Processes involved in handling an agMOOC course on Nutrition : a personal experience

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Abstract :

MOOCs can provide an access to quality learning opportunities at low cost enabling a small group of teachers/mentors to offer learning services to many people in the duration of a single course. Keeping this in mind agMOOCs was planned out to meet the knowledge needs of the agriculture community by IIT, Kanpur in collaboration with COL, Vancouver and NPTEL, Chennai.

Nutrition being a part of agriculture, an opportunity was provided to handle a course. A course on Nutrition, Health and Therapeutics was developed for the benefit of the society and delivered for 8 weeks from January 11th to March 5th 2016. This course was developed in such a way that it provided knowledge on the foods packed with nutrients to be consumed during health and disease with sanitation. The evaluation of the course included 4 intermittent quizzes and one assignment. The mode of dissemination was lecture cum power point presentation distributed over 48 classes with 8-16 minutes for each class to retain the attention of the learner. These conditions made 60-70% of the learners to have an attentive learning experience.

The number of participants registered for the course were 2300 among whom 80% were from India and the rest covering another 25 countries. The participants were very actively involved in forum discussions and messages through hangouts. The relevant references and additional study material was provided and their doubts were clarified by the instructor and three mentors. After the course was completed, feedback was taken and the result showed that 52.9% participants knew about course through friends and 70% were males. About 73% participants in the age group of 17-34 and were students (61%). Most of them used their computers for learning (66%).Many of the participants expressed that they could bring about some change in their diets and their family's diet.

Introduction:

The landscape of agriculture is expanding to include agribusiness in the supply chain operations and management. Improving the competencies of scientists, teachers and extension workers, and delivering training in high-tech agriculture, secondary agriculture, and entrepreneurship will go a long way toward developing and adopting modern technologies that will bring more income to farmers. The richness of MOOCs derives from their being essentially an Internet-based technology. The core idea is the provision of higher education courses to anyone with Internet access and the personal motivation to (i) participate in learning activities that are delivered in short video segments supplemented with online tutorials, and then (ii) be assessed using automated online self-evaluation exercises and summative quizzes and tests. A MOOC can be considered to be an online course that requires no prior qualifications for entry, can be accessed by anyone who has an Internet connection and includes large or very large numbers of learners. These MOOC participants experience a course with various combinations of content, activities, peer to peer interactions, mentor interactions and tests. A MOOC should be able to accommodate a large or very large number of learners compared to what is possible in a typical university classroom or online course. Nutrition being a part of agriculture, an opportunity was provided to handle a course. Therefore, keeping in view the need of the society, a course on Nutrition, Health and Therapeutics was developed.

Materials & Methods:

The agMOOCs was planned out to meet the knowledge needs of the agriculture community by IIT, Kanpur in collaboration with COL, Vancouver and NPTEL, Chennai. About 11 courses were planned out and a workshop was held at IIT Kanpur on the 7th and 8th of September 2015 for the participating instructors of the courses to get

knowledge about an overview of MOOCs, architecture of a MOOC, running a MOOC, 4. mooKIT features and hands-on and studio time. The participants were given hands on experience to record a sample video on the subject of their expertise. After recording the video of the lecture, analysis and feed-back was given to the participants on the recorded video. It was decided to release 11 agMOOC courses for the year 2016 on the following topics

Table 1: List of agMOOC courses to be released in 2016

S.No.	Title of the course	Date of start
1.	Integrated Pest Management	January 2016
2.	ICT Basics	January 2016
3.	Nutrition, Therapeutics and Health	January 2016
4.	Basic Crop Production Practices (10+2 Level)	January 2016
5.	Weather Forecast in Agriculture and Agro-Advisory	January 2016
6.	GIS in Ag- Essentials and applications	January 2016
7.	Sensors in Agro-Ecosystem Management	July 2016
8.	Trends in Organic Agriculture	July 2016
9.	Entrepreneurship Development in Agriculture	July 2016
10.	Protected Cultivation in Vegetables Farmers, Students, Extension functionaries	July 2016
11.	Climate change: Implications for Ag	July 2016

All the instructors handling the course were given clear and detailed knowledge and instructions about how to deal with the course which were as follows:

Each class should be of 6-15 min duration, because it can hold the attention of the learner. The best duration id 6-8 min where maximum learning takes place. The lecture should be simple but cover all the important points in a comprehensive manner. Most of the time the instructor should look at the camera and especially in the opening and closing sentences of a lecture. Less body movement and sufficient use of the tablet pen on the podium to underline or tick mark words / concepts for focus and emphasis. Avoid dress with checks design. Each lecture should have an introduction and a closing sentence - decide on these sentences before recording and each slide should contain no more than 5-8 lines.

