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Innovative teaching and learning in higher education institutions using social media

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Abstract---Social media are used in teaching and learning in schools and colleges during the pandemic and of late this trend continues in Indian higher education institutions. The objective of the paper is to know how social media enrich learning in undergraduate students of degree colleges of Vijayawada, Andhra Pradesh and how do lecturers cope with new methods of teaching online? The model of research constructed by the researcher takes the concepts of communities of inquiry. A model of communities of inquiry constructed by the researchers is used for this research taking into consideration the concepts obtained from the review. The research uses a quantitative research method namely a survey questionnaire to elicit responses from 769 students. Nine lecturers both seniors and juniors were chosen from nine programs and were interviewed personally using a guide questionnaire during intensive interviews. The results revealed that students have adapted to the new technology and the lecturers revealed that they need to be creative to be effective by using different video apps to teach students. A limitation is that the lecturers were chosen only from only one college in Vijayawada.

Keywords---Social Media, Higher Education, Communities of Inquiry, Survey questionnaire, Intensive interviews.

Introduction

Two decades ago, Neil Selwyn said that many institutions of higher education (and educators) now want social media applications and users to catch up with their technological breakthroughs (Selwyn, 2011). Two decades since Selwyn

remarked about online learning and we are in 2022 and the pandemic gave Indian higher education institutions opportunities to try out online learning. During the pandemic time, undergraduate students look up to their lecturers for effective online sessions where formal lessons are taught. Lecturers are forced to innovate teaching methods because the classroom context has changed. To a large extent during the pandemic, the formal classroom is replaced with online sessions taken by the lecturers using social media apps and also other videos apps for learning.

The research questions are: How do social media enrich the learning in colleges where undergraduate students study? How do lecturers and students cope with the new methods of teaching online and how do they respond to the new methods? In the past, researchers have focused on learning that accrued because of social media or new media. However, this study focuses on learning by both students and lecturers. Communities of inquiry is a model of learning proposed by Garrison and it deals with teaching, social and cognitive presences (Anderson et al., 1997), (Garrison et al., 2004), (Garrison, 2007), (Garrison et al., 2010); Communities of inquiry model demonstrates the relationship between the experts and learners using social media or Social networking sites to impart learning.

Literature Review

Social media make the lecturers let go of their control in student-oriented approaches in education (Iversen et al., 2015) and another study was undertaken to determine the consequences of studying online institutions and it acknowledges the complexities, shortcomings, and misunderstandings (Davidson & Goldberg, 2012). Another study was conducted on the effects of mobile apps on student learning and the study found that mobile apps use is both enjoyable and beneficial (Diliberto-Macaluso & Hughes, 2016).

Academics differ in the way they use or view social media, depending mostly on the science of teaching. Overall, the results highlight ambiguous attitudes towards social media's advantages and limitations in the context of degree education with barriers to benefits (Manca & Ranieri, 2016). Interestingly, the future design of MOOCs (Massive Open Online Courses) is projected to have a higher emphasis on social media applications. The great majority of the current MOOCs are designed as weekly activity sequences, where videos or videotaped lectures provide instruction, reinforced by additional lectures and workshops (Kaplan & Haenlein, 2016).

The attributes and aspects that crafted social media so exclusive and enthusing in 2009 have become so commonplace that they are no longer a topic of conversation, let alone a term. People today share, enjoy, suggest, produce, and curate content on the internet (Selwyn & Stirling, 2016). The number of instructors and students involved in everyday communications has increased in conjunction with the rapid surge in the amount and application of social media by individuals and organisations. The influence of social media on higher education and learning is investigated and evaluated in this research (Boateng & Amankwaa, 2016).

This study is in response to students' widespread usage of social media for academic purposes. It closes a gap in the usefulness and application of social networking sites in higher education as an effective tool in developing nations. However, the results revealed that social media has significant value for academic goals, particularly as an instructional and education tool (Sobaih et al., 2016). Another research suggests that social media has both beneficial and bad effects on education or students. Overcoming this obstacle is critical. How can parents increase good effects on social media while minimising negative aspects? Moderating social media access is an excellent strategy to do this, and most of the negative components may be eradicated by limiting the amount of time spent on social networking sites (Raut & Patil, 2016).

