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Ashim Debnath
Department of Genetics and Plant Breeding, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, Uttar Pradesh, India

Pradeep Kumar Singh
Department of Genetics and Plant Breeding, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, Uttar Pradesh, India

RDS Yadav
Department of Genetics and Plant Breeding, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, Uttar Pradesh, India

Vinod Singh
Department of Genetics and Plant Breeding, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, Uttar Pradesh, India

Shiva Nath
Department of Genetics and Plant Breeding, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, Uttar Pradesh, India

Om Prakash Verma
Department of Genetics and Plant Breeding, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, Uttar Pradesh, India

RM Tripathi
Department of Genetics and Plant Breeding, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, Uttar Pradesh, India

MP Chauhan
Department of Genetics and Plant Breeding, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, Uttar Pradesh, India

University teaching during Covid-19 pandemic

Ashim Debnath, Pradeep Kumar Singh, RDS Yadav, Vinod Singh, Shiva Nath, Om Prakash Verma, RM Tripathi and MP Chauhan

Abstract
The educational system from primary to university level has been collapsed during the lockdown period of the novel coronavirus disease 2019 (COVID-19) not only in India but across the globe. This study is a depiction of online teaching-learning modes adopted by the Acharya Narendra Deva University of Agriculture & Technology (A.N.D.U.A.T) for the teaching-learning process and two semester examinations. It anticipates a tremendous opportunity for further academic decision-making during such adverse condition. The conscious purpose of this paper seeks to address the importance of online teaching-learning in education during the COVID-19 pandemic and how can existing resources of educational institutions effectively convert formal education into online education with the help of open access online tools (Google Meet, Google form, Canvas) and virtual classes (Google Classroom). The paper employs the different approach to use the open access tools, describes their functions and also highlighted their implementation process during online teaching-learning mode and conducting examinations. The worth of this paper is to draw a complete picture of ongoing online teaching-learning activities which will mitigate the loss of education system amid the COVID-19 outbreak.

Keywords: Covid-19, Online teaching-learning mode, open access tools, Google classroom, Google meet, Google form, education system

Introduction
A novel coronavirus virus (2019-nCov) was emerged in China during the month of December 2019 which attained a very high-risk category by World Health Organization (WHO) (World Health Organization, 2020) [8]. This virus was named the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) by the International Committee on Taxonomy of Viruses (ICTV), and the disease referred to as Coronavirus Disease-19 (COVID-19) (Remuzzi & Remuzzi, 2020) [5]. The world is battling against COVID-19. Across the world, beyond China, with the spread of COVID-19 as of March 13, 61 countries in Africa, Asia, Europe, the Middle East, North America, and South America have announced or implemented school and university closures and most of universities have enforced localized closures (UNESCO, 2020) [7]. India has the second-largest education system in the world after China (Cheney *et al*., 2005) [2] which is also set back due to the COVID19 being at a rise. During this critical situation it becomes challenging to mitigate the loss of educational system and keep the education continuous. In this concern, authority of Acharya Narendra Deva University of Agriculture & Technology (A.N.D.U.A.T), Kumarganj, Ayodhya, has taken intensive measures to prevent and protect its students and staff members from the highly infectious disease. To keep the quality education continuous, university has shifted from physical offline classroom to online teaching learning mode which comprises of different open access tools. Studies have been conducted where it appears that different institutions have been adopting and doing well with this new learning environment since few years back (Oblinger and Kidwell, 2000) [4]. Learning online has a lot of advantages over traditional classroom learning. Online learning saves time with easy and quick access to a wide source of authentic information; it also saves time for traveling. Students can study from anywhere and at any time with a few exceptions. (Carnevale, 2000; Dutton *et al.*, 2002; Lall and Singh 2020) [1, 3, 6]. As the online teaching-learning process has become more prevalent in India due to COVID 19 pandemic, it becomes particularly important to know its growth and to know whether it's actually helping the students to achieve their respective goals. In the present study we have elaborated the functions of different open access online tools and management of two semester classes and examination by using those tools.

