

Implementation of MOOCs based eLearning Systems for Training and Capacity Building of Extension Functionaries – Experience at MANAGE

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ABSTRACT

The traditional class room learning has been limited to the extent of knowledge transfer within a small group in a closed area. The innovations in technologies and tools available today and the concept of eLearning in the form of MOOCs (Massive open online course) have extended the reach of learning beyond the class room to the entire world. MANAGE is a national level training institute, which aims at capacity building of officers working in the departments of agriculture, horticulture, animal husbandry, fisheries and also scientists working in SAUs, KVKs and ICAR institutions on various themes related to agricultural extension. Extension MOOCs is an initiative of MANAGE to expand the reach of class room learning to online eLearning courses. MANAGE has launched the Post Graduate Diploma in Agricultural Extension Management (PGDAEM MOOCs), Certified Farm Advisor (CFA MOOCs) and Certified Livestock Advisor (CLA MOOCs) on MOOCs platform. In this paper, the author attempts to focus on the implementation of MANAGE Extension MOOCs programs – PGDAEM MOOCs and CFA & CLA MOOCs using two different software platforms and how these are beneficial to the learning community. The paper also compares the progress of the two MOOCs programs as an internal study of MANAGE for further initiating the MOOCs for Extension personnel in the Country.

Keywords-- CFA, CLA, Extension MOOCs, MOODLE, MOOCs, mooKIT, PGDAEM MOOCs

about 1.20 lakh personnel, as per Suresh & Sajesh (NCAP, 2016). This workforce needs regular training and capacity building to serve farmers and farm labor effectively. Besides, there are an equal number of personnel in the private sector namely – Input Dealers, Agri-Clinic Agri-Business Centre (ACABC) entrepreneurs and personnel working with NGOs and Private Sector Agri-Business Companies who require regular updating of their knowledge on Agricultural Extension related issues.

The Public Sector Extension Training system consists of the National Institute of Agricultural Extension Management (MANAGE), Hyderabad, four Extension Education Institutes at the regional level and 29 State Level Management and Extension Training Institutes popularly known as SAMETIs. Krishi Vigyan Kendra (KVKs) of ICAR system and State Agricultural Universities (SAUs) also undertake training for Extension Functionaries through their Directorates of Extension. The combined capacity of all these institutions is not more than 15,000 persons every year. There is thus a strong need to upscale the Training and Capacity Building efforts for Extension Functionaries, using ICTs and Media. In this respect a number of eLearning platforms have emerged which facilitate capacity building online. On-Line eLearning systems are becoming popular with improved connectivity and learning systems Management Tools. E-Learning platforms are being used by various national and international institutions to reach a larger group of participants at different locations. Many of these also offer a personalised learning experience.

NEED AND IMPORTANCE

In order to develop excellence in capacity building of officers of agriculture and allied sector and to cover the large number of extension functionary, there is a need to shift training mode from traditional class room to online eLearning platforms. The study will focus on the various factors about online MOOCs software. This study examines the online MOOCs based eLearning software

1. mooKIT, developed by the IIT, Kanpur and

INTRODUCTION

Agriculture is the largest sector in India, providing livelihood to over 50% of the population. Most of rural India depends on Agriculture. As per 2011 census there are 118.9 million cultivators and 144.3 million Agricultural labor. To keep this workforce informed and trained on the latest Agronomic practices and government schemes and programs, the Public Extension system employs

2. MOODLE open source software for being used at MANAGE for MOOCs programmes and effectiveness of software.

This paper also studies the benefits of the MOOCs programme by officers in developing capacity building of extension functionaries working in the Agriculture and Allied sector departments.

OBJECTIVES

1. To study the two MOOCs platforms IIT, Kanpur mooKIT and MOODLE open source platform being used at MANAGE for MOOCs programmes PGDAEM and CFA & CLA.
2. To study the performance, utility and benefits of MOOCs programmes PGDAEM and CFA & CLA.

METHODOLOGY

The scope of the present study will be confined to MOOCs programmes PGDAEM and CFA & CLA organized by MANAGE.

Source of Data

To study the objectives of the research problem,

- 1) The software systems mooKIT and MOODLE software data has been studied using Internet content.
- 2) Sample data of students for the MOOCs programmers were available with MANAGE as secondary data has been used for the study.

Sample Size and Sampling Technique

The data of students is available for 2017-2019 of MOOCs programmes. Since number of registered candidates for each batch is limited number, 100% data has been used as sample.

CONCEPT OF MOOCs

The term MOOCs stands for Massive Open Online Courses, which aims to provide an online learning experience on a particular subject on a larger scale to the students, officials, and any other category of learners. The concept of MOOCs was derived at the University of Prince Edward Island by Dave Cornier and Bryan Alexander of the National Institute for Technology in Liberal Education, in the year 2008. MOOCs courses are available for any number of students using the Internet and web technology at their work or home, for 24/7 days online learning. The MOOCs concept allows to student to go through subject content at their own pace and time, and if required

retaking the same content several times, which enables the learner to understand the subject in-depth unlike in a traditional class room learning method.

The MOOCs courses offer an improved quality of pedagogy in online teaching method. The course subject can be distributed into various small units with a brief of 8-15 minutes video lecture and supported by the presentation and detailed material on the topic. The students can test their knowledge by attempting the quiz following each and every unit of the course. The system can test the students' knowledge and their understanding of the subject with the help of small quizzes, mid-term examination, assignment and final examination. The course material, tutorials, examinations can be provided in the local preferred language of the learner, to enable better understanding of the subject. Based on their performance in these examinations, student's results and certification can be generated online.

MANAGE Extension MOOCs

The National Institute of Agricultural Extension Management (MANAGE) trains around 4000 officers every years through its 120-140 training programs organized at its campus at Hyderabad and through off-campus programs. Additionally around 2000 Extension personnel register for our distance learning program PGDAEM. Thus the total outreach of MANAGE is limited to around 6000 extension personnel per year.

MANAGE initiated eLearning through Massive Open Online Course (MOOC) to address challenges of agricultural extension in a rapidly growing and diverse agriculture sector. It is required to transform the existing extension system manpower by imparting professional training and guidance for effective management of extension activities. Considering this need, MANAGE launched Massive Open Online Courses called MANAGE Extension MOOCs.

On-Line eLearning systems are becoming popular with improved connectivity and Learning Management System Tools. MOOCs are one such initiative. MOOCs can reach out to all connected on Internet with great ease. The learner can access Text, Audio, Video, Animation, Cases and all learning material in a well-managed system. Even the Quizzes and Examinations can be handled on-line. MOOCs truly are a disruptive technology in the educational arena, which can take the learning direct-to-the-client, in a 2-way interactive system. The learner can submit his/her assignments on-line,

can take exams on-line and can interact with Teacher/ Trainer on e-mail/ chat or Skype.

Extension MOOCs in an online eLearning portal to train the extension functionary of agriculture and allied sector officials on current and latest themes of agriculture and allied sector domain to enrich the knowledge of the officers. The content designed with high quality and delivered as video lecture by renowned faculty from various institutes across the country. The intent is to reach out to a large number of learners through these MOOCs thus enabling them to access higher agricultural education. IIT – Kanpur customized MOOCs software, built on open source software for hosting the MANAGE courses online.

