

Readiness of in-service Teachers Towards Blended Learning Approach as a Learning Pedagogy Post COVID-19 Era

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Abstract

The impact of COVID-19 pandemic has traumatized the entire world. All educational institutions have been declared closed by most of the countries throughout the globe, as a consequence of which, learners inclusive of teachers have undergone tremendous loss. Nevertheless, COVID-19 has prompted experts to rethink about the suitable pedagogies of teaching-learning that will prove to be sustainable with the global health crises going on. Blended learning is one of the models proposed by various educationalists and research scholars that appears to be a viable and best fit solution for educational institutes for at least a period of a few months post-pandemic. The approach aims to provide meaningful opportunities for teachers to embed the use of technology for the teaching -learning process. During this time, teachers from various types of educational institutions are also getting an opportunity of being learners. This role is fulfilled by their outstanding participation in various seminars (commonly called as webinars), workshops, faculty development programs, etc which are exclusively conducted for them in order to enhance their learning experiences during this time. This study investigates the readiness of in-service teachers considering them as learners towards blended learning and its six dimensions viz. learning flexibility, online learning, study management, technology, classroom learning and online interaction. The study also sought to find out the readiness of in-service teachers towards blended learning when related to gender and whether they have attended/conducted webinars/lectures/Faculty Development Programs online. Total respondents consisted of 313 teachers from India that were selected by simple random technique of sampling. Analysis for testing research hypotheses consisted of descriptive analysis, t-test and Pearson Correlation Coefficient (correlation matrix) using the IBM Statistical Package for Social Scientists (SPSS-26). The results indicated that there existed a correlation among six dimensions of blended learning while considering the readiness of in-service teachers towards blended learning. Also, the results indicated that both male and female teachers and teachers who have and have not attended /conducted webinars/ lectures/ Faculty Development Programs online have had no difference in their readiness towards blended learning.

Introduction

The year 2020 has brought unfamiliar and unseen testing times for the entire world due to the COVID 19 pandemic. Teaching community too has been severely impacted; be it for re-opening of educational institutions to conducting lessons for students; there is uncertainty in everything (BBC News, 15 Feb 2020; Reid, David, 30 January 2020). During this phase of pandemic, the teacher community is thriving hard to adapt themselves with the new dimensions of teaching- learning so that the loss caused is to the minimum and are coming up with strategies to best help their students and their institutions. All living organisms learn to adapt to their environment. This means that the way they look, the way they behave, how they are built, or their way of life makes them suited to survive and reproduce in their habitats (Voltaire, 1759). Teachers are themselves becoming learners and trying out new ways to adapt to the online form of teaching-learning during the pandemic of COVID-19 which has hit the world from

November 2019 with a severity increasing since January 2020 and is still existing throughout the globe. COVID-19 is a disease caused by a new strain of coronavirus. 'CO' stands for corona, 'VI' for virus, and 'D' for disease. Formerly, this disease was referred to as '2019 novel coronavirus' or '2019-nCoV.' (UNESCO, WHO, January 2020)

Blended learning is a methodology that has been introduced over a decade ago which is used in the field of education that combines (or blends) online learning with traditional place-based classroom methods (face-to-face learning). It requires the physical presence of both teacher and student, with some elements of student control over time, place, path or pace and also, educational materials and technology for online interaction (Friesen, Norm 2012). While students must still attend physical schools with a teacher present, face-to-face classroom practices are combined with computer-mediated activities regarding content and delivery (Strauss, Valerie, 2012) to enhance the teaching-learning experience and to encourage the students to explore more to the given content. Blended learning is also used in professional development and training settings across the globe (Lothridge, Karen; 2013). It is highly context-dependent and therefore a universal conception of it is hard to come by (Moskal et al, 2012). Some reports have claimed that a lack of consensus on a hard definition of blended learning had led to difficulties in research on its effectiveness (Oliver M, Trigwell K 2005). A well-cited 2013 study broadly defined blended learning as a mixture of online and in-person delivery where the online portion effectively replaces some of the face-to-face contact time rather than supplementing it (Graham et al, 2013).