Methodologies
Initially in our college of Agriculture, A.N.D.U.A.T, Kumarganj for 2nd semester of 2019-20, midterm examination was scheduled on 16th march 2020 but it was postponed to 22nd march

Corresponding Author:
Ashim Debnath
Department of Genetics and Plant Breeding, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, Uttar Pradesh, India

following the state government order as precautionary steps against covid-19. Further examination was postponed till 2nd April and students were informed to vacant their hostel rooms and go home safely. Then there was "Janta Curfew" on 22nd march for 14 hours and subsequently a nationwide lockdown for 21 days from 25th march to 14th April 2020 which was called phase 1 lockdown. A phase 2 and phase 3 lockdown has been declared from 14th April to 3rd may and 4th may to 17th may 2020 respectively. So, in this critical situation in order to mitigate the adverse impact of COVID-19 on our University education system efforts were directed to develop open and flexible e-learning platforms for uninterrupted learning in a short period of time. Faculty members are already in the process of transitioning to online teaching platforms. As a faculty of the department of genetics and plant breeding, we were instructed in a regular manner to teach and motivate our students in online classes (initially through ZOOM application) and also to provide all necessary study materials. There are different online modes of teaching as suggested by UGC for example 1) Google classroom 2) Google Hangout 3) Google Meet 4) Cisco Webex Meeting 5) You Tube Streaming 6) OERs etc. But after considering the internet speed and simplicity of the mood, we have chosen "Google Classroom" and Google Meet as our online teaching mode. First of all, we have made different "WhatsApp" group batch wise to connect with all the students staying different parts of the state and then they were instructed to join Google Classroom by using the provided classroom code (Fig.1).
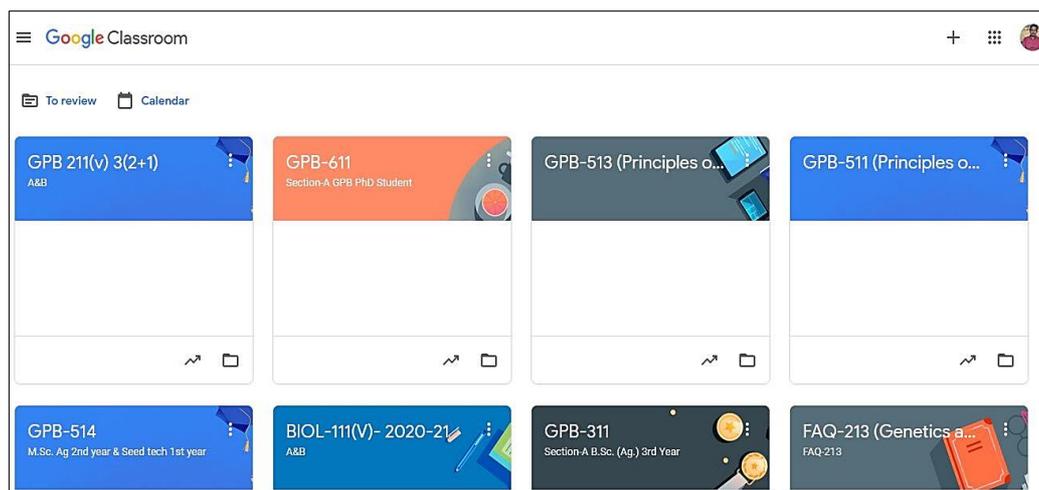
Fig 1: Representative Screenshot showing different virtual classes in Google Classroom application (1st semester of 2020-21)

Study materials were distributed among the registered students of Google Classroom for respective courses and video lectures were conducted in Google Meet (few classes through ZOOM app) (Fig.2).
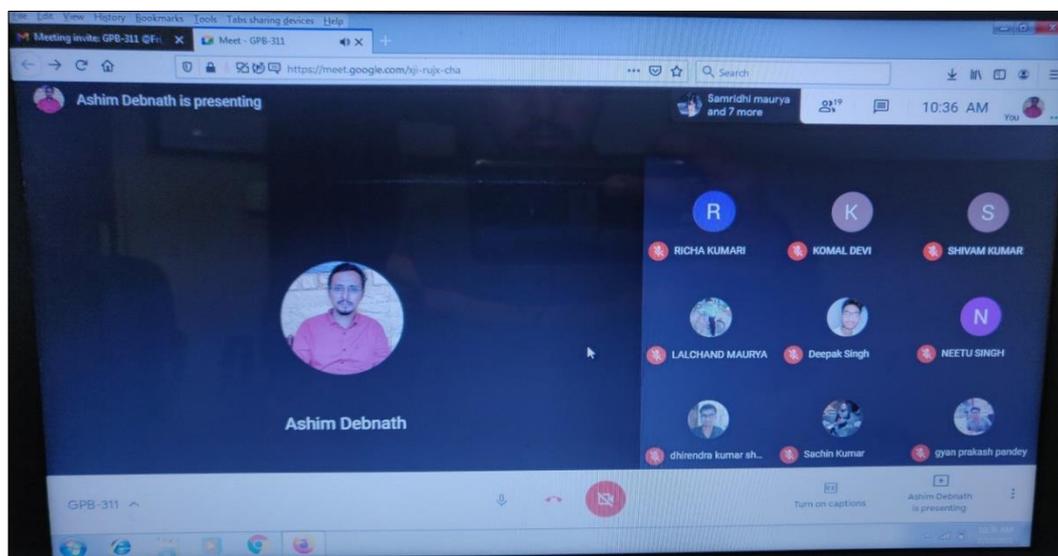
Fig 2: Representative Screenshot showing students attending online class GPB-311 (1st semester of 2020-21) in Google Meet

Discussions and doubt clearance session with students was also conducted through video lectures. Besides this, assignments were given to different classes which ensure active participation of every student. For taking examination (midterm and final) a well-organized format was established from the higher authority. By following the university format examination was conducted both in Google Classroom and Google form (depending on the course instructor).

