Indian J. Soc. & Pol. 11 (02):47-54:2024 **ISSN: 2348-0084 (PRINT)**
February-June 2023 (31 July 2024) **ISSN: 2455-2127(ONLINE)**

PEDAGOGICAL CHALLENGES TO ONLINE EDUCATION DURING COVID-19: EFFECTIVENESS OF COOPERATIVE LEARNING PEDAGOGY

RAJNI KANT SRIVASTAVA[1]
[1]Principal, RMP PG College Sitapur, U.P. INDIA

ABSTRACT

The sudden move towards online education during COVID-19 has raised big challenges for students as well as for educators also. Most of the learners and educators have no idea of e-learning tools and the traditional pedagogy is making the online learning solo and monotonous with a negative impact on their physical and mental health. The Article examines the effectiveness of cooperative learning pedagogy towards online learning during COVID-19. Using independent sample t-test in a comparative study between two groups taught with different pedagogies it was proved statistically significantly that the cooperative learning pedagogy may be much better for making online education interactive and to develop social skills, expertise, happiness and interest among the online learners. Cooperative learning also improved the results of the learners making a positive effect on their health.

KEYWORDS: *COVID-19, Online Learning, Cooperative Learning, Pedagogy, COVID-19*

In the era of globalization high quality of education is required to help the youths to face the challenges of 21st century. Good education is the only tool to remove the all problems of a country like poverty, unemployment, social exclusion, gender discrimination etc. A quality education can change the picture of a country within few years and that is why the quality of education should be maintained and upgraded time to time according to the need of world. Ancient Athens is the best example to show how a small city state due to its quality education system got a unique place in Greece and still its impact remains on the European education system.

The traditional classroom pattern has been changed a lot since last few decades. This change has taken place in two different dimensions. First is the change in pedagogy and the other is about the methodology. While talking about pedagogy we discuss the way of elaboration or how to deliver the content to the student. It's the part of the educator. On the other hand when we talk about methodology we meant the techniques or the technology used to deliver the content most effectively. Power point, smart class, Audio, video lectures are the part of technology not of pedagogy. I good education system must be updated in the both fields i.e. in pedagogy as well as in technology.

In 21st century the online learning has grown rapidly and most of the universities are promoting online education as an essential part. In India most of the state universities and college are still far away from online learning but willingly or unwillingly during this phase of Corona pandemic they have to adopt online education as a compulsory option. During COVID-19 pandemic most of the countries called for lockdown to prevent the community transmission of the decease. In the next coming few months most of the colleges and institutions will remain close as they are on the highest risk of the spreading of COVID-19 pandemic among the youths. It may be very worst condition if the community transmission takes place through the colleges and universities and especially in primary and junior level schools where students (little children) are not supposed to take care of their self following proper social distancing, using masks and sanitizers. It seems that online learning is going to be the major tool for or a long time but as sudden we have turned towards online education system teachers as well as students (learners) are facing the big challenges towards it. During this emergency call for online learning some institutions, schools, colleges and universities have started using online mode of learning from March 2020 in India. On one hand we need a large framework and infrastructure to run the online education properly and effectively in India where most of the students come from the rural and very backward areas at the same time we need very different type of teaching and learning methods to maintain the virtual classrooms interesting and effective as our traditional classrooms.

FIXING THE PROBLEM

Teacher centered classroom pattern is no more appreciated now a days in the field of education. New

1: Corresponding Author

pedagogies are taking place to make the learning much more effective, interesting and fruitful. Thus we have to maintain an adequate balance in the both the dimensions of education. During COVID-19 students have to stay at home and to continue their education online mode. They are not use to of online education and the mental pressure of this pandemic is equally making them panic. Most of the students have no idea how to use online resources like free e-books, e-journals, Google classroom, and other Google tools. They just use Whatsapp, You Tube and Facebook for e-learning. Most of the teachers are not skilled properly for effective online teaching. They are just using the same tools as the students. During virtual classroom they are just delivering their content without caring about the responses of the learners. It makes the learner unhappy and after some time he starts losing interest in virtual classrooms. For the effective online education system cooperative learning pedagogy may be a better alternate in place of traditional type virtual classrooms. Cooperative learning pedagogy has become very popular pedagogy of education in last few decays. In U.S.A. Johnson Johnson, Salvin, and so many researchers have proven in there researches that cooperative learning is far better pedagogy not only to develop expertise as well as interest in subject, but also to enhance the social skills, interaction, leadership and other qualities among students.