Currently, enormous opportunities are provided by most of the apex educational institutions across India through webinars or workshops or Faculty Development Programs (FSPs) or refresher courses (that were previously conducted offline but are presently conducted online on various online platforms) for teachers (at all levels) who are a part of an educational family to equip and adapt themselves to new pedagogies of teaching and learning that would be useful post-pandemic, once the institutes reopen. This phase, during the time of Lockdown 2020 has turned the tables by making the teachers as learners. Hence, the teachers who have attended or conducted these online training programs and webinars have not just experienced the use of online tools and softwares as teachers but also have had an experience of using these as a student. Considering the role switch that has occurred, the present paper emphasizes the readiness of these in-service teachers (who have been learners) towards adopting Blended Learning approach as one of the models that would be preferred in most of the educational institutes once they reopen post-pandemic. In Indian educational system, face-to-face lectures, workshops, seminars, FDP's, Conferences, symposium, etc for teachers were held by various educational institutes to train them for their professional careers and to help them enhance their knowledge on trends in education. Things may not be as they were before not just for students but also for teachers as learners who wish to attend these training programs.

Being working-from home, especially in an Indian house-hold, the role of females varies comparative to that of males. Teaching profession, usually seen dominant in females, would have a different experience of blended learning, time to experiment new technologies and balancing home related chores with that of

work. Similarly, those teachers who have already attended or conducted webinars, conferences, FDPs online would have a different attitude towards blended learning compared to those who have not. Hence this paper emphasis on the comparison of the genders and teachers who have and have not attended or conducted online training programs towards blended learning and its dimensions as one of the models that could be implemented post- COVID-19 era for sustainability of education.

Review Of Literature

Blended learning (BL) which is an integration of face-to-face and online instruction (Graham 2013), has been introduced over a decade ago across the globe. It is widely being adopted across educational institutions in India since the uncertainty of re-opening the educational institutions for students is uncertain during the time of pandemic of COVID-19 has increased. This study concentrates on the acceptance of this blended form of learning by the teachers of various types of Educational institutions across India.

A number of articles and manuscripts have been assembled to understand the transformative and innovative research issues for blended learning that have. General consensus shows that incorporating BL results in improvement in student success and satisfaction, (Dziuban and Moskal 2011; Dziuban et al. 2011; Means et al. 2013) as well as an improvement in students' sense of community (Rovai and Jordan 2004) when compared with face-to-face courses. The success and the positive attitude of teachers towards BL mode of teaching – learning has been most successful where Institutional support at design, planning and implementation is given (Moskal et al. 2013; Dringus and Seagull 2015; Picciano 2009; Tynan et al. 2015). It also emphasizes the amount of hands-on experience an institution has provided to their teachers.

It is seen, even today, that the digital divide continues to be a challenge with novel educational technologies that was expected to end a decade ago (Fairlie 2004; Jones et al. 2009). One of the major highlights of online technologies is that they can increase access to non-traditional and underserved students by bringing a host of educational resources and experiences to those who may have limited access to on-campus higher education.

The increasing availability of distance education has provided educational opportunities to millions (Lewis and Parsad 2008; Allen et al. 2016). The number of enrolments on courses offered in India via MOOC is an example to support this statement. Additionally, an emphasis on open educational resources (OER) in recent years has resulted in significant cost reductions without diminishing student performance outcomes (Robinson et al. 2014; Fischer et al. 2015; Hilton et al. 2016). With the present scenario of the pandemic, it is only prudent to shift towards the Blended mode of learning where the institutions should ensure that the teachers are well equipped and sufficiently trained to use these OERs and educational technology effectively.

It has been observed that most of the research on blended learning done in India and abroad take into consideration the attitude of either students pursuing their education from various institutes or

prospective teachers towards blended learning. This study tries to explore a new dimension where in-service teachers are considered as learners where the fact is given importance that they themselves have to be constantly updated with recent trends that have been evolving especially with the implementation of technology in education due to the current pandemic. This research is carried out considering blended learning as one of the models that will be best implemented in the field of education not only for students but also to train in-service teachers post COVID-19 times.