Results and Discussion
In A.N.D.U.A.T., College of Agriculture (COA), department of Genetics and Plant breeding (GPB) offered ten (10) courses in the 2nd semester of 2019-20 and eleven (11) courses in the 1st semester of 2020-21 starting from B.Sc. (Ag.) to Ph.D. All the students were connected with Google Classroom. The remaining portion of syllabus after midterm was covered through online teaching (Google Meet) and study materials
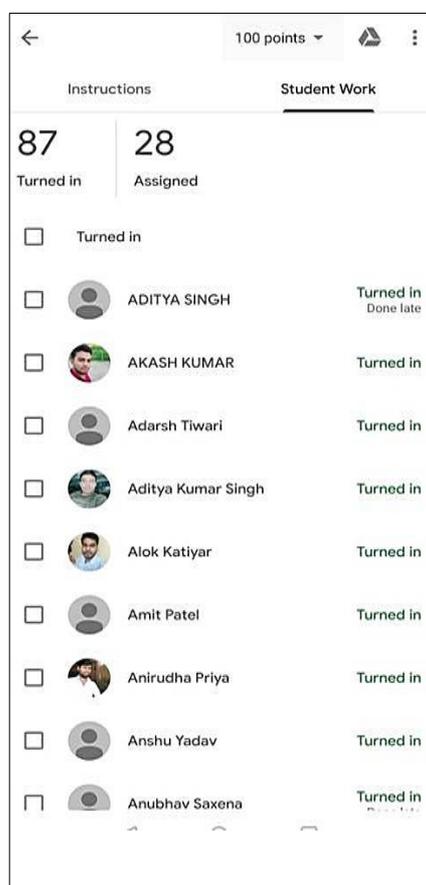
were provided through Google Classroom. Google Meet is a tremendous video-communication service developed by Google. The invitees (students) can join from any modern web browser or they can just download application (from play store) and attend a class. With the use of simple Gmail account, we can host a class or students can attend a class. Any teacher with a personal Gmail account can host a class with up to hundred (100) participants and meet for up to sixty (60) minutes per meeting. With the help of institutional Gmail ID, we can include advanced features, including meetings with up to 250 students.

Some of the attractive features of Google Meet are
1. Meetings are safe by default. Teacher can control who can join the meeting; only people approved by the teacher (host) can enter. Google Meet uses the same protections that Google uses to secure our information and safe gourd our privacy.
2. Google Meet is device independent application. Students can join their classes by using any modern browser, simple smart phone with internet facility is sufficient to attend classes, no need to install any software.

3. Classes can be schedule by integrating with Google calendar, so you will get automatic reminder about class.
4. In Google Meet we can present slides, documents and spreadsheet by showing entire screen or just a window.
5. Meet provide services like real time captions powered by Google's speech recognition technology. This makes classes more accessible for non-native speakers, hearing impaired students, or just any noisy place as the live captions makes it easy for everyone to follow along.
6. Recording, live streaming of classes can be possible in Google Meet along with adding of notes or attachments which we can share while conducting the lectures.
7. "Canvas Board" can be integrated with Google Meet where we can draw any diagram, use multiple layers and present in front of students which meet our requirements of traditional black board.

For instance, an assignment was planned for individual students and scheduled with last date of submission. Out of total 115 students in Google Classroom, 87 students has turn in (within stipulated time) with good quality assignment as they were given full freedom to use any resources while writing the assignment (Fig.3).

