Analysis Of The Attitude Of Secondary School Teachers Towards The Use Of Bichronous Online Learning

Sushanta Kumar Panda and Neha

Bichronous online learning is a recently coined terminology that refers to a blended form of synchronous (real-time online meeting) and asynchronous (anywhere, anytime learning) online learning. The present study aims to analyse the attitude of secondary school teachers towards bichronous online learning based on gender, locality, age, and type of institution. The sample consists of 100 secondary school teachers from 20 schools (10 each from government and private) in the Samba district. The investigator adopted the descriptive survey method and used a self-developed attitude scale for collecting data. The reliability and validity of the scale were also established by the investigator. For the analysis of data, Mean (M), Standard Deviation (SD), and Critical Ratio (CR) were used. The findings of the study reveal that there is a significant difference between the attitude of secondary school teachers based on gender (male and female), locality (urban and rural), age (below 40 and above 40), and type of institution (government and private). The results of the present investigation will help the stakeholders to take necessary steps to develop willingness among the teachers to use bichronous online learning in the teaching-learning process and make it more interesting and innovative.

KEYWORDS: Attitude, Bichronous Online Learning, Secondary School Teachers

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Introduction

Over the past few decades, there has been an increasing trend toward technological learning. The unprecedented development of modern technologies and the internet now has pervaded every part of the education sector. The days are gone when education was limited to the four walls of educational institutions such as schools, colleges, and universities. With the pace of globalization and the advancement of science and technology, the whole education system has been changed. The use of technology is now increasingly apparent throughout the entire teaching-learning process. Before the pandemic, the necessity of technology had not been yet fully realized, but with the outbreak of COVID-19 pandemic, a common drift was seen in the education system i.e., online learning. It was the only medium/source by which learners were able to continue their education at home.

Online learning is an internet-enabled learning that provides a wide range of information and many more references than the usual textbooks. It is self-centred learning where the students can learn according to their pace and time. It allows the learners to interact with the artificial world and control their learning process by deciding when, where, and how fast to learn Suri and Sharma (2017). There is a very popular slogan about online learning, i.e., 'study anywhere at any time', where the learner is not restricted to learning as per the scheduled timetable. Online learning provides digital platforms to the learners that foster them to continue their formal or informal education from anywhere at any time at their speed. The foremost aim of the (Ministry of Human Resource Development, Government of India, 2020) National Educational Policy (2020) is to make use of emerging technologies in education and universalize the pedagogy from preschool to secondary school. To meet the current and future challenges of providing high-quality education to all, it is necessary to optimize and expand the already existing and ongoing digital platforms at all levels. The policy had recommended some key initiatives such as digital infrastructure, virtual labs, online teaching tools, blended modes of learning, digital repository, online evaluation and examinations, and teachers' training so that they will be able to create innovative online content for the students (pp.59-60). There are three types of online learning i.e., asynchronous, synchronous, and bichronous online learning.

Asynchronous Online Learning

Asynchronous online learning is the 'classic' format of online learning where the teachers and students are connected via the internet and technology with no dependency on time and place. It is an independent learning platform where the learner can individually perform different tasks and access online

resources such as reading material, searching online content, watching videos, links to resources, tests/quizzes, PDFs, slide shares, and articles as per their convenience (Rahman et al., 2022). There are no face-to-face and real-time online meetings.

Synchronous Online Learning

Synchronous online learning is another form of online learning that has recently emerged to connect students and teachers. The teaching and learning take place at the same time as real learning in a virtual classroom such as video conferencing/web conferences (face-to-face meeting) and it requires attendance at the same time but not necessarily in the same location (Herzallah, 2021, p.71). The most widely used platforms for synchronous online learning are Google Meet, Zoom, Microsoft Teams, etc.

Bichronous Online Learning

Before the pandemic, there was no such name that describes the deliberate merging of the two modalities for creating an innovative and rich learning experience for learners. According to Martin et al. (2020) and Mohammadi (2023), the term 'Bichronous online learning' is the mixture of synchronous and asynchronous online learning (Figure 1) where the students can participate in the face-to-face meetings during the synchronous modalities and at the same time, they can also join the asynchronous portions of the course i.e. 'anywhere anytime learning'.
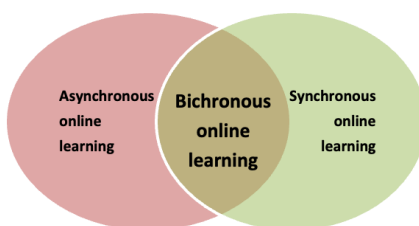

Figure 1. Formation of Bichronous Online Learning.

