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In This Issue

Remote Teaching: Methods, Tools and Technologies

Jagat Bhushan Nadda*, A K Singh** and Rakshak Jain***

Due to worldwide outbreak of unforeseen COVID-19, all walks of life seem to have been affected. Educational sector also could not stay unaffected but the same cannot be said about technology, therefore usage of technology (ICT) in imparting education in the form of online education is not only the most talked about theme recently but also the most explored area. This can be understood by the fact that search for online learning and remote teaching-learning phrases has increased significantly from the mid of March 2020 according to Google Trends (2020)[1]. This means students are searching more and more for online content to study, and at the same time teachers are also searching for technological options for remote teaching or teaching from home. With this understanding, two important thrust areas have distinctly surfaced – one is online content availability, and second is online content delivery. The first area which is all about access to available existing educational content is not the area of much concern. All we need to do is to compile a comprehensive list of all such databases which suit the needs of Indian students because there are a wide variety of online databases available globally but it cannot be said whether they are in accordance with the specific curriculum needs of Indian higher education system. However, long back in 2009, Government of India has initiated NME-ICT project and started developing so many e-content projects to fulfill the need of ODL as well as taking the quality educational contents at the students' door step through ICT applications. In recent years with the launch of the SWAYAM platform, this movement got a tremendous boost leading to development and offering of more than 2000 MOOCs with more than one lakh supported e-learning modules to cover different curriculum of Indian higher education (Class Central, n.d.)[2]. Therefore, compendium of such academic databases and digital learning repositories is a must to address first thrust area i.e. to provide the suitable online education content to students as per syllabus, and the same has been compiled as below to be shared with students:

1. SWAYAM Online Course-*https://storage.googleapis.com/uniquecourses/online.html*

2. UG/PG MOOCs- *http://ugcmoocs.inflibnet.ac.in/ugcmoocs/moocs_courses.php*

3. e-PG Pathshala 77 PG Subjects - *http://epgp.inflibnet.ac.in/*

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4. e-Content Courseware in 87 UG Subjects - *http://cec.nic.in*
5. SWAYAM Prabha DTH Platform - *https://www.swayamprabha.gov.in/*
6. CEC-UGC YouTube Channel - *https://www.youtube.com/user/cecedusat*

These weblinks should not only be circulated amongst students to help their self-study but also be used by teaching fraternity in some kind of flipped online learning setting. Suppose few teachers do not want to create his/her online content but want to use the available content (to avoid duplication of the work as available e-courseware is serving the purpose) so they just need to share specific link, out of the above web-links, among their target students and after going through the specified chapter (assigned to the students by the teacher) teacher may further assimilate the knowledge and resolve the doubts of students through some social networking site or group such as Facebook page, WhatsApp group, discussion forum or video conferencing software. Recently, UGC has allowed that the institution/university may carry out up to 40% of the total courses (being offered in a particular programme in a semester) through the online learning courses offered through the SWAYAM Platform.

The second thrust area i.e. remote teaching is something which needs to be dealt with and discussed in detail so that faculty members would be well equipped to get connected with their students beyond the classroom walls and thus educational progress of the students could be least affected. For this, teachers need to be facilitated with basic understanding of available software, their basic operation and features along with appropriate pedagogical and instructional design models.

As a matter of fact, faculty members are believed to have had expertise in content knowledge but it would not be enough without the sound pedagogical knowledge according to Shulman (1986)[3], Shulman (1987)[4] and therefore they have given the idea of Pedagogical Content Knowledge (PACK) which is needed for effective teaching and instruction. However, with increasing incorporation of technology in imparting education in the beginning of 21st century, this PACK framework seems to be incomplete without technological knowledge therefore Mishra and Koehler (2006)[5] have extended this PACK notion to Technological Pedagogical Content Knowledge (TPACK) framework by integrating technology into teachers' pedagogy and content knowledge. In this framework, it issuggested that teachers need to embrace more technological options to make this internet paradigm based education possible with fruitful results. This TPACK framework seems to be more relevant in the context of prevailing Covid crises, therefore the same framework will be used to expand this paper. Under technology domain, there will be a discussion on different methods, tools and technology for developing online teaching learning modules and applications. Thereafter, under pedagogical domain, a brief of instructional design models will be discussed.

Remote Teaching Paradigms

Remote teaching is an extension of distance education approach where technology is used to facilitate classroom interactions with a remote instructor (Moraveji, Kim, Ge, Pawar, Mulcahy, Inkpen, 2008)[6]. When such teaching approaches are adopted in emergency situations like Covid-19 by using online digital technologies, it is better known as Emergency Remote Teaching (ERT) (Hodges, Moore, Lockee, Trust, Bond, 2020)[7]. Therefore, Remote Teaching Learning (RTL) and Online Teaching Learning (OTL) may be used interchangeably. Remote teaching can take any form of e-learning applications to get accomplished – be it in the form of online teaching, virtual classroom, e-content or in the form of OER and MOOC based learning concepts.

However, technologically as well as pedagogically, remote teaching and online teaching can be carried out in two ways – one is synchronous mode and second is asynchronous mode. In synchronous mode, the teacher has to teach the students by connecting in real time which means teacher and students, simultaneously, have to be present online at a specific time. This is done using live video interaction. In asynchronous mode, teacher and students do not have to be present online, simultaneously. This is done using pre-recorded video lectures and thus students can learn at their pace and as per their convenience or free time. Sometimes, the open source web application or platform we are using for synchronous online education, has some constraints such as number of participants and duration of the live class/interaction. On the other hand, asynchronous mode poses less but different limitations. Therefore, in asynchronous mode,

teachers may connect with more participants for longer duration in comparison to synchronous mode. But creation of pre-recorded video for asynchronous mode requires more production planning, mainly editing, whereas live video goes live in real-time without post-production. So, how can a teacher, staying at home, create lessons and interactions using these two methods? What are the authoring tools and technologies available before them? How can they use it? What kind of pedagogies and instructional designs may be applied and practiced? Answering these queries is the main purpose of this paper. So let us try to unlock these questions within the scope of synchronous and asynchronous mode of remote teaching by throwing some light on available tools, technology, software, instructional design models so that our faculty members may at least have a basic understanding to use them and come up with remote teaching modules. The first and foremost requirement is preferably an internet connected laptop/desktop with webcam, microphone or smartphone followed by installation of different software and applications for varied purposes. And of course, some familiarity with using them. Detailed explanation of each software would be beyond the scope of this paper which makes it incomprehensible, otherwise. Because a detailed explanation of one software may be interesting for someone but boring for others as they may be interested in some other software usage.

Remote Teaching using Recorded Video lectures

Recorded video may be made in two ways – one is simple talking head, where teacher's face or the screen-content will continuously be visible in the lecture or sometimes a mixture of the both; second is media rich or multimedia based, where variety of instructional media will be mixed in the finished module making it more interesting and engrossing. In both the cases, first we need to record the video then edit it by inserting animations, illustrations, figures, images, live action clips, ppt, and lastly finish it as if it was done professionally. Ideally, such kind of videos are made in a studio setup shot by a cameraperson and edited by an editor on an edit machine. In a nutshell, we need a camera, lighting, cameraperson, editing machine and editor etc. to come up with such kind of HD videos. But this is very well possible by using some software e.g. Adobe Presenter, Camtasia - without investing in expensive studio equipment.

Such software has everything within it – audio video recording along with project file with source footage for unlimited edit and re-edit functionality along with options for opening closing title theme, personalized background, animated ppt slide, additional clip, in-video quiz, annotations, SRT file subtitles and finally exporting the module over LMS publishing (in selectable standard options such as SCORM/AICC/TinCan), HTML5 publishing, Youtube streaming or in HD video file formats. If we are not satisfied with the edited module, we can re-edit it 'n' number of times as we will always be having all the raw footage in the project file to revise, modify and improve. Due to its Pause-and-resume support recording options, we can record as per convenience in small segments with as many retakes as we want, to get perfection. Basically, these are PowerPoint plug-in ribbon e-learning authoring tools which means after installing them, we will see an additional menu of Presenter or Camtasia in the ribbon of our PowerPoint interface. Like any other feature of PowerPoint, we just need to click on that particular software tab, for example Presenter, which will take us to new video express window where we can record our video explanation along with ppt slides, and while doing so we can simultaneously switch between the expert video and ppt slide video or we can have both in picture-in-picture mode. In simple words, it is a combination of screen capturing and video editing software where we do not need to capture the screen as well as webcam recording because these things will come automatically into the editing window.

Video lectures can also be made by some other screen capturing and recording tools (e.g. CamStudio, Bandicam, HyperCam, ScreenFlow, ScreenCam, Screencast Omatic, ShareX, Movavi, SmartPixel, Record My Desktop, Simple Screen Recorder, XSplit, Xvidcap Grabilla, and so on) but the whole making process will be lengthy and time consuming.

Video modules can also be created on smartphones which would again be cumbersome. For this, we can use two kinds of softwares/apps. First is for capturing the screen (similar to as mentioned above such as Apowersoft Unlimited, Mobizen, AZ Screen Recorder etc.) to record whatever is happening on your screen, including the movement of your cursor over PDF file, drawing object or ppt slides. Second is editing software (e.g. Adobe Premiere Rush, Kine Master, Action Director, Movie Maker Filmmaker,

etc.) to call and edit the captured screens as well as teacher's onscreen explanation/presentation recorded through phone camera holding on a stand. Almost all of these editing softwares support multiple layers of video, audio, music, images, texts, effects as well as exporting/publishing the final edited video in different file formats from standard definition to HD.

Some screen capture apps like AZ Screen Recorder also give some functionality of editing between phone camera recording and screen content. Such tools allow using the front camera while recording the screen so that the teacher can explain the necessary information. Once the recording is done, the software allows editing the video with essential editing tools. The edited video can be saved and shared to the desired platform for the learners.

Instead of using teacher's talking head format (where teacher's face will be visible on screen along with ppt content), teachers may create more creative video lessons which look as if text is being written by the teacher on whiteboard with animation effect along with drawing/sketching of the sketches, objects, diagrams, illustration with supported voice over instructions. For this, whiteboard animation based video making software (e.g. Video Scribe, Powtoon, Explaindio, Adobe Animate CC, Doodly, Moovly, Animaker) may be used.

These are animation kind of softwares which do not require any animation, designing or technical skill to operate for creating professional-looking studio-quality animated videos— eliminating the high cost of hiring a video production team and animation designer. So, in a nutshell, it can be said that these softwares are the answer to boring, text filled presentations that lose students' attention after just a few slides.

Some of the softwares e.g. Powtoon is browser based (installation not required) and its workflow is very similar to PPT slide workflow, and every slide is a metaphor for an individual animation scene which has all the functionalities like animation, effects, timing, characters, scenes, text, shapes, voiceover, music etc. Besides this, such softwares offer a huge library of professionally-designed templates along with animated characters, objects with customization features and many more. These customizable templates are able to produce a modern edge animation, a whiteboard look, a cartoon, and an infographic, among many others.

e-modules can also be created using HTML5 based authoring tools such as iSpring Suite, Zenler Studio, Essay Writer, Smart Builder, Raptivity, Luminosity Studio, Elucidat, Composica, Edge Animate CC, Adapt Learning, and so on. Authoring tool is the software that allows authors or teachers to create interactive contents for the learners/viewers-readers. The content could be text based, multimedia based or video based.

After creating the video modules, now we need to deploy them somewhere so that students can watch, learn as well as post their queries. Such modules can be hosted on various platforms such as LMS, Video Sharing Networks (e.g. YouTube), Social Networks (Facebook, Instagram, Whatsapp, Telegram etc.)

Let us start with the Learning Management System (LMS). LMS is nothing but software system designed to assist in the management of educational courses for students, especially by helping teachers and learners with course administration along with tracking the learners' progress (Simonson, 2007)[8]. In other words, LMS is a kind of readymade web-based software bundle which facilitates and manages the learning activities in online mode by uploading and deploying the educational contents in a course structure with continual assessment. And according to Haghshenas (2019)[9]such software provides a suitable platform for connecting students, academics and authorities of institutions and universities as well as providing students with access to educational content presented through the internet and web browsers. There are a wide range of LMSs available such as Blackboard/ WebCT, Moodle, MoodleCloud, Sakai, Desire 2 Learn, ATutor, SuccessFactors, Adobe Captivate Prime, Docebo, Edmodo, Google Classroom, Open edX, SAP Litmos, JoomlaLMS, Chamilo, iSpring Learn, Schoology, WizIQ, and so on. Some of them are open source or free license, and others are paid license, proprietary. Furthermore, some on-premises (on-prem) LMSs, for example Moodle, require some basic programming skills such as LAMP stack (Linux operating system, Apache HTTP Server, MySQL relational database management system, and PHP programming language) but cloud based LMS applications such as MoodleCloud, Canvas do not require any programming skills. We just need to simply create an account on such LMSs (like we create for Facebook and other web applications) and start uploading our developed course content and make it

public by sharing the course URL with students for their enrolment. Even some LMSs have built-in e-learning authoring tools that allow teachers to develop online training materials without additional third-party software. Most of the open source LMSs provide limited functionality in terms of restricted number of enrolment and content storage space with certain themes. Moodle, for instance, allows 50 enrolments and 200 MB content storage space for free. On the other hand, some LMSs like Canvas do not impose such limitations. Similarly, Google Classroom is also one of the most user-friendly LMSs. It is free and anyone can create a course using it. The course can be created by logging in to the app or website with existing google classroom credentials. An invitation or login into the app with the course code is used to enroll the learners. The classroom is generally run by the sharing of study material which can contain a text, audio or a video file. Assignments can also be placed and scheduled in the classroom. Discussion facility is also available in the application.

