. (2014) reveled that majority students of faculty of agriculture and faculty of science were aware about the copyright issues in using contents available on internet. The learner community feels more privileged when the contents are made available with minimum or no restrictions. This is the basic attribute of agMOOCs platform.

The studies also indicate that there exists relationship between variables associated with online activities. The paradigm shift can also be observed in spending considerable amount time on web based learning resources. Ghatwal aet.al. (2016) reports the existence of direct relationship between type of online activities and amount of time spent on online activities. In the study conducted on students it was observed that most of the students (49.44%) spent 25-50% time on new media for academic purpose. It can be interpreted that students are spending principal amount of time on other activities than educational purpose. It poses a challenge to the educationists and policy makers that how to translate the existing situation.

Theoretical framework

The process of blended learning opportunities began from Digital Teaching Tools agMOOCs platform and direct (face to face) teaching method. Looking into the effects of second wave of pandemic few classes were engaged in online mode also. The features of digital teaching included Virtual classes Videos, e-Content, Interaction/chat, Resource Section and Online forums available on agMOOCs platform. The features of direct teaching included use of Blackboards...
Both learner and teacher had specific roles to play. The teacher was supposed to act as a Coach or Mentor, it was the responsibility of a teacher to make learning student-driven, bottom-up, and customised. Continuous learner engagement was a challenge to achieve, but was ensured. Teacher paid attention on individual learner and helped learner to have his own pace of learning. The process of Blended Learning was anticipated to achieve enhanced teacher-learner interaction, enhanced grasping ability of learner, flexible teaching-learning environment, and better opportunity for experiential learning, time management and superior learning outcomes.

Methodology: The study was conducted during 2021-22, involving fifteen (15) students’ pursuing masters’ of Agricultural Extension and Communication, Department of Extension Education, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi, India. The course ‘e-Extension’, a compulsory course for the masters’ students offered in 4th semester of masters’ programme, is also available on the agMOOCs platform. The students were asked to go through the videos, PPTs and transcripts available on the platform before coming to the class. The classes were organised in hybrid mode (online as well as offline). The respective topics scheduled for the day were discussed in the class instead of explaining the contents as in case of regular classes.

Data Collection: The method of participant observation and discussion with learners were used to collect the data. The classes were organised in hybrid mode from 3rd January 2022 to 10th February on continuous basis. The course instructor had 90 to 120 minutes of interaction every
day. Before beginning of the course the students were informed to visit agMOOCs portal and be prepared for the forthcoming class. The data were documented on three major topics with corresponding sub topics/issues. The data was collected on the following variables with various sub components.

Learners’ perception about attributes of blended mode of learning

- Purpose of learning
- Method adopted
- Learning steps
- Change in grasping ability
- Change in interaction with course instructor

Learners’ perception about content made available via online platform (agMOOCs)

- Analytical abilities of concepts and contents of the course
- Comprehension of the concept
- Ability to set own pace of learning
- Framing of pertinent questions to be asked in classroom
- Flexibility in content availability in terms of time
- Open access to contents in all formats (video/transcript/ppts)

Learners’ perception about utility of hybrid model of blended Learning

- Enhancement of academic discussion abilities
- Enhanced engagement of learners
- Instant feedback and clarification of doubts
- Preparation for future goals
- Learner autonomy

**Sampling:** The method of whole enumeration was adopted for the study. Fifteen students who registered for the course EXT-505 e-Extension at Department of Extension Education, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (India) were the respondents of the study.

The data was analysed using descriptive qualitative methods by adopting steps viz., i. quick data, ii. Coding data, iii. Qualitative analysis and Quantitative analysis iv. Interpretation of results. The perception of learners was formed into various statements and translated into quantitative terms on five pint continuum with range of score from 1 to 5 with corresponding values of strongly disagree to strongly agree. The maximum and minimum obtainable score for each statement were 75 and 15 respectively.
Findings and discussion

The pre-pandemic period was dominated by engaging the learners via physical mode. There were few occasions where the learners were asked to visit web based educational resources. The experiences of couple of years of pandemic forced the stakeholders of education to be conversant with alternate modes of education which observed the domination of digital teaching tools. Educational stakeholders from pre-primary to University became subscribers of digital teaching tools. The author/researcher offers three courses for postgraduates. Of these three courses EXT-505, e-Extension adopted the blended methodology. It was interesting to note that in the first six days the instructor received 3 to 4 questions in every class. But in the subsequent week the number of questions increased to 8 to 10 per class. In addition students started coming with updated statistical data and latest developments on the topic of discussion of the day and many associated/related concepts they did not understand. This can broadly be termed as change in interaction with course instructor.

![Fig-1. Learners perception about attributes of blended mode of learning](image)

The matter of fact is a learner can ask questions in the class only when he makes deliberate attempts to understand the issues under discussion. Also there is need for an environment which promotes interaction between the learner and instructor. As the learner has prior information about the topics to be discussed in the subsequent classes, has fair understanding about the concepts prior to attending the physical/synchronous classes, the learner has to be prepared for interaction with instructor. Otherwise, non-preparation for interaction connotes the lack of interest of learner, which is largely discouraged by the instructor. Hence such behaviour was on declining trends with effect from first week only. The regular involvement of learners helped them to grapple the concepts.