Fig 1: Brochure on the course to be offered

One of the course was on Nutrition, Therapeutics and Health. A brochure (fig 1) was prepared to give the information about the course along with a short video on the course. This brochure was uploaded on web along with an introductory video. Wide publicity was given to the course by means of posters, pamphlets, social media network, institutions etc.

The course was for a period of 8 weeks from January 11th to March 5th 2016. This course was designed very carefully spread over 48 classes so that it does not become a burden to the learner and also provide them with

sufficient knowledge on the subject. The evaluation of the course included 4 intermittent quizzes and an assignment. The course was planned in such a way that all the topics related to nutrients and their role in the body was covered in 4 weeks, followed by lectures on meal planning, selection of foods, balanced diet and food sanitation for 1 week and the remaining 3 weeks for therapeutic nutrition covering diseases of all the vital systems in the body. The mode of dissemination was lecture cum power point presentation with relevant diagrams. The duration of each class was 8-16 minutes' ideal to retain the attention of the learner. Feedback of the learners was taken and analyzed.

Results and discussion:

The total number of participants registered were 2,300 from 26 countries. There was a lot of appreciation for the course which could be observed by the forum discussions among the participants and also with the instructor and mentors.

Figure 2 : Forum discussion by the participants

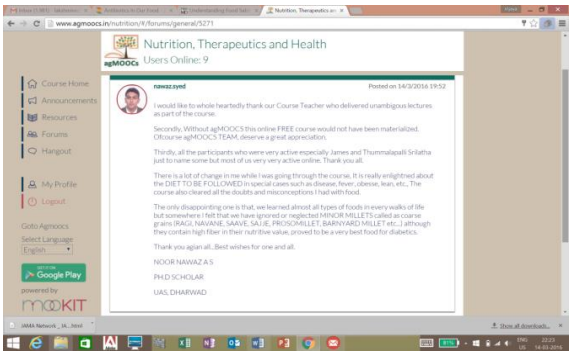
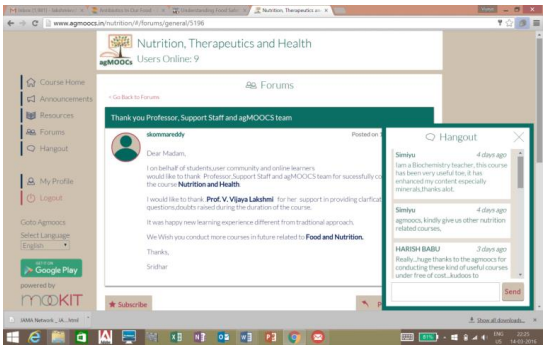


Figure 3: Hangouts from the participants



The participants also had lots to comment on lectures through hangouts which gave a lot of encouragement to the instructor. The participants had enthusiastically attempted all the quizzes given to them and were found very satisfactory. All the participants took a lot of interest to complete the given assignment and submit on time. As the organizers were giving certificates with distinction, the participants were trying to fulfill the criteria set for achieving the same. After 8 weeks when the course was completed, feedback of the course was taken through questions and the results were as follows:

Table 1: Any other feature you would like to see in the platform? (298 responses)

Increasing my knowledge to this course. It was user friendly.
The course duration is very short. Sometime I cannot follow the rules and procedures particularly for assignment.
Useful courses in the field of food science and nutrition. It is very useful for me.
Course content itself is very systematically organized & presented. It is a great effort. Timely uploading of course lectures was very good.
Possible for video mail? Should able to submit a video question and get video answers from professors.
Courses on nutrition in sports, relationship between physiology, biochemistry and nutrition.

Out of 298 responses, the ones related to the course are presented in the table 1. The feedback shows that the participants wanted the course to be for a longer duration, possibility for video chatting with the group and professors.

Table 2: Was there a particular aspect of the course that you liked best? (234 responses)

Nutrients and their roles. Diet in heart diseases and diabetes mellitus.
The contents covered under the Nutrition, Therapeutics and Health course was complete to give clear understanding of the subject. Presentation with well-constructed slide.
Study material was good. Nutrition and healthy foods. Though it is basic it covers 3 relevant areas of study.

I like RDA recommended by ICMR and different classification of food, but stage wise feeding schedule is not mentioned anywhere in the topic. Instructors were excellent in their way of delivering and teaching.
Nutrition Health and Therapeutics - the overall content of course was satisfactory, I really appreciate the extent of knowledge and ease of subject content delivered by Dr. Vijaya Lakshmi .
Yes, in nutrition and therapeutic course, I liked the way things were told one by one, all those vitamins, minerals along with the self-explanatory images making it look more acceptable and easy to understand.
Nutrition: Food Planning created an awareness about how to purchase food and save money. Planning of food for a week. This information was wonderful.
Therapeutic nutrition, because it deals with disease person's nutrition like diarrhea, liver disorders, heart problems, kidney problems. This course increased our knowledge and awareness about the nutritional values.

