

# A Study on the Emerging Ways of On-Line Learning Experiences of College Students in Chhattisgarh during Pandemic Corona

[<sup>1</sup>] Dr Shaiju P. K

[<sup>1</sup>] Vice Principal & Asst. Professor, Department of Education, Christ College, Jagdalpur, Bastar District, Chhattisgarh State, India  
Corresponding Author Email: [<sup>1</sup>] shaiju.christjdp@gmail.com

*Abstract— Chhattisgarh is an educationally developing state. Most of the college students in this state are either first generation or second generation learners. Higher education institutions and learning operations in this state were seriously hit by COVID-19. Teaching-learning practices in the educational institutions of Chhattisgarh knew some disorders on learners' psychological well-being and achievement level due to lockdowns and their impact. Educational scenario in Chhattisgarh was a major challenge because of unequal levels of alternative solutions to pursue learning. Emerging ways of learning experiences in Chhattisgarh during COVID-19 included On-line Learning, E-Learning, Distance Learning, Virtual Learning, Google Classrooms, etc. This survey cum experimental research aimed to raise awareness about these novel platforms that were used in Chhattisgarh since the pandemic's emergence. The study addressed their effectiveness by assessing attitude and achievement level of learners as well as attitude and perception of parents by comparing the extent of responsiveness to these modern and relevant technologies. The study intended to track the future of these patterns in the post-corona phase. The researcher analysed attitude and achievement level of learners making comparisons between rural and urban areas, boys and girls, and socio-economic status of college students in Chhattisgarh. The researcher analysed attitude and perception of parents based on profession, a key indicator of socio-economic status. The study proved that attitude and achievement level of learners differed statistically based upon location and gender. Socio-economic status of the college students had no impact upon their attitude and achievement level. Attitude and perception of parents differed statistically based on their profession or socio-economic status.*

**Key Terms :** Emerging ways, Learning experiences, On-line Learning, Pandemic Corona.

## I. INTRODUCTION

Chhattisgarh is considered to be one among the educationally and socially developing states of India. Most of the college students in the state are either first generation or second-generation learners. Learning operations provided by the educational institutions in Chhattisgarh were part of the hardest areas hit by Pandemic Corona. Due to sudden breakdowns, teaching-learning practices and processes followed in the higher education institutions in Chhattisgarh knew some disorders and interruptions. This crisis brought its effect on psychological well-being and academic achievement of college students due to restrictions of lockdown and social distancing. Educational scenario during Pandemic Corona was a primary concern and major challenge for Chhattisgarh due to unequal levels of alternative solutions to pursue teaching-learning process regularly with lesser damages.

## II. NEED AND SIGNIFICANCE OF STUDY

The emerging ways of enriching learning experiences of college students in Chhattisgarh during Corona included On-line Learning, E Learning, Distance Learning, Virtual Learning, Google Classrooms, and Edutainment. Different stakeholders of education including students, teachers,

parents, management, community, and society welcomed this novel system of teaching-learning due to the helplessness of Corona. There were differences in attitude towards new patterns of teaching-learning. These attitudinal differences affected educational progress and achievement level of students. The investigator, being a full time Assistant Professor in Teacher Education College, greatly experienced these differences in attitude as well as in achievement level of B Ed students, and seriously felt the need of undertaking a research on the issue. This study aimed to raise awareness about novel platforms which were introduced since the pandemic's emergence among the college students in Chhattisgarh. This research tried to address the effectiveness of new practices in teaching-learning process in different parts of the state. This study attempted to assess attitude of learners (affective domain) as well as performance and achievement of learners (cognitive and psycho-motor domains) by comparing the response to novel teaching-learning technologies. This research intended to track future of these novel patterns and platforms in post-corona phase in Chhattisgarh. The investigator took up the study to analyse attitude of B Ed students, making comparisons between rural and urban areas (Location wise), boys and girls (Gender wise), and socio-economic status (Profession of parents). The investigator tried to study about

attitude and perception of parents based on profession. The investigator aimed to find out the achievement level of B Ed students in general comparing and analysing their performance after Offline mode of learning and On-line mode of learning of the topic "Personality Development" from Paper II – 'The Learner and Learning Process' of B Ed 1<sup>st</sup> Semester.