The following research questions may be raised towards online learning in India:

1-Is is sufficient to develop the infrastructure for online learning or a solid learning pedagogy also should be developed for effective online teaching?

2-Whether our traditional classroom teaching pattern will be effective enough in virtual classrooms or a new pedagogy can be more helpful to learners?

3- Will cooperative learning be the much more effective as compared to tradition pedagogy used in virtual classrooms?

Now a day's most of the experts are focusing on the technical part of online education but for effective online education pedagogical dimension is equally important. This paper will be focusing on pedagogical part of online learning.

The remainder of the article is as follows. The review of literature is presented in Section I while analytical framework is depicted in Section II and hypotheses are formulated in Section III. Methodology and data are described in Section IV whereas Testing Tolls are described in Section V. Section. Results are presented and discussed in Section V. Finally, Section VI summaries the findings of the study.

REVIEW OF LITERATURE

The pedagogy is the backbone of the teaching learning behavior. A teacher with a good pedagogy can make the classroom much more interactive, interesting, and effective rather than a teacher who has good knowledge but not proper learning pedagogy. In online education teacher may not present physically with the student and he has to use the technological tools to deliver the content with the help of virtual classes. Efficient elaboration to make students experts in subject, to develop social skills, to create interest and to make the virtual class interactive is a big challenge in online education. Cooperative learning pedagogy can be the best way to remove the obstacles towards online learning.

Johnson and Johnson a major contributor in this field defines cooperative learning as "the instructional use of small groups so that students work together to maximize their own and one another's learning". Sharan defines it as "a group-centred and student-centered approach to classroom teaching and learning", while Slavin refers to cooperative learning as "instructional methods in which teachers organize students into small groups, which then work together to help one another learn academic content". All of the researchers refer to cooperative learning as a "set of methods in which students work together in small groups and help one another to achieve learning objectives" (Johnson & Johnson, 2009,). In another way Liang, (2002), defined cooperative learning as pedagogy within which students are active constructors of knowledge in the learning process instead of passive receivers of any given knowledge.

Thus we can define cooperative learning as a learning pedagogy in which students work in small groups formed in a heterogeneous way and they learn together with the help of their teacher who plays a role of mentor of facilitator not just an orator.

Johnson and Johnson (2008) told about the five basic elements of cooperative learning: Positive interdependence, face-to-face interaction, individual accountability, interpersonal and social skills and the last but not least is the group processing.

The outcomes of worldwide researches by the different scholars and researches in the field of cooperative learning are very positive and the results are significant. Michael Cavanagh (2019) in his study based on five open ended questions with students found Cooperative Learning helped to understand the lectures. He used small groups and different activities like GD etc. J. Patrick McCarthy and Liam Anderson (2000) in a study on two groups of History and Political Science found that collaborative exercises and group study gave the very positive outcomes. Robert. E. Slavin, Johns Hopkins University & University of York (2008) in a research "Cooperative Learning, Success for all, and evidence - based reform in education" tried

to examine the cooperative Learning programme among the heterogeneous groups of students in public schools in USA. Yang Cao (2017) in his study revealed the need of cooperative learning events for trainees to give them to more opportunities for interpreting practice. He find it very helpful supplement to traditional teaching methods. David W Johnson and Roger Johnson (2015) suggested the use cooperative learning among the school students to understand their rights, responsibilities to ensure future generations of citizens in democracy. David W Johnson and Roger Johnson (1996) also in his paper "Cooperation and the use of Technology" reveal the interdependency of both.

Thus we find that cooperative learning pedagogy is one of the most widespread and fruitful pedagogy which results very positive. To understand in what ways cooperative learning may help in online education we have to understand the concept, theoretical background and essential elements of Cooperative Learning.