Fig 3: Representative Screenshot showing B.Sc. (Ag.) 3rd Year students taking part in GPB-321 (2nd semester of 2019-20) assignment submission through Google Classroom

Similarly, PG and PhD students were also given assignments after completing their course syllabus and they have also submitted their assignments in time. So, with the help of online teaching mode students are bound to do their work in time as their pendency is visible in front of everyone. For taking online examination (Mid Term, Practical and Final) university authority has made standard rules and regulations along with format of answer sheet. Answer sheet format comprised of four types of questions *viz*. fill in the blanks,

true or false, multiple choice and match the following). By following the answer key format examination was conducted in Google classroom as well as in Google forms. Google forms provide different advantages like auto correction, time efficiency, accuracy etc. Therefore, most of the B.Sc. (Ag.) courses where numbers of students are more, we have used Google forms for conducting examination and evaluation of answer sheets (Fig.4).
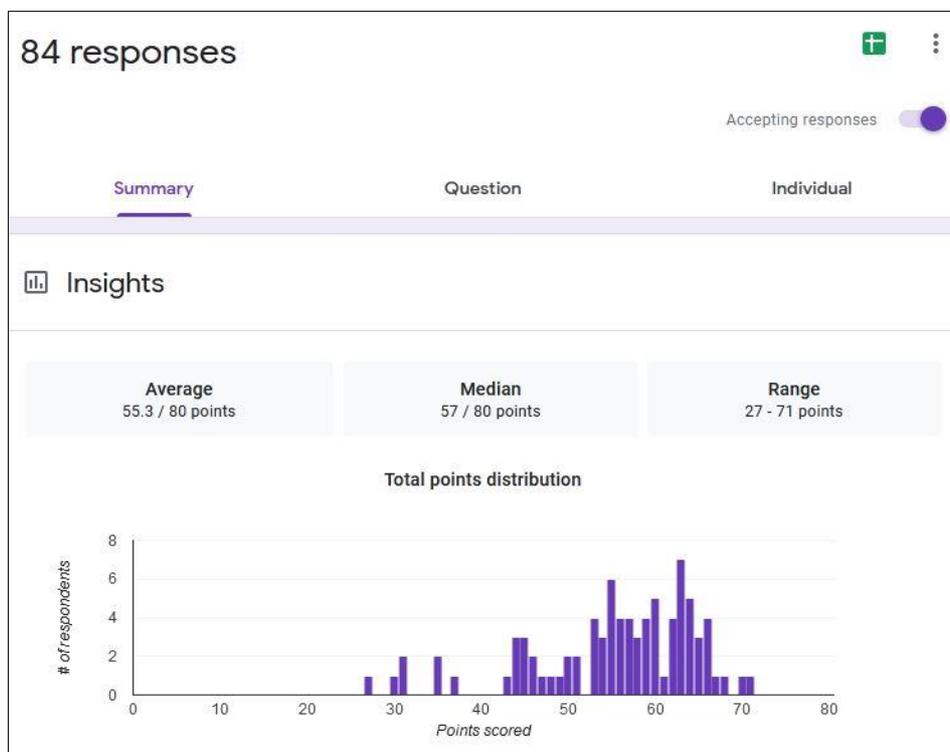
Fig 4: Representative Screenshot showing summary of Mid Term examination result (for BIOL-111(V) course) (1st semester of 2020-21) in Google Forms

Conclusion

To avoid quick spread of coronavirus among students, students were sent back home in the very beginning of corona spread in India. Initially the decision was criticized by many people as proper planning was not done for students' academic curriculum. But after seeing the severity of disease later on people has appreciated the decision. Thereafter to reduce the loss of academic curriculum online teaching (through open access online tools) is the only choice to motivate students and guide them to study. Most of the connected students are in favor of online teaching in this critical situation but some of them feel that there must be some co-curricular activities in the online mode of teaching to make it more interesting. Although network issues, lack of training, incompetent to buy smart phones and lack of awareness are the major challenges while teaching online. I feel fortunate to say that corona virus is under control now and vaccination has already been started all over the country, our university has also started offline classes for most of the courses.

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References

1. Carnevale D. Study Assesses What Participants Look for in High-Quality Online Courses. Chronicle of Higher Education 2000;47(9):46–46.
2. Cheney GR, Ruzzi BB, Muralidharan K. A profile of the Indian education system. Prepared for the New Commission on the Skills of the American Workforce. National Center on Education and the Economy 2005, 28.
3. Dutton J, Dutton M, Perry J. How do online students differ from lecture students? Journal of asynchronous learning networks 2002;6(1):1–20.
4. Oblinger D, Kidwell J. Distance learning: Are we realistic? Educause Review 2000;35(3):30 34.
5. Remuzzi A, Remuzzi G. COVID-19 and Italy: What next? Lancet 2020;395:1225–1228. 10.1016/S0140-6736(20)30627-9.
6. Shatakshi Lall, Nardev Singh. Int. J. Res. Pharm. Sci. 2020;11(SPL)(1):48-53.
7. UNESCO. Covid-19 educational disruption and response 2020.
   Retrieved from https://en.unesco.org/themes/education-emergencies/ coronavirus-school-closures
8. World Health Organization. Coronavirus. Geneva 2020.