### III. STATEMENT OF PROBLEM

Based on the review of related literature from foreign and Indian scholars, the investigator concluded that no such study was conducted in Chhattisgarh especially among the students in the Colleges for Teacher Education. The investigator felt the need of making a research study in order to fill the research gap in the particular area. With this purpose the investigator decided to undertake a research titled, "A Study on the Emerging Ways of On-line Learning Experiences of College Students in Chhattisgarh during Pandemic Corona".

### IV. OPERATIONAL DEFINITION OF TERMS

1. 'Emerging ways' referred to new and current technologies used as ways and means of teaching-learning which became popular especially during Covid-19.
2. 'On-line Learning' is learning through on-line media and internet. 'Learning' referred to relatively permanent change in behaviour. On-line learning is computer-based learning using ICT.
3. 'Learning experiences' referred to programmes for continuation of teaching-learning, activities in which actual teaching-learning occurred in colleges.
4. 'Pandemic Corona' referred to global pandemic, originated at the end of 2019 and in the beginning of 2020, which was wide spread in different parts of the world.

### V. OBJECTIVES OF STUDY

1. To find out the level of attitude towards on-line learning among the college students in Chhattisgarh with regard to demographic variables of gender, locality, and socio-economic status of parents
2. To find out the level of achievement of the college students in Chhattisgarh after offline learning and on-line Learning
3. To find out the level of attitude towards on-line learning among the parents of college students in Chhattisgarh with regard to socio-economic status based upon profession

### VI. HYPOTHESES OF STUDY

1. There will not be significant difference in the level of attitude towards on-line learning among the college students in Chhattisgarh with regard to demographic

variables of gender, locality, and socio-economic status of parents.

2. There will not be significant difference in the level of achievement of the college students in Chhattisgarh after offline learning and on-line learning.
3. There will not be significant difference in the level of attitude towards on-line learning among the parents of college students in Chhattisgarh with regard to socio-economic status based upon profession.

### VII. REVIEW OF RELATED LITERATURE

Swain et al., (2023) conducted a research to exhibit the moderating effect of Learner Interaction on Motivation To Learn, Mobile Learning and Online Learning Climate, in order to bring in enhanced rigour to the virtual knowledge dissemination during the times of crisis. The study found that MTL and ML contributed to improved OLC and high LI moderated the positive relationship between MTL, ML and OLC. LI also directly contributed to an improved OLC. The research suggested that measures are to be designed to ensure heightened interaction of learners, to gear up the ML reaching heights to achieve a dynamic OLC. Familiarization of OLC will be the solution to tackle learning disruption during pandemic and many other challenges to come in near future. The study established the moderating role of LI in influencing OLC and motivating facilitator's for designing content.

Zizka & Probst (2023) made a study to explore students' perceptions of on-line learning. The result of this research was analysed to examine the consequences of forced on-line learning. The analysis revealed that although the students appreciated the usefulness of the learning experience, their motivation decreased. The historic crisis underlined sudden technological changes in the learning programs that had multiple effects on students' learning. This study concluded that students have mixed perceptions regarding the learning environments (traditional, hybrid, or blended) moving forward. HEIs must carefully plan the most effective teaching/learning environment to ensure that students remain engaged. This study revealed the links and interconnections in this complex online setting called "learning".

Madonna (2022) conducted a research to evaluate and make aware of the novel patterns of teaching-learning used worldwide during Covid-19. This study addressed their effectiveness assessing performance and comparing the responses. This study stated the future of these platforms in the post-corona phase.

Sims et al., (2021) in a quantitative research aimed to identify the level of acceptance of factors that facilitated online learning among university students who experienced full online learning mode. The results showed a moderate high level of acceptance of online learning among the students. Among the factors that facilitated online learning, enhancement of language skills ranked the highest, followed

by enthusiasm, self-efficacy and satisfaction.