MANAGE started with hosting the distance learning program PG Diploma in Agricultural Extension Management (PGDAEM) on MOOC (Massive Open Online Course) platform. The MOOCs software mooKIT of IIT, Kanpur was used to integrate the content of the PGDAEM course. This course was ready for registration on MOOCs platform with effect from January 1, 2017. The second course is a 12 weeks

short duration course, Certified Farm Advisor (CFA) and Certified Livestock Advisor (CLA), to develop agricultural extension personnel into specialists on a specific crop / livestock. The CFA and CLA online MOOCs program was started from June 12, 2017 onwards. The following paragraphs detail the two MOOCs programs PGDAEM MOOCs and CLA & CFA MOOCs.

MOOCS SOFTWARE MooKIT software

MooKIT is web-based online software, developed for online courses, which was built on open source technologies. The mooKIT software is flexible and can be easily deployed to any platform and is scalable. The state of art architecture is used to develop the software to utilize the client side computing power to the maximum extent to minimize the load on the server. The analytics module is also built into the software as a service and communicates with all courses running on mooKIT platform. The instructor can interact with the Analytics module for performance and progress of the learners. The mooKIT platform supports up to 20 courses to run at a time.

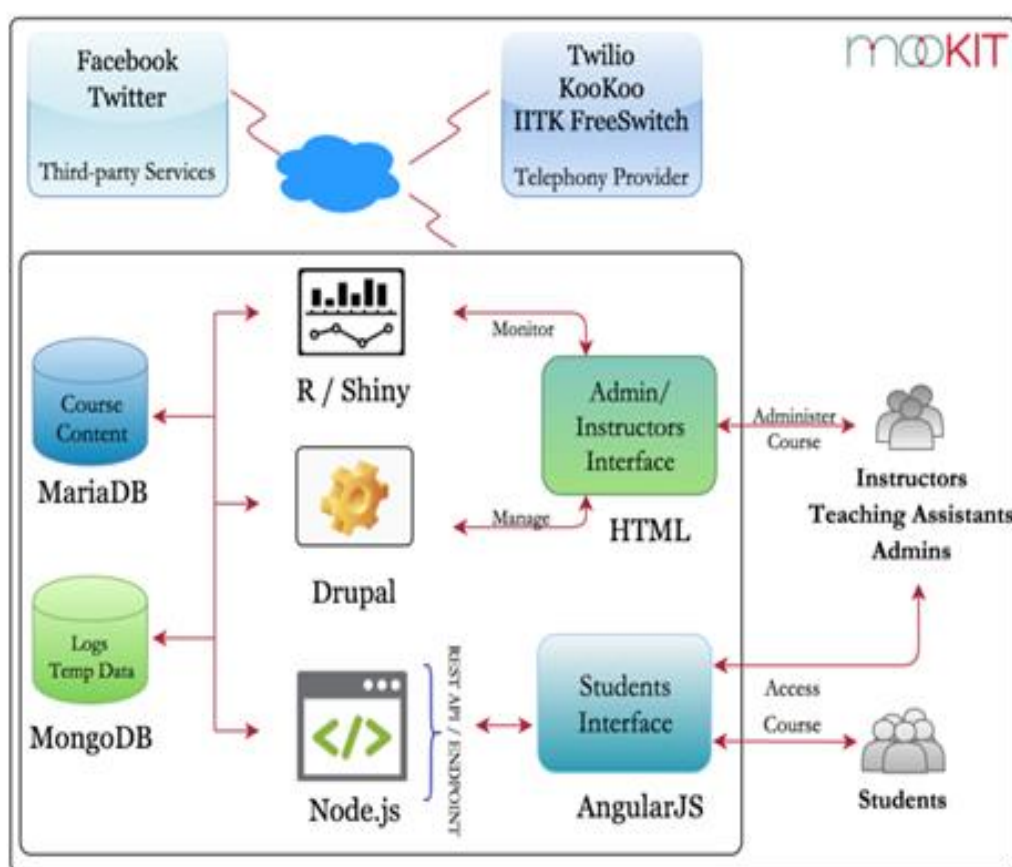


Figure 1: mooKIT Architecture.

Salient Features of mooKIT Platform

- User friendly format and simple registration process. The registered users have access to all courses offered on mooKIT.
- Registered learners can access contents in Video, Audio and PDF formats of all the courses on the platform
- Supports all types of devices to access the course content i.e. computers and mobiles.
- Bandwidth optimization is available on mooKIT and it has a feature where the slides and the audio are stored separately on the server, which enables the audio streaming even at low bandwidth connectivity. There is semi-offline availability of content.
- Mechanism of monitoring attendance of learners. The tutor can see the analytics module for their performance and monitor learning track of students.
- Announcement section provides latest information about the course/s. Resources provides static as well as dynamic resources available on the course offered.
- Forum provides a place to put learners' views and get answers to their doubts. Hangout provides an opportunity to chat with fellow learners.

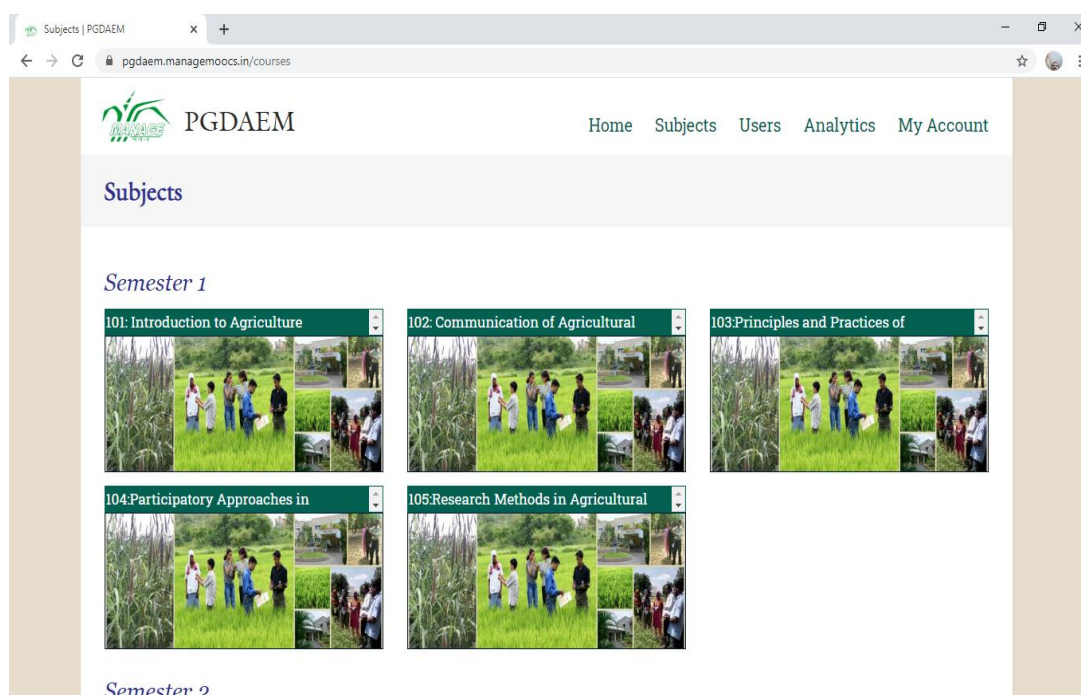


Figure 2: PGDAEM MOOCs website.