The Major objectives of this paper are:

- To statistically compare the outcomes of traditional pedagogy based virtual classroom and cooperative learning pedagogy on the higher education students learning online during COVID-19.
- To suggest the better pedagogy for online learning to the students during COVID-19.

ANALYTICAL FRAMEWORK

This research paper will focus within pedagogical framework of the online teaching only. The framework is driven on the basis of theoretical arguments and empirical evidences. Tengku Kasim, Tengku Sarina Aini (2014) in context of Malaysian education system found traditional teacher centred learning pattern not much effective. Qiyun Wang (2009) discussed the importance of interactive pedagogy which can support and satisfy to learners.

Traditional learning pedagogy may not be sufficient for effective online learning. It is based on virtual classrooms, one way teaching and solo learning. The real motives of education like expertise in subject, development of social skills and leadership, interaction among learners, can't be fulfilled using this old way of teaching. It might be possible that the students may panic and suffer from health issues. It will definitely affect to their performance as well as to their happiness and lastly their interest in online learning. This solo learning may lead to negative outcomes of online learning. Following arguments are given below against the outcomes mentioned in framework:

Expertise in Subject

In virtual classrooms teachers face so many problems in delivering content effectively. Internet issues, voice clarity problem and one way presentation make the learning difficult foe student. Most of the e- contents are in English medium and it is a big hindrance to understand the concept deeply. Problem of elaboration and understanding leads to lack of expertise which may be the negative outcome of this type online learning.

Social Skills**;** Study inside homes can't develop social skills among the students. They have to do nothing with the outside world. Their information, activities are limited just in their virtual world. Through online learning students can't learn to regard the differences of each other or to cooperation with fellow learners.

Interaction Vs Solo Learning: Without informal gossips or ice breaking sessions with fellow learners they don't find any idea about their fellows present in virtual classroom at the same time. They have no interactions or informal talks with each others. One way classroom is a challenge for online learners as they feel they are just listeners during a video lecture or in virtual classroom where they have to keep their microphone on mute mode. It can make the learning monotonous.

Health issues**:** Staring on screen for long hours without physical activity may cause fatal deceases like eye problems, backbone and neck deceases. Learners have to spend a lot of time staring on screen, High radiation of digital HD screens make the learner tired soon. Reading E- contents on phone listening through head phone and using social sites for long time is really a very dangerous for their physical as well as for mental health.

Interest and Happiness**:** The area of major problem is that the students are use to face to face learning through traditional classrooms. This online education turns them towards solo learning, without interaction, cooperation or personal attention. Their physical and mental health gets affected. Teacher has to keep in mind that the long video lectures and e-contents can make them panic, uneasy and monotonous in next few days and they may be disinterested and unhappy with this online education pattern after some time.

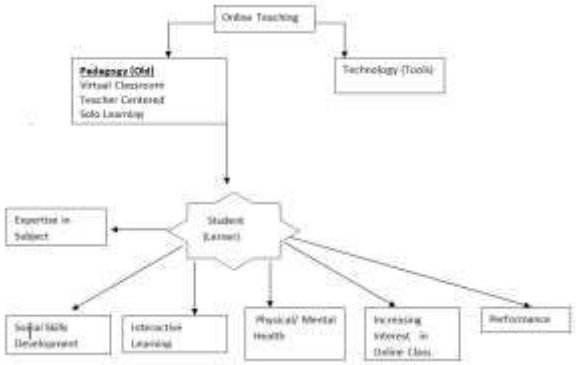
Performance: In virtual classroom students feels panic and unhappy after some time. It affects his performance. He never feels a race to win like in traditional classroom where he notices the performances of other's and tries to improve him comparatively.

HYPOTHESIS

To short out these issues in online classroom we have to use some new multidimensional way of teaching. Beyond virtual classrooms or You Tube lectures we have to focus on new cooperative learning pedagogy using social media

platforms. We can use smart phones effectively for collaborative learning. Mobile devices provide learners opportunities to collaborate, discuss content with classmates and instructors, and create new meaning and understanding. Furthermore, social media provides for collaborative and engaging opportunities for students (Hoffman, 2009; Pang 2009), Cochrane and Bateman (2010).