Kankaanranta & Makela (2014) in a study aimed to refine innovative teaching practices and procedures as alternative learning solutions that supported educational institutions. This study tried to make technology-based learning as an integral part of teaching-learning and promote systemic learning solutions. The investigator developed a cyclical process model of learning solutions.

Mishra (2009) in a research article presented an overview of E-Learning in India. It described historical developments of E-Learning and identified major institutions which initiated E-Learning programs. Based on critical analysis on existing practices, the investigator suggested the establishment of a statutory body for E-Learning and recommended the development of a learning objects repository and training of teachers.

Delich et al., (2008) conducted a study to identify the need of emerging technologies in teaching-learning to engage learners. This study explained how emerging technologies affected education. This study also identified challenges faced by educational organizations in adopting these emerging technologies.

Beetham (2005) undertook a research which debated whether the field of E-Learning should be prioritised for the future. This study suggested that focus should fall on questions that are both clear and tractable for researchers to have a real impact on learners and practitioners. This study also defined some suggestions that are based on early findings.

## VIII. THEORETICAL OVERVIEW

### A. Concept of On-line Learning

Online learning is a method of education whereby students learn in a fully virtual environment. First introduced in 1990s with the creation of the internet and utilized in distance learning, online learning (e-learning) is most prevalent in higher education. It enables students from different geographical areas to engage with other academic institutions and students and learn flexibly, at their own pace.

Sarah Guri-Rosenbilt from Open University of Israel defined E-Learning in "Distance Education" and 'E-Learning': Not the Same Thing" (2005): "E-Learning is electronic media used for various learning purposes ranging from conventional classroom add-on functions to online substitution for face to-face meetings with online encounters".

Clark & Mayer defined E-learning in "E-Learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning" (2016): "E-Learning refers to instructions delivered through digital devices with the intent of supporting learning".

Arkorful & Abaidoo defined E-Learning in "The role of E-Learning, advantages and disadvantages of its adoption in higher education" (2015) as "Learning using ICT for

enabling access to online teaching and learning resources".

The term 'E-Learning' had been in use since 1999. It is similar in meaning to 'Online Learning' and 'Virtual Learning'. On-line learning is a type of distance learning in which students are able to access materials and complete learning tasks even outside the classroom, making use of internet. It relaxed the learning barriers for students using multimedia, where students are able to utilize video and audio, graphics, and animation. Technological advancement helped educational institutions to reduce the cost of learning bringing education to a wider audience. The environment is able to facilitate learning in an easy and simple way. Individuals at home are able to access the programmes that offered the ability to earn online degrees and enrich their lives through expanded knowledge. On-line learning inspired by social media also included Massive Open and Online Courses (MOOCs) and You Tube Channels. Individuals and companies take advantage of these different resources.

### B. Characteristics of On-line Learning

Online learning refers to an internet-based learning environment that can connect students of diverse background. Higher Education Institutions use a Learning Management System (LMS) to facilitate online learning, which can take the form of asynchronous learning (where students are not required to be online at the same time, and utilize discussion threads and e-mails to complete coursework) or synchronous learning (where students must be online at the same time). On-line learning is learner-centred, meant for lifelong learning. It is flexible learning in time and place. It is personalized learning as per the pace and need of the learners. It involves the use of communication skills and use of technologies in education.

### C. Advantages of On-line Learning

Learners are benefited by on-line learning because it is available at 24 hours. Learners could access knowledge and information through on-line at anywhere. On-line learning provides faster information. It involves active participation of learners throughout teaching-learning process. On-line learning provides a wider scope to learners. It enables learners to access information as per their needs. On-line learning is cost effective; it does not need learners to travel. It considers individual differences and needs. On-line learning provides discussion through video conferencing. It makes learners independent because they do not need instructors. On-line learning enables to access knowledge from different experts all over the world. It enables experts to share their knowledge worldwide, so that others could be benefited through their knowledge sharing.