As a result, teachers must understand how students' socioeconomic and cultural characteristics influence their usage of social media to develop learning techniques that are tailored to the digital environment. The theoretical study was based on literary studies and empirical data collected in various countries to identify their differences and similarities (Bartosik-Purgat et al., 2017). Scholars debate the use of social media by university scholars, and this study tackles the issue of what causes universities to become more involved in social media (Brecht et al., 2017).

The Social Media Toolkit was created as a resource for instructors who want to effectively incorporate social media into their courses in the setting of higher education. Global vocabulary, geographic changes (France, Turkey, Germany, Switzerland), varied cultures, disciplines, and varying needs were all met to ensure that all teachers could consistently grasp the themes (users). The toolbox was meant to be transparent, eliminating the types of misconstructions that our research and literature indicated (Gülbahar et al., 2017). People who use social media websites, particularly Facebook, to acquire information about the institutions to which they apply are referred to as using social media. Because there is a scarcity of research on the present situation, many academics and professionals administer their Facebook Pages based on "gut emotions" rather than well-founded best practices (Peruta & Shields, 2017).

The requirement for technology firms of higher training is heightened by the changing backgrounds and provisions of students entering institutions. These students are therefore supposed to be more eager to employ digital technologies in all aspects of their university education (Henderson et al., 2017). The data flows that feed the "platform society" are vital to Facebook, Google, Apple, Amazon, and Microsoft. They have a significant business stake in educational platforms, so they significantly invest in the creation and delivery of online education (van Dijck & Poell, 2018).

Facebook dominates social networking, as well as some social networking exploitation tendencies in educational activities, according to this study. To begin with, these dispositions are learning in a variety of ways like assistance, advancing educational processes, cooperation, and operation. Second, users' personalities and styles, as well as fewer organisational issues, are largely covered (Zachos et al., 2018). The conclusions of this study indicate the valuable use of

social networks for collaborative learning, learning performance and participation (Al-Rahmi et al., 2018).

Schools and technology are an educational sector that is shaped by policy and knowledge progressively moving around the world instead of predetermined policy plans and formal activities (Player-Koro et al., 2018). The basic premise of the document is that the 'online teacher community per se does not exist as standard. The mass presence and usage of online communities by instructors is the consequence of social activities and social organisation which are the outcome of the components that form current teaching, technical, social, cultural, economic, and political (Lantz-Andersson et al., 2018).

Social media platforms have helped to revitalise traditional teaching and learning methods all across the world. The study's goal is to assess the consumption of social media platforms in higher education institutions in both urban and rural areas that are technologically challenged (Vivakaran & Neelamalar, 2018). Social media's usage as a fundamental component of commercial, entertainment, and educational activities is the most important and life-changing technology of the twenty-first century. The term "social media" refers to how individuals, groups, and collections of individuals utilise networked devices to consume, produce, and publish information. In social media, this word is used. As a result, massive networks like Facebook, Skype, Weibo, WeChat, and WhatsApp are covered (Anderson, 2019).

The findings of the survey suggest that the instructor does not use social media significantly for class delivery or evaluation. They also reveal a definite pattern, in particular in terms of delivery, in terms of raising the consumption level in the future (Stathopoulou et al., 2019). Another research provides a framework for the identification of the impact of information networks on E-learning systems in UAE, in which aspects that can affect the use of E-learning can be categorised using social media tools, specifically the Knowledge Shared (KS) (Alghizzawi et al., 2019).

Media literacy approaches to personal data are initially generated from a design viewpoint, concentrating on data competency and the use of data to include and permit individuals in civic life. The second goal is to assist users in comprehending and influencing social media representations (Pangrazio & Selwyn, 2019). In social media, new courses and campus facilities are provided with a fantastic platform to attract more students. With most students in social media, institutes provide a venue for activity promotion, feedback, and conversations to begin. It offers a better means of connecting and keeping parents up to date (Kumar & Nanda, 2019).

Because of the Covid-19 epidemic, politicians, university administrators, and higher education deans are looking for alternatives to the conventional physical classroom learning environment. Diverse Egyptian institutions, for example, have pushed students and faculty to use free communication platforms such as Google Classroom and Zoom. Faculty members have been encouraged to communicate with their students on social media platforms such as Facebook and WhatsApp through official pages and formal groups (Sobaih et al., 2020). Informal learning

contexts the commercial social media are widely utilised even though they were not originally designed for education (Manca, 2020).

