

A STUDY OF DISPOSITION TOWARDS BLENDED LEARNING AMONG MEDICAL TEACHER EDUCATORS

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Abstract

Background: Blended learning is seeing an ever-growing popularity as it has demonstrated to be a competent stratagem for encamping an ever-diverse medical student collective whilst enriching the learning ambience through assimilation of online as well as offline teaching strategies and resources. The teachers in medical education industry have developed different understandings of the term and different design approaches have evolved and often selecting the most appropriate design approach for a blended course is a major challenge for many teachers who are new to the idea. This paper aims to identify the attitude of medical educators towards designing their blended courses. **Materials and Methods:** The study adopted a survey research methodology to examine students' attitudes towards blended learning. Respondents consisted of 40 medical school teachers from three Medical Colleges in Lucknow. Descriptive Survey Method technique was employed to study the attitude of the teacher educators. For this we had used a self-constructed Likert type attitude scale. Analysis for the research questions was done using the Statistical Package for Social Scientists (SPSS-V. 17). **Result:** Results indicated that teachers viewed learning flexibility and technology as the most important or valued aspect of blended learning. Findings showed a strong positive relationship between online interaction and technology and online learning and technology. **Conclusion:** The curriculum design should consider the varied learning styles of our student teachers by imploring Innovative pedagogical approaches.

INTRODUCTION

Blended learning in simple language is the integration of technology into the curriculum. Medical teachers and students in today's world utilize digital media to gather information or other computer aided platforms to collect and propagate the information forward. The actual combination of technology and the curriculum is the trademark of blended learning.^[1,2]

This includes:

1. Delivery methods through which students learn from a digital source
2. The usage of online classrooms and discussions

3. Identifying gaps in knowledge by using automatically corrected assignments
4. Computer mediated activities

A blended learning overture is about the design of a course that enhances the teaching and learning experiences for students and teachers by combining face to face learning activities with online learning components.^[3] It uses various applications, games, or programs -which can quantify/measure- to instil concepts and postulations and makes allowance for students to grasp and absorb the material at their own pace. This helps in creating a balance in a classroom that contains both quick and slow learners so that every student can rehearse and tackle new material with timing that is just perfect for them. Blended

learning has also made entry into medical education due to its appropriateness, applicability and versatility in use for classroom teaching.^[2,3] It is a denouement of advanced technology based learning system. The appeal of blended learning approach resides in the application of technology aided approaches in addition to the current traditional based learning. With the introduction of technology the overall learning as well as teaching experiences considerably enhanced by covering negative aspects of the traditional approach.^[4]

Blended learning facilitates individualized learning and develops problem solving skills. Its interactive nature motivates students to learn. Many findings reveal that learner attitude towards blended learning were key elements to learners' satisfaction and motivation while workload management was a significant contributor to learner satisfaction and knowledge construction.^[2,5]

Benefits of Blended Learning.^[1,4,5]

1. Flexibility- blended learning classes offer flexibility for medical teacher educators in how they present their material and for students in the pace and variety of the learning approaches they experience.
2. Effectiveness- studies have shown that blended learning incorporates multiple methods of instruction from an assortment of perspectives, it proves to have an effective learning outcome for most medical students involved.
3. Teacher empowerment- by incorporating technology into classroom instruction, medical teacher educators are freed up to reach more students. Teachers can move within the stations or activities to interact with individuals or small groups of students and check on their progress. Data provided by education technology programs also empowers medical teachers with insights on each students learning so they can more effectively address gaps.
4. Engagement- because more medical students today are surrounded by technology in their everyday life, they often engage more easily with material when technology is incorporated in instructional settings. Additionally medical students become commissioned as they expand their technological skills and competency with technology.
5. Differentiation- because blended learning involves a variety of instructional approaches, learning activities can be adjusted to accommodate diverse learning styles. Traditionally high quality digital educational tools allow teachers to measure each students' individual learning level and provide activities and instructions that meet the child where they are to give them appropriate lesson material.

Models of Blended Learning.^[1,2,4]

Blended learning has 6 different models. They are as follows:

1. Face To Face Driver Model
2. Rotation Model

3. Flex Model
4. Online Lab Model
5. Self-Blend Model
6. Online Driver Model

Face to Face Driver Model

The "face to face" driver model is a special type of blended learning model in which technology is used apace with the traditional teaching to increase success in educational outcomes. Face to face classroom correspondence is the main mode of delivery in this model, but technology is used to augment learning.