MOODLE Software

Modular Object Oriented Dynamic Learning Environment (MOODLE) software is an integrated software for hosting and operating eLearning courses online. The Moodle software was developed in the year 2001 by Martin Dougiamas, Founder and Lead Developer and since then it has seen various versions of MOODLE software. The MOODLE is released under an open source license package for free to use by any one with the continuous support of team MOODLE community forums and tools. It has a number of features to host MOOC courses and administer the course content, learners and examinations etc. As an open source learning platform, the MOODLE software has been improving every day through the efforts of the contributing team of the community and users

feedback. MOODLE software can be downloaded from <https://moodle.org>, installed on a server, course content and learner details can be integrated and courses run for any number of users online.

Features of the MOODLE Software

- Moodle is a free open source, Online Learning Management System for running online MOOCs courses on organizational websites
- Modern easy to user interface on desktops and mobile devices, Personalized dashboard for the learners to go through current and past courses
- Supports collaborative tools and activities for the learners, all in one calendar, convenient file management, simple text editor

integration, notifications and tracking progress for the learners.

- For course administration, it has very good features such as – customizable site design and layout, secure authentication for users, mass

enrolment, multilingual capability, bulk course creation and its backup facility, manage user roles and permissions, interoperability, simple plug-in management and detailed reporting with logs for administering the courses by the organization.

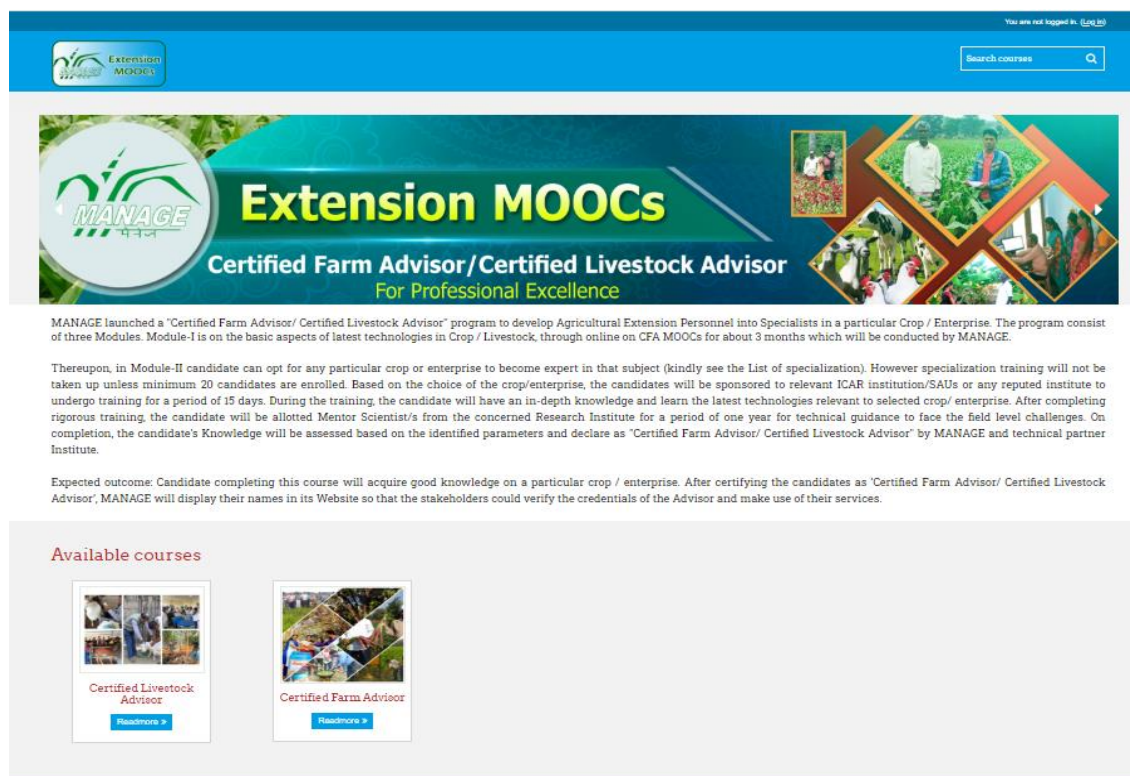


Figure 3: Extension MOOCs.

PGDAEM MOOCs

In agriculture sectors, farmers need latest technologies for performing the day-to-day activities in the field. The knowledge on new technologies is essential in farming to make agriculture sector into a profitable sector. The other side, the knowledge gap in the extension functionary is widening because of their engagement in departmental welfare activities and schemes run by the state and central governments. The knowledge of extension functionary needs to be enhanced regularly.

To bridge the knowledge gap in the extension system, MANAGE launched a Post Graduate Diploma Programme in Agricultural Extension Management (PGDAEM) in the year 2007. The main aim is to create a professional cadre of agricultural advisors in the country to make agricultural extension more effective. In the year 2017, MANAGE launched online PGDAEM MOOCs program as part of Extension MOOCs

initiative, to transform the extension /development functionaries and others into a vibrant and useful knowledge force to bring about the desired changes in agriculture and allied sectors, using the latest ICT tools and techniques for online eLearning.

Online learning is providing a massive opportunity to MANAGE, to improve and augment the outreach of our Educational Programs. MANAGE was taken the support of the Indian Institute of Technology (IIT) Kanpur to customize MANAGE-MOOCs Software using Open Source Technologies in the form of mooKIT software. MANAGE faculty prepared the course content in the form of the Text, Videos, PowerPoint Presentations and Quizzes for PGDAEM MOOCs program. PGDAEM-on-MOOCs course was launched on May 1, 2017.

PGDAEM MOOCs Data Analysis

The study used the limited data available with the programme center, software and email

feedback received from the learners. The following data analysis brings together the statistics of learners registration year-wise, gender-wise participation, category wise registrations and their academic background and the performance of learners in the PGDAEM MOOCs programme.

Registration

The PGDAEM MOOCs program received a good response from the learners from across the

country. A few officials from countries like Afghanistan, Africa also registered for the program. As may be seen in Table 1, a total of 171 students registered for the year 2017-18 (3 from other countries) and 217 students registered during the year 2018-19 (57 from Afghanistan and African officials). The details of registration of students shows 26.9% increase in 2018-19.

Table 1: Registered students in PGDAEM MOOCs.