By any chance, if LMSs cannot be used, then the next choice would be to share developed video modules on Youtube by creating a channel. After watching the lecture, students can post their doubts in the comments section. Most of these may get resolved through peers and if something is remaining or needs to be corrected, the teacher may resolve the query by replying in the comment section or sharing some other reference weblinks for more clarification.

Similarly, video lectures can be shared on Facebook, Instagram, Whatsapp, Telegram by creating a course page or course group by inviting all the learners. Again, there is almost no restriction of participants and contents. Telegram is recent messaging app similar to whatsapp but cloud based with no restriction of video file size and participants number. So this is very helpful for teachers to cater massive learners with wider course content.

Besides creating their own videos, teachers may also use the Open Educational Resource (OER) based contents if they are open to reuse, repurpose and redistribute. As per the definition, OERs are built on the belief that everyone has the freedom to use, share, re-mix, improve and redistribute educational resources for teaching and learning without limitation or under some licenses such as the intellectual property license (Butcher, 2015)[10]. Therefore, such OERs can be used

to be shared among students followed by discussion on LMS or social networking platforms.

The main benefit of placing pre-recorded video in comparison to live video conferencing is that they are not so restricted to the number of participants along with size of the videos. Another advantage of pre-recorded videos is that they have to be made once and used/reused many times as required to run back to back courses for the successive upcoming students.

Remote Teaching Using Live Video Conferencing Class

Another preferred way of accomplishing remote teaching is simulation of the classroom over Virtual Conferencing (VC) platforms. If we do not want to make and use pre-recorded video, we may use and conduct live interactive classroom using Video Conferencing applications such as Google Hangouts/ Meet, Zoom, Cisco Webex Meetings, Microsoft Teams, Jitsi, Go To Meeting, Adobe Connect, Slack, Amazon Chime Pro, Join.Me, Skype, Free Conference Call, Blue Jeans, Click Meeting and so on (For using VC apps particularly ZOOM meeting, Union Ministry of Home Affairs (MHA) has issued an advisory on 16/04/2020 for the security concerns, and thus same should be followed). Video conferencing is a technology that allows users in different locations to hold face-to-face meetings without having to move to a single location together. Such VC systems will give the teachers a feel of the classroom as if they are actually in the classroom with the students, connected virtually in an online setting. VC applications are a good way to use technology in imparting education while keeping the traditionalism of the physical classroom intact.

All the above listed video conferencing softwares and apps allow multipoint face-to-face interactions but some are almost without any limitation and others are with limitation of number of participants with fixed duration of conferencing – depending upon the free version and paid version. Almost all the VC platforms share similar features and operating procedures, thanks to self-explanatory interface. After setting up the account on any VC application, one has to login using a particular VC app and plan a meeting. Students can join the meeting with the meeting link URL/unique code/ calendar

links/ phone dial-in numbers/user ID-password, shared by the host teacher. During the meeting, options for single window to multiple windows are available where everybody can see who all are there with two-way audio & video interactivity. The teacher, who is actually the host, has the choice to select the speaker/student at any given point of time (presenter switching) along with mute option. Teacher can share his/her working screen having a ppt slide, pdf document or some artifacts/drawing/ illustrations/animation for explaining purposes. Similarly, students can also share their screen to show their work to teacher and peers. Certain VC applications offer some great features like taking the participant's system in remote control (in Team viewer application style) which also makes users vulnerable to hacking therefore while using VC softwares one should ensure its credentials and avoid using such computers which have sensitive data, from a privacy and security point of view. However, most of the promising VC platforms normally have common features like virtual background, drawing tool, white boarding, collaborative document management, chat, raise hand, file transferring, streaming, webinar, recording of whole session, AI, and so on.

VC for more than 100 participants is not so viable. For big audiences, it is better to go for live-streaming on any social networking platform such as YouTube, Facebook Live, Instagram Live, Twitch or other Real-Time Messaging Protocols (RTMP) where teachers can have even millions of participants to watch the lecture. If we have our students on different social platforms, we can simulcast the live stream on different platforms simultaneously using some software solutions such as Castr, Restream, Switchboard etc. So, besides video conferencing platforms, we can use different social networking platforms for live video streaming for delivering the lectures and webinars (also a kind of lecture, live presentation, meeting, or event that is conducted entirely online and attended by an exclusive as well as inclusive audience). In this setting, any number of students can join the class but there will be no face to face real-time interactions. These platforms allow the live streamer/teacher to engage with the students and vice-versa. The students are allowed to submit comments and query on the video in real-time which the streamer/teacher can incorporate into their live stream and explain the same. So, this is how two way interactions can be established on such platforms. However, live lectures become dull and boring if they are streamed only with teacher's face without in-between insertion of students' feedback along with supporting teaching learning materials such as ppt slides, figures, charts, drawing, illustrations and other pre-recorded live action shots. Such kind of things are very well possible in a proper studio system but can also be possible by using some third party broadcasting software such as Open Broadcaster Studio (OBS) along with streaming media. OBS studio is widely used to deliver webinars and real-time online lectures as it is featured with multi webcam support, custom scene creation, multiple screen casting, specified window casting, screen transition, multi-source audio mixing. It also supports cross-platform simulcasting on different platforms.

If one wants to stream the lecture from a smartphone at par with professional studio kind of output, then PRISM Live Studio app is the answer. Similar to OBS, it is also used to create engaging live streams and videos adding different media files along with simultaneous cross platforms streaming on Facebook Live, YouTube, Twitch, Periscope and other various RTMP URLs. Live chat messages and statistics from the platform are displayed in the PRISM Live Studio program on a real-time basis when broadcasting live video using an account channel.

If internet connection is an issue, the synchronous classes in video conferencing mode using VC may be taken once or twice in a week to supplement the hosted asynchronous syllabus material in a kind of blended way of online education within an online setting. Podcast delivery of audio lectures (e.g. social sciences subjects) may also be explored in the areas with poor internet connectivity. Furthermore, if language is an issue, teachers may tell their students to use some translation application such as Google Translate, Microsoft Bing Translator, etc. Students just need to install Google Translate and call particular text material or video (for this Google Media translate API is required) to be translated in their choice of language. After getting the text translated in the language of their choice, students may take the help of some text-to-speech/

voice software/app (e.g. Google Cloud Text-to-Speech, Amazon Polly, IBM Watson Text to Speech, Microsoft Azure Text to Speech API) to hear the translated text (instead of reading) as if someone else/teacher is reading the text. The accuracy rate of automatic translation is about 40-80% (even more or less) depending on the pronunciation, voice clarity and language expertise of the teachers/writers.

Pedagogy and Instructional Design

The art of teaching i.e. pedagogy is all about creating an educational process for knowledge transfer to the learners whereas instructional design (ID) is a way of designing and creating the effective instructions (using some media) for desired learning outcomes. Besides pedagogy, we should also explore some concepts of andragogy (teaching methods to adult learners) in online teaching learning as we are dealing with young learners of tertiary education who are actually young adults. For young learners, new learning concepts based contents should be developed and delivered which may include: active learning, participatory learning, collaborative learning, open learning, flexible learning, social learning, adaptive learning, connectivism based, constructivism based, metacognition based, gamification based learning with optimum room for learner autonomy and learner centeredness. Actually, these learning concepts are the main requisites for achieving Self Directed Learning (SDL) and Self Regulated Learning (SRL) environments which are the integral part of technology employed teaching learning process. Since technology based pedagogy is yet to be evolved fully, therefore the idea of repurposing existing pedagogy and instructional design models may be explored. Similar observations, in regard to absence of appropriate pedagogy and identification of the same for technology based teaching learning scenario, were also given by AlDahdouh & Osorio (2016)[11];Armellini& Padilla Rodriguez (2016)[12]; Blanco, Echaluce, & Peñalvo (2016)[13]; Freitas & Paredes (2018)[14] and so on.

Understanding different pedagogical models may lead to an understanding of different underlying learning theories and concepts which may not be of general interest to everybody because this is a specialized area of education subject. Therefore different instructional design (ID) models have come into the picture wherein teachers do not need to comprehend the learning theories instead they can directly apply some suitable ID Models which are actually based on sound learning theories. For this, we have so many ID models such as ADDIE Model; Bloom's Taxonomy; Gagné's Nine events of Instruction; Mayer's Multimedia Learning Principles; Learning Circle Framework; SAM Model; Merrill's First Principles of Instruction; Dick and Carey Model; Kemp's Instructional Design Model; Kirkpatrick's 4 Levels of Training Evaluation; Cathy Moore's Action Mapping.

As we do not have one model fit for all online teaching learning modes therefore we may repurpose the well tested and proven IDs, and apply them in a blended way instead of using only one so that they may work well in online education environment. For this purpose, a blending of three IDs may be suggested namely Bloom's Taxonomy; Gagné's Nine events of Instruction; Mayer's Multimedia Learning Principles.

In order to ensure that students should get substantial mastery on the taught lessons, Bloom's taxonomy of cognitive domain may be applied at the designing as well as delivery stage of the instructions. By this way, we will be able to set the course goals and learning objectives to be met at the end of the instruction by passing through the six incremental hierarchical learning stages of the bloom's taxonomy namely Remember, Understand, Apply, Analyze, Evaluate, Create.

So, we will not only set the learning objectives in terms of content matter, but we will also ensure that students should achieve these six learning levels which means each learning objective/topic passes through all the six learning levels. In other words, we will design and deliver our instructions in such a manner so that students should be able to recall or remember the basic knowledge of that particular topic. For passing through the second learning stage, the instruction should be able to make students understand the main concept and theories of the undertaken topic. Thereafter, students should be able to demonstrate the ability to apply the learned knowledge in real use followed by its analysis and evaluation. At the end of the lesson, students should show such competency to create their own piece of knowledge (e.g. project-work) by combining and analyzing the theories and their practicality.

After applying the Bloom's Taxonomy, we will get to know how well students could comprehend the

instructed topic. In a nutshell, it will guide us how we can measure the intended learning outcomes of the online teaching modules (outcome based education).

To get mastery on the subject matter, it is important that instructions should sustain till the end. For this we need to make our instructions engaging, interesting and motivating, and for this we can use & apply Gagne's 9 events of instruction in delivery of our video module to get desired learning outcomes. As per Gagne's ID, the online interaction should be started by gaining the attention of the students by interlinking it with learning objectives and stimulation for recall of prior learning/knowledge. Thereafter, the main content should be presented by providing learning guidance as well as encouragement for practical work (performance). Towards the end of the instruction, students should be provided feedback about their learning by assessing their performance. At the end of the lecture, such instructional strategies should be adopted so that students are not only able to retain and enhance the learned knowledge but also be able to transfer it.

Since remote teaching is more or less multimedia based intervention therefore Richard Mayer's Multimedia Principles can also be applied while designing and delivering the multimedia based instructions. By considering these principles, we should avoid extra materials as well as redundancy in our instruction. We should highlight key concepts/words to catch the learners' attention along with maintaining the spatial and temporal contiguity. Instead of creating a long video module, it should be presented in small chunks with a dedicated pre-training introductory video. Mode of instruction for delivery of content should be used carefully with judicious use of multimedia. For example, if we have the choice of putting our voice to support our picture/visual/graphics, then we should avoid using written text to support our picture. Even, our face should appear minimal while delivering the lecture. Students also learn better from words and pictures than from words alone. We should deliver our content in conversational style rather than formal style by avoiding machine voice/bookish language.

Content along with its delivery modes should be provided in a balanced way so that students do not feel any cognitive load and for this, the best practices of Information Architecture and Knowledge Management may be applied.

The gist of any instructional strategy is to embrace the informalization of content creation and presentation (content supported by a large number of live or daily life examples) with the elements of creativity and interactivity by following the more open educational practices and outcome based educational practices.

Conclusion

The beauty of these softwares and applications is that they do not require special training or technical expertise. An intuitive interface allows non-technical users and subject matter experts to create, edit, publish their modules along with organizing virtual classes and managing the whole learning activities while staying at home. All we need is to just search for that particular software, download it and start using and exploring. Things would be easier if one has working familiarity in one software/app and wants to use other similar softwares because similar purpose softwares have similar kind of interface and operation. So, exploration and usage of any software would be a matter of a single click.