Rotation Model

The rotation model of learning involves the contemporary face to face instruction with online learning. In this the time schedule is divided and rooted between these two processes or it runs on the teachers description for a given course students rotate from in person learning to online learning on a set schedule on a schedule determined by a teacher.

Flex Model

In the "flex model" of blended learning- all of the education which is received by the students, is disseminated through a computer. Alternatively, we can say that the computer equipment and/or any educational software for that matter might be provided allow students to direct their own learning.

Online Lab Model

Students engage learning exclusively online but travel to a dedicated computer lab to complete the course work. Adults oversee the lab but they are not trained teachers. This allows schools to offer courses for which they have no teachers or not enough teachers coupled with the fact that it also allows students also to work at a place and in a subject area that suits them without affecting the learning environment of the other student.

Self-Blend Model

This model permits course work beyond that which is offered in a traditional setting in a specified school and (or) district students participate in traditional types of classes but then also enrol in courses to supplement the regular programs or study a course that is not imparted by the school maybe taken by a student who wants or requires an additional learning in a specified content field.

Online Driver Model

Many students often work from remote areas, for example, their homes et cetera and they are prepared to acquire all instructions via online platforms. Often there are contingencies and possibilities to check in with a course teacher or facilitator and to engage with their teachers in online messaging if an explanation is needed all though face to face check ins are optional. Students are usually able to chat with teachers online provided they have some query. This model of online learning is ideal for students who need more flexibility and independence in their daily schedules.

Blended Learning in Medical Education

The shift in emphasis from science as a body of knowledge to science as a process of enquiry revolutionized the idea of how students learn science.

It is quite accepted that there is a necessity for tapping the wide applicability of online learning combined with face to face instruction for enhancing medical science learning. Blended learning is a pedagogical strategem which skilfully integrates online learning techniques of the likes of online delivery of materials through web pages, discussion boards, emails and also face to face instruction. The present research is an attempt to study the effect of blended learning which starts on science process skills and science achievements and thus the construction of deep scientific knowledge results from actively practicing science in a structured learning environment. Medical science teaching becomes all the more better in the case in which integrating technology by typically providing more potentially flexible ways of learning through online mode and the richness of social presence in the classroom.^[4,6]

Review Literature

A study done by Bhadri & Patil (2022) explained and suggested to students that with the assistance of blended teaching and learning system will improve their learning and change their attitude towards education with the combination of “Asynchronous and synchronous” modes of learning and it would give them the opportunity to learn independently and flexibly. The task of designers of the system and teachers has become critical and they must work together to develop a good and effective system for learners. Simultaneously, educational designers can bring improvement and develop user-friendly approaches of blended learning so as to make it easy for learners and teachers to adopt the system.^[4]

The study by Masadeh (2021) found that the attitude and perception of students and teachers/facilitators would be changed towards education with the positive and comfortable system of blended learning and teaching because it provides the flexibility of time and place. The benefits that a blended system of education provides would be helpful for teachers who want to adopt the system and motive others as well. The study shows that there must be an equilibrium between the goals of the administration, the requirements of learners and the limits of faculty. Concurrently, it also highlights the need of proper structure and dialogue in a functional environment of teaching. Regardless, the blended teaching system has been proved as a successful method of teaching in the few decades gone by as it has made a positive influence on students and have helped them achieve their goals.^[5]

A study by Shukla, Dosaya, Nirban, & Vavilala (2020) found that the online courses that are included in the machinery of blended learning provides access to learners who are from remote areas and marginalized sections of the world. Blended system of learning help students in metamorphosing their critical thinking and also increase learning capacity of learners, which is essential in 21st century. Blended teaching and learning method is a shift from traditional method to electronic method. Online

learning system develops potential space of learning for learners by using technology that enhances the efficiency of the process of teaching as well as “learning. More research must be conducted by educational technologists and researchers from distance education fields.^[6]

Also in the study done by Graham, Stols, Kapp (2020) the authors reported using the four constructs of the UTAUT framework, and their results from structural equation modeling showed that three of the four constructs were statistically significant. This study showed the reason behind the South African mathematics teachers including ICTs in the classrooms.^[7]