Research Methodology, Sampling And Tool

The present study adopted a descriptive survey method for collecting data. The sample was selected by simple random technique. The total sample consisted of 313 teachers teaching in various educational institutes like schools, colleges, teacher education institutes, management schools, law colleges, etc all over India. Data was collected by circulating google forms in order to collect data during COVID 19 pandemic. Out of the total in-service teachers 221 were females and 92 were males. 288 teachers had attended/conducted webinars/lectures/FDPs online whereas 25 did not. The questionnaire for the present study was adapted from Birbal et al. (2018) study on learners' readiness for blended learning. The instrument consisted of 34 items that measured learners' attitudes towards six different aspects of blended learning: learning flexibility (4 items); online learning (8 items); study management (6 items); technology (4 items); classroom learning (5 items) and online interaction (7 items). Learning flexibility reflected issues such as access to learning materials and freedom to decide where and when to study and at what pace. Online learning included items on how comfortable teachers felt about self-directed learning. Study management referred to how motivated teachers are to organize their time when studying on-line for their courses. Technology consisted of items that reflected teachers' familiarity with digital technologies and softwares. Online interaction refers to teachers' ability to use web technologies to collaborate with other members of the learning community for assignments and to interact with the lecturer. Classroom learning focused on teachers' preferences for face-to-face interaction with other teachers and the lecturer during training programs and conferences, seminars or symposiums. Relevant descriptive and inferential analysis was done using Statistical Package for Social Scientists (SPSS-26) for hypothesis testing. The table below represents the sample size of the study based on gender and webinars/ workshops/ FDPs attended by teachers online or not. Table 1 represents the sample size for the present study based on Gender and webinars/workshops/FDPs attended/conducted by teachers or not

Table 1: Sample size for the present study based on Gender and webinars/workshops/FDPs attended/conducted by teachers or not

	Variable	N	Percentage	Total
Gender	Male	92	29.39%	313
	Female	221	70.69%	
webinars/workshops/FDPs attended/conducted by teachers online	Yes	288	92.01%	313
	No	25	7.99%	

Figure 1 represents a pie chart indicating that out of 313 in-service teachers 29.39% were males and 70.69% were females.

Figure 2 represents a pie chart indicating that out of 313 in-service teachers 92.01% have attended or conducted webinars/workshops/FDPs online whereas 7.99% teachers have not.

HYPOTHESIS TESTING AND INTERPRETATION

Hypothesis 1: There is no significant relationship between the attitude of in-service teachers towards the following dimensions of blended learning:

- Learning Flexibility
- Online Learning
- Study Management
- Technology
- Classroom Learning
- Online Interaction

Pearson Moment Correlation was used to examine the inter-relationship between the blended learning factors. The table 2 below represents the Pearson Moment correlational matrix among six dimensions of blended learning.

Table 2: Pearson Moment Correlations: Relationship among the Blended Learning Factors

		F1	F2	F3	F4	F5	F6
F1	Pearson Correlation	1	.579**	.603**	.638**	.530**	.608**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
F2	Pearson Correlation		1	.725**	.608**	.622**	.703**
	Sig. (2-tailed)			.000	.000	.000	.000
F3	Pearson Correlation			1	.680**	.555**	.763**
	Sig. (2-tailed)				.000	.000	.000
F4	Pearson Correlation				1	.654**	.810**
	Sig. (2-tailed)					.000	.000
F5	Pearson Correlation					1	.643**
	Sig. (2-tailed)						.000
F6	Pearson Correlation						1
	Sig. (2-tailed)						
**.							
Correlation is significant at the 0.01 level (2-tailed).							
F1= Learning Flexibility, F2= Online Learning, F3= Study Management, F4= Technology, F5= Classroom Learning and F6= Online Interaction							

Online interaction and use of technology had the strongest correlation ($r = .81, p < .01$) followed by study management and online interaction ($r = .763, p < .01$). There was a significant correlation that was found between learning flexibility and online learning ($r = .579, p < .01$), learning flexibility and study management ($r = .603, p < .01$), learning flexibility and technology ($r = .638, p < .01$), learning flexibility and classroom learning ($r = .530, p < .01$), learning flexibility and online interaction ($r = .608, p < .01$), online learning and study management ($r = .725, p < .01$), online learning and technology ($r = .608, p < .01$), online learning and classroom learning ($r = .622, p < .01$), online learning and online interaction ($r = .703, p < .01$), study management and technology ($r = .680, p < .01$), study management and classroom learning ($r = .555, p < .01$), technology and classroom learning ($r = .654, p < .01$), classroom learning and online interaction ($r = .643, p < .01$).