Out of 234 responses for liking of the best course (table 2), the present course showed that the participants liked the way the course was dealt with well-defined objectives. The way the course dealt with basics but well covered from the role of nutrients, meal planning, and rightly linked to diseases.

Table 3: What suggestions do you have for us to improve these courses (in its content, delivery, administration, or any other aspect)? (291 responses)

The course was good and very easy to understand with plenty of examples.
My suggestion regarding the improvement is that these courses need to be more detailed and the course duration needs to be increased. Professor Vijaya Lakshmi has taught us excellently. More advanced courses could be added.
No comments, simply super. The courses are very nicely planned and executed. It's already very good.
It will be better to include some more information on the foods or sources foods in detail which are easily available for meeting nutritional needs I.e., millets, leafy vegetables, and other rural traditional foods which are more nutritious and cheap. The course dealt more on basic aspects and medical related aspects. The need is applied aspects for majority of people in rural masses. Nutrition and health.

For the question on improvement of these courses (table 3) the ones pertaining to the course showed that the course was excellent, well planned and executed. These suggestions can be included in the future courses.

Table 4 : Was there a particular aspect of the course that you did NOT like? (490 responses)

I like this course very much. Every portion was good. Every topic is very interesting.
As this course targeted to educate rural youth, emphasis should be on how recommended nutritional values are obtained from locally available fruits, vegetables, pulses etc.
I must appreciate your work. Content was full of explored knowledge. The meal plan section could have been pruned a little.
There is no such thing that I didn't liked in this course. Really I had good experience throughout this course. so, thank you.

The participants felt that the course was complete by itself and gave good appreciation for the course.

Table 5: What are the other courses are you expecting from us in the future why? (253 responses)

Food microbiology. Nutrition during life cycle, food processing and value addition. As per your expertise.
Course on public health and disease. Comprehensive course on Diabetes and Thyroid diet.
1) Fruits and vegetables processing. 2) Mushroom culture technology. 3) Small scale industry and enterprises 4) Personality development and communication skills. Related to genetically modified food ideas.
Metabolism aspect of different kind of food and anti-nutritional aspect and feed formulation for different stages like infant, child, adolescent, adult, old age etc.
As per my recommendation following topics can be added by agMOOC to extend its subject area 1. Disease and

human nutrition 2. Principle of human health and nutrition 3. Application of balance diet in disease management 4. Scope of food management 5. Disease related to malnutrition and their management 6. Current aspects of international policies on dietary management 7. Food and drug interaction 8. Clinical aspects of diet in disease management 9. Balance diet and its role in psychological development 10. Dietary management of disease. Related to Home Science. Diet related to food groups. Food contamination - food chain.

The figure 4 shows that majority of the participants were in the age group of 25-34 years (40%) followed by the age group between 17-24 years (36.9%). About 12.9% were between 35-44 years. One of the participant was above 65 years. Therefore, most of the learning group was between 17-34 years. Males were 70%.

Figure 4: Age group of the participants

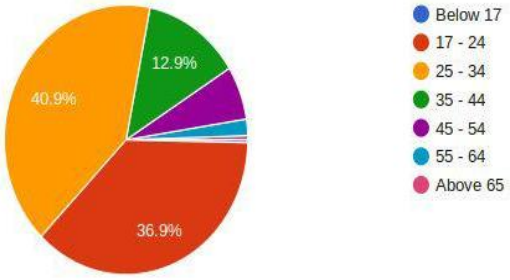
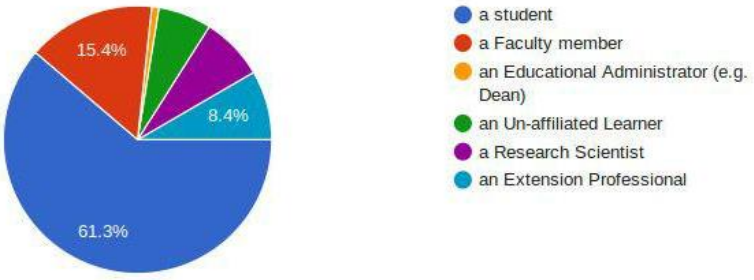
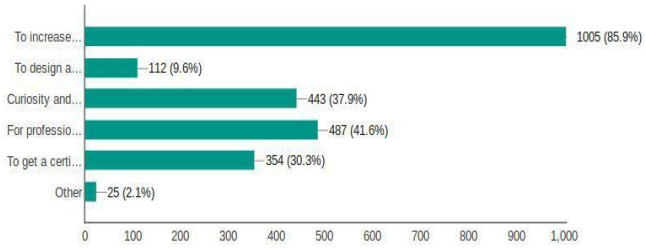