By contributing to the online education movement, teachers who are not digital natives will become digital migrants by adopting technologies in their teaching methods. On the other hand, millennials who are already digital natives would find this new autonomous-learning-experiment interesting. By adopting the online paradigm of education, we will be able to mobilize the traditional educational institute towards digitalization thinking in terms of converting the academic content into online learning content, and replacing the paper-pencil based administrative procedure with an online model. For the success of such kind of remote teaching based online education, it is suggested that teachers should rely more on advanced learning concepts such as social constructivism, connectivism and collaboration and come out with variety of alternative methods of online teaching to reach its remote students.

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AIU Publication

on

REIMAGINING INDIAN UNIVERSITIES

'Reimagining Indian Universities' edited by Dr. (Mrs) Pankaj Mittal and Dr S Rama Devi Pani is a collection of essays by some of the greatest thinkers in the field of Indian higher education. Each essay in the book examines one or more of the critical topics and provides solutions and methods to overcome the issues involved in them. It provides new solutions and methods in the form of reforms and innovations to elevate Indian universities to world-class top-ranking levels. The book aims at providing a roadmap to government as well as the universities to gear themselves towards becoming more responsive to the present and future demands of higher education. Generating a corpus of new ideas that are significant for reimagining, reforming and rejuvenating Indian higher education system, Book is 'must read' for all those who are interested in reforming Indian Higher Education System.

The release of the book in the Annual Meet of Vice Chancellors 2020, coincides with the launch of New Education Policy. The Foreword for the Book was written by the then Minister of Education Shri Ramesh Pokhriyal 'Nishank'.

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Ethics: The Backbone of an Educated Society

M S Kurhade*

Ethics are the standards by which behaviors are evaluated for their morality-their rightness or wrongness. Ethics and daily life are inseparable. The purpose of behaving ethically is happiness. Beyond that, behaving ethically can create harmonious relationship and consequently peaceful community. By knowing ethics, we are guided in decision making and our behavior. Through the interaction with human ethics can help people to build trust and intimate relationship in society (Girard, 1998). Hence, individuals in the society will expect others to behave ethically and do not hurt others for personal benefit. Since the dawn of human civilization, men have sought to keep human conduct in check to preserve the peace of society.

Ethical judgments focus more precisely on degrees of rightness and wrongness in human behavior. In condemning someone for being inefficient, conformist, extravagant, lazy or late, we probably would not also claim they are unethical. However, standards such as honesty, truthfulness, fairness and humaneness usually are used in making ethical judgments of rightness and wrongness in human behavior.

Ethics aims at moral judgments in order to arrive at a system of human conduct in everyday life concerning 'justice', 'right', 'wrong', 'good', 'evil', 'duty', 'obligation', 'ought', etc. There may be environment where we cannot tell the truth without endangering the life of an innocent person. It is a basic tenet of morality, that it is wrong to take another person's life. All the religions of the world proscribe taking of life and human society is built on this moral principle. Whenever, there is such a conflict of duties we begin to wonder which ethical principle or moral rule we should follow. Therefore, ethics formulate certain 'norms' or 'standards' referring to which human conduct can be evaluated. It is the attempt to formulate rationally acceptable principles of conduct. It does not merely state or describe moral standards.

Clearly our values influence what we will determine as ethical; "however, values are our measures of importance whereas ethics represent our judgments about right and wrong". (Shockley – Zalabak 1999.p.438) This close relationship between importance and right and wrong is a powerful influence on our behavior and how we evaluate the behavior of others. Values motivate, moral and ethics constrain. In other words values describe what is important in a person's life, while ethics and morals prescribe what is or is not considered appropriate behavior in living one's life,

Ethics is about character-the sum of qualities that defines a person. These qualities include a person's intellect, thoughts, ideas, motives, intentions, temperament, judgment, behavior, imagination, perception emotion. We need to be ethical because it defines who we are individually as a society. These are norms of behavior that everyone should follow. Our society might fall into chaos if we accept that each of us could pick and choose what the right thing to do is. Some people may lie; others may not do what they say they will do, still others act irresponsibly and engage in harmful behavior.

As a backbone to the society, ethics play an incredibly important role to the society because it arises from the conscience or a sense to determine right and wrong. Ethics is all about the choices we make. We constantly face choices that affect the quality of our lives. We are aware that the choices that we make have consequences, both for ourselves and others. We are aware of the responsibility we have for our actions.

There is nothing with pursuing one's own interests. However, an ethical person must be willing, at least sometimes-to place the interests of others ahead of self-interest, because of our responsibility to a civil society. This is the moral point of view.

Derrick A. Bell said in ethical ambition: Living a Life of Meaning and Worth: "Courage is a decision you make to act in a way that works through your own fear for the greater good as opposed to pure self- interest. Courage means putting at risk your immediate self interest for what you believe is right".

In a general sense, Dr. Albert Schweitzer said, "Ethics is the name we give to our concern for good behavior. We feel an obligation to consider not only our own personal wellbeing, but also that of others and of human society as a whole". Ethics is a way of being

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human. If early men and women had not identified their own welfare with that of others, they could not have survived and developed.

From the beginning human beings have been puzzled with ethical questions. "What should we do? What should we not do?" They have struggled to develop a system that produces the greatest good for the individual and for the group.

Ethics can give real and practical guidance to our lives. Ethical values (i.e. honesty, trustworthiness, responsibility) help and guide us along a pathway to deal more effectively with ethical dilemmas by eliminating those behaviors that do not conform to our sense of right and wrong-our best rational interests-without sacrificing others.

Ethics is all about the choices we make. We constantly face choices that affect the quality of our lives. We are aware of the responsibility we have for our actions.

Ethics is important to every society as it plays a critical role in shaping the individuals behavior within a society. Since the dawn of human civilization, men have sought to keep human conduct in check to preserve the peace of society.

In cases when we are in doubt concerning conduct, the Taittirtya Upanishad asks us to ' seek the company of learned persons competent to judge, devoted, not harsh lover of virtue and behave as they may behave in such a situation'. It is true that we have the fundamental problem of ethics, the crux of the moral judgments of the moral conduct. What is morality? What is justice? Is it better to be good or strong? In this case the teacher tells his pupil as "those things among us which are good deeds should be revered by you and no others", thus giving the pupil right to judge even the conduct of his teacher.

Ethics is a code of conduct of all rational beings in relation to other rational beings, non-rational being and environment. Ethics regulate human behavior on how to relate properly with the environment around him. The main purpose of living ethically is for human happiness. The assumption is that when a person has a good relationship with others and with the environment, definitely he should be happy.

Ask yourself the questions listed below:

1. What are the really important things in my life?
2. What do I value most about my job?
3. What are the most important factors in my relationships? With my family, peers, employees?
4. What kind of person do i consider unethical?
5. Who do I want most to please?
6. How would I describe an ethical person?
7. How do I want to remember myself?
8. How do I want to be remembered by my associates?

Ethics is also a study of man, as a member of moral community. It prescribes how man should best contribute to the welfare of his community and how the community should best foster his personal growth and improvement. "The question like: Does my action benefit the society in general? Is it right to prioritize the interest of society over the interest of the individuals? Does society respect my rights and dignity? By knowing ethics, we are guided in decision making and our behavior. It is a fact that in some circumstances, we often do not know how to solve some ethical problems and even we do not know how to behave in ethical manner. Thus ethics will guide us on how to deal with a problem in a particular time and particular situation.

A number of persons may all agree in their judgments that certain actions are ethically right. In this case, the appeal to intuition to deduct the presence of a priori moral principles and also perceive the necessary connection between empirical properties and the moral altitude, judgments or principles, some kind of transition from empirical to rational conclusion is inevitable. When asked why an action is right or obligatory we may answer that it is an action which is the fulfillment of a voluntary commitment or that it is an action which relieves human misery. Therefore, people firmly believe that there is rational base for our ethical judgment.

Ethical norms are ever changing because it is contextual and affected by culture, technology, religion and politics. What is ethical in one country may not be ethical in another. This just makes the evaluation of what is ethical and what is not, an even more difficult question to answer. However, this does not mean that the world should just give up and surrender. There are ways to atleast draw the boundaries of what is acceptable and what is not.

Include good ethical practice in your life plan. Don't leave them to chance. Think through who you are and how you want to be known. What is the primary direction you want your life to take? Bring these considerations to the surface, and keeping them there, will enable you to maintain your focus.

When and where do we develop ethical values? Are we born knowing right from wrong? Do our values develop in a vacuum? Is there a time in our lives when our ethical values are "set" – when we know, from that time on, the ethical basis on which to make decisions in our lives?

In human society, a series of nurturers, teachers and role models influence the ethical views of each individual. From the beginning human beings have been puzzled with ethical questions: "What should we do? What should we not do?" They have struggled to develop a system that produces the greatest good for the individual and for the group.

Over time, codes of conduct were developed to ensure survival. These codes include the nurturing of children, forming of family and tribal units, and hunting rituals. Even the earliest people realized that there was danger of extinction if violent acts were not curtailed, if thievery went unhampered, if no one could count on anyone else to exercise the "right" behavior. Thus a system of acceptable behavior was formed. An individual's ethical viewpoint does not develop or exist apart from the "real" world. Values developed in childhood and youth are constantly tested and on the-job decisions for example reflect the employees understanding of ethical responsibility. An individual's ethical behavior affects not only his or her reputation within the company, but may also contribute to the way in which the company is perceived by others. Honesty, truthfulness, loyalty, respect-most of us have seen the relevance of these qualities to the way we do our job. However, we can also think of situations in gray areas that make decisions difficult on an ethical basis.

Basic principles of ethics can help us lead a more fulfilling life whether on a personal or professional level. However our commitment to act in accordance with ethical principles is often challenged because of pressures to do otherwise.

Peer pressure can make it more difficult for young people to act in a proper manner when conflicting interests exist. Workplace pressures may cause us to react in a way that is inconsistent with our values. Pressure from a superior may threaten our commitment to do the right thing.

Peer relationships require a win/win attitude on the part of all concerned. Do you have one?

1) I am co-operative rather than contentious.

2) I fully understand that to achieve what my group wants, we may have to give up something.

3) I am flexible in my approach to solving mutual problems, and am willing to make some concessions to satisfy others needs as well as my own.

4) I realize that when I win and everyone else loses there will come a day of retribution. I prefer the shared pleasure and everyone getting what they need.

Maintaining a team sprit between peers and work groups is difficult under the best of others. When individuals try to take advantage of others, or to make them look bad everyone loses.

There are very serious impacts to the society if the erosion of ethics is not kept in check. The public whether it is business, friendship or any kind of interaction, functions because humans reply on a varying level of trust, respect for others and co-operation. If erosion of ethics continues to worsen, nobody will have any trust in others, at all.

What is this underlying reality? Our basic moral judgments i.e. judgments that certain things are intrinsically valuable and certain actions intrinsically more right. There are unique properties such as 'goodness', 'rightness', and 'obligation' and that certain actions and experiences are characterized by ethical judgments. Ethical judgment is part of practical discourse and ethical sentences perform a variety of practical functions such as expressing and evoking attitudes, commending, advising, evaluating, commanding and so on. But why should we perform an action just because it has the quality of rightness? Here, we should accept it because it is not contrary to conscience and to avoid the destruction of the whole world. So, "Blessedness", reads the last proposition of Baruch Spinoza's book "is not the reward of virtue, but virtue itself". 'Good' and 'bad' are prejudices which the eternal reality cannot recognize. Good and bad are relative to human and often individual tastes and ends and have no validity of rationality.

Unfortunately, it is not just the erosion of ethics, but the people's perception of the erosion that has to be addressed as well. As cited in Cordeiro(2003), Morgan (1993) states that people are judgmental and will choose not to commit to any activities when they perceive that the other parties are unethical.

As you read this article, I have presented a variety of situations and issues in which ethics play

Identifying Information Legitimacy in the Era of Information Explosion

Kriti Soni* and Gaurav Kumar**

The use of the internet since its emergence has surged manifold with the advent of technological advancement and its immense penetration with respect to cheap data connectivity and numerous digital media channels; perpetually generating and delivering informational content. This has resulted in accelerated growth in the amount of published information covering different aspects, since the content is being created by general masses irrespective of the knowledge or expertise on the subject matter. The generators of information may utilise social media platforms to target a wider audience. While on the other hand, the receivers of information may not evaluate legitimacy of the content and continue to absorb and share the same with their digital counterparts who may join the league of sharing such content adding more viewers with every stage of circulation. The quantum of misinformation available in digital media platforms is monumental as it is being perceived or made to perceive differently at every level.

The free flow of skewed information available on digital platforms may have adverse effects upon absorption. The Digital Natives may fall victim to plethora of misinformation creating chaos, distrust and biased opinion among masses. This influenced opinion may create ruckus and social differences among millennial resulting of division in information society.

Hence, there is a surging need to validate the legitimacy of every piece of exploded information upon receiving and verifying its source credibility before it is circulated further. To facilitate this, human or technological intervention becomes crucial. Hence, Information Professionals with the help of technological tools can play a vital role in imparting digital media literacy and educating the information seekers with respect to evaluation of information sources. This shall empower information

receivers to interrogate legitimacy of the information using an analytical approach rather than simply believing the content shared thereby making them socially and digitally responsible millennial.

