EXPLORATION IN COVID-19 PANDEMIC: ANALYSIS AND ASSESSMENT OF ONLINE LEARNING WITH OFFLINE LEARNING IN THE CONTEXT OF STUDENTS

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ABSTRACT
As the outbreak of COVID-19 is going on in every country whether it is developed or developing. Education is equally important for wealth and health as well as for the growth of any country, but for the foundation of every country, education plays an essential role. Since this pandemic has forced all nations to force lockdowns across the board. Due to this, they have to go for the online education and adopt innovative methods of teaching. Therefore, they now need to adopt new strategies & policies in response to this. These policies can be beneficial to our education system and also for students as it can decrease the work load of both the students and teachers. As we know that from various studies we have analysed that study loads of students is increased so much that they are not able to cope with all the curriculum easily and positively. These innovative methods also opens the doors of technical aspects to the teachers and students who never dream about to use these technologies, but every positive things have some darker side also as it cannot be easily adaptable to all. In this paper, we try to consider all positive and negative aspects of online studies by making a small survey with the help of some number of students of different organizations and try to compare all the aspects of online and offline studies with certain imaginary parameters like Understanding of the subject, Interaction with Teacher, Student Satisfaction, Assignment submission, Liking for study material and acceptability.

Keywords: COVID-19, Online Learning, Offline Learning, Friedman Test, Garrett Mean Score.

1. Introduction

COVID-19, which is an infection disease which spreads in a rapid way from human to human which force countries to force lockdown in the whole country. Due to this, the whole education system is also blocked. Due to this, for smooth functionality every country has to think for the other effective strategies & policies to implement in terms of the educational system not only on the basic school level also for the higher education levels. Therefore, this outbreak forced the education society to go for online classes which we want to apply, but somehow we are not able to apply successfully but now this is the need to apply these policies. As this online system is not easy to apply for a developing country like India who's most of the students are not able to afford tools required for online classes like computer, mobile, internet connection because they don't have so much money to buy and also they don't have proper infrastructure like internet-connectivity, etc., One of the major issue is also comes in India for the teaching staff to adapt these tools because the government school employees are not so much familiar to apply online classes.

2. Literature Review

The motivation behind this examination is to consider different exercises acted in e-learning climate. This paper will introduce the similar investigation of broadly received e-learning stages. This examination would be gainful for educationalist while receiving a web based learning stage (Swati Kirange, 2021).

In (Chavda, 2021), they attempt to recognize factors influencing on the web instruction among employees and understudies. Two online examinations (N= 500 understudies and N = 250 employees) have been done with the assistance of organized surveys. Exploratory factor examination and Confirmatory factor investigation were utilized to distinguish the elements; Infrastructure and Technology measurements, understudies' connected measurements, workforce's connected measurements, working with measurements, social impact measurements, exertion measurements, seen value, execution assumptions measurements and security and hazard measurements. The paper examines the reasonable ramifications of these discoveries.

In (Paritosh Mahato, 2021), they lead a review to analyze the demeanor of Post Graduate understudies towards Blended Learning in Purulia District of West Bengal, India. The Descriptive strategy was utilized. A sum of 148 PG Students (Second Semester - 54 and Fourth Semester-94) from Sidho-Kanho-Birsha University in Purulia District of West Bengal were taken as agent tests of the populace in general. A delineated irregular inspecting procedure was embraced to choose Post Graduate understudies. An Attitude Scale (Likert type) was used for social affair the information. Mean, S.D., t-test and F-test were utilized to examine the information. The investigation uncovered that the level of mentality of Post Graduate understudies towards mixed learning in Purulia District of West Bengal is normal or moderate. The examination furthermore uncovered that demeanor of Post Graduate understudies towards mixed learning with respect to their Gender (Male-Female), Locality (Rural-Urban), Semester (second – fourth), Internet (User-Non client), Family type (JointNuclear), Caste (Hindu, Muslim, and Sari), Guardians Occupations didn't vary altogether. Then again, disposition of Post Graduate understudies towards mixed learning regarding their Streams (Arts, Science and trade) contrasts essentially.