Hypothesis 2: There is no significant relationship between the attitude of male and female in-service teachers towards blended learning and its following dimensions:

- Learning Flexibility
- Online Learning
- Study Management
- Technology
- Classroom Learning

- Online Interaction

Descriptive Statistics and t test were used in order to find out the attitude of male and female in-service teachers from educational institutes towards blended learning and its dimensions. Table 3 represents relevant descriptive statistics and t test used to analyse the data to compare male and female in-service teacher's attitude towards blended learning and its dimensions

Table 3: Descriptive statistics and t-tests results comparing male and female in-service teacher's attitude towards blended learning and its dimensions

		Mean	Median	Mode	S.D.	Skewness	Kurtosis	t value	p value
BL	M	127.42	136.50	137.00	36.30	-0.69	-0.95	.349	.727
	F	126.21	131.00	127.00	23.86	-1.10	2.16		
F1	M	14.33	16.00	16.00	5.06	-0.74	-0.65	.738	.461
	F	14.78	16.00	16.00	3.91	-0.89	0.55		
F2	M	33.07	33.50	50.00	5.36	-0.44	-0.57	1.945	.053
	F	31.21	31.00	33.00	6.22	-0.12	1.34		
F3	M	16.57	17.00	15.00	5.36	-0.44	-0.57	1.273	.204
	F	15.91	16.00	18.00	3.65	-0.52	0.86		
F4	M	14.79	16.00	20.00	4.75	-0.69	-0.53	.216	.829
	F	14.90	16.00	16.00	3.88	-0.79	0.36		
F5	M	17.73	19.00	25.00	5.76	-0.55	-0.67	1.586	.114
	F	18.74	20.00	20.00	4.76	-0.92	0.662		
F6	M	30.91	32.50	27	9.63	-0.44	-0.51	.266	.791
	F	30.66	32.00	32.00	6.66	-0.77	1.57		

(BL= Blended Learning, F1= Learning Flexibility, F2= Online Learning, F3= Study Management, F4= Technology, F5= Classroom Learning and F6= Online Interaction, M= Male, F= Female)

The t value for male and female in-service teachers for blended learning and its dimensions was found to be not significant. Hence, the null hypothesis is accepted. There were no significant differences in the attitude of male and female in-service teachers on blended learning and on six different dimensions of blended learning.

Hypothesis 3: There is no significant relationship between the attitude of in-service teachers who have attended/conducted and who have not attended/conducted webinars/lectures/FDPs online towards blended learning and its following dimensions:

- Learning Flexibility

- Online Learning
- Study Management
- Technology
- Classroom Learning
- Online Interaction

Descriptive Statistics and t test were used in order to find out the attitude of in-service teachers from educational institutes who have attended/conducted and who have not attended/conducted webinars/ lectures/ FDPs online towards blended learning and its dimensions. Table 4 represents relevant descriptive statistics and t test used to analyse the data in order to compare in-service teacher’s attitude who have attended/conducted and who have not attended/ conducted webinars/ lectures/ FDPs online towards blended learning and its dimensions

Table 4: Descriptive statistics and t-tests results comparing in-service teacher’s attitude who have attended/conducted and who have not attended/ conducted webinars/ lectures/ FDPs online towards blended learning and its dimensions

		Mean	Median	Mode	S.D.	Skewness	Kurtosis	t value	p value
BL	Yes	127.34	133.5	109.00	26.66	-1.04	1.08	.781	.435
	No	122.36	125.00	124.00	26.10	-.26	.97		
F1	Yes	15.17	16.00	16.00	4.03	-.94	.34	1.135	.257
	No	13.72	14.00	16.00	4.04	-.32	-.44		
F2	Yes	32.10	33.00	33.00	6.63	-.38	.61	1.434	.153
	No	29.64	29.00	26.00	7.69	.57	1.70		
F3	Yes	15.93	16.00	20.00	3.84	-.59	.39	.475	.635
	No	15.72	16.00	16.00	4.02	.03	.82		
F4	Yes	14.91	16.00	16.00	4.29	-.80	-.11	.593	.554
	No	14.40	16.00	16.00	3.28	-.38	-.55		
F5	Yes	18.43	19.5	20.00	5.32	-.74	-.11	.610	.542
	No	19.04	20.00	25.00	5.39	-.87	.44		
F6	Yes	30.79	32.00	32.00	7.56	-.75	.39	.610	.542
	No	29.84	30.00	27.00	6.16	.19	.91		

(BL= Blended Learning, F1= Learning Flexibility, F2= Online Learning, F3= Study Management, F4= Technology, F5= Classroom Learning and F6= Online Interaction)

The t value for in-service teachers who have attended/conducted and who have not attended/conducted webinars/ lectures/ FDPs online towards blended learning and its dimensions was found to be not significant. Hence, the null hypothesis is accepted. Therefore, there is no significant relationship between the attitude of in-service teachers who have attended/conducted and who have not attended/ conducted webinars/ lectures/ FDPs online towards blended learning and its dimensions.