This study identifies three methods for using social media to promote active learning, community development, and civic participation. The study draws on educational research to give evidence-based recommendations to teachers and educational designers working in a variety of settings (Greenhow & Chapman, 2020). This article explores the purposely hypothetical subject, "What could a 2030 school be?" with an emphasis on digital technology's impacts. The paper employs the analytical methodology of social scientist fiction' to investigate how digital technologies may be used in an Australian secondary school in 2030, as well as what this would entail for individuals who use them (Selwyn, Pangrazio, et al., 2020).

Three guiding principles are involved in future work on social media and higher education: to speculate on the future with credible vocabulary, to perceive between what is likely, what is possible, and what is better and to think of plural "futures," that is, to be open to the concept of several variations and orientations, which could well develop over the next few years (Selwyn, Hillman, et al., 2020).

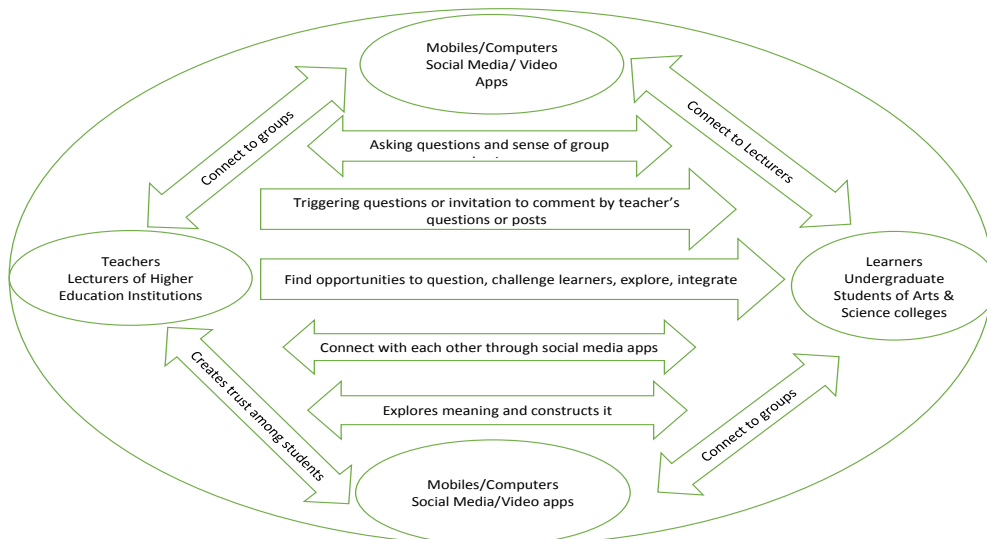
The studies referred above point to social media application in higher education and the importance of such application for knowledge production and sharing.

Methods

Communities of inquiry (CoI) is the model that is applied to the research at hand. Since we focus on teaching presence where the lecturers have a role to play in conducting online classes besides guiding students and making sure learning takes place, the data presented are from this point of view. Educators in group environments are anticipated to build learning activities, model the critical thinking process, and evaluate the results of cognitive attendance in the study outputs - projects, papers, and test results – to demonstrate that critical thinking is successful (Dron & Anderson, 2014). In research communities, Dron and Anderson characterise teaching presence as a successful group-based investigative community informal education. The presence of teachers begins with the educational design and organisation of tasks necessary for building a social and, in particular, cognitive context. The active facilitation of group discussion and other learning activities is another component of the teaching presence. They also say that competent teachers can question, train and challenge students to discover integrated and use the knowledge provided by the group (p.112).

A survey questionnaire is used to get the responses of both lecturers and undergraduate students. Questionnaires were distributed to undergraduate students from 10 colleges in the Krishna district and 72 lecturers belonging to different programs at Andhra Loyola College, Vijayawada, in the Krishna district of Andhra Pradesh.

Conceptual Framework of Communities of Inquiry (Col)



Explanation of the model

Lecturers use opportunities to question and challenge learners from higher education institutions. Both the learners and teachers are connected through social media apps and they explore the meaning and construct it. The teachers trigger questions or invitations to comment as tools to make learning interesting. Both teachers and learners ask questions and feel a sense of group. The conversation between learners and teachers takes place in the context of social media apps or video apps used by mobiles or computers. The double-edged arrows indicate that they connect to groups, and lecturers, and create trust among students. The entire process of learning takes place in an environment where social media apps or video apps facilitate learning.