Figure I. Factors affecting to online learner through Traditional Pedagogy



.Source: The Author

The paper will try to examine whether the Cooperative Learning can deal with the pedagogical problems during online education in India and other countries during COVID-19. The following hypothesis will be examined in this research paper:

H_1 –Cooperative learning pedagogy plays effective role to develop expertise in subject as compare with tradition pedagogy.

H_2 - Cooperative learning plays an effective role to develop online social skills among online learners as compare with tradition pedagogy.

H_3 - Cooperative learning plays an effective role to towards interactive online learning as compare with tradition pedagogy.

H_4 - Cooperative learning makes positive effects on physical and mental health of learners by reducing time on phone/pc screen as compare with tradition pedagogy.

H_5 - Cooperative learning helps to increase interest and happiness in online learning as compare with tradition pedagogy.

H_6 - Cooperative learning increases performance of learners in online education as compare with tradition pedagogy.

TESTABLE NULL HYPOTHESIS

To defend the alternate hypothesis in this research paper the following Null Hypothesis will be tested:

$H_{0(1)}$ – Cooperative learning makes no difference to develop expertise in subject as compare with tradition pedagogy.

$H_{0(2)}$ - Cooperative learning makes no difference to develop online social skills among online learners as compare with tradition pedagogy.

$H_{0(3)}$ - Cooperative learning makes no difference towards interactive online learning as compare with tradition pedagogy.

$H_{0(4)}$ - Cooperative learning makes no difference on physical and mental health of learners by reducing time on phone/pc screen as compare with tradition pedagogy.

$H_{0(5)}$ - Cooperative learning makes no difference to increase interest and happiness in online learning as compare with tradition pedagogy.

H_6 - Cooperative learning makes no difference to performance of learners in online education as compare with tradition pedagogy.

METHODOLOGY AND DATA

This research is based on empirical study made between two groups of the same class. Both of them were taught online using two different pedagogies at the same topic. Total 40 students of R.M.P. P.G. College Sitapur Uttar Pradesh, India were selected for this test. All the students belong to B.A. part two and represent the different religions, castes, genders, and localities. A general message was sent to the 60 students (30 boys and 30 girls) of the class to join this exercise as volunteer. We found just 40 positive responses. So many students were having technical issue. Finally two heterogeneous groups were made among them of 20 each and both were taught online by two different pedagogies. Group 'A' was taught by traditional classroom pattern (CTP) whether Group 'B' by cooperative learning (CLP).

Table-01:Personal Profile of the Students

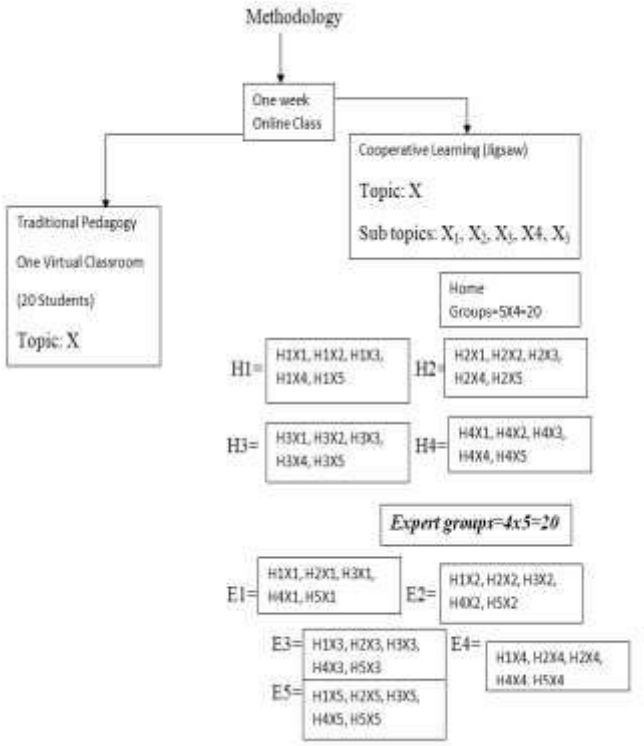
Variances	*Gender*		*Locality*		*Category*		
Respondents ↓ →	Male	Female	Rural	Urban	General	OBC	SC
Group-CTP (A)	10	10	08	12	09	08	03
Group-CLP (B)	10	10	07	13	12	06	02
Total	20	20	15	25	21	14	05