This article emphasizes to create awareness among digital millennial with the help of examples to pinpoint the gravity of consequences of falsified information and enable them to understand thin demarcation between real and twisted information. It also highlights the parameters and fact checking websites which can aid information consumers to become self-reliant. The Government's measures and the pivotal role played by the Information Professionals in evaluating e-content have been discussed to bring out to the notice of the masses.

Information and Information Explosion

"Information Explosion could simply be defined as the rapid increase in the amount of published information. It is a situation in which information is abundantly available or overabundance of data. Information Explosion has been further explained as a situation in which users and managers of information are overwhelmed with available information which is called information overload" (Wilson, 2001).

Etsua-Mensah (1999) has argued that there is information overload because more and more information is published every year and this creates problems for both users and managers of information. As a result, a huge amount of published literature is being disseminated without verifying the relevancy of the content. Such information is absorbed by the information seeker as per their understanding of the facts which is then shared to others in chain thus resulting in facts getting twisted. The information generated at first hand might be relevant to the creator but as it flows from one to many and so on it tends to become misinformation which can have an adverse effect on the part of information receivers.

Difference between Real and Twisted Information

Any information generated through presentation of facts gathered by an official or an organisation to inform its citizenry via a credible

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platform citing its source is called real information. This type of information may be an expert opinion, an advisory issued by the Government, Rules & Regulations of organisations, Announcement or amendments in Government documents etc.

The information which is aimed at informing the masses may be perceived differently by its receivers which may lead to facts getting twisted is called twisted information. This intentional or unintentional modified version is circulated further which may carry a different meaning. Such misrepresentation is also termed as misinformation, skewed information and falsified information. This information blunder may arise due to slight punctuation or grammatical error, reshuffling of the words in a sentence to give it a different meaning, lack of knowledge of facts, blind trust on the source of information etc

"While the abundance of information that is available online provides many opportunities and discoveries for everyday users, it also presents unprecedented challenges when it comes to considering and evaluating the credibility of information people encounter" (Sundar and Flanagin, 2008). Some examples to demonstrate how the facts get distorted and communicated to give it a different meaning are presented here:

Iranians Consumed Methanol and Lost their Lives

Reportedly as many as 480 lives were lost and more than 1000 fallen ill after consuming methanol amid false rumours that it can help cure the disease caused by the corona virus. In a desperate search for a cure, families have been turning to fake remedies including alcohol, which is banned in the Islamic Republic that have spread across social media. Using hand sanitizer is in vogue now days to avoid contamination and spreading of germs which contains 60-70 % alcohol and is only meant for external use (*The Independent*, 2020). Perhaps this led to a belief among Iranians that it can sanitise human body internally also.

Mob Lynching in 2019

A video clip of an anti- kidnapping public service produced in Pakistan aimed to spread awareness on extortion and abduction of children. It was twisted in such a way that it looked like real kidnapping and went viral in India. This clip was perceived differently by different people that turned mob violent and led to lynching many lives (*Los Angeles Times*, 2019).

CAA (Citizenship Amendment Act), 2019

The Supreme Court of India directed Central Government to consider a plea for Publishing aims, objectives and the benefits of the CAA to weed out fake news that was being circulated on the issue (*The Hindu*, 2019). It created mass hysteria and led to communal rights in Delhi in early 2020.

Brand defacing of Tata Salt

The conglomerate giant had to face social media outrage after an activist, citing a report by American West Analytical Laboratories, said that the processed iodised salt sold in India contains alarming levels of carcinogenic components like potassium ferrocyanide (PFC). Tata Salt shared credible reports from regulatory bodies across the world on permitted levels of PFC on its website and social media handles to dispel this misinformation, calling it 'fake news'. Such misinformation can also create a public scare about health and food safety and can negate the brand value in no time (The Mintel, 2019).

There could be damage to lives, peace and security due to spread of twisted or falsified information. "People with low cognitive ability may have an especially difficult time rejecting misinformation. They will continue to be influenced by damaging information about the person—even after they were explicitly told the information was false. The lingering influence of fake news is dependent on an individual's level of cognitive ability" (Keersmaecker and Roets, 2017).

Parameters for Evaluation of Fake Information on Web Pages

Digital media, a tool for free flow of information is also vector of spreading fake information. Hence veracity of digital/social media and web pages becomes inevitable. The International Federation of Library Associations and Institutions (IFLA), 2017 published a summary with the following eight parameters to assist people in recognizing misinformation:

1. Consider the source (to understand its mission and purpose)

2. Read beyond the headline (to understand the whole story)

3. Check the authors (to see if they are real and credible)

4. Assess the supporting sources (to ensure they support the claims)

5. Check the date of publication (to see if the story is relevant and up to date)

6. Ask if it is a joke (to determine if it is meant to be satire)

7. Review your own biases (to see if they are affecting your judgment)

8. Ask experts (to get confirmation from independent people with knowledge)

According to Jim Kapoun (1998) in his article "Teaching undergrads WEB evaluation: A guide for library instruction" a web page needs to be evaluated on the following five parameters:

i) **Accuracy-** Web document containing information must include contact details of the author(s) and his/her affiliation with the name of the institution/ organisation (if any)

ii) **Authority-** The qualification of the author and domain of the institution publishing the document can be a determining factor as ".edu, .gov, .org, .net or .nic.in" are some of the preferred domains

iii) **Objectivity-**An authentic web page is likely to provide accurate and detailed information which would meet the objective of presenting the information with limited advertising

iv) **Currency-**Currency can be ascertained by date of publishing (if provided) and whether such information is updated regularly or not. Also, how updated are the links (if any) and if there are any dead links on the page.

v) **Coverag**e- If information can be viewed properly without paying fees and if there is an option for text only, or frames, or a suggested browser or software for better viewing the web page fulfils the coverage criteria for evaluation

In addition to the above parameters, following may also be considered for evaluation of e-resources:

i) **Purpose-**The purpose or intention behind presentation of the information must be sorted whether it is meant for specific audience like teachers, students, doctors etc.

ii) **Information biasness-**Information posted with the intent of presentation of facts on both sides of argument is crucial for effective evaluation as use of biased information or opinion can lead to unfair results.

iii) **Appearance-**Appearance includes structured website or webpage which is well organised and provides ease of use for its users to navigate and locate required information

iv) **Relevance-**As food imparts energy to the body, knowledge imparts energy to the brain. But in the world of digital tsunami, consuming relevant knowledge is prerogative of digital millennial.

Consequences of Misinformation

Since the broadcasting of misinformation over information is gaining momentum due to which the facts get distorted so much so that it appears to be real. As a result, trust of information consumer is eroded from the news media or any other information platform when continuously subjugated to distorted information.

Emotional Setback

An information seeker may forms opinion based on information input, and if such information get distorted or exaggerated it may leads to anxiety, fear, anger or violence. If spread in masses it may trigger emotional response which can lead to criminal activities.

Biased Decision Making

Distorted facts enable people to frame opinion from one side only which can result in biased action that can prove to be severe. Election meddling is a classical example where voters decision are influenced by distorted facts disseminated through social media platforms. This may result in undermining democracy and distrust in public against government.

Incorrect findings

Since Research and Development across the globe is in its Zenith, information has a vital role to play in supplementing research findings. A general approach to sought information is via a search engine which may not list peer reviewed information sources. Quoting such information in research may lead to incorrect findings. Hence, reliable sources or databases must be approached to seek information for any research query.

Outbreak Violence

Information has immense potential to provoke public sentiments, if falsified in a way to snatch away public interest, it may outbreak violence as in case of Communal riots in North East Delhi, 2020 as a result of anti-CAA protest that came into force in 2019.

Role of Information Professionals in Eradicating the Menace of False Information

"The great irony of our time is that there is more information available at our fingertips than anytime in human history, but less and less confidence in that information. Rather than being better informed because of the proliferation of easily available information, studies show news consumers are less informed on key issues of public policy. And the problem has only become more acute with the explosion of social media and mobile technology" (Brookings, 2014: 3)

Such consequences of misinformation blunder can be avoided by intervention of intermediaries working as Information Professionals who are well versed with the ability to identify, evaluate, organize and use the information judiciously. The assessment techniques used by them are the key parameters to evaluate information in the era of digital tsunami. Below mentioned are the strategies used to retrieve information from the Web in order to get relevant results.

Search Techniques

Information professionals prefer specialised search over general search techniques (keyword search, boolean operators, truncation and phrase search), and subject specific search engines (arXiv, BASE and BioOne) to filter information as per the query of the user (*Pacific University, Oregon,* 2020).

Open Access Repositories

Open access repositories whether general or subject specific are available online such as Directory of Open Access Journals (*https://doaj.org/*), National Digital Library of India (*https://ndl.iitkgp.ac.in/*), Registry of Open Access Repository (*http://roar.eprints.org/*), Open DOAR (*http://v2.sherpa.ac.uk/opendoar/*), AgriXiv (*https://agrixiv.org/*), Open Anthropology Research Repository (*https://www.openanthroresearch.org/*) among many others (Saint Michael's College Library)

Digital Sources of Information

Subject Guides (Agrus clearing house, WWW Virtual Library), online Subject Directories (infomine, internet public library, web gems), Open Access repositories, digital databases such as Emerald (h*ttps://www.emerald.com/insight/*), Science Direct (*https://www.sciencedirect.com/*), Clarivate Analytics formerly Web of Science (*https://mjl.clarivate.com/home*) among many others.

Despite having access to a variety of online resources, databases and repositories, an information seeker prefers random online browsing or social media over a professional. This may be due to the fact that over the Web, a user gets readily available information in an appealing format through a variety of media channels seamlessly. This ensures quantitative inflow of information where authentication of the same may be of lesser concern. While on the other hand, approaching an intermediary i.e. information professional or Library between information and users may appear treacherous to them.

Hence, the Information professionals need to be adaptive of their ever changing role to regain trust of self-proclaimed tech savvy information seekers. Therefore, imparting the knowledge and skills of information literacy (IL) becomes crucial in a digital environment. Information literacy being common to all disciplines is considered as the powerful weapon in assessing information & its sources. Knowledge of information literacy will enable users to pro actively handle and evaluate every piece of information before consuming or sharing it online. Various Information Resource Centres can play a vital role in organising talks or seminars at regular intervals to eradicate the dearth of Information literacy among the user community. They can bring out valuable information products such as Pamphlets & Brochures highlighting the facts of trending false information. A number of operational services by major libraries can also contribute in educating the user with the updated information through their CAS (Current Awareness Service) & SDI (Selective Dissemination of Information). The information supplied through these services are extracted from credible databases with an aim to provide weekly/ monthly updates to its subscribers. Genuine information derived from subscribed credible sources will keep users at bay with false information. This mutual relation between professionals, Libraries and the user will help to eradicate the cause of misinformation.

Government Initiatives/Policies Under Information technology Act

Fake news as a phenomenon is not new and has been known since ancient times, but the present-day penetration of digital and social media platforms poses a challenge to the World's government to mitigate the risk associated with it. There is a heightened need of joint efforts by countries around the World to develop measures for countering rapid proliferation of misinformation. To counter this, a few countries have enforced laws and made necessary amendments to the existing laws to suit their legal requirements (Library of Congress, 2019).

Germany

Germany has a number of civil and criminal law provisions that may be applicable to safeguard individuals or the public from fake news in social networks. In addition, in 2017, the Network Enforcement Act was passed with the specific aim of fighting fake news on social networks by improving the enforcement of the current laws. Social networks that do not remove clearly illegal content may be fined up to €50 million (about US$57.8 million). Germany also tries to ensure that citizens have access to accurate legal information by providing free access to legislation and court decisions online.

Russia

In March 2019, Russia adopted two anti-fake news laws, amending existing legislation governing the accuracy of information and prescribing monetary punitive measures for disseminating fake news. The Federal Law on Information, Information Technologies and the Protection of Information (Information Law) prescribes legal standards for the production and dissemination of trustworthy information. The Law is the main legislation in the information management field. Certain provisions of the Criminal Code prescribe punitive measures for the distribution of inaccurate, libelous, and false information, and for defamation.

China

Spreading fake news that seriously disturbs public order through an information network or other media is a crime under China's Criminal Law and is punishable by up to seven years in prison. The 2016 Cyber security Law prohibits manufacturing or spreading fake news online that disturbs the economic and social order. The Law also requires service providers, when providing services of information publication or instant messaging, to ask the users to register their real names. According to the rules on internet news information services issued by the Cyberspace Administration of China, entities providing such services must obtain a license. The service providers and users are prohibited from producing, reproducing, publishing, or spreading information content prohibited by laws and administrative regulations.

Singapore

Under the Protection from Online Falsehoods and Manipulation Bill, it is now illegal to spread "false statements of fact" under circumstances in which that information is deemed "prejudicial" to Singapore's security, public safety, "public tranquility," or to the "friendly relations of Singapore with other countries," among numerous other topics (*The Verge*, 2019).