Findings and Discussion

Seventy-three lecturers of Andhra Loyola College, Vijayawada filled in Google forms sent to them in WhatsApp groups. While 42 (57.53%) were male lecturers, 31 (42.47%) were female lecturers. The age group is covered from younger to the oldest. While 14 (19.17%) were below 30 years, 27 (36.98%) were from the 31-40 category. 16 of the respondents were from 41-50 and 51-59 categories. The respondents were drawn from different areas of teaching. It covered lecturers who taught different subjects namely Mathematics (16), Physics (11), Management (9), Politics, economics, and history (8), Computer science (6), mass communication (5), English (4), Biological Sciences (4), commerce (3), biotechnology (1), Chemistry (2) and other subjects (4). A total of 73 lecturers filled in the Google forms.

For a question of individual preferences for social media, all the 73 (100%) respondents use WhatsApp and 56.16% of the respondents use Facebook.

Instagram is used by 21 (28.76%) respondents and Twitter is used by 12 (16.43%) respondents. Only 15% of the respondents use all four social media accounts to reach their friends, relatives, and students. The lecturers use Google meet, Zoom, Google Classroom, and College LMS regularly to conduct online classes. One or two individual lecturers use Moodle, Jam Board, and Kahoot learning apps. While 56 (76.16%) lecturers use Google Meet, 46 (63.01%) of the respondents use Zoom. Google Classroom is a popular app used by 30 (41.09%) lecturers and 16 (21.91%) of them use College LMS.

All the participants in the focus group discussion said that they raise questions in their classes so that discussions could begin on a topic. They also brainstorm to make students creative and sustain interest in topics discussed. They were also unanimous in saying that questions trigger thinking and imagination.

The lecturers employed digitalized, interactive, activity-based teaching to reach students online. They used demonstration, discussion, and teacher-method to enhance learning. Most of the lecturers used ICT-based teaching for enhancement. The lecturers felt that they were encouraged to hear comments such as effective teacher, students attracted by teaching tools, teacher who uses practical examples, we understand your teaching, and we can express ourselves freely during the sessions. Teachers have their strategies to make students read and reflect. The strategies are printed materials given, pdf files are sent to students through WhatsApp or Google Classroom, e-books are downloaded and sent, prepared notes are given to students and assigned case studies as assignments. The lecturers used course design and facilitation as a tool to take students to achieve learning and land them good jobs. One of the lecturers said, "A course should reflect the latest trends in the subject and it should be application-oriented. Instead of testing or deriving a long proof, the focus should be on the knowledge of the application to be tested. The course must enable a student to become competent to face job interviews and competitive exams."

The lecturers said that they share the goals and objectives of the course with students and students too felt the same in focus group interviews. The lecturers reasoned that student becomes active and participative when goals are set before them. To make online classes interesting, lecturers feel that they have to prepare more than the formal classroom ones. 7 out of 9 lecturers also state that face-to-face teaching is far superior to online teaching. So, the lecturers merely adopt online teaching because of the demand and pandemic. Four out of nine lecturers give assignments both activity-based and written. They correct the assignments manually. Four lecturers administer quizzes and MCQs on Google Classroom. One of them used videos to make the students learn. One of them said, "On vaccines and vaccination, students were asked to draw a chart on the types of vaccines available in India and the types of microbes used." The assignments given to students are individual and group-based.

All the nine lecturers use WhatsApp to share online class links, class materials, recorded lessons, ppts, textbooks, class notes and to get in touch with students. The faculty also share YouTube video links on WhatsApp. One of the lecturers said that two online courses namely aptitude and soft skills are offered on the WhatsApp platform and he further stated that WhatsApp is a very effective tool.

The lecturers conduct Google Classroom, Zoom, Google Meet, and College LMS classes. They avail the open-source to conduct classes as the number of participating students is below 100. Seven out of nine felt that Google Classroom is a powerful tool for sharing videos, class materials, result analysis, and feedback.

On the question of how lecturers help their students with feedback, the participants said that feedback to a student is important as it gives a student way to correct the course of his study and from the experience of lecturers, alumni point to feedback sessions and their progress towards a better academic life. They also felt that feedback helps students who were not able to perform academically. By talking to students regularly about their performance once a week, the lecturers know the students and review the tasks given to them.

The interesting fact is that only two junior lecturers and a senior lecturer are not comfortable teachings online. One of the women lecturers pointed out that teachers could provide skills in memorizing, effective writing skills, and time management as the students coming from rural backgrounds lack these skills. Another critical view is that the active participation of the students is better in offline classes compared to offline classes.