Source: The Author

Table shows that the both groups having 20 respondents are heterogeneous. In group A (CTP) 10 male and 10 female students are from different localities and categories and the same pattern was followed for Group B (CLP). Total 15 students are from rural and 25 from urban areas. Rural student's participation is lesser due to technical and infrastructure problems they face in online education. Girls have participated equally as boys. As for as the category is concerned the majority of participants (21) belong to general category. Only 12.5% of the sample belongs to schedule caste category and it is also a question of research to be answered.

The teaching pattern used for CLP group was same as Jigsaw technique. In this Cooperative learning pedagogy the main topic was divided in five sub topics and the whole group of 20 students was divided in 4 home groups. Each group was heterogeneous on the basis of gender, locality and their mental ability. Each home group had five members with one sub topic for each. After discussion in home groups the members were asked to make the expert groups on the basis of their particular topic. Thus four expert groups were made again to discuss the subtopics to expertise. After well discussion and understanding of subtopics the students were supposed to get back in their home groups and to elaborate the subtopics with their home group members. The role of teacher was of an observer, mentor or facilitator. The second group was taught in a traditional way using a virtual classroom on zoom app. The exercise was concluded by a small quiz on daily basis. This exercise was made for one week continuously for the both groups. After the completion of exercise a final quiz was offered to both groups followed by a feedback survey. Using the data received through feedback survey and on the basis of the test rank the researcher has statistically analyzed the impacts of both pedagogies with some selected variables designed to test the null hypothesis formed above. Zoom, Whatsapp, Hike and Instagram apps were used for group activities and virtual classes.

Figure II. Pedagogical Framework



Source: The Author

TESTING TOOLS

After one week teaching, data was collected through questionnaire having five point Likert scales to find out the feedback of students in both groups. The feedback was collected for the following Independent variables:

1-Expertise in Topic

2-Social Skills Development

3-Interaction

4-Health issues

5-Interest in Learning

6-Happiness Index

7-Ranks obtained.

Each Likert scale for variable 1-5 was labeled as strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5) i.e. moving negative to positive in ascending order. For variable no.6 the happiness index was also designed as likert scale (very unhappy, unhappy, neutral. happy and very happy). After the completion of exercise on the basis of a quiz based on objective multiple type questions, ranks were awarded as very poor (1), poor (2), average (3), good (4), very good (5), and excellent (6). The collected data from Group 'A' and group 'B' was statistically analyzed. In research the means were compared by using Independent t-test method. KMO test was also used to check the adequacy of the sample size.

STATISTICAL ANALYSIS

For the testing of the adequacy of the sample applied KMO test was applied. As we know that KMO value is a statistical rule about the size of the data and this test shows the suitability of the data set for analysis.. For and adequate sampling the KMO value must be between 0.8-1.

Table: 02

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.930**
Bartlett's Test of Sphericity	Approx. Chi-Square	494.145
	Df	36
	Sig.	.000

Source: The Author

KMO value of the given data set is ***.930*** .It means the sample size is adequate for the further analysis. Value is significant as indicated above.

For the selected independent variables, comparison of means and independent sample t-test for the both groups was

performed. Means for the both associated groups and their t-values are given in the below table.

Table: 03

Srl.	Tested Variables	Groups Compared	Means	t- value	Significance Level
1	Expertise in Topic	C T P	2.30	-11.273	.000
		C L P	4.75		
2	Social Skills oriented	C T P	1.90	-12.205	.000
		C L P	4.70		
3	Interactive	C T P	1.85	-16.383	.000
		C L P	4.65		
4	Health issues (eyes & mental strain)	C T P	3.75	7.365	.000
		C L P	1.95		
5(i)	Interesting Pedagogy	C T P	1.65	-20.679	.000
		C L P	4.85		
5(ii)	Happiness Index	C T P	2.00	-12.698	.000
		C L P	4.65		
6	Quiz based ranks	C T P	2.50	-7.767	.000
		C L P	4.45		

C T P = Class with Tradition Pedagogy.
N=40

C L P = Cooperative Learning Pedagogy.