By combining synchronous and asynchronous online learning, bichronous online learning seeks to maximize the benefits and improve the learning outcomes of the students. This blending is viewed as a good balance between both approaches that provide flexibility in asynchronous learning and immediacy in synchronous sessions (Martin et al., 2020). Bichronous online learning is uncommon because it is recently coined terminology, it is conceived in the

above figure no.1 that bichronous online learning is a combination of both synchronous and asynchronous online learning that embraces the aspects of both domains, and it allows the learners to take the advantage of both worlds.

Review of Related Literature

Online education aims at providing virtual learning experiences to every learner so that they can access educational opportunities no matter where they are. Therefore, teachers must adopt modern technologies and make them competent to integrate them into their professional practice and deliver innovative as well as quality education to the students. To study the attitude of teachers towards bichronous online learning, the related literature found that there is no significant difference in attitude towards online learning with respect to gender (Kauts & Gulati, 2022; Singha, 2021). Similarly, Suri and Sharma (2016) and Kumar (2017) also revealed that there is no significant gender difference in the attitude of teachers teaching through e-learning whereas Ramadan et al. (2019) concluded that there was a significant difference between the teachers' attitudes based on gender. Males were more inclined to adopt e-learning in their teaching than females. Gururaja (2021) also indicated that male teachers show a more favourable attitude toward online teaching than female teachers. Concerning locality, the study found that urban teachers have more interest in online teaching than rural teachers. Parveen (2016) also indicated that there is a significant difference between the rural and urban teachers about the use of technology in the classroom whereas Kumar (2017) reported that there is no difference between the attitude of urban and rural teacher educators toward e-learning. This was also supported by Singha (2021) that there is no significant difference between rural and urban student-teacher attitudes toward online learning.

Additionally, concerning age, Suri and Sharma (2017) found that there is a significant effect of age on teachers' attitudes toward computers and e-learning. Nguyen (2023) also supported that age had a significant influence on teachers' attitudes. Younger teachers (22-39) can more easily adapt to the change to an online learning environment than their older counterparts (40-60), which results in a greater desire or willingness to teach online. Ramadan et al. (2019) reported a statistically significant difference between the participants' attitudes based on age whereas Bassfar, Rozinah, and Merza (2012) found no significant difference in the attitude of teachers based on age group. For the type of institutions, Gururaja (2021) and Bhadana and Dwivedi (2023) found that there is a significant difference between government and private teacher's attitudes towards E-learning. It is also highlighted that the teachers at private schools had a more favourable attitude towards learning online than the government school teachers whereas Chandwani et al. (2021) reported that

the type of institution does not make any significant difference in their attitude towards online teaching.

From the above-mentioned studies, it can be concluded that the need to understand the attitude of teachers toward online learning is essential to implementing it more productively. Various studies have been conducted on online learning, virtual classroom teaching and e-learning but no study was done on bichronous online learning in the UT of Jammu and Kashmir as it is recently coined. Hence, the focus of this research is to explore the attitude of secondary school teachers towards bichronous online learning based on gender, locality, age, and type of institution.

Justification of the Study

The success of technology implementation largely depends upon the perceptions and attitudes about the use of educational technology in the teaching and learning process. The inclusion of educational technology in academic activities is greatly influenced by the perspectives of instructors/teachers. The teaching staff plays a pivotal role in the educational system. No one can replace the presence of teachers but with the use of technology, a teacher can replace the traditional ways of teaching in the classroom and make it more interesting and innovative by using different technological resources. Previous studies have shown that the practical application of educational technology heavily depends upon the attitude of the academic staff or educators whether they want to use it or ignore it in their educational endeavours Ramadan et al. (2019). The attitude of educators is a key enabling/disabling factor in the use of technological resources in education Softic (2015). It plays a vital role in bringing change to the education sector. So, it is necessary to measure the attitude of teachers towards the usage of bichronous online learning in the teaching-learning process. Bichronous online learning is a combination of synchronous and asynchronous online learning where the learners can take the benefit of both worlds. It is the recently emerged terminology that was quickly adopted by all educational institutions for the continuation of education during the worldwide lockdown. Several studies had been conducted with a mix of synchronous and asynchronous online learning before the pandemic without addressing the term 'bichronous online learning' Utomo and Ahsanah (2022). Consequently, the present study is an attempt to explore the attitude of teachers towards bichronous online learning, which is very important, especially after the pandemic.