### D. Means of On-line Learning

According to Tamm (2019) on-line learning is provided through –



- Computer Managed Learning (CML) or Computer Managed Instruction (CMI)
- Computer Assisted Instruction (CAI) or Computer Assisted Learning (CAL)
- Synchronous On-line Learning which is a group based online learning
- Asynchronous On-line Learning which is also a group-based learning system
- Fixed E-Learning in which fixed content materials are presented by the teacher.
- Adaptive E-Learning which is a student centric learning system
- Linear E-Learning which is a one-way learning program
- Interactive On-line Learning which is a two-way communication
- Individual On-line Learning which is a communication free learning
- Collaborative On-line Learning which is a group online learning type

### IX. METHODOLOGY OF STUDY

**A. Location of Study :** The location of the present study was Jagdalpur (representing rural areas) and Raipur (representing urban areas), 2 important towns in Chhattisgarh.

**B. Population, Sample and Sampling Procedure :** B Ed 1<sup>st</sup>Semester students of the Academic Year 2021-2022 in the Teacher Education Colleges of Chhattisgarh was the population of the study. B Ed 1<sup>st</sup>Semester students of Christ College, Jagdalpur & Surya College, Jagdalpur (Rural areas) and Harishankar Shukla Memorial College, Raipur & Khalsa College, Raipur (Urban areas) were the sample of the study. The total number of sample was 200. The investigator followed Lottery method of Simple Random Sampling in all the phases of the present educational research.

**C. Variables of Study :** (a) Dependent variable – Attitude and achievement of college students, attitude and perception of parents (b) Independent variable –Different ways of on-line learning

**D. Research Method :** The investigator followed Survey cum Experimental research. Survey method was used to find out attitude of the B Ed students as well as attitude and perception of the parents. Experimental method was used to find out the level of performance and achievement of the B Ed students after Off Line learning and On-line learning.

**E. Tools of Data Collection :** ‘Attitude towards E-Learning Scale’ developed by Dimple Rani (2015) was used in the research study. The scale had been standardized on a sample of 200 students of age group 14+ studying in Senior Secondary classes of Ludhiana District in Punjab. The

scale consisted of 65 items out of which 38 items were positive items and 27 items were negative items. The scale consisted of four aspects of E-Learning such as Interest, Usefulness, Ease of E-Learning, and E-Learning Confidence. The scale was a five-point scale: Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree. Both positive and negative type items were included in the scale. Items were selected through Factor Analysis.

**F. Statistical Techniques:** The investigator used statistical techniques of t-test, z-score, ANOVA, and Standard Deviation to analyse attitude of B Ed students as well as attitude and perception of parents towards on-line learning. ‘t’-test was used to analyse difference between two mean scores. ANOVA was employed to analyse difference among the mean scores of attitude of B Ed students, attitude and perception of parents from different strata of society (socio-economic status) towards on-line learning. The statistical analysis was done by using SPSS.

### X. DESCRIPTIVE STATISTICAL ANALYSIS

Descriptive statistical analysis was carried out to assess level of attitude towards on-line learning among B Ed students as well as parents in Chhattisgarh. Survey questionnaire was sent to all the 400 students of B Ed 1<sup>st</sup> semester in the four Teacher Education Colleges, selected for the study. The first 200 students who responded to the survey questionnaire was considered for the study. With regard to gender, among 200 respondents 113 were males and 87 were females. With regard to area or location, among 200 respondents 65 were from rural areas and 135 were from urban areas. With regard to socio-economic status of the students, among 200 respondents 72 belonged to upper class, 47 belonged to middle class, and 81 belonged to lower class.

### XI. DIFFERENTIAL ANALYSIS

Differential Analysis was used to find out significant mean difference between groups. In this research, attitude of B Ed students as well as attitude and perception of parents towards on-line learning was tested by comparing scores of responses through computation of t-values between demographic variables and attitude towards on-line learning. It involved the most important procedure to make inferences. It determined statistical significance of difference between groups with reference to selected variables. Both dependent and independent variables were tested for various hypotheses to determine whether there existed true difference in each due to background variables. It involved t-test and f-test, which determined whether the performance of two groups was significantly differed.