In (Azad Ali, 2015), they surveyed about the impact of social separation on understudies took on online courses versus understudies tried out nearby courses (brought in this paper Face-to-Face or F2F). Grade information was gathered from one online area and two F2F areas of a PC proficiency course that was as of late educated by one of the creators of this investigation. A similar teacher showed all segments in this way giving a controlled examination between the two types of instructing (F2F and on the web). This paper initially presents the arrangement and the impediment of this investigation. It gives a writing survey and notes the pattern of social detachment found in online courses. This paper then at that point presents a synopsis of the gathered information; and offers an end dependent on the gathered information.

In (Adhikari, 2021) examines about understudies' inspiration towards mixed learning strategy in application in the pandemic circumstance of COVID 19 through a little review led upon Under Graduate understudies of West Bengal. A poll was created utilizing on the web stage (jotforms) and coursed among understudies through friendly contacts. UG understudies having a place with age gathering of 18-21 were focused on in the examination. 75 reactions were gotten on line as recorded. Understudies are believed to be quick to go to online classes yet related to on location classes in the pandemic circumstance. They like the significance of online classes. Notwithstanding, to the extent that testing or assessment is concerned a larger part of them don't support online mode as of now.

3. Tools for Online Classes:

3.1. Google Classroom

Google classroom is the most effective tool to provide written notes and assigned assignments to students. As in the google classroom, a tutor is able to share their notes unit-wise to the students which can be easily accessible by each and every student(Zayapragassarazan, 2020). For this purpose, tutors upload their study material, which student can access through unique link.For assigned assignments, a tutor uploads an assignment and he will decide a particular date for completing the assignment and he will award marks to every student according to their work.

3.2. Video Lectures

Teachers can also share their content by making their videos about the topic and they can upload these videos on YouTube channel or they can send these videos to the whatsapp group or Facebook messenger.

3.3. Live Classes

For the live class session, teachers are using tools like Zoom, Webex, GoogleMeet etc through these they can schedule a meeting on particular date and time. According to the time-table or meet and provide a lecture to a particular batch of student. For this, they need to share meeting ID and password among the student.

3.4. Webinars

For college going students' special webinars can be arranged with the help of experts where the experts share their knowledge which can be beneficial to both teachers & students.

3.5. For quiz

We can make multiple choice questions also. Some software's are available for this like TestInvite, Examtott, etc.

3.6. Google Form

Google Form can be used to collect the assignments from students and we can also use Google form as a feedback form of every teacher for effectiveness of the classes from the college and school site.

4. Impact of Online Classes in School & Colleges:

In this difficult situation of crisis, COVID-19 forces the education system to adapt online education system, which has positive impacts on the basic education of our schools as they force both students and teachers to adapt new methods of teaching. Due to this, now they are more familiar with the new technologies as they before afraid to use them. It is also helpful to students in their future because they have to go for higher studies. For this, they must have basic knowledge of the computer. Due to this knowledge, now the students are keener to explore new platforms for learning and trying to implement their new ideas.

The concept of alternate learning platforms is becoming more popular among college students as they started registering for different Webinars led by experts where they learn about different topics like machine learning, IOT etc. and the students also do different online certification courses which are organised by MHRD, UGC organisations like NPTEL, Couseera, Unacademy etc. With this knowledge, students begin to focus on research area, for which they refer to different journal's research publications and additionally, the scenario benefits college faculties by offering them new ideas for research.

5. Challenges:

5.1. Flexibility to adapt changes

Flexibility of human nature is the main issue in this regard. As suddenly we force both teachers and students to use the online platform and it is not easy as the students like to face the instructor face to face as comparison to online because of the interactive nature. It follows same for the teachers also. This human nature doesn't allow him to flexible towards this new change. As the students likes to note the contents from white board in comparison to follow the contents from e-contents like power point presentation etc.It also creates problems for teachers as they are used to apply traditional methods of teaching. But for the future perspective of both the students and teachers, it is beneficial to adapt online teaching in spite of old traditional methods of teaching.

5.2. Issues related to Technology

There are many issues related to the online classes in terms of technology, and also in our country infrastructure is the major issue for implementing the online classes. Because lots of students belong to the families who are not able to provide the proper infrastructure like Mobile Phones, Laptops, Computer System, Internet Connection etc. to the students. And many students who are having these infrastructure, they are having some other problems like bandwidth of internet connection to access online classes and their study materials. Due to this lacking of infrastructure, students and teachers both are facing problems to adapt this new trend of online classes.