S. No	Year	Registered	% of Increase to previous year
1.	2017-18	171 (03)	--
2.	2018-19	217 (57)	26.9%
	Total	388 (60)	

* Figures shown in brackets indicates foreign nationals

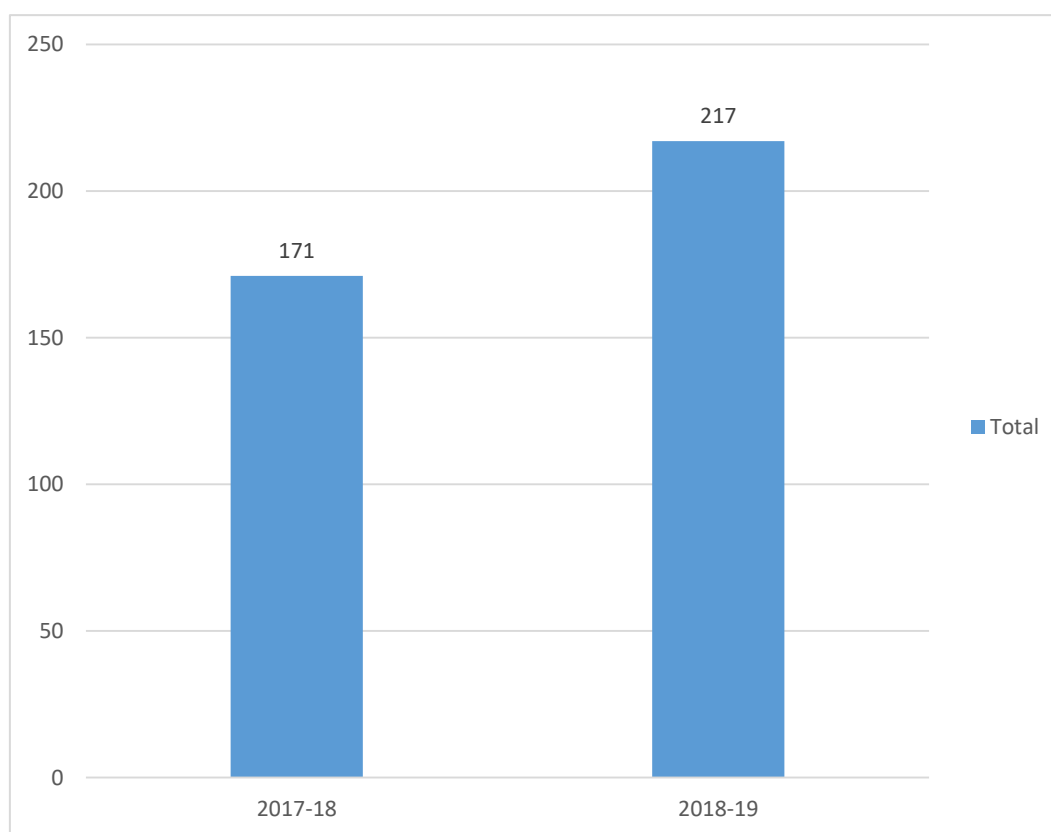


Figure 4: Registered students Year-wise in PGDAEM MOOCs.

Gender-wise Distribution

A total of 309 (29.6%) male students and 79 (20.4%) female students were registered for 2018-18 and 1018-19 respectively. There is an

increase in the share of female students in the year 2018-19 from 15.8% to 25%. The details of year-wise gender-wise distribution of students in PGDAEM MOOCs programmes is shown in the following table and graph.

Table 2: Year-wise Gender-wise distribution of students in PGDAEM MOOCs.

S. No	Year	Male	Female	Total
1.	2017-18	144 (84.2%)	27 (15.8%)	171
2.	2018-19	165 (76.0%)	52 (24.0%)	217
	Total	309 (79.6%)	79 (20.4%)	388

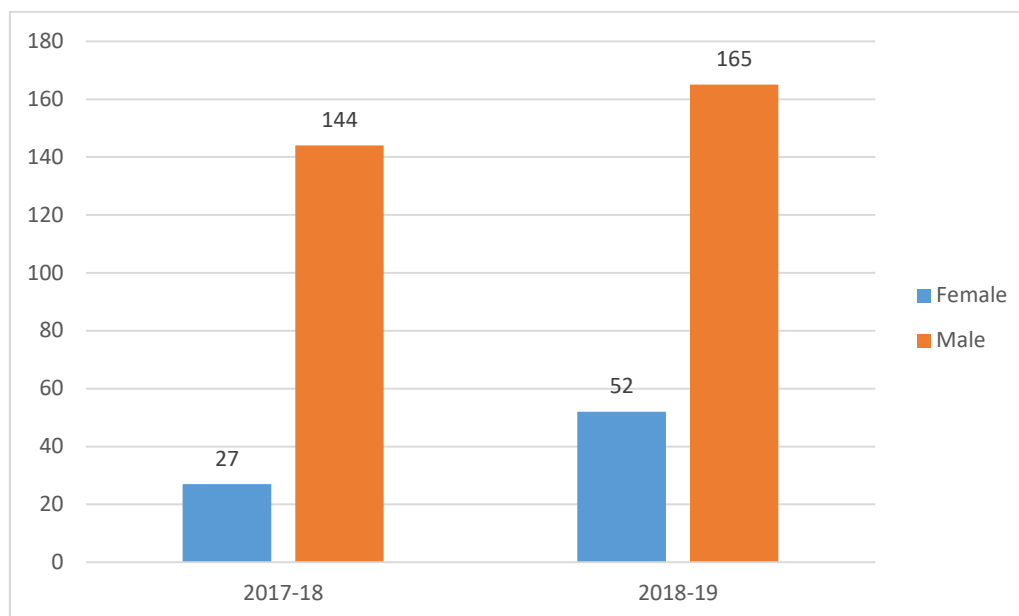


Figure 5: Gender wise distribution of students –PGDAEM MOOCs.

Category-wise Distribution of Students

The PGDAEM MOOCs course has a good distribution of different categories of students such as General, OBC, SC and ST. There was General-166, OBC-123, SC-26 ST-13. About 60 students

were registered from foreign countries for the PGDAEM MOOCs programme. The details of category-wise distribution are shown in the following table and graph.

Table 3: Category wise distribution of students in PGDAEM MOOCs.

S. No	Category	No. of students	% of students
1.	General	166	42.8
2.	OBC	123	31.7
3.	SC	26	6.7
4.	ST	13	3.4
5.	Others	60	15.5
	Total	388	100%

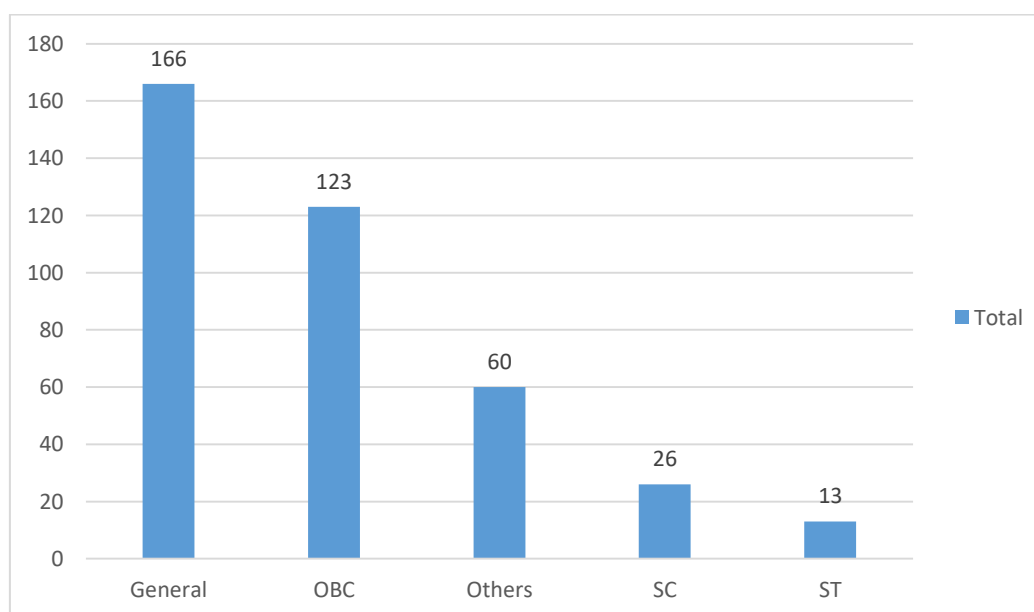


Figure 6: Category wise distribution of students in PGDAEM MOOCs.