In 2019, Dwiyoogo & Radjah explained that the educational environment and technique that includes traditional systems along with the usage of technology and various other academic sources and modes is called a blended learning and teaching system. The exercise of blended learning based on adaptive physical education material of teaching has the potential of improving the learning of learners and its results as well includes attractiveness, efficiency, and effectiveness. The preeminence of teaching and knowledge is always associated with the methods of learning that are essential for the achievement of academic goals but under certain conditions. Thus, to obtain high quality of education, teachers must adopt the blended system of learning & teaching.^[8]

Also in the same year 2019, Zavaraki & Schneider revealed about some of the opportunities for students that can be received through blended learning system are the availability of various resources, facility of information delivery, increased motivation, self-esteem, increased confidence, independence, increased educational activities, the collaboration of classroom teachers and special instructors, empowerment of learners with disabilities, personal development of teachers and students, developed educational curriculum.^[9]

Aims and objectives

To study the attitude of medical teacher educators towards blended learning. Also, to know whether blended learning approach can boost learner engagement by giving them more freedom to adjust the learning process to their needs and support continuous informal learning that goes beyond the fixed time and space of the course.

MATERIALS AND METHODS

Type of Study- The study is of a quasi experimental nature with a survey (descriptive) method of research. Descriptive survey tells us “what is”. This has a very wide scope. It describes and elucidates what exists at present. According to Best JW, descriptive survey research is concerned with condition or relationship that exists; practice that prevails; beliefs and points of view, or attitudes that

are held; processes that are going on; effects that are being built; or trends that are developing.^[10]

In our study we followed the survey method of descriptive research. It involves a discrete imaginative planning, careful analysis of the data, interpretation of data collected and judicial reporting on the investigation, to carry out the research of this type for data collection for testing the hypothesis and for arriving at certain conclusions, it becomes a necessity to choose the techniques and the proper tools which need to be employed. Each data gathering device has both merits and demerits for this investigation. A questionnaire had been considered as a suitable tool for the collection of data for our study. The opinionnaire was administered among teacher educators of medical colleges in Lucknow district of Uttar Pradesh. With a view to get better results, the investigator personally approached the selective colleges and distributed the opinionnaire to the sample respondents. The purpose and procedure for filling the opinionnaire was personally explained to the teacher educators who acted as respondents. The distribution of sample respondents basing on the college type, gender, age, professional qualifications, designation professional experience and subjects taught represented the sample collected from the colleges.^[11,12]

Population: Medical School Teachers

Sample Size: Sample size was calculated using the formula:

$$N = Z^2 \alpha p(1-p)$$

L2

Where $p = 90\%$ (previous study)^[13]

Margin of Error(L)=10%

$N = 35 + 10\%$ non response=40

Our sample size came out to be 40 ($n=40$). Male as well as female medical school teachers participated in our study. We sampled 07 male and 33 female subjects.

Sampling Technique: A Voluntary Sampling method with Descriptive Survey Method technique was used in our study.

Tools: The instruments that are employed together new facts and to explore new fields are known as tools. It is of crucial importance to select befitting instruments or tools. Different tools are used for selecting different types of data. The investigator may use any one or more of the tools in combination for this purpose. There are two types of tools called standardized tools and tools prepared by the investigator.^[2,14,15]

Generally, in descriptive survey an opinionnaire is conducted as a better research tool for collecting data. The information form that attempts to measure the attitude or belief of an individual is known as an opinionnaire though the terms, opinion and attitude appear to be synonymous but there is a clear distinction between the two. Attitude is a feeling or way of thinking that affects a person's behaviour. It is the inner feeling of an individual which is difficult if not impossible to describe and measure. Also, on the other hand, opinion is what a person says or speaks

out on certain aspects of the issue under consideration. It is the outward expression of an attitude held by an individual. The attitude of an individual can be inferred or estimated from his or her statements of opinion.

An opinionnaire - also defined as a "special form of enquiry" used by the educational researchers to collect the opinions of the population to be samples on certain facts or certain factors affiliated to the problem under the investigation research, depend on what people say, taking it for granted, that it is their belief or feeling.