Source: The Author

***H*$_{01}$** deals with the assumption that cooperative learning makes no difference to develop expertise in subject as compare with tradition pedagogy but the result shown for the first variable are crystal clear to reject the null hypothesis. The CLP group (*M=4.75*) is highly agree with the opinion that cooperative learning helped to expertise in subject whether the CTP group (*M=2.30*) is disagree for the same. The mean values have a clear difference and statistically highly significant (*t=11.273*) at the level of 1%. Thus the result supports the alternate hypothesis H_1.

As assumed in ***H*$_{0(2)}$**, cooperative learning makes no difference in developing online social skills among online learners as compare with tradition pedagogy. With the help of tables 2.0 we can interpret very clearly that the CLP group (*M=4.70*) is highly agree with the opinion that cooperative learning helped to develop social skills whether the CTP group (*M=1.90*) is disagree for the same. The mean values have a clear difference and statistically highly significant (*t=12.205*) at the level of 1%. Thus the result supports the alternate hypothesis H_2 and we may reject the null hypothesis against the above.

***H*$_{0(3)}$** assumes that cooperative learning makes no difference towards interactive online learning as compare with tradition pedagogy but the test results again show that the CLP group (*M=4.65*) is strongly agree with the opinion that cooperative learning helped them to develop social skills. On the other hand the CTP group (*M=1.85*) is highly disagree with this opinion. The mean values have a clear difference and statistically highly significant (*t=16.383*) at the level of 1%. Thus the result supports the alternate hypothesis H_3 and the null hypothesis may be rejected.

The assertion in ***H*$_{0(4)}$** that cooperative learning makes no difference on physical and mental health of learners by reducing time on phone/pc screen as compared with tradition pedagogy was also proven wrong in the t-test. CLP group (*M=1.95*) is strongly disagree with the opinion that cooperative learning leads to health issues like eyes problems and mental strain whether the CTP group (*M=3.75*) is highly agree that long virtual class room lectures are causing the above health issues to them . The mean values have a clear difference and statistically highly significant (*t=7.365*) at the level of 1%. Thus the result supports the alternative hypothesis $H_{(4)}$ and rejects the null hypothesis.

***H*$_{05}$** deals with the assumption that cooperative learning makes no difference to increase interest and happiness in online learning as compare with tradition pedagogy. To test the Hypothesis H_{05} two different questions were asked to the students of the both groups. As the interesting pedagogy is concerned row no.5 (i) (table-2.0) is crystal clear that the CLP group (*M=4.85*) is strongly agree with the opinion that cooperative learning was a very interesting pedagogy where as the CTP group (*M=1.65*) is highly disagree with this opinion. The mean values have a clear difference and statistically highly significant (*t=20.679*) at the level of 1%. Row no. 5(ii) (table-2.0) again provides a crystal clear result that the CLP group (*M=4.65*) is strongly happy with cooperative learning pedagogy making a big difference with CTP group (*M=2.00*) who have rated as unhappy on the happiness index. The mean values have a clear difference and statistically highly significant (*t=12.698*) at the level of 1%. On the basis of both t tests we can disapprove the null hypothesis and accept the alternate hypothesis H_5.

***H*$_6$** assumes that cooperative learning makes no difference to performance of learners in online education as compare with tradition pedagogy. Compare of the means of the ranks awarded to both groups show a crystal clear difference. CLP group (*M=4.45*) has higher ranks making a big difference with CTP group (*M=2.50*) students having lower ranks in test for the same topic. The mean values have a clear difference and statistically highly significant (*t=7.767*) at the level of 1%. With the help of this fair result we can reject the null hypothesis to defend the alternate hypothesis H_6.