Educational Qualifications

The registered students included graduates, post graduates and those with Ph.D.

There are a good number of graduates – 187 (48.2%), post graduates – 148 (38.1%) and Ph.Ds - 53 (13.7%) registered for the PGDAEM MOOCs programme as may be seen in Table 4.

Table 4: Educational Qualifications of students in PGDAEM MOOCs.

S. No	Degree	No. of students	% of students
1.	Graduate	187	48.2
2.	Post Graduate	148	38.1
3.	Ph.D	53	13.7
	Total	388	100%

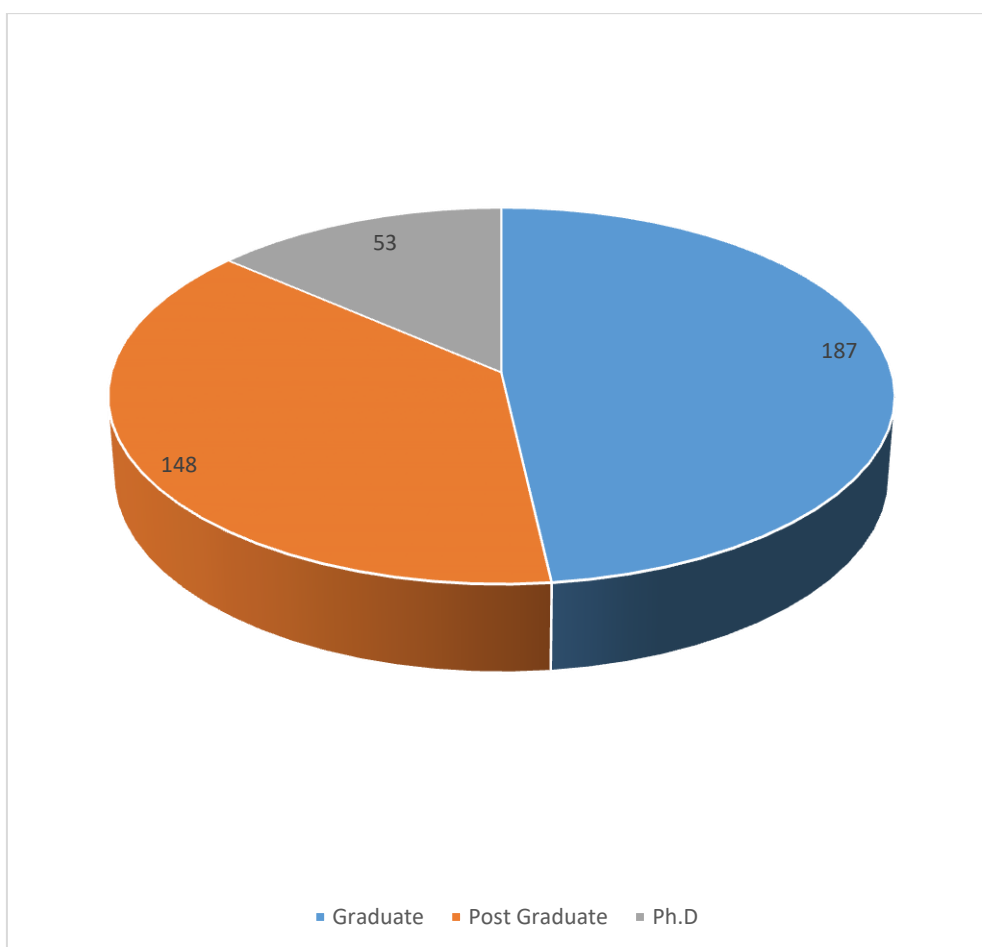


Figure 7: Educational Qualifications of students in PGDAEM MOOCs.

Employment Status

In PGDAEM MOOCs programs, 168 (43.3%) students are from the Government sector, 87 (22.4%) from the Private Sector, 34 (8.8%) from

Non-Government sector and 99 (25.5%) belong to other sectors. The maximum number of students are from Government sector. The distribution of students under different categories of employment in PGDAEM MOOCs programme is given below.

Table 5: Sector wise distribution of students in PGDAEM MOOCs.

S. No	Sector	No. of students	% of students
1.	Government	168	43.3
2.	Private	87	22.4
3.	Non-Government	34	8.8
4.	Others	99	25.5
	Total	388	100%

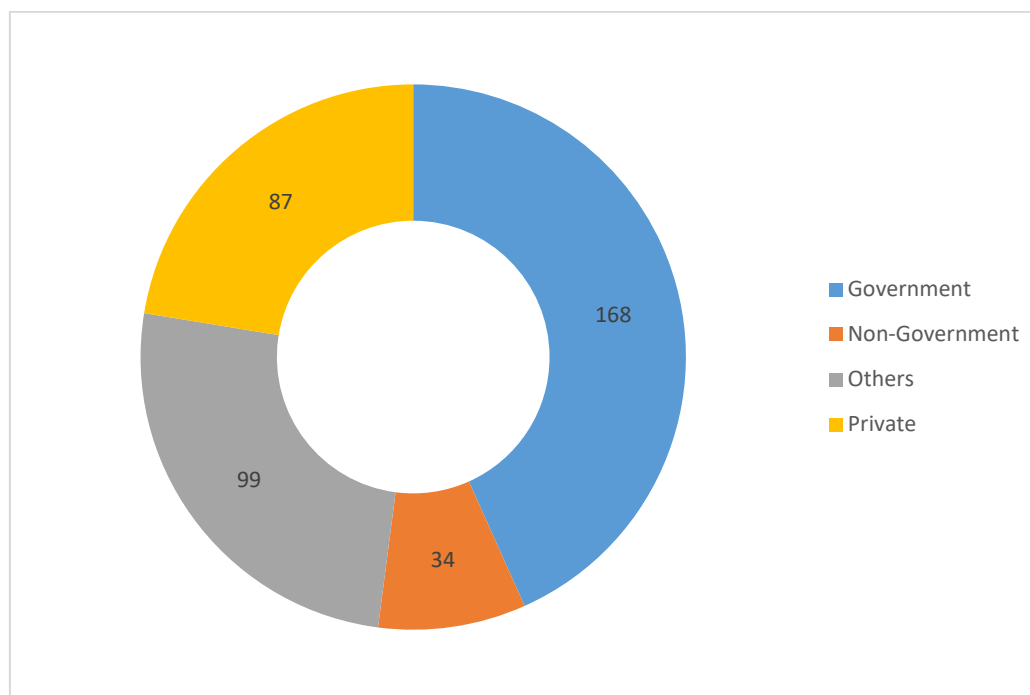


Figure 8: Sector wise distribution of students - PGDAEM MOOCs.

Examination Results

In PGDAEM MOOCs about 50.3% (195) of the students qualified by attending all the examinations conducted, assignments etc and

scored pass marks. The year-wise distribution shows that 62% in 2017-18 and 41 % in 2018-19 qualified. The details of the students who registered and those who qualified is shown in following table and graph.

Table 6: Students Registered Vs Qualified in PGDAEM MOOCs.