Through the assistance of questions or by getting the experience reaction of the population to be samples to statements on given subjects, a sample of their opinions can be obtained. From these statements of opinion, one may infer or estimate their attitude- what really believe in.^[16]

The description and measurement of opinion may, in many instances, be closely related to peoples' real feelings or attitudes. Keeping this in mind, Psychologists and Sociologists have explored an interesting area of research basing the data on peoples' expressed opinions. A properly constructed and generalized opinionnaire serves as an important tool of research.

Construction of the Tool: The present investigation was intended to study the perception of teacher educators towards the execution of blended learning in teaching learning process after going through various previous investigations and Research articles in journals and periodicals and some of the research articles published on the subject matter the investigator has taken the present research problem on the perception of teacher educators towards the utilisation of blended learning in teaching learning process the investigator had developed and adopted a tool as given in the next year one to collect opinions of teachers educators.^[17]

Since the present investigation was related to the collection of information of opinions and contentions of the teacher educators regarding blended learning in teaching, learning and evaluation process in colleges imparting medical education. An opinionnaire was constructed and applied to evaluate the perceptions of teacher educators towards application of "blended learning" in the teaching learning process.

This attitude scale consisted of 30 items in which there were 18 positive and 12 negative items. Each item was provided with 5 alternatives. Responses were obtained on the booklet itself. There was no time limit but 15 minutes were found sufficient to respond to all items.^[17]

Our opinionnaire was constructed for the teacher educators to evaluate the perceptions of medical teacher educators towards the application of "blended learning" in teaching learning process.^[17] The tool was prepared to investigate/ evaluate the preliminary information regarding the application and use of computers in teaching learning process in aspects of:

- Presentation facilities
- Computer awareness
- Computer operational skills
- Internet applications
- Computer based evaluations and
- Over all response to the applications of “blended learning” with computers in teaching-learning process.

Positive items	Response	Negative items
5	Strongly agree	1
4	Agree	2
3	Undecided	3
2	Disagree	4
1	Strongly disagree	5

Item Validity: The major type of validity are content validity and construction validity. Content validity was formulated on a careful and discrete comparisons of the items to the definition of the sector or the domain being measured.^[18] Content validity of the item was ensured through rational logical analysis of the teacher educator and expert in opinionnaire construction.

Scoring: The respondents were asked to indicate the response to the items by marking anyone of the 5 response options.

Data Collection: (1) For the purpose of data collection 3 medical schools were selected in Lucknow District which had provisions of both traditional vis a vis for blended learning. (2) Descriptive Survey Method technique was employed to study the attitude of the teacher educators. For this we had used a self-constructed Likert type attitude scale.

Statistical Tests Used: The data was accumulated and compiled and the mean alongwith standard deviation was calculated and the results analysed employing the Statistical Package for Social Scientists (SPSS-V. 17).

Table A: Percent Distribution of Teacher Educators On The Basis Of Gender.

Gender of the teacher educator	distribution	
	No. Of teachers	%
Male	07	17.5
Females	33	82.5

RESULTS

Table 1: Usage of blended learning increases interaction among teachers & students. Most teachers responded that they strongly agree and the average score was 4.425 with a standard deviation of ±0.074.

S.No.	Statement	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
		n	%	n	%	n	%	n	%	n	%
1.	Use of blended learning increases interaction among teachers & students	22	55	14	35	3	7.5	1	2.5	0	0.0

Table 2: Online teaching provides necessary instructional aids in almost all subject areas. Most teachers responded that they agree and the average score was 4.225±0.86

S. No.	Statement	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
		n	%	n	%	n	%	n	%	n	%
2.	Online teaching provides necessary instructional aids in almost all subject areas	17	42.5	18	45	2	5	3	7.5	0	0.0

Table 3: Technology mediated instruction is time & energy consuming. Most teachers responded that they agree and the average score was 3.225±1.46.

Sl. No.	Statement	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
		n	%	n	%	n	%	n	%	n	%
3	Technology mediated instruction is time & energy consuming	09	22.5	13	32.5	3	7.5	8	20	7	17.5

Table 4: Blended learning helps teachers to develop skill & knowledge. Most teachers responded that they agree and the average score was 4.2±0.79.