India

The Fake News (Prohibition) Bill, 2019 was introduced in Lok Sabha By Smt. Rama Devi, M.P to prohibit the creation and distribution of fake news in media and for matters connected therewith which is awaited to seek approvals. Also, the Government has launched PIB Fact Check portal to cross check facts. To spread mass awareness about fake news and rumours associated with it, other social media platforms are being used by Government and private channels. Indian Government is on the verge of formulating policies, framing necessary guidelines, appropriate laws and by-laws to curb the menace of fake news on social media sites.

In recent past, to control spread of social media rumours, Internet shutdown was imposed for 213 days in Jammu and Kashmir when Article 370 of the Constitution was abrogated by the Parliament of India (*Internet shutdown*, (n.d)). Similar shutdowns have been imposed by the Government from time to time as a preventive shutdown measure to curtail spread of misinformation.

To curb spread of misinformation among masses, every country must enforce a Government policy or law keeping in view that its citizen's freedom of expression is not compromised. Further, it should continuously run a digital media campaign to aware and update its citizens about recent fake news being circulated.

Websites Available for Fact Checking

Following are some of the websites which provide credible information with source from

where it has been recorded. A number of fake news has been exposed time-to-time by these platforms with evidence to show unbiased information.

PIB FactCheck

It is a portal maintained by Press Information Bureau, Central Government's nodal agency for issuing releases to the public. The PIB has created a fact checking unit where users can check fake news posted on social media and verify the detailed information posted by PIB in its twitter handle (@PIBFactCheck). Users can also submit query by a 2 step login procedure to get its facts checked if they come across any information which may not seem reliable. *(https://factcheck.pib.gov.in/)*.

WhatsApp Coronavirus Information Hub

"WhatsApp recently partnered with the World Health Organisation (WHO), United Nations Children's Fund (UNICEF), and United Nations Development Programme (UNDP) to launch WhatsApp Coronavirus Information Hub, a dedicated webpage to highlight how the instant messaging app could be used more responsibly in the wake of the novel coronavirus outbreak. It has been designed to effectively tackle the growing menace of fake news or misinformation circulating on the platform while staying connected" (The Financial Express, 2020). While the Indian Government has launched achatbot 'MyGov Corona Helpdesk' on WhatsApp to address user queries and quell rumours on the coronavirus pandemic. It is equipped to address various Covid-19 FAQs, such as symptoms of the disease, precautions against contracting the virus, helpline numbers, affected cases in the region, government advisories (including travel) (Bloomberg Quint. 2020).

BOOM

It is an independent digital journalism initiative available in three languages, English, Hindi and Bengali with a mission to fight misinformation and make the internet safer. It is India's premier fact checking website, committed to bring to its readers verified facts rather than opinion. Subjects that BOOM actively fact checks ranges from political, social, communal and health & medicine to products and services and even history. It aims to publish only verified information or stories where individuals and organizations are involved. *(https://www.boomlive.in/about-us/*).

SM Hoax Slayer

This website aims to achieve cleaner, logical, unbiased Indian minds free of religious and political extremism. It was started in 2015 and covers a huge spectrum of genres like Religion, Politics, Scams, misuse of emotions/patriotism, devotion etc. Hindustan Times quoted for this site in 2017 as "In an era of fake news, check out India's homegrown Hoax Slayer" *(https://smhoaxslayer.com/)*

WebQoo

f-Media houses also have their own fact-checking departments such as The Quint's fact-checking initiative, WebQoof which strives to provide its readers stories that are 100% accurate. *(https://www.thequint.com/news/webqoof)*

Times Fact Check

It is a fact-checking initiative launched by Times Internet Limited, a Times of India Group Company, to fight fake news and misinformation. In this digital era where misinformation is not just a result of erroneous reporting, fact-checking is critical. This service is available in multiple languages. *(https://timesofindia.indiatimes.com/times-fact-check/)*

Apart from fact checking websites, Google has launched a media literacy programme to teach kids about false content and fake news. Also, Alibaba has launched an AI-powered algorithm that can detect online fake news with an 81% accuracy rate.

Dr Kristy Hesspoints out that "individuals can work to develop their own news consumption and analysis skills so that they're better equipped to make fair assessments of the information they're provided with" (Deakin University, 2019).

Conclusion

The pool of information available on social media platforms usually contains a larger part of information clutter posted by people without appropriate knowledge of the facts. Users tend to share any information which may appear appealing to them without considering its impact. At present, India is the second largest online market in the world with 560 million active internet users followed by China. By the year 2021, this figure is expected to

reach 600 million (*Statista ResearchDepartment*, 2020). With such a massive population online and free flow of unfiltered information, misinformation blunder is imminent. There is an immediate need to address this pressing issue by imparting information & digital media literacy among Netizens to empower them to verify legitimacy of information shared over media platforms.

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An Empirical Study on Quality Related Issues in Higher Education

Anuradha Sekhri*

The fundamental problems facing higher education in the country include inadequate infrastructure and facilities, large vacancies in faculty positions, low student enrollment rate, outdated teaching methods, declining research standards, unmotivated students, overcrowded classrooms and widespread geographic, ethnic and socio-economic imbalances.

There is a need for bringing qualitative improvement in the sector of higher education in the country. The government must promote collaboration between Indian higher education institutes and tops International institutes and also generates linkage between national research laboratories and research centres of the top institutions for better quality and collaborative research.

Higher education plays a remarkable role in the progress of the society and development of the economy. Besides, its central role is to:

- impact, create, and disseminate knowledge;

- foster creativity, critical thinking, and promote analytical abilities in order infuse life in teaching and learning;

- enable students to make independent and informed decisions, and become responsible citizens of the society;

- Develop human resources for the promotion of social and economic growth and the creation of a knowledge society.

Given the massive demand for higher education from all the strata of society, other pressures are causing concern concerning accessibility, equity, quality and resources, as enumerated by Sudarshan and Subramanyan (2012).

The higher education system has to face a great variety of challenges due to rapid advancement. Therefore, rigorous training of individuals is required in the interdisciplinary field (Anderson, 2012). Higher levels of discipline and other contextual expertise are necessary for university teaching as it is a scholarly activity that draws o extensive professional skills and practices. A shared understanding is required for an effective university teacher (Devlin, & Samarawickrema, 2010).

Challenges of Higher Education

Throughout the world, though higher education is growing at a rapid rate, it is constantly under pressure to cater to the needs of the society due to:

- the explosion of knowledge, information and communication;

- population explosion;

- aspirations of the youth;

- focus on capacity building;

- This calls for continuous up-gradation of the skills for global interdependence, which necessitates learning throughout life;

- another challenge that is reflected in higher education is the departure of the students to the USA, Canada, and now to Singapore, Australia, etc., for higher studies, and;

- Opening of campuses in India by the foreign Universities that offer much sought after courses by the youth.

In view of the massive demand for higher education from all the strata of society, other pressures are causing concern with respect to accessibility, equity, quality and resources, as enumerated by Sudarshan and Subramanyan (2012):

Accessibility and Equity, i.e., making provision for affordable, quality and globally relevant education for the aspiring youth from all the strata of society, i.e., economically underprivileged concerning the rural-urban, caste-class, gender, religion and region, etc leads to a gap in the demand and supply.

Quality: in terms of employability of the technical graduates for global competitiveness; catering to the demands and requirements of industry/companies; focus on capacity building and the output.

Resources: Another challenge is the declining budgetary resources by the government as 75-80% of the budget is spent on salaries and maintenance,

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with minor or marginal resource allocation for requirements of the curriculum, teaching-learning, research and innovation. The shrinking budget of the government on higher education is a significant cause of concern.

Consequences-Shortfalls in Higher Education

The challenges of equity and accessibility have been a significant cause of concern as it has led to:

- Adhocism: privatization without checks and balances;
- Shortage of trained and highly qualified faculty;
- Ill-equipped libraries and learning resources;
- Inadequate infrastructure (physical and software); and
- Lack of technical skills, reasoning and soft skills.

These are some of the significant factors affecting qualitative aspects of higher education.

A Mismatch between Technical Education and Employability

Being a growing economy, there is an increase in demand for engineers and ICT professionals in India. Still, they lack competencies required by the engineering firms, industry and their hiring companies, as pointed out by Gokaldas (2010). Employers are not in a position to hire graduates with the required skills, to meet the requirements.

Another challenge is the increase in privatization of higher education in technical and professional fields. The question here arises: Have the Private Universities brought about any significant improvement in the Curriculum; Methodology; Research and Development, and learning outcomes?

The Emergence of the Privatization of Higher Education

The edifice of higher education stands on the weak foundation of primary education. It is like an inverse pyramid.

By the turn of this century, in the Tenth Five Year Plan (2002-2007), the Government of India shifted its focus from higher education to primary education given the poor performance in the field of primary education, with the objective of 'Education for All' (Para 1.72, P17, Vol. I).

Although showing concern for the falling quality in higher education compared to the increasing number of universities, it was stated that part of the problem faced by the universities is the inadequate provision of budgetary resources from the government. Since fiscal resources are limited, and such resources, as and when available, are to be allocated to primary education, it is essential to recognize that the universities must make more significant efforts to supplement their resources from the Government (Para 1.74, P17, Chapter I, Vol. I, Tenth Five Year Plan: Dimensions and Strategies). Further, it was also pointed out that many universities have not raised the university tuition fee for decades. A substantial hike in university fees is essential. The National Assessment and Accreditation Council (NAAC), in its reports, highlight the shortcomings in the quality aspect of higher education, concerning:

- Poor physical infrastructure.
- Lack of innovation.
- Redundant curriculum.
- Overemphasis on theory.
- Less importance to research and innovation.
- Demotivated teachers and researchers.
- Lack of quality monitoring.
- With the privatization and expansion of higher education, there is a:
- A mismatch between the demand and supply in the field of Management and Engineering and Technology.
- A mismatch between curriculum and requirements of the industry.
- Lack of interaction between the industry and universities/academia.
- Lack of integration and interaction of Science, Engineering, Technology and Research.

It is the age of information, and the workforce needs to be prepared to become a 'knowledge society, and this calls for a continuous up-gradation of knowledge and skills and universal communication for global interdependence. It has necessitated learning throughout life for human development and economic growth.

The quality in higher education is defined as a multidimensional, multilevel, and dynamic concept that relates to the context settings of an educational model, to the institutional mission and objectives, as well as to the specific standards within a given system, institution, programme, or discipline.

The meaning of quality depends on:

(i) The understanding of the various interests of the stakeholders in higher education, i.e., students, labour market, society, government.

(ii) References: inputs, process, outputs, missions, objectives.

(iii) Attributes/characteristics of the academic world.

The Standing Committee PRS Legislative Research (2017) submitted its report on 'Issues and challenges before higher education sector in India', reported that the challenges of higher education in India after studying the higher education institutions in Hyderabad, Chandigarh, Patiala, Thiruvananthapuram, Udaipur, Chennai, Vishakhapatnam, Bhopal and Indore. The critical observations of the Committee are as follows:

• Shortage of resources
• A performance audit of teachers
• Lack of employable skills
• Accreditation of institutions to meet industry demand for quality workforce

Quality Parameters in Higher Education

Harvey, in 1995 (p3), designed five interrelated concepts of quality. These are:

• **Exceptional View of Quality:** which is distinctive and elitist, and extraordinary and, therefore, attainable by a select few.
• **Quality as Perception** as flawless with constant outcomes, attainable by all (democratic characteristic).
• **Quality is the Fitness of Purpose** in terms of fulfilling a customer's requirements, needs, and requirements, i.e., the ability of an institution to fulfil its mission of the programmes of the students and its aims.
• **Quality as Value for Money** in terms of return on investment (by the students).
• **Quality as Transformation** refers to the

enhancement and empowerment of the students, development of knowledge.

Harvey (1995, P3), in his paper 'Quality in Higher Education', emphasized the need for monitoring to:

• be more relevant to social and economic conditions;
• wider access;
• to be more cost-effective;
• to ensure comparability of the provisions and procedures within, and between the institutions, including international comparisons; and
• be responsible for a range of the stakeholders;

Zaiki and Rashidi (2013) compiled parameters of the quality of academic institutes of higher learning, which are relevant in the context of the present study. These are:

• Higher education **policies and practices** concerning physical infrastructure and human capital towards the faculty and staff development and academic guidelines for improving research and curriculum.
• **Resources:** Physical, human, and financial.
• **Learners' Profile:** diversity of the students concerning culture, motivation, digitally literate NET generation.
• **Curriculum:** contents and credits, material and methods, and evaluation.
• **Faculty:** knowledge, skills and abilities, and professional attitude of the teachers.
• **Institutional Leadership:** the ability to influence, motivate and enable others to contribute towards the effectiveness and success of the organization.
• **Open System and Thinking** reflect experimentation and adaptation to create a learning organization to cope effectively with the rapidly changing demands that require shared cohesive vision, team learning, and personal mastery.