S. No	Year	Registered	Qualified	% of Pass
1.	2017-18	171	106	62.0
2.	2018-19	217	89	41.0
	Total	388	195	50.3

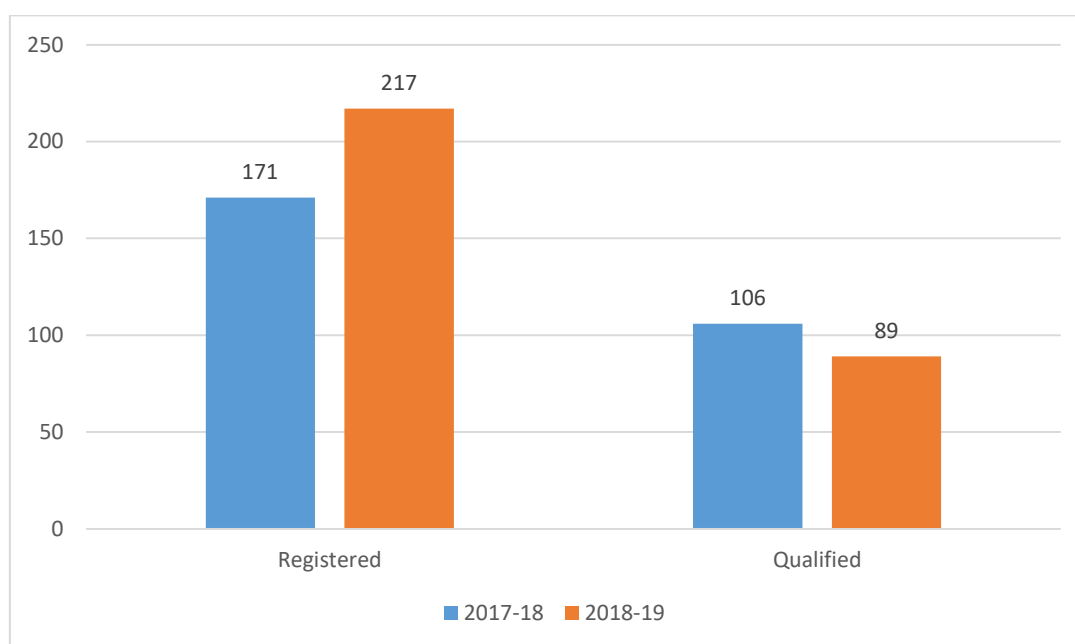


Figure 9: Students Registered vs Qualified - PGDAEM MOOCs.

CERTIFIED FARM ADVISOR (CFA) AND CERTIFIED LIVESTOCK ADVISOR (CLA) MOOCS

MANAGE also started Certified Farm Advisor (CFA) and Certified Livestock Advisor (CLA) Courses on MOOCs platform from June 12, 2017 onwards, to develop agricultural extension personnel into specialists on a specific crop / livestock. CFA/CLA MOOCs are short term duration courses of 12 weeks, as part of the certification programme. The actual certification program duration is one year. The course is having rich content in the form of Videos, course material (pdfs) and presentations and a practice quiz for each chapter. The learner can go through the course modules and attempt quizzes at the end of each unit. There are two online tests conducted to test the knowledge of the learner. The learner has to obtain the qualifying marks in the tests to proceed to module 2 and module 3 which are off line, in order to complete the certification on CFA / CLA. The learner completing this course will acquire good knowledge on a particular crop / enterprise. The certified learners' names will be displayed on MANAGE website so that the stakeholders could verify the credentials of the Advisors.

Extension Officers or Agripreneurs having B.Sc (Ag) or Graduation in allied sector, up to an age of 55 years, are eligible for enrolment into the CFA/CLA programme. For Government servants the registration fee is Rs.5000/- and for private candidates and Agripreneurs the fee is Rs.15000/- for enrolling into the program.

MANAGE team customized the open source software called MOODLE (Modular Object Oriented Dynamic Learning Environment) to suit the needs of hosting and administering the CFA/CLA programs. The software was hosted on

MANAGE server <http://cfa.manage.gov.in>. The students' details were integrated, course content was designed, developed by MANAGE and the expert team and was integrated on the CFA MOOCs platform. The details of CFA MOOCs software MOODLE is given in the following paragraphs.

CFA and CLA Data Analysis

The study used the limited data available with the program center, software and email feedback received from the learners. Data analysis was done to bring the statistics of learners' registration year-wise, gender-wise participation, their academic background and the performance of learners in the CFA & CLA MOOCs programs. The following paragraphs present an analysis of the data.

Registrations

The students' registration started in the year 2017 for batch 1 for both Certified Farm Advisor and Certified Livestock Advisor programs. In the first year 2017-18, 80 students were registered for CFA and 42 students for CLA. In the second year 2018-19, 124 students were registered for CFA and 36 for CLA. This shows that there is 55% of increase for CFA registrations. However, there were less registrations for CLA programme. During 2019-20, 169 students registered in CFA and 59 registered for CLA program, which shows 36.3% and 63.9% increase in registrations. The overall increase in students' registrations for both CFA and CLA is 31.1% and 41.9% for the years 2018-19 and 2019-20. The analysis shows that there is positive increase in registration to the CFA and CLA program year after year. The details of year-wise registration for both CFA and CLA MOOCs program is given below.

Table 7: CFA & CLA MOOCs - Year-wise Registered Students.

S. No	Year	CFA		CLA		Total	
		Registered	% of Increase	Registered	% of Increase	Registered	% of Increase
1.	2017-18	80	-	42	-	122	
2.	2018-19	124	55%	36	-14.30%	160	31.10%
3.	2019-20	169	36.30%	59	63.90%	228	41.90%
	Total	373		137		510	