**A. t-test :** t-test is a numerical procedure to find out size of mean difference between two groups, the number of subjects in each group, and the amount of spread present in the scores. It finds out whether one group differs from another group or

not in performance. t-test is a technique used to determine whether the mean performance of groups is significantly different or not. Garret (1976) was applied to find out whether there existed significant difference between means. In this study, in testing the hypotheses, the investigator used 't' test to find out significant difference between demographic variables and attitudes.

**B. ANOVA or f -test :** ANOVA was used to compare difference between three or more samples/groups of a single independent variable of the research.

## **XII. TESTING OF HYPOTHESES, ANALYSIS & INTERPRETATION**

### **Hypothesis 1**

There will not be significant difference in the level of attitude towards on-line learning among the college students in Chhattisgarh with regard to demographic variables of gender, locality, and socio-economic status of parents.

The mean value of male and female college students was 198.01 and 201.34 with standard deviation of 22.400 and 23.086. It showed that female college students had high positive attitude towards on-line learning compared to males. The calculated t-value of male and female college students with respect to attitude towards on-line learning was 3.238. The calculated value, 3.238, was more than the table value 1.96 at the level of significance 0.05. So, the null Hypothesis was rejected and an alternative hypothesis was accepted. The investigator came to the inference that 'there will be significant difference in the level of attitude towards on-line learning among the college students in Chhattisgarh with regard to demographic variable of gender'.

The mean value of college students from rural and urban areas was 194.36 and 211.38 with standard deviation of 18.945 and 25.543. It showed that college students from urban areas had high positive attitude towards on-line learning compared to rural areas. The calculated t-value of college students from urban and rural areas of Chhattisgarh with respect to their attitude towards on-line learning was 5.295. The calculated value, 5.295, was greater than the table value 1.96 at the level of significance 0.05. So, the null Hypothesis was rejected and an alternative hypothesis was accepted. The investigator reached the conclusion that 'there will be significant difference in the level of attitude towards on-line learning among the college students in Chhattisgarh with regard to demographic variable of locality'.

The mean value of college students from different strata of society – upper class, middle class and lower class was 198.99, 199.49 and 202.06 with standard deviation of 21.181, 22.776 and 25.347. The calculated f-value of college students from different socio-economic status based on socio, economic, and educational development was 0.289. This was lesser than the table value 3.04. The result showed that socio-economic status of college students had no influence

on attitude towards on-line learning. So, the null Hypothesis was accepted. The investigator concluded that 'there will not be significant difference in the level of attitude towards on-line learning among the college students in Chhattisgarh with regard to demographic variable of socio-economic status of parents.'

Percentage of students having extremely high level of positive attitude towards on-line learning was 3.5%; percentage of students having high level of positive attitude towards on-line learning was 12%; percentage of students having above average level of positive attitude towards on-line learning was 10%; percentage of students having average level of positive attitude towards on-line learning was 44.5%; percentage of students having below average level of positive attitude towards on-line learning was 20%; percentage of students having low level of positive attitude towards on-line learning was 7.5%; percentage of students having extremely low level of positive attitude towards on-line learning was 2.5%. The investigator concluded that there will be significant difference in the level of attitude towards on-line learning among college students in Chhattisgarh.

### **Hypothesis 2**

There will not be significant difference in the level of achievement of the college students in Chhattisgarh after off line learning and on-line learning.

The total number of the samples was 200 B Ed students. Half of them were taught through off line mode and half of them were taught through on-line mode. Students who were taught through off line mode had to attend Lecture, Discussion, Quiz, and Assignments physically on the topic "Personality Development". They attended face-to-face classes. In lecture, the teacher explained the subject matter. In discussion, the students were required to share their ideas about the topic with other students. In Quiz, the students had 50 minutes to answer 25 questions of 2 marks each. The passing marks of the quiz was 60%. In assignment, the students were required to prepare and submit the hard copy either group wise or individually. If the students missed a topic in the class, they had to meet the teacher for clarifications and access to the next topic. Students who were taught through on-line mode had no access through face to face learning. Activities and programmes, which the students who were taught through on-line mode attended in the class, were 100% the same with activities and programmes, which the students who were taught through off line mode attended.