According to industry estimates, '80% of job seekers in employment exchanges are without any professional skills and a quarter of all graduates are employable. There is a massive shortage of skilled workforce in India. Companies are not finding enough trained people to fit into different positions' (Duggal

2005). As a result of this, manufacturing industries and other technology sectors cannot get a technically qualified workforce (Duru, 2008). Lack of good teaching faculties and infrastructural support resulted in this problem of the poor quality of technical and engineering education in many privately funded engineering colleges.

The question arises as to what extents do the Private Universities and institutions of higher education fulfil the criteria of quality and efficiency in technical and professional education to enable the youth to become successful professionals and technocrats.

In the light of these developments, the present study was carried out with the following objectives.

The primary objective of the research paper was to assess the quality and efficiency of the professional and technical education being provided in public and private universities.

The focus of the qualitative assessment was on the needs and expectations of the internal customers.

The internal customers in the study are the recipients of the organizations' inputs, for example, the students and the faculty members.

The Qualitative Aspects were Assessed Concerning:

- The adequacy of infrastructure and learning resources.
- Curriculum design and development suitability and the relevance of the curriculum.
- Innovative practices of teaching and learning, and evaluation.
- Promotion of research activities,
- Faculty and student empowerment strategies.
- Value-based education with a sense of social purpose.
- University-industry interface and consultancy
- Governance and leadership.

Objectives of Study

In the light of these developments, the present study was carried out with the following objectives:

1) To assess of Quality aspect of the Institutions.

2) To assess the research culture and promotion of research activities in Private and Government, Universities.

In this section, data have been presented concerning the qualitative aspects of the significant study. The results have been presented in three parts concerning:

- Assessment and Accreditation of the Institution: Part A

- Comparative status and Ranking of the University: Part B

- Promotion of Research: Part C

Design of the Study

The present study is a descriptive exploratory survey. It is descriptive in the sense that it is concerned with the analysis of the relationship with non-manipulative variables in a natural setting as the events already exist. It is a systematic empirical inquiry to draw inferences about determinants of quality and efficiency due to the privatization of higher education. It involves the description and interpretation of the conditions that exist. The study was carried out in Private and Government Universities and Institutes of Higher Education, selected region wise from eleven districts of Punjab and also from the Union Territory of Chandigarh. The data were collected from Private and Government Universities/Institutes of Higher Education offering professional and technical courses in Punjab.

Method of Collection of Data

The data collected from the Heads and the Teachers mainly involved interactive/interview sessions held individually with them. The data were also collected from the final year students in the field of their specialization personally from each discipline/subject/department with the help of questionnaires.

Analysis of Results

This section deals with the data about Quality Assurance: Accreditation and Assessment of the Institutions by External Agencies (Part A); Ranking of the Institution (Part B), and Promotion of Research activities (Part C) for enhancement of qualitative aspects of the University/Institute of Higher Education.

PART A

Accreditation of the Institutions

Objective: Assessment of the Quality aspect of the Institutions.

Regarding the accreditation by the external

Table: 1 Accreditation of the Institutions

Accredited by	Private		Government		Total	
	N	%	N	%	N	%
NBA	10	21.74	4	19.05	14	20.89
AICTE	16	34.78	1	4.76	17	25.37
NAAC (Grade A^{++})	1	2.17	3	14.29	4	5.97
NAAC (Grade A)	1	2.17	5	23.81	6	8.95
NAAC (Grade B)	6	13.04	-	-	6	8.95
No response/ not accredited	12	26.09	8	38.09	20	29.85
Total	46	99.99	21	100.0	67	99.98

Source: IDC Survey Data

agencies as NAAC or other regulatory bodies, the data provided by the Heads are tabulated vide Table-1.

NBA: Accreditation by National Board of Accreditation

Data entries in table-3 reflect that according to 46 Heads of Private Institutions/University Departments, 10 (21.74%) of them mentioned the accreditation of their respective disciplines by NBA (established in 2010). Out of 21 Heads of Government/State University Departments, 14 (20.89%) Heads had their Department/Institute accredited by NBA.

AICTE: All India Council for Technical Education

16 Heads out of Private University/Institution (34.78%) mentioned the approval/recognition granted by the AICTE; in comparison to one out of 21 State University Departments approved by AICTE, which is 4.76%, depending on the discipline concerned.

NAAC: National Assessment and Accreditation Council

The data provided by the Heads indicated three levels of Grades assigned by the NAAC to the respective institutions.

Grade A^{++}: One out of 46 (2.17%) Heads from Private, and 3 (14.29%) Heads out of Government State University Departments/Institutions mentioned Grade A^{++} assigned by the NAAC to their respective institutions/departments.

Grade A: One out of 46 (2.17%) Heads of Private Institutions and 5 (23.8%) out of 2 State University Department mentioned Grade A assigned by NAAC to their Institution.

Grade B: 6 (13.04%) of 46 Private Institutions/ Universities were placed in Grade B by NAAC.

In all, out of a total of 67 Institutions/Departments from Private and State-owned Universities, 14 (20.89%) were accredited by NBA; 17 (25.37%) Departments were approved by AICTE. 4 (5.97%) Institutions got A^{++} Grade; 6 (8.95%) of them were placed in Grade A, and an equal number was set in Grade B by NAAC.

However, 20 (29.85%) out of 67 of the Heads did not respond to the question.

In comparison, the Government Universities outnumber their counterparts of Private Universities earning A and A^{++} grades by the NAAC to the tune of 10 out of 67, i.e. 14.92 % against 2 out of 46, i.e. 4.35 in case of Private Universities.

PART B

Comparative Status with National Level Universities: Ranking of the University

This part deals with the ranking of the University with other national-level Universities/ Institutes.

Regarding the place of their University/ Department/Institute compared to other National Level Universities, the following table: 2 records the answers of the Heads.

Top Ten: The considered opinion of the Heads regarding the position/ranking or the status of their institution in comparison to other national-level

Table: 2 Status/Position/Ranking of the University

Position/Rank	Private		Government		Total	
	N	%	N	%	N	%
Top Ten	16	34.78	8	38.09	24	35.82
Top Twenty	15	32.61	4	19.05	19	28.36
Top Fifty	15	32.61	9	42.86	24	35.82
Total	46	100.0	21	100.0	67	100.0

Source: IDC Survey Data.

institutions reveals that out of 46 Heads of Private Institutions, 16 (34.78%) of them; and 8 (38.09%) Heads out of 21 of the State/Government University would place their respective University Department/Institute among top 10 National level Universities/Institutes in the country.

Top Twenty:15 (32.61%) Heads from Private and 4 (19.05%) Heads of the Government University Departments ranked their respective departments among the top twenty national-level Institutions/Departments.

Top Fifty: 15 (32.61%) Heads of the Private, and 9 (42.86%) Heads of the Government University Departments ranked themselves or their institutes among the top 50 national-level universities.

In all, out of a total of 67 Heads, 24 (35.82%) Heads visualized themselves or their institutes among the top ten in the country. 19 (28.36%) in the top 20, and 24 (36.82%) Heads placed them among the top 50 national-level institutions.

Among the top ten, the percentage of Government Universities Departments, which is 38.09, exceeds the Private Universities, 34.78 per cent.

PART C

Promotion of Research

The Universities/Institutes of Higher Learning are known for their research output. To promote research culture, what is required is the framing of policies, making provision of adequate resources, infrastructure, i.e. space and equipment and support facilities.

Objective: To assess the research culture and promote research activities in Private and Government Universities, questions were framed accordingly for the teachers.

Research Programmes

The data have been recorded in Tables-3 to follow.

Table 3 Departmental Research Programmes

Promotion of Research Activities	Response	Private		Government		Total	
		N	%	N	%	N	%
UGC's SAP/CAS/DRS/DST/DBT/ICSSR/AICTE	Yes	32	34.04	50	62.5	82	47.13
	No	62	65.96	30	37.5	92	52.87
	Total	94	100.0	80	100.0	174	100.0
Recognition of Research Centres by State/National/International Bodies Centre of Excellence	Yes	23	24.47	30	37.05	53	30.46
	No	71	75.53	50	62.5	121	69.54
	Total	94	100.0	80	100.0	174	100.0
Special Research Labs Sponsored by Industry/Corporate Bodies	Yes	30	31.91	26	32.5	56	32.18
	No	64	68.09	43	67.5	118	67.82
	Total	94	100.0	80	100.0	174	100.0

Source: IDC Survey Data

UGC's SAP/CAS/DRS/DST/DBT/ICSSR/ AICTE

For Promotion and Strengthening of Research, several programmes are sponsored by UGC, such as Special Assistance Programme (SAP), Centre for Advanced Studies (CAS) Department of Research Support (DRS), apart from support provided by ICSSR and IICTE, DST, DBT, and Government Funded Projects that are being carried out in the Universities.

Under these initiatives/incentives, in 32 (34.04%) out of 94 Private; and 50 (62.5%) out of 80 Government Universities, research work is being strengthened, as per responses recorded in the table. Under these incentives, the quality of research as well as of researchers is also improved.

Taken together in Private Universities, 62 (65.96%) teachers; and in Government Universities 30 (37.5%) teachers, where these programmes do not exist, 53% teachers were deprived of research support, affecting the quality and research output adversely.

Recognition of Research Centres by State/National/International Bodies: Centre of Excellence

A University Department with a Research Centre recognized by State/National Bodies as the Centre of Excellence has the potential for quality research output.

In this context, 23 (24.47%) Private and 30 (37.05%) Government University teachers benefit from the promotion of research work. But a more extensive section of teachers, both from Private and Government institutions, i.e. 71 (75.53%) and 50 (62.5%) respectively, are devoid of this privilege, which comes to a total of 121 (69.54%).

Special Research Labs Sponsored by Industry or Corporate Bodies

This is another scheme/alternative support system for promoting research, particularly in the field of Engineering and Technology. Under this category, 30 (31.91%) of the Private; and 26 (32.5%) of Government University Departments benefit.

Again, 64 (68.09%) in Private; and 26 (32.5%) Government University Departments do not have this programme.

Since 66% to 76% in Private Universities and 37 to 67% in Government University Departments do not have any of these research facilities or programmes, it may affect research work adversely.

For the promotion of research, UGC's Special Assistance Programme or Centre of Excellence, and Research Labs sponsored by industry etc., is a matter of pride and honour, as it speaks volumes of the dedicated efforts put in by the academicians in research work. On this account, the Government Universities/Departments have the edge over Government Institutions.

To Sum

Quality Assurance

- For the quality assurance as assessed by NAAC, the Government University Departments/Institutes outnumber their counterparts in getting A and A^{++} Grade; which is 14.92% against 4.36% in the case of Private Universities.

- 38.09% of Government University Departments/Institutes rated them among the top 10 Universities of National level, which is higher than 34.78% of Private Universities.

Promotion of Research Activities

- 62.5% of Government, Universities/Institutes have support from UGC/DST/ICSSR/AICTE bodies compared to 34.04% of Private Universities.

- Recognition of Research Centres/Centre of Excellence by State/National Bodies is mentioned by 37.05% in government and 24.27% in Private Universities.

- Special Research labs sponsored by Industry/Corporate bodies were mentioned by 31.91% Private; 32.50% teachers from Private and Government University Departments.

Conclusion

The institutions need to pay UGC scales for the teachers to attract adequately qualified and best faculty in the institutions to maintain high standards of quality in teaching and learning, But all it requires is adequate resources. Investment in the promotion of research programmes and maintaining quality in higher education has its rewards. To enable the University/Institutes to compete with world-class universities, the Management in Government,

as well as Private Universities, need to create a better ambience for research by providing greater flexibility to promote research activities among the teachers and the students. The Universities have the research potential, and the industry can provide financial support to carry out researches befitting their needs and requirements and bring about desirable changes in the system. For Promotion of Research: University-Industry consultancy and University-Industry collaboration has to be a Joint Venture. The research activities to be geared to fulfil the requirements of the industry.

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an important role. Hopefully, the result will be an increased understanding of how to navigate our way through it. Focusing on the following rules will be a good start.

1. Consider the need of others, not just your own. Remember that you have to give to get, and that life is better when you live it as a win/win process.

2. Never forget just who you and your organization are. You are part of the community and a thread in the fabric of society. Don't do those things that common sense will tell you will cause to unravel.

3. Obey rules, laws, and cultural standards, or get them changed. Remember, however, that you can be unethical without breaking the law. Use commonsense and assess the potential damage of an unethical act or the violation of moral standards in advance. Violations are not worth it in the long run.

4. Test your thinking frequently. Ask yourself, "Is this the right things to do? Is it fair? Is it honest? Is there a better way?"