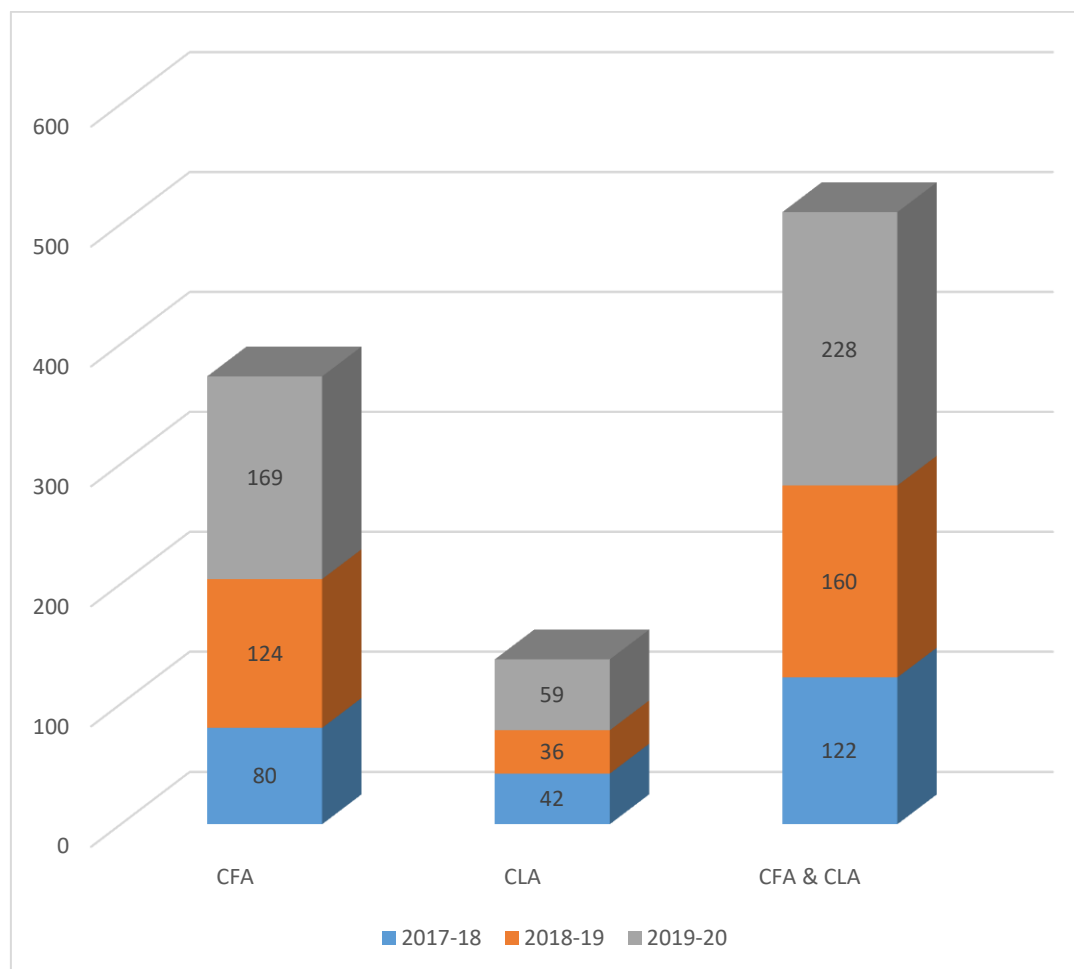


Figure 10: CFA & CLA MOOCs: Year-wise students Registrations.

Gender-wise Distribution

A total of 378 (74.1%) male students and 132 (25.1%) female students were registered for all three years 2017-18, 2018-19 and 2019-20 years respectively. There is an increase in the share of

female students in the year 2018-19 and 2019-20 from 15.6% to 25% and 32%. The details of year-wise gender-wise distribution of students in CFA & CLA MOOCs programs is seen in the following table and graph.

Table 8: CFA & CLA MOOCs - Year-wise Gender-wise distribution.

S.No	Year	Male	Female	Total
1.	2017-18	103 (84.4%)	19 (15.6%)	122
2.	2018-19	120 (75.0%)	40 (25.0%)	160
3.	2019-20	155 (68.0%)	73 (32.0%)	228
	Total	378 (74.1%)	132 (25.9%)	510

Educational Qualifications

The registered students were include graduates, post-graduates and those with Ph.D. A

good number of graduates – 244 (47.8%), post graduates – 245 (44.1%) and Ph.Ds - 41 (08.1%) were registered in the PGDAEM MOOCs programme as may be seen in Table 9.

Table 9: CFA & CLA MOOCs – Educational Qualifications of students.

S.No	Degree	No. of students	% of students
1.	Graduate	244	47.8
2.	Post Graduate	245	44.1
3.	Ph.D	41	08.1
	Total	510	100%

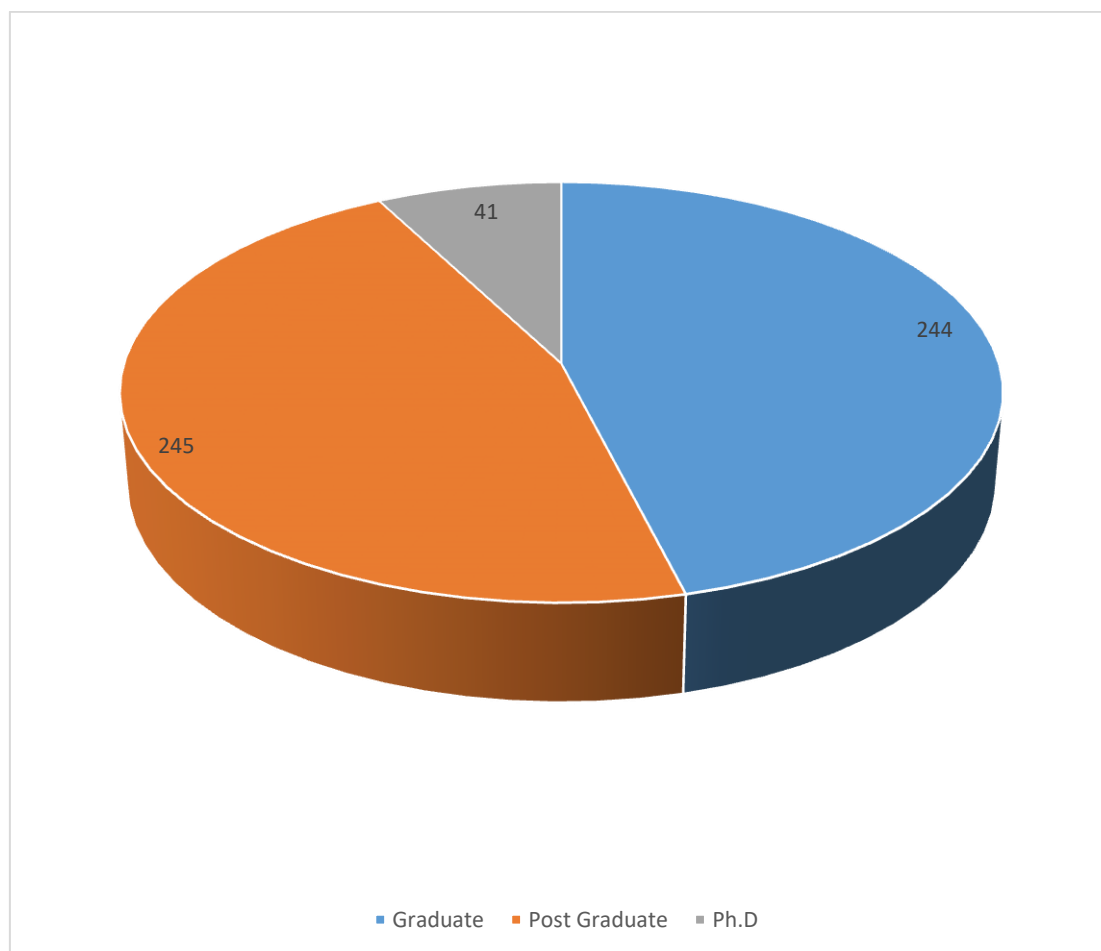


Figure 11: CFA & CLA: Educational Qualifications of students.

Employment Status

In CFA and CLA programs, 498 (97.6%) students are from the Government sector, and only 12 (2.4%) are from Non-Government sector. The

students for this program are majorly drawn from the Government sector. The distribution of students from different sectors in CFA and CLA MOOCs program is given below;

Table 10: CFA & CLA MOOCs - Sector wise distribution of students.

S. No	Sector	No. of students	% of students
1.	Government	498	97.6
2.	Non-Government	12	2.4
	Total	510	100%

Examination Results

The details of the students qualifying in CFA and CLA programs are analysed and presented in the following table and graph. The

overall qualified percentage for the CFA and CLA programs are 89.5% and 97.8% respectively. This indicates that the students are very interested to take up the programs.

Table 11: CFA and CLA - Students Registered Vs Qualified.