Objective of the Study

The study has the following objective:

To assess the attitude of teachers towards bichronous online learning based on gender (male and female), locality (urban and rural), age (below 40 and above 40), and type of institution (government and private).

Hypotheses of the Study

The study has the following hypotheses:

1. There will be no significant difference between the attitude of teachers towards bichronous online learning based on gender (male and female).

2. There will be no significant difference between the attitude of teachers towards bichronous online learning based on locality (urban and rural).

3. There will be no significant difference between the attitude of teachers towards bichronous online learning based on age (below 40 and above 40).

4. There will be no significant difference between the attitude of teachers towards bichronous online learning based on the type of institution (government and private).

Methodology and Sample

For the collection of data, the descriptive survey method was used by the investigator. The population includes all the secondary schools (166) affiliated to the Jammu and Kashmir Board of School Education (JKBOSE) of the Samba district of Jammu and Kashmir. To select the sample for the present study, the investigator used a simple random sampling technique in which 20 schools were selected (10 government and 10 private). Furthermore, the investigator randomly selected five teachers from each secondary school (government and private). Thus, the sample consists of 100 secondary school teachers for the present study. The demographic information of the respondents based on gender (male and female), locality (urban and rural), age (below 40 and above 40), and type of institution (government and private) is given in Table 1.

Table 1

Demographic Information of the Respondents.

Variable	Sub Variable	No. of Teacher	Total
Gender	Male	45	100
	Female	55	

Table 1 continued

Locality	Urban	57	100
	Rural	43	
Age	Below 40	53	100
	Above 40	47	
Type of Institutions	Government	50	100
	Private	50	

Tool Used in the Study

To elicit information regarding the attitude of teachers towards bichronous online learning, the investigator prepared an attitude scale that is composed of 23 items out of which 14 were positive and 10 were negative items. The scale consisted of a three-point response with degrees ranging from 2, 1, and 0 respectively for 'always', 'sometimes', and 'never' alternatives, and the scores for the negative statements were vice-versa. The reliability of the scale was measured by using the split-half method and found to be 0.84 which was quite satisfactory. The face and content validity of the scale was also established by the investigator.

Results and Discussion

To explore the attitude of secondary school teachers towards bichronous online learning based on gender (male and female), locality (urban and rural), age (below 40 and above 40), and type of institution (government and private), the investigator had used both descriptive (Mean and Standard deviation) and inferential statistics (Critical Ratio) for the analysis of data.

Testing of Hypotheses

Hypothesis 1: There will be no significant difference between the attitude of teachers toward bichronous online learning based on gender (male and female).

It is evident from Table 2 that the mean value of male teachers is found to be 20.44 and 19.02 for female teachers. The obtained value of CR is 2.05 which is greater than the table value at 0.05 level of significance (1.98) against df 98. This indicates that there is a significant difference between the attitude of male and female teachers towards bichronous online learning. Hence, the null hypothesis is accepted at a 0.05 level of significance.

Table 2

Difference between the Attitude of Teachers towards Bichronous Online Learning based on Gender (Male and Female).

Attitude Towards	Gender	N	Mean	SD	df	CR
Bichronous	Male	45	20.44	3.51	98	2.05*
Online Learning	Female	55	19.02	3.38		

*Significant at 0.05 level

Hypothesis 2: There will be no significant difference between the attitude of teachers towards bichronous online learning based on locality (urban and rural).

Table 3

Difference between the Attitude of Teachers towards Bichronous Online Learning based on Locality (Urban and Rural).

Attitude Towards	Locality	N	Mean	SD	df	CR
Bichronous	Urban	57	21.15	3.66	98	4.63**
Online Learning	Rural	43	18	3.23		

** Significant at 0.01 level

Data in Table 3 shows that the mean value of urban teachers is found to be 21.15 and 18 for rural teachers. The obtained value of CR is 4.63 which is greater than the table value at 0.01 level of significance (2.63) against df 98. This indicates that there is a significant difference between the attitudes of urban and rural teachers towards bichronous online learning. Hence, the null hypothesis is rejected at a 0.01 level of significance.

Hypothesis 3: There will be no significant difference between the attitudes of teachers towards bichronous online learning based on age (below 40 and above 40).