5.3. Knowledge of Computer

In this era, students are more aware of new technologies and have the knowledge to use them, but issues arise for students who are from poor families as they do not have so much literacy of MS Word, Power Point presentation etc. Teachers of applied sciences also face this problem since they are unfamiliar with these tools. For online classes, this is the basic requirement of online classes to have proper proficiency about these tools.

5.4. Lack of student interest

Student' interest is also playing a vital role in accepting the new trend. Because students are not willing to attend the online classes regularly because they are not self-motivated to attend the classes and they felt bored during

the classes as these classes are less interactive and they also have technical issues like network, voice breakage etc.

5.5. Problems arises to perform experiments

Coverage of lab practical's is one of the issue facing by the education system in the online classes as they don't have proper platform to perform the practical because they don't have proper tools and apparatus which cannot be easily demonstrate online. This issue is not only faced at the school level but it is also faced at Higher education level like engineering colleges, medical colleges etc.

6. Comparison of Offline and Online Classes:

For comparison, we have taken a survey ofdifferent schools from class 9th to 12th and college students at private and government level with different courses like technical courses like BCA, B.SC.(H) CS, B.Tech(CSE), B.Sc.(Animation) and various graduation courses like B.Com, B.A., B.Ed. etc. In which, we gave 6 questions to students to rate the questions between 1 and 5. From which we get this data of 300 students of school and 300 students of college. For the assessment of this survey we make these six parameters for the evaluation:

- Understanding of Subject
- Interaction with teacher
- Student satisfaction
- Assignment Submission
- Liking for study material
- Acceptability

Demography profile can be defined as "the study of the composition of a social entity in terms of its members' attributes" (Singh, 2012), (Marie Bienkowski, 2012). Student's perception towards online education differs from gender, a group selected residential area, etc.

The analysis of demographic data shows that among 300 students at School level, we summarize the data in two categories with Private School and Government School in which 59.37% Male students are in Private School and 57.14% are in Government School. We further classified our data streamwise and areawise. 65.71% of students in government schools are from rural areas, and 71.88% are from urban areas. The student ratio of Arts and Science group is somehow similar in both the private and government school. 58.57% students of government school belong to a family that earns monthly income less than Rs. 20,000 and 73.13% students of private school belong to a family that earns monthly income more than Rs. 20,000. Beside this, Mostly students use mobile phone to attend online classes irrespective of private or government school.

The summarized table [Table-I] for the school level students is as follows:

Table I: Demographic Analysis of Students at School level

Enumeration Factors	**Organization**			
	Private School	**Government School**	**Private School**	**Government School**
	Number of students	Number of students	Percentage	Percentage
Stream				
Arts Group	74	65	46.25	46.42
Science Group	86	75	53.75	53.58
Gender				
Male	95	80	59.37	57.14
Female	65	60	40.63	42.86
Area				
Rural	45	92	28.12	65.71

Urban	115	48	71.88	34.29
Family Income (Monthly)				
<Rs. 20,000	43	82	26.87	58.57
>Rs. 20,000	117	58	73.13	41.43
Gadget Used				
Mobile	109	121	68.13	75.62
Desktop/Laptop	51	19	31.87	24.38

The analysis of demographic data shows that among 300 students at College level, we summarize the data in two categories with Private College and Government College in which 56.67% Male students arein Private College and 54.67% are in Government College. We further classified our data stream wise and area wise. Government colleges have 47.33 percent rural students and private colleges have 78% urban students. We also classify our college level data according to the stream as it is needed because technical students are more familiar with the ongoing online study tools in comparison to graduation courses students. We summarize the data as 71.33% student of technical courses belongs to private college and 51.33% students belong to Government College. 46% students of Government College belong to a family that earns monthly income less than Rs. 20,000 and 83.33% students of private college belong to a family that earns monthly income more than Rs. 20,000. Mostly technical courses student (86.67%) of private college have their desktop/laptop with them for their studies so they prefer using that in comparison to mobile phones whereas government college student's ratio is less. Only 50.67% students are having Desktop/Laptop for their studies.