5. Don't lose your objectivity. This is a simple statement but a tough order. What is right, what is fair, and what is in your best interest may be different things. Be sure you put your biases aside and look at all aspects of the issue. ❑

Purpose of Education is to Find the Beauty of Life

Nirmala Sitharaman, Hon'ble Finance Minister, Government of India delivered the Convocation Address at the 29th Convocation Ceremony of Nirma University, Ahmedabad, Gujarat on March 20, 2021. She said, "I appeal to all of you, you've accessed some best of education through your university but I would like to tell you that young minds should have no fear, normally they don't, but I still say they should have no fear, particularly I would appeal that you shouldn't be worrying about approval by others. It is important to contribute your own, it is important to understand what desire, what drive, what energy lies within you and contribute to society without a sense of fear." Excerpts

I am extremely glad to be participating as a guest in the 29th Convocation which is being held today. It's only a virtual participation and I'll admit I look forward to a day when I can physically appear and be there in the University and understand more and more about the good work that you all are doing. Established only in about 2003, within slightly over a decade you have made immense contribution to higher education in India. And on that score I think the teachers, the management, and the cohorts of students who have passed out have really made a milestone achievement in university education in India and on that score I wish to place my appreciation.

Convocation are days when students look forward to receiving their degrees, certificates of good performance, medals and all kinds of commensurations which are due to them. But every time we pass out of universities we also implicitly commit ourselves to building a better country, better society, better future for ourselves and for the generations to come. And therefore every convocation is a very sacred event. If you ask me, each Convocation builds one more brick in the fundamentals of India's society essentially because the brick is made out of the soil of this land, the spirit of our forebears and also the cultural inheritance which actually colours and also gives the strength to the brick itself and therefore I would think it's important for us to understand that whilst it gives us extreme and good joy, memorable event that it may be, a convocation is the day that foundation is getting strengthened both by the institution and also by each one of us who participate in this event and particularly the students who have to take from that day a greater responsibility towards their own career and also towards India and its future. And in this I concede the role of the government is from the platform of a duty its government's duty to support education, to support young population, and students because it is they who look forward to building with their skills, with their knowledge a better society and after all it is a compact between the citizens and the government and the state that it is necessary for facilitation the government in the larger public good does everything to enable and facilitate the students and it is in that spirit that the New Education Policy (NEP) of India has been brought out recently and it has really been welcomed by all stakeholders in the education sector. I think it gives the students the flexibility which is required to do interdisciplinary study. I am one of those who benefited from interdisciplinary nature of education. If it is provided that actually gives a wholesome and holistic approach to education itself. So our government's focus I suppose like many others before us is very clearly on to focus on not just imparting education but also making students employable and that is where most things we have done to the student, their education, their skill imparting have all been to awaken that enterprise spirit that lies in every individual. That spirit may be useful for one particular set of trade or another particular set of trade, never matter. That spirit is what is important and I know Nirma University being in Gujarat, a land of entrepreneurship doesn't need a lot more to be said on it. But the education policy itself it focuses on not just rote learning, not just important imparting in the class between the teacher and the student a certain kind of exchange of knowledge, exchange of information; it's more to draw that spirit from within each student and that is why it is important. I would like to with great pleasure recall the words of Swami Vivekananda on this where he speaks about the purpose of education.

Purpose of education he says is to build life, to build character so life building – character

building engagement is what is education for him. And life building and character building also leads to assimilation of ideas. An assimilation of ideas is not just for itself. Whilst assimilating these ideas the key ideas will have to be completely imbued by us, absorbed by us, and not just absorbing it, living by it. Only when you live by certain of these key ideas which you may later call as your goal, your objective or your principle but unless those ideas which you assimilated, imbued within yourselves are set as your goals or principles to live by them you really don't become an educated individual. And I am only paraphrasing Swami Vivekananda's thoughts in this where he says someone who lives by the principle, lives by the key ideas that he has accumulated in the process of education is a far better educated and knowledgeable person than he who has just memorized say thousand books. Absolutely true. Wouldn't you agree because it is not by rote learning that people have become great men, it is more the way in which ideas have been absorbed, lives and exemplar life and living an exemplar's life he actually stands out as one of those knowledgeable wise men and women around and that is why that spirit of Swami Vivekananda is what is guiding this government whilst we revamp education. And education system whether it is in the primary level or in the higher education level.

One or two announcements in the budget recent one, February 1, 2021 may be very pertinent in this context for me to recall. We have come up with a National Apprenticeship Training Scheme for providing post education apprenticeship, training of graduates particularly those in engineering with diploma and graduation and I have given an outlay of Rs 3000 crores for this particular thing because most of the time when you speak to the corporate leaders, business leaders; they do say India produces a large number of graduates in every one particularly in the STEM area, you know Science and Technology, Engineering and Medicine. You have a lot of graduates coming out of universities but most often even in those sectors where the churn is a lot more people in the business areas, business leaders often say yes we have these graduates coming, we get them recruited but it takes nearly a year, complete year for them to even understand and fit in into the groove. Employability becomes an issue. Many of the employers therefore spend not just one year in investing in that employee who

has just joined them but yet to contribute to them in making him employable. So it is the necessary skill set which are for employment which are probably not adequately present even after the college or the university education. And that is where this Apprenticeship Training Scheme that we planned for which outlay is been made is of importance. There are also negotiations going on which again I mentioned during the budget with countries like the UAE, with Japan; each one according to the kind of skill sets that they would need for the various kinds of job offers that they have in this post corona world. So these kind of engagement with those governments clearly indicates to us what is actually required of many of our graduates so that opportunities are galore. Most of these countries do want our Indian graduates because they contribute with a certain amount of sincerity, with a certain kind of dedication which is so typical in the Indian students and I am so happy for that but dedication requires the suffusion of these extra skills, whether it is language or whether it is certain set of skills which is required in those particular countries and we are ensuring that the engagement is going to give us that advantage with which our youth can be better trained. And therefore I would want to say, Indian education system gives several such knowledge based talents, knowledge based endowments to the student but a bit more of value addition in the form of those skills required is what is being driven by government so that students have that lead advantage when they face the market for their jobs.

Now also I wish to recall that we had announced even in 2019 setting up of a National Research Foundation which would pool together all government's money which is scattered around, scattered across various departments and therefore not giving us that lead advantage. Now because we pooled it all up to form the National Research Foundation, I am glad to say a 50,000 crore allocation has been made for over five years in which this entire money would be available for additional research, innovative research and also looking at strengthening of those ecosystems which prevail for research in this country. There are about 24 of them. All of them need greater strengthening. They have been there but the synergy of these 24 ecosystems for research and for greater innovative thought is not yet prevalent and therefore this 50,000 crores over those five years will hopefully strengthen and give

that value addition for our research and research related activities.

I am sure many of you are aware that private sector has been given a lot of importance in this budget and in that we have opened up several areas which were till now completely reserved only for government and why do I have to say this in the university context particularly during a convocation. I say it only because the areas which are being opened up are so rich in possibilities, these are the areas in which university graduates, students who are coming out of university have immediate possibility to get in and be an entrepreneur. To innovate and support, to contribute with the newer thought, to bring in that youth energy which these sectors constantly survive and prosper with. For example, Space and Atomic Energy can immediately benefit from that energy that you have towards contributing with positive thoughts and also with your fresh skill sets and therefore space and atomic energy being opened up for private participation immediately offers immense scope for even individuals and not necessarily large companies who can contribute to that area of activity and there are immense possibilities. And therefore I quickly say that we have also in the recent budget allowed for one person companies to come into play. They can grow without any restrictions on paid up capital or on turnover. So when you have given this opportunity for one person companies to come in areas like space and atomic energy can easily have your inputs for their betterment and for your greater satisfaction that you are able to contribute to a premier frontier sector which is required in this country. Many startups have also during the COVID phase, I say this only because that is the kind of thing which Indian ingenuity has brought in. COVID pandemic was a lockdown, majority of the time you had to be partly of fully restricted in your movements. But even that did not deter our entrepreneurs. Look at the newer areas into which many of our startups have moved in saying oh even during a pandemic this is where my contribution will have to be and even then they have grown to become unicorns. Startups that have turned unicorns thanks entirely due to the corona restrictions. I can name a few, Raise the pay, Unacademy, Nykaa, stand out as entrepreneurs who have found niche areas thanks during the lockdown. So that a tendency, a good and positive tendency which exists in our minds as Indians to find newer opportunities, to find opportunities even during challenging times is what the spirit of being Indian entrepreneur is. And these are the times when most of us can find that energy, can find that positivity and find that typical Indian spirit of not just survive but prosper even if there are challenges.

I request, appeal to each one of you students who are getting your degrees today to look for that with a greater quest because that's what is going to make you as a strikingly different graduate, as a strikingly different youth, strikingly different youngster to stand out as an example for say several more youngsters. In this, even as I talk about students what they can do, what particularly enterprising individuals can do I will not forget the role of the teachers in this digital era. Look at the unsung revolution which is happening in primary schools. Children are probably looking to have company, they want to be physically next to their friends and which is right. But even than what is the contribution of the teacher, the online classes to which many of our teachers have very quickly adapted is something I would like to talk in every street corner. Today a teacher, a simple private primary school teacher has quickly adapted all kinds of technologies to reach out to their students who come from very different backgrounds. Not all of them even possess a phone in their hand but teachers have made sure that the communication is kept, imparting of learning is happening, and children from diverse backgrounds are being kept on contact, they are in the loop. Yes, it also has highlighted the big disparity between those who can access technology and those who cannot. But the fact remains that the teachers have tried bridging this gap and have also kept the momentum abound without betraying the fatigue which can set in. I can for one surely tell you moving from one to another, back to back on video conferences can be an exhausting exercise. But never mind, these teachers have not betrayed that exhaustion, that fatigue which can set in. And therefore teachers in our society, particularly in this rapid setting in digital era have done brilliantly for us and no wonder when the Prime Minister speaks of India which can be a Vishvaguru, it is this which makes them, it is this which Prime Minister and also all the ancient seers who have told us India has the potential to be a Vishvaguru. It is this kind of quality in a teacher which can rapidly adapt to changing circumstances, but not lose connection with their students. And that is where Indian teachers have got

that kind of a quality which makes us particularly as one of those who can be honestly teacher to the entire world.

I have spoken a word about the entrepreneurial spirit of Gujarat. Very many things have always happened for the first time there. I look at Nirma University as not just an educational institution of immense national pride but also as string medium through which this entrepreneurial and resilient spirit of India which is disseminated throughout the country.

As you stand as a strong medium, I wish you all the very best but one thing I would appeal to all the students, COVID or no COVID, jobs and jobs accessing being a challenge, notwithstanding and also this whole thing of do I match up with expectation of different people, do I really match up the expectation of my peer group, do my teachers like me, do my teachers understand me, understand my skills; none of this should be as a fear in your mind. I appeal to all of you, you've accessed some best of education through your university but I would like to tell you that young minds should have no fear, normally they don't, but I still say they should have no fear, particularly I would appeal that you shouldn't be worrying about approval by others. It is important to contribute your own, it is important to understand what desire, what drive, what energy lies within you and contribute to the society without a sense of fear.

I like to quote from Bertrand Russell, one of the very important thinkers in the English speaking world. In India we do somewhat read some of the western thinkers. As we say in Rigveda, knowledge coming from anywhere is good for us we will hear from all sides of the world. The window will be left open for knowledge to come in like a gentle breeze. I like to quote from

Bertrand Russell on this particular aspect, Fear of public opinion; I'm quoting here:

Fear of public opinion like every other form of fear is oppressive and stunts growth. I repeat this line, fear of public opinion like every other form of fear is oppressive and stunts growth. It is difficult to achieve any kind of greatness, it is difficult to achieve any kind of greatness while the fear of this kind remains strong. Unquote. This is a line I've taken from Bertrand Russell's book 'The Conquest of Happiness' he wrote it in 1930s. Today it is still valid. Fear of any kind of approval, or any kind of public opinion should not tug at the heart of young minds. You are there to be unfettered and to go forward and to contribute this great country's progress.

Thank you very much Nirma University for having given me this great opportunity to be with you all and to interact with your students.

I wish all of them a very best of future and the university a bright future too.

Jai Hind!

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CAMPUS NEWS

Online Academic Conclave on Life in IITs

One-day Online Academic Conclave on 'Life in IITs' was organized by the Educational Technology and Management Academy, Gurugram (Haryana) during July 17, 2021 at 11 am to 12:15 pm. Prof. Madhu Parhar, Convener of the Conclave greeted the participants and experts. She introduced the Speakers, Mr. Atanu Mondal, Mr. Soumya Saha, Mr. Tileshwarnath Tiwari and Mr. Sanjay Dalmia, and the Chairperson of the session, Prof. V S Raju, Former Director of IIT Delhi and Professor and Dean, IIT Madras. Prof. Raju chaired the session. He stated that IIT is in his blood. Over four decades, Prof. Raju had performed in many roles, like teaching, research, administration, Industrial consultancy, etc.

Mr. Atanu Mondal shared his unique campus experience in IIT Kharagpur. He said that he used to wake up early morning to attend the morning class at 8.00 am. After completing the breakfast, he cycled his way to the Nalanda campus to attend the class, lunch, afternoon classes, etc. Apart from the routine, he informed that the teachers were quite helpful and encouraging. Outdoor sports and cultural programmes were an essential part of IIT life.