CONCLUSION AND SUGGESTIONS

Results supports the alternate hypothesis and the null hypothesis may be rejected foe each variable. During COVID-19 we find no other solution for safe and uninterrupted education for our students. The findings of the data analysis are crystal

clear and statistically significantly prove that the traditional classroom education pattern is not suitable for long time online learning. Virtual classrooms and just self made audio or video lectures on You Tube and Whatsapp or Facebook may not be the proper pedagogy for online education. Learning does not mean just listening. Students will feel bore and monotony if they just keep listening in front of the screen. They will have to participate actively discussing with their colleagues and teachers. Results show very clear that students are not crazy or interested in online learning with traditional way. This solo learning is not fulfilling the real aim of education. If students will be just listeners on the screen I don't think they will take much more interest as they wear in their traditional classrooms. In online learning they are alone at their home in front of their screen learning solo. They cannot discuss at the same time on the virtual platform they have to keep their microphones in mute mode and even the teacher is also not in the position to observe what they are really doing during his lecture. How can we think that the students will be enjoying this online learning when you're not having the proper infrastructure internet speed device etc? Students may be panic, frustrated and affected physically and mentally soon if we do not engage them in some interesting learning activities where they can share their views properly and feel innovative in sense of learning method.

Having these problems in mind we can apply the cooperative learning pedagogy effectively with online learning to remove these obstacles. Cooperative learning pedagogy has shown very positive outcomes and the students have enjoyed the exercise with deep interest and interaction with their fellow learners. It may convert the one way class into a tri-polar group study pattern. It means teacher-student, student-teacher and student-student learning. Cooperative learning can make online learning very effective and interesting by engaging the learners through small activities in small heterogeneous groups with each other to work in a group. The cooperative learning concept may be very helpful among the learners and for the Teachers as well. We can engage the learners in such a way that they should take responsibility to learn in groups. They should make efforts by themselves. Cooperative learning can engage students with interest because in cooperative learning we can use the social platforms very well to make small and heterogeneous groups. Where some of the students are not having proper internet, some others are not so good in English. Some of them are not expert to search the free material from e-resources such heterogeneous will be the most effective tools. By making such heterogeneous groups of different type learners we can develop social skills, leadership, interaction and collaboration among them. They will learn with each other in a better way where we can just mentor them. We can use any of the technique like Jigsaw or STAD used in cooperative learning suitable to the learners with our own modifications but no doubt it is the best teaching pedagogy during online learning and it will be more fruitful rather than traditional type virtual classrooms. In cooperative learning the teacher has to play a very different role he has to make the small group of the heterogeneous learners you has to play the role like helper creator and manager student also have a better environment in group to enhance their individual skill and to develop the qualities like leadership cooperation mental health improvement.

ACKNOWLEDGEMENT

The author is thankful to Dr. Kaushalesh Lal, UNU-MERIT, Maastricht, The Netherlands, for his valuable comments and suggestions on the article. The authors, however, is solely responsible for the remaining errors, if any.

DECLARATION OF CONFLICTING INTERESTS

The author declares no potential conflicts of interest with respect to the research,authorship and / or publication of this article.

FUNDING

The authors received no financial support for the research, authorship and/or publication of this article.

AUTHOR'S BIO SKETCH

Author Prof. Rajni Kant Srivastava is working as Principal and research supervisor in R.M.P. Post Graduate in R.M.P.P.G. College Sitapur Uttar Pradesh (India); in service since 2003.

REFERENCES

Argyle, M. (1987). The Psychology of Happiness, London: Methuen

Barker, Chris and Martin, Brian, Dilemmas in Teaching Happiness, Journal of University Teaching & Learning Practice, 6(2), (2009). Available at:https://ro.uow.edu.au/jutlp/vol6/iss2/2

Chris Barker, Brian Martin, journal of University Teaching and Learning Practice (2009) Vol.06, issue-02, Dilemmas in Teaching Happiness

David W Johnson and Roger Johnson pg(785-811) Johnson, David & Johnson, Roger. (1996). Cooperation and the use of technology. Handb Res Educ Commun Technol.

G. Salomon, (1985). "Information technologies: What you see is not (always) what you get," Educational Psychologist, volume 20, number 4, pp. 207-216. http://dx.doi.org/10.1207/s15326985ep2004_5

Hoffman, E. (2009). Social media and learning environments. Shifting perspectives on the locus of control. In education, 15(2).