The summarized table [Table-II] for the school level students is as follows:

Table II: Demographic Analysis of Students at College level

Enumeration Factors	**Organization**			
	Private College	**Government College**	**Private College**	**Government College**
	Number of students	Number of students	Percentage	Percentage
Stream				
Graduation Courses	43	73	28.67	48.67
Technical Courses	107	77	71.33	51.33
Gender				
Male	85	82	56.67	54.67
Female	65	68	43.33	45.33
Area				
Rural	33	71	22.00	47.33
Urban	117	79	78.00	52.67
Family Income (Monthly)				
<Rs. 20,000	25	69	16.67	46.00
>Rs. 20,000	125	81	83.33	54.00
Gadget Used				
Mobile	20	74	13.33	49.33
Desktop/Laptop	130	76	86.67	50.67

The researcher surveyed the students of both school and college level by defining certain factors which must be considered for the effective online/offline classes and these parameters includes as Understanding of the Subject, Interaction with teacher, Student satisfaction, Assignment Submission, Liking for study material, Acceptability. The researcher asks student to rank these parameters from rank 1 to rank 5 in which rank 1 signifies the Very

good and rank 5 signifies the Very poor. After collecting this data, we summarize the data and calculate Friedman Mean Rank using Friedman Test (Pasi Porkka, 2008), (Salkind, 2010)(Dulce G. Pereira, 2015)so that we can get the response of students how they think about the offline and online classes. These are the results of the estimation of student responses in Table-III and Table-IV:

Table III: Comparison of different parameters for Offline and Online Classes at School level

Parameters		Very Good		Good		Average		Below Average		Very Poor		Friedman Mean Rank
		N	%	N	%	N	%	N	%	N	%	
Understanding of the Subject	Offline	118	39.33	113	37.67	48	16.00	11	3.67	11	3.67	2.89
	Online	11	3.67	32	10.67	113	37.67	96	32.00	48	16.00	2.59
Interaction with teacher	Offline	155	51.67	75	25.00	38	13.67	16	5.33	16	5.33	3.99
	Online	21	70.00	54	18.00	96	32.00	80	26.67	48	16.00	2.76
Student satisfaction	Offline	123	41.00	86	28.67	64	21.33	5	1.67	22	7.33	2.81
	Online	5	1.67	43	14.33	70	23.33	118	39.33	64	21.33	2.41
Assignment Submission	Offline	96	32.00	102	34.00	59	19.67	11	3.67	32	10.67	2.35
	Online	118	39.33	86	28.67	48	16.00	21	7.00	27	9.00	3.87
Liking for study material	Offline	107	35.67	107	35.67	54	18.00	11	3.67	21	7.00	3.64
	Online	59	19.67	96	32.00	48	16.00	64	21.33	32	10.67	3.17
Acceptability	Offline	123	41.00	113	37.67	43	14.33	5	1.67	16	5.33	3.65
	Online	38	12.67	48	16	113	37.67	59	19.67	43	14.33	2.97

Table IV: Comparison of different parameters for Offline and Online Classes at College level

Parameters		Very Good		Good		Average		Below Average		Very Poor		Friedman Mean Rank
		N	%	N	%	N	%	N	%	N	%	
Understanding of the Subject	Offline	115	38.33	111	37.00	52	17.33	9	3.00	13	4.33	3.98
	Online	15	5.00	35	11.67	105	35.00	92	30.67	53	17.67	2.15
Interaction with teacher	Offline	148	49.33	78	26.00	35	11.67	19	6.33	20	6.67	3.82
	Online	25	8.33	51	17.00	92	30.67	77	25.67	55	18.33	2.65
Student satisfaction	Offline	119	39.67	82	27.33	62	20.67	12	4.00	25	8.33	3.79
	Online	10	3.33	45	15.00	68	22.67	115	38.33	62	20.67	2.12
Assignment Submission	Offline	94	31.33	98	32.67	55	18.33	18	6.00	35	11.67	2.86
	Online	112	37.33	84	28.00	45	15.00	26	8.67	33	11.00	3.10
Liking for study material	Offline	104	34.67	102	34.00	52	17.33	16	5.33	26	8.67	3.15
	Online	66	22.00	105	35.00	40	13.33	66	22.00	23	7.67	2.75
Acceptability	Offline	120	40.00	108	36.00	40	13.33	17	5.67	15	5.00	3.67
	Online	40	13.33	42	14.00	110	36.67	62	20.67	46	15.33	2.90

We found that students of both School and College have better understanding of subjects in Offline mode as compared to online mode based on their Fried mean rank i.e. 2.89 and 3.98 respectively. Similarly, for other factors like Interaction with teacher, Student satisfaction, liking for study material, acceptability shows better results towards offline mode in comparison to Online mode. But the factor Assignment Submission shows better result in online mode in comparison to offline mode i.e. fried mean rank is 3.87 and 3.10 in online mode. For more accuracy, we also calculate Garrett Mean Score(Ashok Kumar Sahoo, 2020), (S, 2020), (Sama Hanumantha Rao, 2019)of our surveyed data and find out the ranks of different parameters in Online and offline mode. For this, Table-V and Table-VI stated below:

Table V: Garrett Mean Score and Rank of different parameters for Offline and Online Classes at School level

Parameters	Offline			Online		
	Total Score	Garrett Mean Score	Rank	Total Score	Garrett Mean Score	Rank
Understanding of the Subject	24261.04	80.87013	3	14429.44	48.09813	5
Interaction with teacher	24505.6	81.68533	1	15782.96	52.60987	4
Student satisfaction	23293.52	77.64507	4	13883.68	46.27893	6
Assignment Submission	22221.84	74.0728	6	22761.92	75.87307	1
Liking for study material	23212.16	77.37387	5	19646.64	65.4888	2
Acceptability	24382.64	81.27547	2	16837.04	56.12347	3

Table VI: Garrett Mean Score and Rank of different parameters for Offline and Online Classes at College level

Parameters	Offline			Online		
	Total Score	Garrett Mean Score	Rank	Total Score	Garrett Mean Score	Rank
Understanding of the Subject	23964.96	79.8832	3	14636.4	48.788	5
Interaction with teacher	24137.04	80.4568	1	15770.56	52.56853	4
Student satisfaction	22814	76.04667	4	14276.4	47.588	6
Assignment Submission	21838.96	72.79653	6	22196.88	73.9896	1
Liking for study material	22714.4	75.71467	5	20559.92	68.53307	2
Acceptability	23970.88	79.90293	2	16568.32	55.22773	3

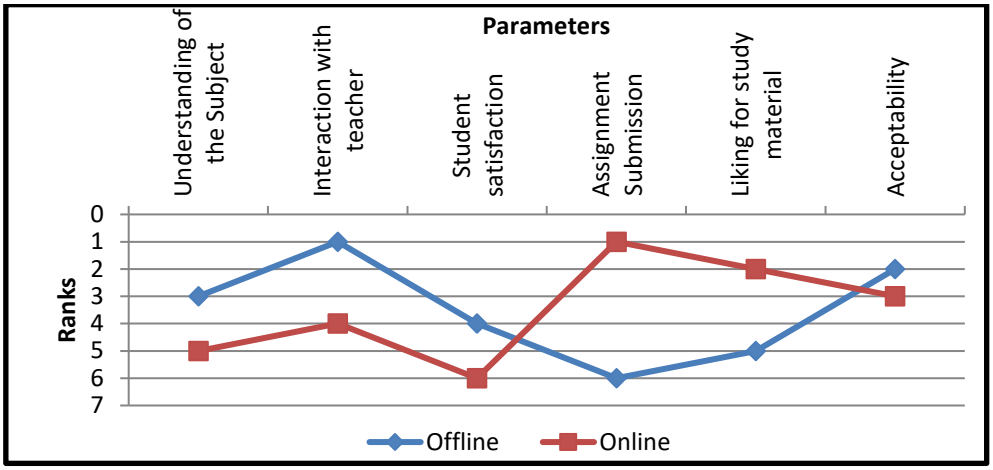

Figure 1: Garrett Mean Rank of different parameters for Offline and Online Classes

From the above tables Table-V and Table-VI, we are getting the same result as we find out in Friedman Test given in Table-III and Table-IV. In both the school level and college level, Interaction with teacher parameter got the rank 1 in offline mode, and assignment submission parameter got the rank 1 in online mode. Hence, we can say that interaction with teacher is more in offline mode in comparison to online mode. The Garrett mean score of offline classes are greater than the score of online classes as shown in above tables Table-V and Table-VI. Hence, students likely to follow offline classes as compared to online classes. By this, we can conclude that

many problems like low attendance, irregular behaviour, less understanding of subject etc. which are facing by the teachers in online mode is because of the low interest of students in online mode.

7. Conclusion

With the help of above survey, we are concluding our assessment by analysing the six parameters with the help of Graphs i.e. percentage of students ranking of parameters in both online and offline mode at school level and college level. The parameters which we have used in this survey are well efficient to prove that what students likes. The success of any mode adaptation whether its online or offline depends on how the students react to it. From above data we can state that students liking is towards offline mode but at present scenario there is a need to adopt new education system to continue learning in efficient manner. Whether it is the teacher or a student, efforts are needed from both ends for online education to work. In order for students to show interest in online education, teachers must think more creatively and be more interactive, and of course students must do the same.