The data were collected by using Assignment, Quiz, Viva Voce, and Written Test. Both groups were given the same kind of Assignment, Quiz, Viva Voce, and Written Test. The final scores between those who were taught through off line mode and those who were taught through on-line mode were compared. The data were statistically analysed to find out the effect of both off line learning and on-line learning on students' achievements. Having analysed the collected data,

the investigator found that both group of students, who were taught through off line mode and on-line mode, got scores which varied into grades of A, B, C, D, and E.

In the class taught through off line mode, there were 58 students who got A, 22 students who got B, 8 students who got C, 2 students who got D, and 10 students who got E. The highest % was occupied by score A with 58% of the overall number, while the smallest percentage was occupied by score D with only 2% of the overall number of students.

In the class taught through on-line mode, there were 12 students who got A, 57 students who got B, 18 students who got C, 4 students who got D, and 9 students who got E. The highest % was occupied by score B with 57% of the overall number, while the smallest percentage was occupied by score D with 4% of the overall number of students.

To find out the mean of both groups' scores and if there was a significant difference in achievement between B Ed students who were taught through off line mode and students who were taught through on-line mode, the collected data were statistically calculated. The following tables show the

results of statistical calculation.

**Table 1:** Sample and Score Mean Group

Score	Group	Number	Mean	Standard Deviation	Standard Error Mean
	1	100	81.60	12.770	1.277
	2	100	75.90	10.550	1.055

Table 1 shows that there were 200 students involved in this research. They were divided into two groups : Group 1 and Group 2. Students who were taught through off line mode were in Group 1 and students who were taught through on-line mode were in Group 2. Each group consisted of 100 students. From the table, it is discovered that the final score mean of Group 1 is 81.60 and the final score mean of Group 2 is 75.90.

The following table shows whether or not there is a significant difference between the two groups' achievements.

**Table 2:** Level of Difference in Achievement

Levene's Test for Equality of Variances				t-test for Equality of Means						
				t	df	Sig. (2 tailed)	Mean difference	Standard error difference	95% Confidence Interval of Difference	
	F	Sig.						Lower	Upper	
Score	2.518	.114	3.441	198	.001	5.700	1.656	2.434	8.966	
			3.441	191.194	.001	5.700	1.656	2.433	8.967	

Table 2 shows that the Sig. value .114 is greater than .005 (Sig.114 >.005). It means that the variability in the two groups is about the same. In other words, scores in Group 1 (students taught through off line mode) do not vary too much from scores in Group 2 (students taught through on-line mode). The scores of both groups similarly vary into A, B, C, D, and E. Furthermore, the Sig. (2-tailed) value .001 is less than .005 (Sig. 2-tailed .001<.005). It means that there is statistically significant difference in B Ed students' achievements between the two groups. Students who were taught through off line mode got significantly better achievement than students who were taught through on-line mode. Having statistically calculated the data, the investigator found that B Ed students who were taught through off line mode got significantly better achievement than students who were taught through on-line mode after teaching the topic – 'Personality Development'.

### **XIII. ANALYSIS OF LEVEL OF ATTITUDE TOWARDS ON-LINE LEARNING AMONG PARENTS OF COLLEGE STUDENTS IN CHHATTISGARH WITH REGARD TO SOCIO-ECONOMIC STATUS BASED UPON PROFESSION**

An opinionnaire developed by the investigator was administered to selected parents of B Ed students who had undergone on-line learning to check general attitude and perception regarding on-line learning. The opinionnaire was administered to 15 each parents of four colleges (total 60 parents), based on the socio-economic status. 20 parents belonged to the upper class of the society; 20 parents belonged to the middle class of the society; and 20 parents belonged to the lower class of the society. The respondents were requested to provide rating to the given items based on a 3 point scale: 1 for 'Agree'/ 2 for 'Uncertain'/ 3 for 'Disagree'. There were total 20 statements in the