Discussions

Understanding the attitude of in-service teachers when they play the role of learners towards different learning aspects can be critical for assessing their adaptability to and eventual readiness towards blended learning. The findings from the present research show that in-service teachers have a positive attitude towards online learning, study management, online interaction and learning flexibility are more likely to adapt to blended learning. The more positive the attitude, the more adaptable the teachers will be and the more ready they are for using a blended learning approach post-pandemic era for their professional growth where face-to-face learning and classroom interaction would be done only when necessary in order to maintain precautionary measures at least for a few months.

Also, the present study reflected that gender has no effect on the readiness of teachers towards a blended learning approach. In other words, both male and female teachers are willing to adapt to this approach. Similar teachers who had attended and who had not attended or conducted webinars, workshops, FDPs did not show any difference in their readiness towards blended learning. It is quite possible that those teachers who were unable to attend are also willing to adapt to this approach because they themselves are updated with the available online platforms or software's that can be implemented for learning because of social media awareness or already existing knowledge.

Through this study, it is concluded that within a blended learning environment, the teachers will benefit from flexibility in time and place as well as accessibility as per their convenience. Their active participation (online and offline mode) will develop a conducive environment leading to better engagement and learning.

Advances in information technology (IT) such as development of web applications, mobile devices, and telecommunications have inevitably changed the design and delivery of educational curriculum. From classroom learning to online learning, has not been fully implemented in classrooms but implementation of blended learning approach post-pandemic will surely help in improving the learning delivery environment for lecturers and teachers who will be considered as learners while attending various training programs. Thus, although Blended Learning has modelled as one of the methodologies for learning, a high level of familiarity to access technology has made using technology a non-issue from the perspective of the teachers as well as learners.

Conclusion

The impact of the pandemic has already been felt on all sectors of society including the education sector too. It is an accepted fact that this impact will be existing for a fairly long time. This pandemic is clearly a sign of changing times and thus, requires the educational system to undergo a major revolution. Blended learning is one of the approaches suggested by various educationalist and research scholars throughout the globe which will provide the learners with powerful learning experience. The six factors of blended learning were considered for the present. A significant positive correlation was observed among these

factors as far as readiness of in-service teachers towards blended learning was considered. This indicates that learning flexibility, online learning, study management, technology, classroom learning and online interaction are responsible for affecting the overall readiness of in-service teachers towards blended learning. Any difference in these factors would affect their attitude towards BL. The results are evidence that blended learning approach has a great acceptance from the in-service teachers. The present study reflected that gender and teachers who had attended and who had not attended or conducted webinars, workshops, FDPs did not show any difference in their readiness towards blended learning. In other words, both male and female teachers as well as those who are familiar and not familiar with online webinars/conferences/FDP's are willing to adapt to this approach. It is quite possible that those teachers who were unable to attend training programs online had a positive attitude because they themselves are updated with or have already experienced the available online platforms or software's that can be implemented for teaching and learning. This research will help the curriculum developers to realise that the teachers are ready to implement this approach for their learning and the six factors are crucial to be considered as they affect the total BL attitude. Introducing blended learning as an approach post-pandemic will have a significant impact on the teachers' professional career where more teachers would participate in the training programs and enhance their knowledge. In addition to that, it's an effective learning strategy and will open up room for teachers from various educational communities to connect with the world through the technological advances.

List Of Abbreviations

COVID-19	Corona Virus Disease 2019
MOOC	Massive Open Online Courses
BL	Blended Learning
SPSS	Statistical Package for Social Scientists
FDPs	Faculty Development Programs
OER:	Open Educational Resources
IT:	Information Technology
S.D.:	Standard Deviation
r:	Pearson Moment Correlation
p:	Probability Value
F:	Factor

Declarations

Availability of data and material:

We hereby declare that the relevant data and the tool related to this manuscript will be made available to the reviewers on request. It will also be available freely available to any scientist wishing to use them, without breaching participant confidentiality.