When it comes to teaching the prescribed syllabus, 7 out of 9 said that they teach outside the syllabus so that a student's knowledge would increase. Contemporary issues were brought into teaching so that students are aware of the happenings around them. A physics lecturer said that when students are shown the videos of Prof. Walter Lewin's 'for the love of physics,' they relate to physics. Another lecturer said that relevant references helped students to grow in their knowledge of the subject. For students of visual communication and electronic media, practical aspects of the theory subjects are shown and, in some cases, serious discussions are undertaken.

Lecturers offered their views on 'teaching and learning' – One of the participants in FGD said that "teaching and learning is a process that includes more variables and these variables interact as learners work toward their goals and incorporate new knowledge, new behaviour, and skills that add to their range of vast learning experiences." Another experience faculty said that 40% online and 60% in conventional mode will be very effective in the teaching-learning process. He also lamented that administrators don't understand the technology and do not apply the same to available solutions. An experienced mathematics faculty said that "every lecturer should feel very responsible to teach an assigned course. A teacher should be strict, firm, and kind too. Learning becomes effective only through facilitation." The youngest lecturer said that teaching and learning must go hand-in-hand for a perfect outcome.

Crosstabulation of “years of study” and “my teacher does not design the course properly and so we don’t learn anything”

Table – 1 below shows cross-tabulation of “years of study” with the variable “my teacher does not design the course properly and so we don't learn anything.” The variables “years of study” and “my teacher does not design the course properly”

were tested for Chi-square. $p(0.000) < \alpha(0.05)$ so, the null hypothesis is rejected. So, there is a significant relationship between the variables, “years of study” and “my teacher does not design the course properly and so we don’t learn anything.” This is a negative statement so, 58.38% of the respondents disagreed with it and only 19.7% supported it. Kruskal-Wallis-H test for the same variable with a grouping variable of 'education status' shows a median of 4.0000 and $X^2 = 8.429$ with a p-value of 0.015. A higher mean value is shown because the statement is negatively worded. So, most of the respondents feel that lecturers design the courses well.

Table – 1
The teacher does not design the course properly

Years of Study	My teacher does not design the course properly and so we don't learn anything					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
1 st Year	11	19	55	133	54	272
2 nd Year	17	68	60	118	36	299
3 rd Year	16	21	53	84	84	24
	44	108	168	335	114	769

$\alpha = 0.05$
0.000

$X^2 = 43.814$

$p =$

Crosstabulation of “years of study” and “I do not rely on my teacher for any practical learning”

Table – 2 below shows a cross-tabulation of “years of study” and the variable “I do not rely on my teacher for any practical learning.” The chi-square value is lower than the level of significance ($p(0.031) < \alpha(0.05)$) and so the null hypothesis is rejected. There is a significant relationship between the variables. While 38.6% agree with the negative statement and 29.12% disagree with the statement. The small difference in the percentage between those who agree and disagree must be noted. Another factor is that this test shows that 11.57% of the total first years agreed with the statement. Possibly the first-year undergraduate students did not understand the statement. Kruskal-Wallis-H test results show that the variables of “parents' yearly income” and “I do not rely on my teacher for any practical learning” are significant. P-value is 0.020 for the test which is less than the level of significance. So, students do rely on a teacher to a certain extent as they need assistance from the lecturers in the context of formal education.

Table – 2
I do not rely on my teacher for any practical learning

Years of Study	I do not rely on my teacher for any practical learning					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
1 st Year	13	76	93	70	20	272
2 nd Year	23	102	100	69	5	299

3 rd Year	14	69	55	51	9	198
	50	247	248	190	34	769

 $\alpha = 0.05$ $X^2 = 16.909$ $p = 0.031$

Cross-tabulation of “years of study” and “lecturer conducts tests using WhatsApp”

The chi-square test of variables “years of study” and “lecturer conducts tests using WhatsApp,” shows the p-value is less than α . So, the null hypothesis is rejected. Table – 3 shows 53% of the students accepting the statement and 30.1% negating the statement. While 53% of the respondents agree that WhatsApp is used for online tests, only 30.1% disagree with the use of WhatsApp. The rest of the respondents may use other video apps for conducting tests. 17% of the respondents are neutral. Kruskal-Wallis-H test results with grouping variables of “years of study,” “age,” “parents' yearly income,” and “internet access” with “my lecturer conduct tests using WhatsApp” show the asymp.sig of 0.000, 0.002, 0.040 and 0.022 respectively. Since the p-value is less than the level of significance, the null hypotheses are rejected. So, undergraduate students use WhatsApp to take online tests in Arts and Science colleges.