Mr. Soumya Saha shared his experiences when he entered his first day in IIT Bombay and described the eco-friendly nature of the IIT Bombay campus. He also told that sports and cultural atmosphere of the campus, classrooms and labs were modern and well equipped. Computer labs were open 24/7, so everyone could use the computer according to their convenient time. The teachers were accommodating and friendly. He specially mentioned Professor Kundu about whom Mr. Soumya was very emotional and overwhelmed. He shared his experience with TechFair of IIT Bombay.

Prof. Mukhopadhyay requested Dr Rajendra Singh Pawar, Co-founder and the Chairman of NIIT Limited to say something on the theme. Dr Power compared the IIT system to a pressure cooker where students entered like vegetables and came out as delicious food after being cooked under pressure. According to him, IITs put tremendous energy into a student. Students achieve academic credibility, and they gain the ability to adapt to people from different walks of Life and can change the tracks at any moment in Life. Dr Pawar mentioned that changes in students happened due to the caliber of faculty and students. Most of the faculty in IITs are outstanding and genius. Above all, the IITs get the brightest youngsters from all sections of society.

Mr. Tileshwarnath Tiwari said that he was from a village government school and was admitted to IIT Kharagpur. So he was hesitant and little poor in communication in English. When he passed out of the IIT, he became a confident person. IIT helps students in academics and a variety of living styles, sports, and activities. According to him, there was nothing special in IIT except the process.

Mr. Tiwari illustrated an incident in his IIT campus life that made him learn cooking and cooperative work. Mr. Tiwari got the inspiration of working with village school from Dr APJ Abdul Kalam, Former President of India. His motto was providing urban quality school infrastructure in rural area schools.

Mr. Sanjay Dalmia said that lifestyle differs between the first and second semesters. From the second semester onwards, students became more relaxed. Students come to IIT with a lot of energy, and IITs channel this energy efficiently. IITs provide students with all kinds of sports facilities with world-class equipment and ground. Cultural activities are an inherent part of IIT life. There are varieties of things to do; students can choose any sports or cultural activity according to their taste. Students gain significant exposure to books, literary events, sports, seniors, hostels, ragging, drugs, and friends in IIT. The variety of experiences helped students becoming open-minded, try new things, and gain knowledge. Mr. Dalmia said that IITians are optimistic to the extent of believing that they can change the world.

In his concluding remarks, Prof Raju mentioned that there is no hierarchy in the IIT system. Whether the director or an Assistant Professor, everybody has to follow certain norms. Students are also committed to the system. Professor Raju cited an example from his life where a student was expelled from an institution for committing a crime. He was reunited with the student a few days later, and the student expressed his gratitude to him for making him realize the truth through the punishment.

In his final remarks, Prof Mukhopadhyay said that the agenda of the Conclave was finding the reason behind the success of the IIT system. Professors are masters of the subjects like other higher education institutions, and similarly, every student is entering the higher education institution is intelligent. It has been the misconception that pedagogy is the only reason for performance in IITs. There is something else, he said. Just as diamonds need to be rubbed to make them shiny, students need to be rubbed to make them bright. Meritorious students have the potential to perform. Some perform, and some do not, despite the potential. IITs can optimize the potential of the meritorious, which average colleges or universities cannot do. IITs have high voltage corporate, academic life. In response to a question, "How IIT students are different from other university students?" Prof Mukhopadhyay replied that it's not the students. It is the institutional ambience that makes the difference. Most universities are stuck in Fixed Mindset syndrome. IIT ambience is a growth mindset syndrome. It's a culture of performers. At the end, vote of thanks was proposed.

National Conference on Engineering Education

A two-day National Conference on 'Engineering Education' is being organized by the National Institute of Technical Teachers' Training and Research (NITTTR), Kolkata during November 11-12, 2021. It is being organised to mark the Birth Anniversary of Dr. Maulana Abul Kalam Azad who was the first Education Minister of independent India, the day being now celebrated as National Education Day, throughout the nation. The aim of the event is to bring together researchers, academicians, policy makers, industrialists and other stakeholders to a common platform so that different strategies to improve the overall technical education of the country can be explored. The principal focus would be to rethink engineering education in a global way.

Engineering education, in our country has been experiencing expansion over the last few years. It is also witnessing rapid changes in its mode of delivery and implementation. Engineering education provides great service to the society at different levels. Due to the need for accreditation and quality improvement, experimentation is also being observed in our country, presently. The Themes of the event are:

Reforms in Engineering Education

- Innovations in STEM Education.
- Entrepreneurship and Startups.
- Innovations in Engineering Pedagogy.
- Innovations and Incubation.

R & D in Engineering Education

- Active Learning Strategies.
- Research and Development in Engineering Education.
- Engineering Education Systemic Research.
- Industry Academia Collaboration.

Use of Technology in Engineering Education

- New Teaching Technologies.
- ICT Integration in Engineering Education.
- Blended Learning.

Engineering Informatics

- Learning Analytics.
- Artificial Intelligence in Engineering Education.
- Educational Data Mining.
- Engineering Education Management.

Paradigm shift in Engineering Education

- Online Pedagogy.
- Sustainable TVET.
- Distance Learning Methods.
- Teacher Education.

Quality Assurance in Engineering Education

- Accreditation and Evaluation.
- International Recognition of Qualifications.
- Intellectual Property Rights.
- Outcome Based Education.

Prospects and Challenges in Engineering Education

- Innovation.
- Impact of Globalisation and Privatisation.
- NEP-2020 for Reforms in Engineering Education.
- Impact of COVID-19 in Engineering Education.
- Women in Engineering Education.

For further details, contact Coordinator, Dr. Habiba Hussain, Associate Professor, Education and Management, National Institute of Technical Teachers' Training and Research (NITTTR), Kolkata- 700 106 (West Bengal). E-mail: *ncee2021@nitttrkol.ac.in.* For updates, log on to: *www.nitttrc.ac.in.*

ATAL Faculty Development Programme

A five-day Online ATAL Faculty Development Programme on 'Cloud Forensics: Techniques,

Challenges and Research Directions' is being jointly organized by the Department of Computer Science and Engineering, National Institute of Technology Sikkim during October 18-22, 2021. The event is sponsored by All India Council for Technical Education, New Delhi. The faculty members of the AICTE approved institutions, Research scholars, PG students, participants from Government, Industry and Faculty members, Technical staffs of the host institutions may participate in the event. The objective of the Programme is to acclimatize the faculties and researchers with emerging trends of the cloud forensics by promoting their interactions with eminent speakers and experts from IITs, NITs, industries and premium institution of abroad. The sessions will include various case studies and hands on presentation of innovative applications in the field of cloud forensics. Additionally, FDP will also help the faculties and researchers to inculcate different idea in their teaching and research by attaining the knowledge of the various facets of the cloud forensics but not limited to Cloud Computing, Incident Handling, Digital Forensics, Network Forensics, Hypervisor Investigation and Various Forensic Tools. The Contents of the event are:

- Introduction of Digital Forensics in Cloud.
- Recovery of Overwritten Data from Virtual Environment.
- Integrity and Trustworthiness of Forensic Data.
- Vulnerabilities in Cloud Management Portal.
- Detection of the Malicious Activities in Cloud.
- Intelligence Processes for Real-time Investigation.
- Segregation of Potential Evidence in a Multitenant System.
- Synchronization of Timestamps.
- Missing Terms in Service Level Agreement.
- Testability, Validation, and Scientific Principles for Cloud Forensics.
- Hands on Using Forensics Tools.

For further details, contact Dr. Pankaj Kumar Keserwani, Assistant Professor, Department of Computer Science and Engineering, National Institute of Technology Sikkim, Barfung Block Ravangla, Sub-division South Sikkim-737 139, Mobile No: 8967067779, E-mail: *pankajkeserwani@nitsikkim.ac.in.* For updates, log on to*: www. nitsikkim.ac.in/ events.*

ISEE National Seminar on Transforming Indian Agriculture

A three-day ISEE National Seminar on 'Transforming Indian Agriculture through Pluralistic and Innovative Extension Approaches for Self Reliant India' is being jointly organized by the Indian Society of Extension Education, Division of Agricultural Extension, ICAR-IARI, New Delhi, the Department of Extension Education Institute of Agricultural Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, Banda University of Agriculture & Technology, Banda, Uttar Pradesh and Global Communication Research Association, Paraguay during October 04-06, 2021. The event will bring out relevant, principles, practices, technology, Methods, experiences and experiments in the field of Agricultural Extension which have direct and indirect implications for *Atmanirbhar Bharat.* It will prescribe strategies and scientific supports accelerating the *Atmanirbhar Bharat* programme in India.

Agricultural Extension over the past several years has been an essential tool to bring a positive change in farm and home life of Indian Farmers. Though Agricultural Extension was highlighted during green revolution, its contribution in animal husbandry, forestry, horticultural sciences and in health sciences have high significance and relevance to India as well as to the world. The core principle of extension are to make the farmers think, discover and work to fulfill their needs by using appropriate technology with the help of extension support to become successful and self-reliant. The Themes of the event are:

- Improving Rural Economy through Innovative Extension Approaches.
- Strengthening Rural Infrastructure and Agricultural Systems through PPP Mode.
- Digital Extension for *Atmanirbhar Bharat.*
- Market-led Extension for *Atmanirbhar Bharat.*
- Agripreneurship and Start-ups for *Atmanirbhar Bharat.*
- Farmers Producers Company for Self Resilience.
- Extension Strategies for Empowerment of Women and Rural Youth.

For further details, contact National Organising Secretary, Dr. Basavaprabhu Jirli, Professor and Head, Department of Extension Education, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh-221005, E-mail: *iseeseminar2021@gmail.com.* For updates, log on to: *www.bhu.ac.in/events.* ❏

THESES OF THE MONTH

HUMANITIES
A List of doctoral theses accepted by Indian Universities
(Notifications received in AIU during the month of June-July, 2021)

Geography

1. Ratheesh Mon, P. **Modifications of landscapes in Chaliyar River Basin, Kerala**. (Dr. Lancelet T S), Department of Geography, Sree Sankaracharya University of Sanskrit, Kalady, District Ernakulam.

History

1. Bhosle, Rajesaheb Gangadharrao. **Marathwadyateel vastusangrahaleye: Ek chikitsak abhyas**. (Dr. Kathare Anil), Department of History, Swami Ramanand Teerth Marathwada University, Nanded.

2. Chauhan, Ishwar Lal. **Madhya Pradesh kee lok Sanskriti mein mrunmurtikala ka etihasik adhyayan: Prarambh se Guptkal tak**. (Dr. Vishwajeet Singh Parmar), Department of Ancient Indian History Cultural and Archaelogy, Vikram University, Ujjain.

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4. Parmar, Vijaykumar Kanabhai. **Establishment, development, activities and contribution of cooperative field of Kodinar Taluka: A study (1912 A D to 2012 A D)**. (Dr. D P Vala), Department of History, Saurashtra University, Rajkot.

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Hindi

1. Tondarkar, Sanjay Bhimrao. **Maharashtrateel Arya samaji chalval: Marathwadyachya vishesh sandarbhat**. (Dr. Kathare Anil), Department of History, Swami Ramanand Teerth Marathwada University, Nanded.

Languages & Literature

English

1. Basumatary, Farina. **A comparative study of the poetry leslie marmon silko and Mamang Dai in an eco perspective**. (Dr. Zothanchhingi Khiangte), Department of English, Bodoland University, Kokrajhar.

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Hindi

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Kannada

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Marathi

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abhyas. (Dr. P Vitthal), Department of Marathi, Swami Ramanand Teerth Marathwada University, Nanded.

Sanskrit

1. Bindhya, K S. **Uttararamacaritasya Vyakaranam**. (Dr. R Vijayakumar), Department of Sanskrit Vyakarana, Sree Sankaracharya University of Sanskrit, Kalady, District Ernakulam.

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Urdu

1. Ahmad, Shaikhsipai Ayeshabanu Niyaz. **1960 ke baad Urdu afsana**. (Dr. Gulam Hussain), Department of Urdu, Vikram University, Ujjain.

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Performing Arts

Fine Arts

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Music

1. Gotharwal, Vijay. **Bhartiya sangeet mein Sushir Vadhyo ka prayog-harmoniyam vadhye ke vishesh sandarbh mein**. (Dr. Prakash Kadotiya), Department of Music, Vikram University, Ujjain.

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4. Sukumaran, Asha. **Contribution of akashvani in the propagation of Karnataka music in Kerala**. (Dr. Manju Gopal), Department of Music, Sree Sankaracharya University of Sanskrit, Kalady, District Ernakulam.

Religion

Jainism

1. Priyashubhanjana, Sadhvi. **Bhavbhavna ka tulnatamak adhyayan**. (Dr. Jitendra B Shah), Department of Jainology and Comparative Religion, Jain Vishva Bharati University, Ladnun, District Nagaur.

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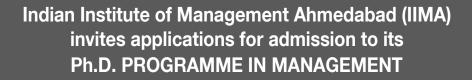
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