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Competing interests:

The authors declare that they have no competing interests.

Authors' contributions:

RS identified the tool and PM made the online form for collecting data. Both RS and PM have distributed tool for data collection. PM did data sorting and RS did data analysis. RS and PM have collaboratively drafted the manuscript.

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RS holds a Ph.D. in Education and is a teacher educator engaged in training aspiring teachers in the metropolitan city of Mumbai. RS is affiliated with the full time as well as distance education institutions with an experience of over 5 years. PM is a Computer Scientist and an educationalist working in the field of Education for a premium Distance and Open Learning institution with an experience of over 11 years. She has knowledge and skills of two fields (Computer Science and Education) and is a Teacher Educator for aspiring Teacher Educators.

Disclosure of potential conflicts of interest:

The authors state that there are no conflicts of interest.

Research involving human participants and/or animals:

This article does not contain any studies involving animals performed by any of the authors.

Informed consent:

Informed consent was obtained from all individual human participants involved in the study.

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Figures

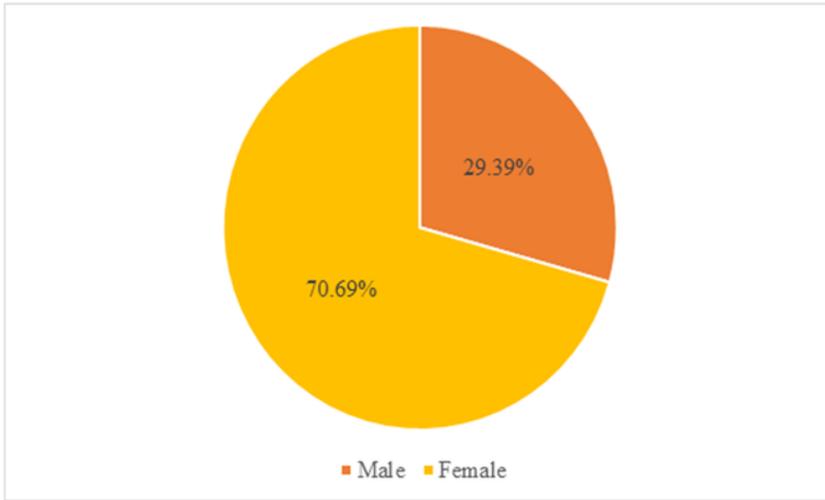


Figure 1

Pie chart representing Male and Female in-service teachers

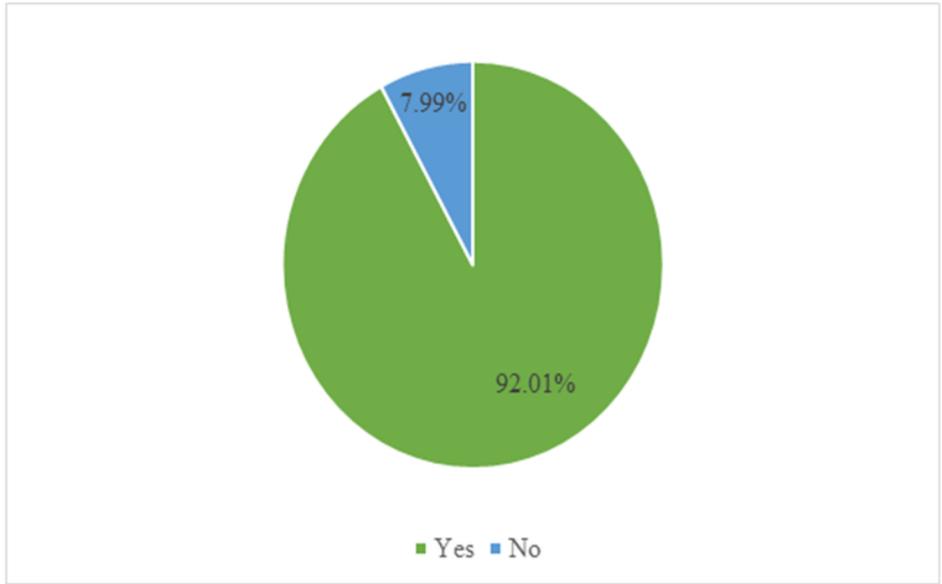


Figure 2

Webinars/workshops/FDPs attended/conducted by teachers online or not