Table – 3
Lecturer conducts tests using WhatsApp

Years of Study	My lecturer conducts tests using WhatsApp					Total
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
1 st Year	20	98	57	81	16	272
2 nd Year	40	145	39	64	11	299
3 rd Year	25	80	33	47	13	198
	85	323	129	192	40	769

 $\alpha = 0.05$ $X^2 = 22.470$ $p =$

0.004

Cross-tabulation of the “Yearly income of the parents of the respondents” and “my lecturer allows me to think critically and raise questions on different subjects”

Table – 4 below shows a cross-tabulation of the variables of the “yearly income of parents” with “my lecturer allows me to think critically and raise questions on different subjects.” The Chi-square test shows a p-value of 0.004 and the level of significance is 0.05. Since $p < \alpha$, the null hypothesis is rejected. We conclude that there is a significant relationship between the status of internet access and the statement. Table – 4 shows that 48% of the respondents agreed with the statement and 24% of the respondents disagreed with the statement. Kruskal-Wallis-H test results confirm the test result of the chi-square test. The asymp.sig. for the test with grouping variables “year of study” and “parents' yearly income” is 0.024 and 0.023 respectively. This proves the relationship between the variables and so, the respondents overwhelmingly accept that the lecturers allow them to think critically and raise questions on different subjects.

Table – 4
Lecturer allows me to think critically and raise questions on different subjects

Yearly Income of parents of the respondents	“My lecturer allows me to think critically and raise questions on different subjects”					
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	Total
Less than Rs. 60,000	41	181	112	67	15	416
Rs. 60,000-1,00,000	15	77	68	44	12	216
Rs. 1,00,001-2,00,000	9	22	12	15	3	61
Rs. 2,00,001-3,00,000	5	7	4	6	1	23
Rs. 3,00,001-5,00,000	1	5	6	3	3	18
Rs. 5,00,001 above	3	9	5	12	6	35
Total	74	301	207	147	40	769

Level of significance (α) = 0.05 $X^2 = 42.882$

p = 0.002

One-Way ANOVA for the variables “age” and “students learn from their classmates through WhatsApp interactions”

Null hypothesis: There is no significant effect on the age of students by the different responses to the statement that students learn from their classmates through WhatsApp interactions.

Alternate hypothesis: There is a significant effect on the age of students by the different responses to the statement that students learn from their classmates through WhatsApp interactions.

Table – 5
Tests of Between-Subjects Effects

Dependent Variable: Age

Independent Variable: I learn from my classmates through WhatsApp interactions

Source	Type II Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.286 ^a	4	0.322	0.850	0.494
Intercept	82367.030	1	82367.030	217645.460	.000
Age vs. Indep.vari	1.286	4	0.322	0.850	0.494
Error	289.133	764	0.378		
Total	301128.000	769			
Corrected Total	290.419	768			

From the above table, we noticed that the significant value of factor 0.494 is greater than the level of significance value 0.05, hence we accept the null hypothesis. We conclude that the age of students does not influence the responses to the statement that students learn from classmates through WhatsApp interactions.

Conclusions

We conclude that it is important for lecturers to design courses adequately so that the students will respond and learn from them. The data only proves that lecturers design the courses well and the students feel the same about designing the courses. The syllabus design focuses on the job orientation and the academic movement of students. Lecturers have different strategies like giving printed class notes, sharing pdf files, e-books, and textbooks through WhatsApp, and assigning case studies to make students learn. Social media apps play a vital role in students' learning in the context of higher education and also the pandemic prevailing in India, especially in Andhra Pradesh where online learning has taken place even in rural areas. The lecturers are creative in giving assignments using social media apps, they explain subject concepts adequately during online sessions and allow students to think critically and raise questions on different subjects during online sessions of formal subjects.

One of the implications of this research is that technology cannot replace lecturers because the students and lecturers still long for offline or classroom learning, though at the moment the students and lecturers seem to adjust to the new normal. One of the limitations is that the researcher chose lecturers from only one college for focus group discussion. Perhaps future studies might envisage bringing lecturers from different fields and various colleges. Depending on the rural or urban college, research may provide new data.

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