opinionnaire developed by the investigator dealing with attitude and perception of parents regarding on-line learning. 10 items were on the positive attitude and perception of on-line learning and 10 items were on the negative attitude and perception. The analysis showed that majority of parents (32/40) had high level of negative attitude and perception of on-line learning; very few of parents (05/40) had high level of positive attitude and perception of on-line learning; 03/40 parents didn't give any response to some of the items; some were on the border line with regard to their attitude and perception of on-line learning. On-line learning programmes proved to be less effective based on the opinionnaire administered to the parents of the sample of the research. The investigator concluded that 'there will not be significant difference in the level of attitude towards on-line learning among the parents of B Ed students in Chhattisgarh with regard to socio-economic status based upon profession'. Based on the analysis it was concluded that most of the parents from different strata of society were not in favour of on-line teaching-learning process.

#### **XIV. FINDINGS OF STUDY**

1. Attitude of boys towards on-line learning differed with attitude of girls. There was significant difference in the level of attitude towards on-line learning among B Ed students in Chhattisgarh with regard to demographic variable of gender. Girls of B Ed classes had more positive attitude than boys of B Ed classes.
2. Attitude of B Ed students from rural areas towards on-line learning differed with attitude of B Ed students from urban areas. There was significant difference in level of attitude towards on-line learning among B Ed students in Chhattisgarh with regard to demographic variable of locality. Students from urban areas had more positive attitude towards on-line learning than students from rural areas.
3. There was no significant difference in level of attitude towards on-line learning among B Ed students in Chhattisgarh with regard to demographic variable of socio-economic status based upon socio, economic, and educational background.
4. There was significant difference in level of attitude towards on-line learning among parents of B Ed students in Chhattisgarh with regard to profession. Most of the parents from different strata of the society were not in favour of on-line learning
5. There was significant difference in the level of achievement of B Ed students in Chhattisgarh after off line learning and on-line learning. Off line teaching and learning proved to be more effective than on-line teaching and learning with regard to the performance and achievement level of the B Ed students in Chhattisgarh.

#### **XV. DISCUSSION OF RESULTS**

1. Girls in the Teacher Education Colleges had more positive attitude towards on-line learning than boys in the Teacher Education Colleges of Chhattisgarh.
2. B Ed students of Teacher Education Colleges in the urban areas had more positive attitude towards on-line learning than B Ed students of Teacher Education Colleges in the rural areas.
3. Attitude of B Ed students from different strata of society towards on-line learning was statistically proved to be similar.
4. Attitude and perception of parents regarding on-line learning did not differ significantly based upon socio, economic, and educational background as well as profession of the parents.

#### **XVI. EDUCATIONAL IMPLICATIONS OF STUDY**

1. There existed significant difference between male and female B Ed students in the level of attitude towards on-line learning. As this was in favour of female B Ed students, male B Ed students shall be creatively motivated to have more positive attitude towards on-line learning.
2. B Ed students shall be encouraged to participate in various on-line learning programs organized by different educational institutions and universities, both at the Central level and State level, to have better on-line learning experiences which could lead to better performance and the best achievement level.
3. More on-line learning modules, materials, and facilities shall be provided to B Ed students in order to develop more positive attitude towards on-line learning.
4. The findings of the present study had the following implications on the teachers in Teacher Education Colleges:
  - Teachers shall give more emphasis on the use of technology in teaching-learning, even after Corona Pandemic, which is part and parcel of teaching-learning process.
  - On-line teaching-learning procedures shall be adopted by all levels of educational institutions and teachers in order to make students up-to-date.
5. The findings of the study had the following implications on the government:
  - Government shall provide on-line learning platforms for students of schools and colleges. Follow up services and modifications also shall be considered.
  - Conferences, Seminars, Workshops, and Symposiums at the Central, State, University, and Institutional levels shall be organized for the college students to develop positive and creative attitude towards on-line teaching-learning.

- UGC and Affiliating Universities shall provide on-line learning programs for students and teachers from time to time for the up gradation of the use of ICT.