Table 4

Difference between the Attitude of Teachers towards Bichronous Online Learning based on Age (Below 40 and Above 40).

Attitude Towards	Age	N	Mean	SD	df	CR
Bichronous	Below 40	53	21.07	3.19	98	5.16**
Online Learning	Above 40	47	17.87	3.02		

** Significant at 0.01 level

Results in Table 4 show that the mean value of teachers below 40 is found to be 21.07 and 17.87 for above 40 teachers. The obtained value of CR is 5.16 which is greater than the table value at 0.01 level of significance (2.63) against df 98. This indicates that there is a significant difference between the attitudes of the age group below 40 and above 40 teachers towards bichronous online learning. Hence, the null hypothesis is rejected at a 0.01 level of significance.

Hypothesis 4: There will be no significant difference between the attitude of teachers towards bichronous online learning based on the type of institution (government and private)

Table 5

Difference between the Attitude of Teachers towards Bichronous Online Learning based on Type of Institution (Government and Private).

Attitude Towards Bichronous Online Learning	Type of Institution	N	Mean	SD	df	CR
	Government	50	17.95	3.35	98	4.84**
	Private	50	21	2.88		

** Significant at 0.01 level

Table 5 shows that the mean value of government teachers is found to be 17.95 and 21 for private teachers. The obtained value of CR is 4.84 which is greater than the table value at 0.01 level of significance (2.63) against df 98. This indicates that there is a significant difference between the attitude of government and private teachers towards bichronous online learning. Hence, the null hypothesis is rejected at a0.01 level of significance.

Discussion of the Results

The findings of the present study reveal that gender is an important factor that influences teachers' attitudes towards online learning. The study found that there is a significant difference between males and females regarding their attitude towards bichronous online learning. The mean score of male teachers was found to be higher than female teachers. Similarly, Gururaja (2021) revealed that male teachers have a more favourable attitude than female teachers. Ramadan et al. (2019) also found that males are more likely to utilize e-learning resources while teaching than female teachers.

In terms of locality, the study reported that there is a significant difference between the attitudes of urban and rural teachers towards bichronous online learning. As supported by Gururaja (2021), teachers belonging to urban areas show more interest in online teaching than rural teachers. Studies also found

that there is a significant difference between urban and rural secondary school teachers with respect to attitude towards e-learning (Bhadana & Dwivedi, 2023; Parveen, 2016).

It is also observed that there is a significant difference between the attitude of teachers towards bichronous online learning based on age (below 40 and above 40). As supported by Ramadan et al. (2019) there exists a significant difference between the teachers' attitudes with regards to age. It was also revealed that younger teachers may find it easy to adapt to the online environment as compared to older ones.

Finally, the results show that there is a significant difference between the attitude of teachers towards bichronous online learning based on the type of institution (government and private). As studied by Gururaja (2021), Sehjal (2021), and Bhadana and Dwivedi (2023), there is a statistically significant difference between the attitude of government teachers and private school teachers towards online teaching. The private school teachers had a significantly favourable attitude towards e-learning than government school teachers.

Conclusions

In light of the above discussion, it can be concluded that the attitude of male teachers towards bichronous online learning is more than female teachers this may be due to the reason that they are more interested and competent in using bichronous online learning while teaching. In terms of locality, urban teachers are more interested in using bichronous online learning and they have a positive attitude towards the use of bichronous online learning as maybe they are more aware, confident and have availability of internet as well as technological facilities in their area whereas the rural teachers are deprived of these required facilities. The findings of the study also revealed that the teachers (below 40) have a more favourable attitude towards bichronous online learning as compared to their counterparts and this may be due to the reason that they are the digital natives and more tech-savvy in handling digital resources whereas the senior age group teachers (above 40) have less experience to handle the latest technology. With respect to the type of institution, private teachers have favourable attitudes towards the use of bichronous online learning may be due to the availability of good infrastructure facilities and technical support from their institutions.

Recommendations

Online learning is a necessity of the current education system that provides equitable educational access to all (Ministry of Human Resource Development,

Government of India, 2020). Teachers are the backbone of the education system, and their attitude plays a very important role. To develop a positive change in their attitude, they should be encouraged to use the bichronous online learning strategies in the classroom. There must be proper training programmes for the teachers that emphasise developing a positive attitude towards the use of online platforms so that they become competent teachers as well as acquire the necessary skills, especially in the use of major applications and technological devices in the 'new normal era'.

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