Sl. No.	Statement	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
		n	%	n	%	n	%	n	%	n	%
4	Blended learning helps teachers to develop skill & knowledge	16	40	17	42.5	06	15	01	2.5	0	0.0

Table 5: Information acquired through technological devices is more accurate & reliable. Most teachers responded that they agree and the average score was 3.9±0.84

S No.	Statement	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
		n	%	n	%	n	%	n	%	n	%
5.	Information acquired through technological devices is more accurate & reliable	10	25.0	18	45.0	10	25.0	02	5.0	0	0.0

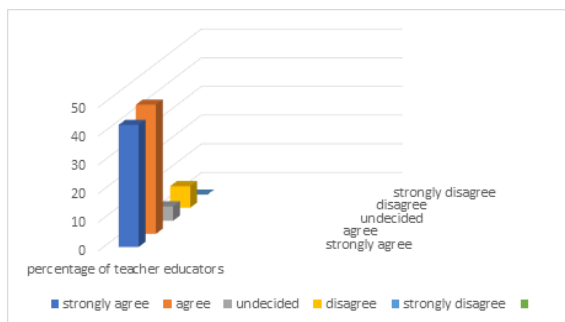


Figure 1:

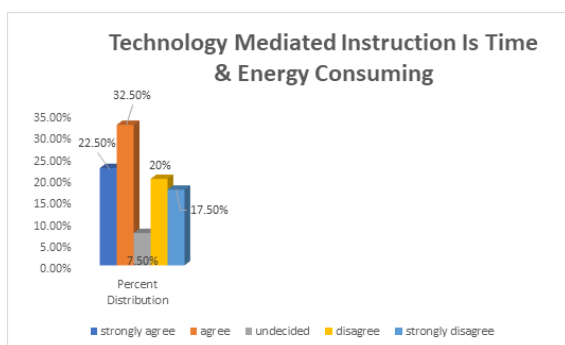


Figure 2:

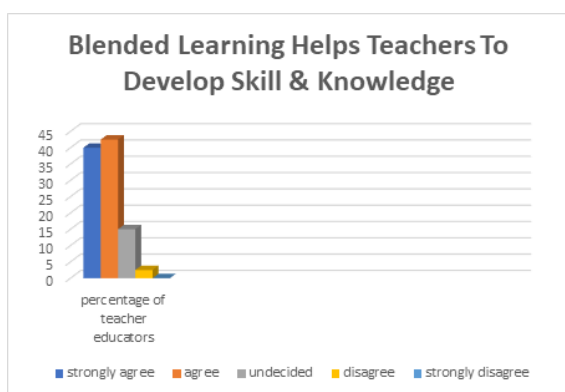


Figure 3:

DISCUSSION

The results from the discussed study shows that in-service male and female medical teachers and also those teachers who have attended/ conducted webinars/ workshops/ conferences/ FDPs online or not, did not differ in their attitude towards the system of blended learning. But when the interaction effect between gender and teachers who have attended / conducted webinars / workshops / conferences / FDPs online or not was considered, the attitude of teachers varied significantly towards blended learning and online learning dimension of blended learning. This could be because of the fact that in a regular Indian household, the time to explore new things is comparatively more with men than that with the women of the house. Also, the experience that a learner gets while exploring the online platforms either by conducting or attending webinars/ workshops/ conferences/ FDPs helps in developing a

positive attitude towards adaptation of blended learning approach as the new in teaching-learning process. The fact cannot be ignored that attending and conducting webinars / workshops/ conferences/ FDPs has a significant effect on the online learning dimension of blended learning. We also noticed that the teachers with higher degrees had a better attitude of adaptation towards blended learning.

Limitations Of This Study: (1) The research covered the medical schools of Lucknow region only. (2) Data was collected only from the Medical schools in Lucknow. (3) More female teachers as compared to male teachers were part of this study.

CONCLUSION

The curriculum design should consider the varied learning styles of our student teachers. For example, the proportion of time for face-to-face and online sessions should be re-examined to cater to the different developmental needs of the students by the educators.

Innovative pedagogical approaches should be undertaken that necessitate that an efficacious blended learning environment is constituted through the use of technology in teaching and learning. Blended learning is intended to increase the students' or the learners' level of knowledge conception and construction in order to create logical as well as analytical skills and knowledge in them.

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