#### **XVII. SUGGESTIONS FOR FURTHER RESEARCH**

1. Similar study could be conducted on Higher Secondary School students as well as college students of other streams regarding their interest in on-line learning.
2. Similar study could be conducted on Higher Secondary School as well as college students of other districts in Chhattisgarh regarding their attitude and interest in on-line learning.
3. Similar study could be conducted on college students from other states regarding their attitude and interest in on-line teaching-learning process.
4. Similar study could be done by taking other independent variables like students of private and government schools as well as private and government colleges.
5. Similar study could be undertaken to check the attitude and perception of other stakeholders of education like management, community, and society.

#### **XVIII. INVESTIGATOR'S CONTRIBUTION**

On-line learning, if properly planned and carried out, could satisfy the challenging needs and aspirations of the college students with regard to the three domains of learning (Cognitive, Affective and Psycho-motor), different dimensions of learning (Attitudes and perceptions; Acquisition and integration of knowledge; Extension and refinement of knowledge; Use of knowledge meaningfully; and Productive habits of mind), and levels of learning (Facts, Information, Know-how, Comprehension and Wisdom). The investigator was of the conviction that effective and efficient use of on-line learning programmes with proper planning and implementation could make excellent changes in the attitude and achievement level of the college students in Chhattisgarh, especially B Ed students.

#### **XIX. CONCLUSION**

The present research concluded that the students of Teacher Education Colleges in Chhattisgarh significantly differed in attitude towards on-line learning. Gender and locality of B Ed students had impact upon attitude towards on-line learning. Girls had high level of positive and favourable attitude towards on-line learning in comparison to boys. Attitude of B Ed students from rural areas towards on-line learning differed with attitude of students from urban areas. B Ed students from urban areas had more positive attitude towards on-line learning than students from rural areas. B Ed students from different strata of society, based upon socio-economic-educational background, had similar

type of attitude towards on-line learning. On-line learning is to be redefined with proper blending of traditional teaching-learning practices in order to make it the best method suitable to the context in the current scenario of education. On-line learning should be used positively and creatively, so that the entire education system would be strengthened for the betterment of the students, teachers, community, society, state, and nation. For this the teachers, parents, students, management, community, society, Universities, Central and State Governments should co-operate and plan together with necessary steps. This would make teaching-learning process a joyful process with more learning experiences and better achievement.

#### **REFERENCES**

- [1] Arkorful, V. & Abaidoo, N. (2015). The role of e-learning, advantages and disadvantages of its adoption in higher education. *International journal of instructional technology and distance learning*, 12(1), 29-42.
- [2] Beetham, H. (2005). "E-Learning Research : Emerging Issues?". *Research in Learning Technology*. ALT-J 13. (1). :81-89.
- [3] Clark, R. C. & Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. John Wiley & sons.
- [4] Delich, P., Kelly, K. & McIntosh, D. (2008). Emerging Technologies in E-learning. *Education for a Digital World*. 5. (1).: 43-87.
- [5] Kankaanranta, M. & Makela, T. (2014). Valuation of emerging learning solutions. *EdMedia + Innovate Learning. Association for Advancement of Computing in Education. [Asian Conference on Society, Education & Technology Official Conference Proceedings]*
- [6] Madouni, A. (2022). New patterns of learning during the Pandemic Crisis of 2019. *Technium Soc. Sci. J.*, 28. : 630.
- [7] Mishra, S. (2009). E-learning in India. *International Journal on E-Learning*, 8(4). : 549-560.
- [8] Mohammed, N. A. A. A. (2022). *Evaluation of E-learning in Science and Technology University* (Doctoral Dissertation).
- [9] Sim, S. P. L., Sim, H. P. K. & Quah, C. S. (2021). Online learning : A post COVID-19 alternative pedagogy for university students. *Asian Journal of University Education*, 16 (4). : 137-151.
- [10] Swain, D., Jena, L. K., Dash, S. S., & Yadav, R. S. (2023). Motivation to learn, mobile learning and online learning climate: moderating role of learner interaction. *European Journal of Training and Development*, 47(1/2), 123-140.
- [11] Zizka, L., & Probst, G. (2023). Learning during (or despite) Covid-19: Business students' perceptions of online learning. *Quality Assurance in Education*, 31(1), 60-73.