Hart, S. G., & Staveland, L. E. (1988). Development of a multi-dimensional workload rating scale: Results of empirical and theoretical research. In P. A. Hancock & N. Meshkati (Eds.), Human mental workload (pp. 139–183). Amsterdam: Elsevier

Joanne Gikas and Michael M. Grant, (2013), Mobile computing devices in higher education: Student Perspectives on Learning With Cell phones, Smart phones & Social Media, The Internet and Higher Education, Vol.19 pg18-26.

Johnson, David & Johnson, Roger. (2015). Cooperative Learning: Improving university instruction by basing practice on validated theory. Journal on Excellence in College Teaching. 25. 85-118.

J. Patrick McCarthy and Liam Anderson, (2000)"Active Learning Techniques Versus Traditional Teaching Styles: Two Experiments from History and Political Science," Innovative Higher Education, Vol. 24, No.4, Summer: 2000.

Katerina Kedraka, Christos Kaltsidisi ,(2020) Effects of The COVID-19 Pandemic on University Pedagogy: Students' Experiences and Consideratio, European Journal of Education studies,7 (8). DOI: http://dx.doi.org/10.46827/ejes.v7i8.3176

Karalis T.,Raikou N (2020). Teaching at the Times of COVID-19: Inferences and Implications for Higher Education pedagogy. International Journal of Academic Research in Business and Social Sciences, 10(5):479-493.doi:http://dx.doi.org/10.6007/IJARBSS/v10-i5/7219.

Michael Cavanagh, (2019) "Students' Experiences of Active Engagement through Cooperative Learning Activities in Lectures," Active Learning in Higher Education, SAGE Journals, 12(1) 23-33

Muhammad Sarwar, Tariq Rahim Soomro (2013), Impact of Smartphone's on Society European Journal of Scientific Research ISSN 1450-216X / 1450-202X Vol.98 No.2 March, 2013, pp.216-226 http://www.europeanjournalofscientificresearch.com

Marhamah & Mulyadi (2013), Jigsaw Cooperative Learning: A Viable Teaching-Learning Strategy? Journal of Educational and Social Research, 3(7), 710 Retrieved from https://www.mcser.org/journal/index.php/jesr/article/view/1027

M. Christina Hove and Kevin J. Corcoran , (2008) ,Educational Technologies: Impact on Learning and Frustration Teaching of Psychology, 35: 121–125, 2008, LLC ISSN: 0098-6283 print/1532-8023 online DOI: 10.1080/00986280802004578

Qiyun Wang (2009) Designing a web-based constructivist learning environment, Interactive Learning Environments, 17:1, 1-13, DOI: 10.1080/10494820701424577.

QS (2020). The Impact of the Corona Virus On Global Higher Education. Quacquarelli Symonds http://info.qs.com. Accessed 6 May 2020.

R. Mason and T. Kaye, (1990). "Toward a new paradigm for distance education," In: L.M. Harasim (editor). Online education: Perspectives on a new environment. New York: Praeger, pp. 15-38.

Salah-Eddine K. (2020). How COVID-19 is Driving a Long-Overdue Revolution in Education. https://www.weforum.org/agenda/2020/05/how-covid-19-is-sparking-a-revolution-in-higher-education/. Accessed;15 May 2020.

Tukur Madu Yemii, Nurulwahida Binti Hj Azid, Madya Ruzlan bin Md Ali, (2018), Effect of Jigsaw Strategy of Cooperative Learning on Mathematics Achievement Among Secondary School Students. European Journal of Education studies

Tengku Kasim., Tengku Sarina Aini. (2014) ,Teaching Paradigms: an Analysis of Traditional and Student-Centred Approaches. Jurnal Usuluddin, [S.l.], v. 40, p. 199-218, dec. 2014. ISSN 0128-0708. Available at: <https://ejournal.um.edu.my/index.php/JUD/article/view/7492>. Date accessed: 03 july 2020.

Vogiatzaki E. (2019). Teacher's Roles and Skills in Distance Education. International Conference On Open & Distance Education 10:38-42. DOI: http://dx.doi.org/10.12681/icod1.2154.