The method adopted for the course was accepted by the learners with some inhibitions in the beginning of the course. The scope and importance of the method was realised in later part of the course. Completion of the course/s offered in a semester and completion of degree programme is not the purpose of learning. Learners’ preparedness for future challenges and achieving the full
potentials is the purpose of learning. With enhanced participation by adopting blended learning model, the learners began to realise it. Espousal of blended learning model can change the perspectives of the learners. Initially they may feel burdened but, once they realise the purpose of learning with their own involvement, learning becomes their habit. If such behavioural changes are observed then we can assume the purpose of educational process is achieved to a larger extent. The teacher (course instructor) faces more challenge in preparation of educational contents suitable for blended learning. Development of video modules to hold the span of attention of learners and to impart fair understanding about the concepts is more like conducting an experiment on every module.

![Fig-2. Learners’ perception about adoption of hybrid model of blended Learning](image)

Autonomy to learners is one of the motivating factors in the process of learning. It is evident from the Fig-2 that majority of the learners enjoyed the autonomy. Because the learner was told to be prepared before coming to the class, it is his/her responsibility for the decision and implementation of the decision. At the postgraduate level of education, the learner is matured enough to take such decisions and to implement them also. The learners felt in the later part of the course that it helped them to prepare for future. Immediately after completion of their formal education, these learners will be entering into the professional life, wherein they are expected to face real life situations. Majority of learners felt that their involvement in classroom shall help them to face the situations they may encounter in their professional life.

The hybrid mode of blended learning model paved the way for instant clarification of doubts if any and answers to their questions which they have faced during going through the course contents. Upon analysis of contents and their thought process for application of concepts may lead to some other questions, which is a natural process. Such a situation aroused due to change
in approach of teaching and learners responded to the situation. Participation of stakeholders is the key element in success of such initiatives. As the current trend goes the popular understanding of teachers include ‘learners don’t participate’ or ‘it’s difficult to ensure participation of learners’’. The findings contradict the popular understandings that, with slight modification in the approach of teaching, we can ensure participation of all stakeholders. Also it is evident that such approaches are in practice in majority of the premier institutions in India and abroad. Just raising few questions for understanding the topics under discussion in classroom are different from engaging oneself in the academic discussions. It was observed during the course that apart from the concepts under discussion in the class, the learners used to come with various associated issues for discussion in the class.

Application of artificial intelligence in delivery of extension service is a topic and there are number of new issues for the learners for which he/she are not exposed to. Understanding the concept is one part of classroom discussions. In addition, the learners are predicting the applications in various ways and its implications on extension service, extension educators, extension service providers and agricultural research system. Debates on issues like impact of such interventions’ on Indian economy, health of stakeholders, implications on crop health, etc are the incidents of enhanced academic discussion abilities of learners’ as an outcome of the approach of blended mode of learning.
The pace of learning of every individual is different. Some are quick learners and some may need additional time and explanation or repetition to understand the issues. In case of direct teaching method of traditional classroom system, the teacher has a limitation of time. Even then, if learners ask questions, teachers are clarifying it, but the basic issue is how many learners ask questions? May be out of fear, due to peer pressure, language barriers, lack of confidence etc reasons, many learners keep quite in the class and later may discuss it with their fellow colleagues whom they consider as more knowledgeable. They may or may not satisfactory response, and ultimately many questions remain unanswered. Under such circumstances the pace of learning of a learner gets disturbed. His/her academic interests start taking different turns. Such platforms of blended learning and availability of learning contents in PDF, PPT and video formats, learner can set his/her own pace of learning. It is evident from the Fig-3, that majority are of the opinion that, they were able to set their own pace of learning.

The supporting fact for the same is the learners were able to visit the learning resources Videos, PPTs and transcription of lecture in PDF formats as and when required. Repeated visits and peer discussions helped them to overcome inhibitions and gain confidence. As there is facility for free
downloading of contents, many learners have downloaded the contents also. Means the learners’ are searching for opportunities. If made available the system can create wonders among the learner fraternity.

Maintenance of learners’ interest over a period of time is a challenge in blended learning. On the contrary it was observed that because of sustained interest and persistent efforts, learners’ felt that they could frame appropriate questions to be placed in subsequent class because of their exposure to the learning contents prior to the class. Also this process paved the way for improved comprehension of concepts under discussion. In education process taking learners from factual knowledge to meta-cognitive level is a challenge. The teacher begins with factual knowledge and stir interests of learners’. In subsequent processes, based on the interests of learners the journey of conceptual and procedural knowledge begins with. Ultimately few of the learners the journey may reach the level of meta-cognitive knowledge also (Jirli, 2022). In this journey they need access, opportunity, collaboration, interest to learning to learn and aspirations.

Conclusion
The purpose of education is holistic development of learner. Ensuring all round growth is a challenge for any system of education. Traditionally it is believed that there are 64 different types of skills to be acquired for a successful individual. Our educational systems are focusing on limited domains of skills. The blended learning also imparts skills with the methodology of ‘learning by doing’. The learners felt that continuous engagement of learners unknowingly engaged themselves, the purpose was also clear to them they are facing questions and need to ask questions for clarification. The customary engagement in the process of learning made them to grasp the concepts quickly. Literally it is explained as ‘reading between the lines’. The analytical abilities of learners is another key skill, attaching various dimensions to the concepts under discussion was also observed. Learners also observed the change in level of interaction with course instructor. It is evident from the results that blended learning has the potential to widen the mental horizon of learners, provided learners are the active participants. It makes both teacher and learner more responsible in delivery and reception of educational contents. The challenges of blended learning include customising such a specialised approach to graduate teaching, where the numbers of learners’ are more. On the contrary the approach is best suitable for more super specialisations at higher education.

References


Jirli Basavaprabhu (2022) “Digital extension approaches for efficient technology transfer” lecture delivered in ICAR-Winter school on Advances in Agricultural Extension Research on 14th February 2022, organized by Division of Dairy Extension, National Dairy Research, Karnal (Haryana)