S. No	Year	CFA			CLA		
		Registered	Qualified	% of Pass	Registered	Qualified	% of Pass
1.	2017-18	80	68	85.0%	42	42	100.0%
2.	2018-19	124	116	93.5%	36	36	100.0%
3.	2019-20	169	150	88.8%	59	56	94.9%
	Total	373	334	89.5%	137	134	97.8%

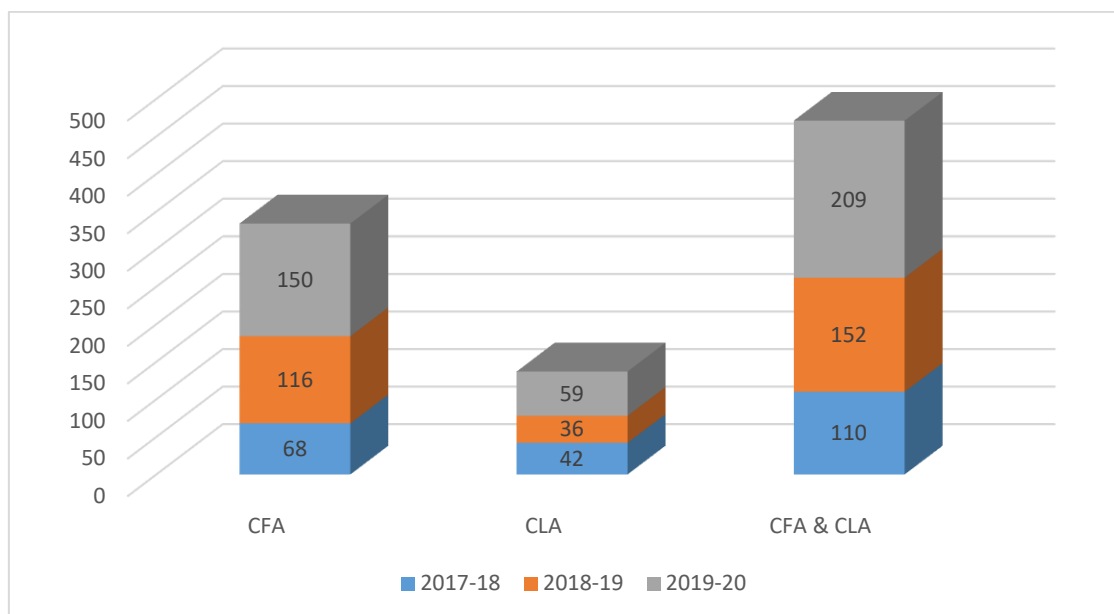


Figure 12: CFA & CLA MOOCs: Year-wise students Qualified.

COMPARISON OF BOTH PGDAEM AND CFA/CLA MOOCs IMPLEMENTATION

As an initiative of Extension MOOCs programs, MANAGE launched PGDAEM MOOCs as a one year P.G. Diploma programme and CFA & CLA as short term 3 months eLearning modules. Both the programs aim to develop the capacity of functionaries working in agriculture and allied sectors. Both programs have successfully completed two years and showcase the success of eLearning approach adopted by the extension functionaries. The registration of learners shows a gradual increase in the registration of officers that reveals the willingness of learners for eLearning programs.

The technology being used for implementing Extension MOOCs are i) moodKIT software, which was tested by IIT, Kanpur. The same moodKIT software has been used for hosting and managing their own programmes by IIT, Kanpur. A simplified version, optimized bandwidth for MOOCs content delivery, student-teacher and student-student interaction tools are very good. Moreover, this platform was used for running the 1 year diploma programme of PGDAEM MOOCs, which focused not only on national participation but also on international participation from agriculture and allied sector departments. (ii) MOODLE software was used for running CFA & CLA, which are short term courses of 12 weeks duration. The software was customized by the IT team at MANAGE to host the content and for administration and delivery of CFA & CLA program. Working with MOODLE software has also given us the experience to host

any number of MOOCs programs of short duration and administer the students' registration, content delivery, examination etc.

Both Extension MOOCs programmes PGDAEM and CFA/CLA are very good initiatives of MANAGE towards achieving the delivery of training programmes on eLearning platforms. The performance of both MOOCs software are very good. The software are capable of hosting and administering any number eLearning training modules planned by MANAGE.

CHALLENGES

The objective of Extension MOOCs initiative is to bring the larger participation of departmental functionaries in building their capabilities in agricultural themes. The learner can be anywhere and there is no limitation of time i.e anytime learning is possible with the help of increasing Information and Communication Technologies (ICTs) across the country. The Government of India is establishing and strengthening Internet connectivity and availability of good bandwidth up to village level. The private telecom sector is also establishing good connectivity with Fiber backbone with high speed data transfer. However, there are challenges in implementing online eLearning MOOCs platform in the country. The major challenges are; (1) The programs should attract learners who were basically accustomed to the traditional learning system. (2) The Internet connectivity issues still exist and we do not have uniform band-width connectivity to study the MOOCs courses online. (3) Content development is the key to success of

the MOOCs programs. The content should be very simple, preferably in the local language in the form of videos, text etc. (4) The busy schedule and non-

availability of time of the officers in the department.

Gopal Shil, a participant of PGDAEM MOOCs writes about how the course benefitted him personally as well as in his career.

The course is very effective and it will definitely create an impact in our profession related to farmers. Accessibility of the course is very good and also attempting quizzes, uploading assignments and examination is very easy. The study material is well supported by high quality of lectures by the experts. The discussion/chat enables interaction with fellow officers on the subject.

He also suggested that MANAGE may start many more courses related to Agriculture and allied sectors on MOOCs platform. He also mentioned that due to Internet connectivity, sometimes they are not able to access the course content.

FEEDBACK OF LEARNERS

The feedback received from various learners reveals that they are very positive towards online MOOCs programs. Some of the feedback from learners:

- ❖ PGDAEM-MOOCs course is useful for knowledge up-gradation and very effective, it has impact on field professions related to farmers.
- ❖ Study material and lectures on MOOCs programs are easy to access.
- ❖ The video lectures are quite good with high quality of delivery by domain experts from across the country.
- ❖ Easy quizzes for cross checking the knowledge on the subject
- ❖ Easy to upload the assignments
- ❖ Finally the online exams are much more easy and at a convenient place and time.
- ❖ The availability of the discussion forum/chat helps to interact with fellow learners on the subject modules.
- ❖ It has helped in supporting increment of salary.
- ❖ PGDAEM-MOOCs brings us 1 Mark in the score card for recruitment to Assistant Professor.
- ❖ Internet connectivity is a major issue in accessing MOOCs content sometimes in the rural areas.
- ❖ Expansion of the courses related to Agriculture and Allied Sector on MOOCs platform may be helpful to the students.

CONCLUSIONS

The game changer in capacity building of extension functionaries is the eLearning MOOCs platform for building their capacities on a mass

scale. MANAGE Extension MOOCs whether PGDAEM or CFA & CLA MOOCs programs are initiatives towards building capacities of extension functionaries of agriculture and allied sectors working across the Government departments in the country. The two MOOCs programs have proven the concept of eLearning in the agriculture sector. These programs are just a beginning to showcase the successful implementation of Extension MOOCs programs in the agriculture and allied sector. These could be extended to more and more varied themes in tune with the latest trends and requirements of the department functionaries. It is a long way to go and build such programmes to strengthen the extension functionaries to meet the challenges of agriculture and allied sectors in the country.

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