Figure 5: Occupation of the participants



Majority of the learners were students (61.3%) followed by 15.4% faculty members and the rest were either educational administrators, unaffiliated learners, research scientists or extension professionals (fig 5). A 2012 survey indicated that 41% of those studying online were working professionals, while 31% were undergraduates and graduates. Nearly 40% of respondents reported enrolling because of casual subject interest

Figure 6: Reasons for taking the course (1168 responses)



Reason you are taking this courses (1168 responses)

- To increase my knowledge and awareness
- To design a new course
- Curiosity and personal interest
- For professional development (contributing to my CV, for example)
- To get a certificate
- Others

Majority (85%) of the participants (1006) responded that they have registered the course to increase the knowledge and awareness, 112 participants (9.6%) said they would design a new course, 37.9% registered out of curiosity and personal interest as this was the first course from agMOOCS. Some (41.6%) said that this course would be useful for them for professional development. About 30% registered to get certificates (fig 6). Fig 7 shows that the course material was of good quality which was strongly agreed by 351 participants, 294 strongly agreed that the assignment was relevant and helped to acquire new skills. About 316 participants strongly agreed that the quizzes given were

relevant and helped to improve the knowledge and 202 said, the pace of the course was comfortable for learning. The participants were slightly wanted more number of quizzes and assignments.

Fig 7: Analysis on various aspects of the course

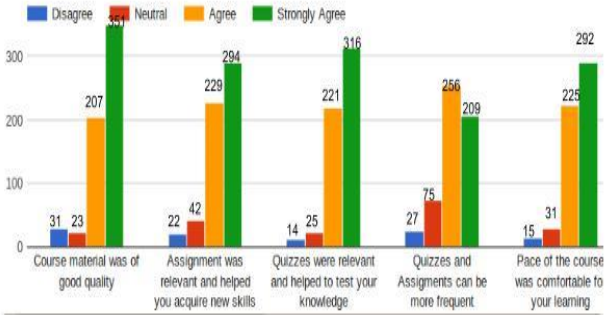
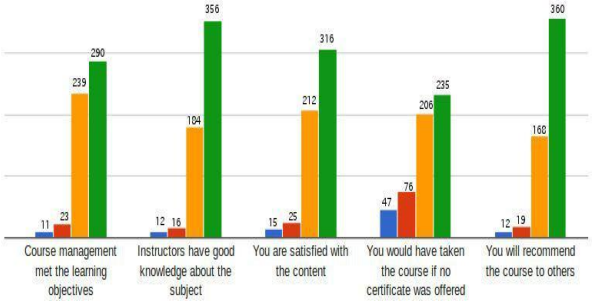


Figure 8: Participants' views about the course



A Harward study (2015) also reported that among the one-third of participants who responded to a survey about their intentions, 57 percent stated their desire to earn a certificate; nearly a quarter of those respondents went on to do so. These learners appear to have been inspired to finish a MOOC even after initially stating that they had no intention of doing so. Most of them strongly agreed that they would recommend the others also to take up the course (fig 8).

Initially when the opportunity was given to offer a MOOC course on Nutrition, slight hesitation was there as to whether the course would satisfy the learners because a vast subject had to be made into a capsule form and offer for a very short duration of 8 weeks. The topic on "Nutrition, Therapeutics and Health" was approved by the entire agMOOC team at IIT Kanpur. Developing this course itself was a great challenge since there is vast learning material, and the instructor had to keep in mind the entry level of most of the participants. It was designed in such a way that the course covered all important aspects but did not get too technical and over load the participants. Handling of a course where so many learners are involved was such a great experience. At the end of the course it was very interesting to note that men were more willing to use the online course medium to acquire new knowledge than women. Almost 30-40% of the participants received certificates with many of them getting distinction in the course. Overall the course delivery was very successful which gives confidence in offering many more such courses to reach a large population and specially those who do not get an opportunity. This venture could be possible only with the collaboration of IIT Kanpur, Commonwealth of Learning, Vancouver and NPTEL, Chennai.

Conclusion:

The introduction of MOOC courses in the field of agriculture is a great thought as the knowledge can reach out to large segments of farmers and farm women. This will enable them to carry out their activities more efficiently and confidently. They can be in touch with the scientists to clear their problems and find suitable solutions. As the course was in the first set of courses offered the registration into the course and feedback after the completion of course was encouraging. Many more courses can be planned and offered under the umbrella of agMOOCs.

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