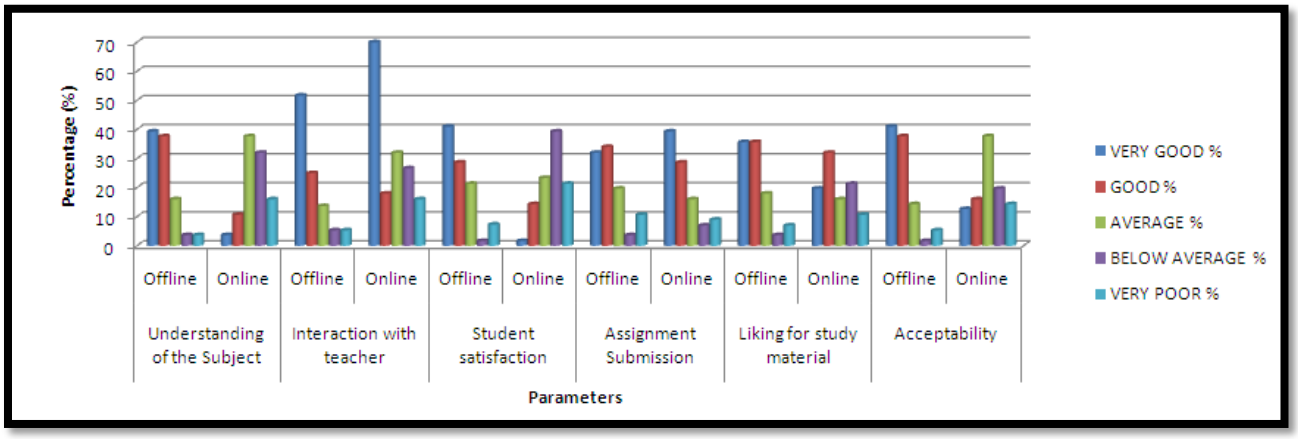

Figure 2: Percentage of students ranking of parameters in both online and offline mode at school level

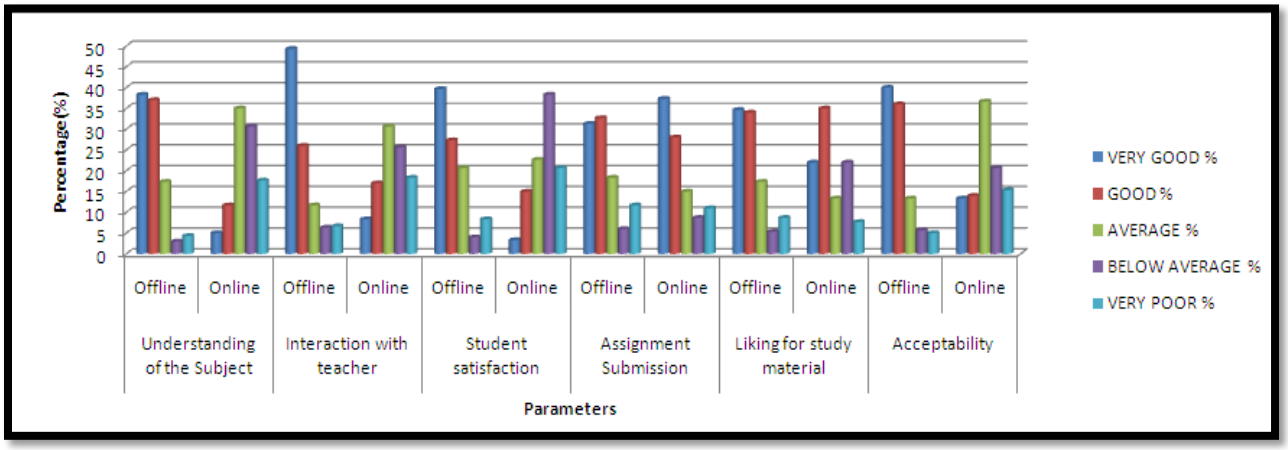

Figure 3: Percentage of students ranking of parameters in both online and offline mode at college level

In the last, we are not stating that online system is ineffective, may be in future students ready to adapt this online education system which may be as effective as offline education system.

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