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Blended Learning Effectiveness in Higher Education

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Abstract: ***Blended learning is one of the most evolving teaching learning pedagogy. Educational institutions across disciplines are adopting the blended learning environment.. The new generation of students also known as millennials are digital natives. They are tech competent and prefer to use of technology in all areas. So it is very natural for teaching learning to be more technology oriented. But it is still essential to identify the willingness of the students to adopt the digital transformation in teaching learning.. Blended learning brings in the advantages of both traditional class room teaching and online or virtual learning. The current study tries tounderstand students' willingness for a blended learning model approach and also tries to finds the effectiveness of blended learning model.***

Keywords : Blended Learning, Inclination instrument, effectiveness of blended learning,Learning Management System.

I. INTRODUCTION

Higher education is one of the important factors which propel the advancement of any society. The landscape of Indian higher education has been changing dynamically from last decade [1]. Penetration of technology has brought in considerable change in the processes of the higher education in India. Digitization in Indian higher education has led to evolution of platforms like Swayam which try to combine the conventional teaching – learning with virtual, on-line teaching-learning methodology. Usage of technology has facilitated the higher education institutions to cater to the needs of the students at various levels [1]. The millennial students are more tech-savvy and need to engaged in the classroom sessions by indulging in technology backed solutions. This approach of combing classroom sessions with online educational resources to complement each other is known as blended learning. This should not be mistaken as simple combination of technology and teaching learning process. It is an adaptive process of inclusion of right amount of online resources or platforms like Moodle, a Learning Management Systems(LMS) [8,9].

Typically, blended learning model has dedicated "brick and motor" class room sessions which are combined with digital teaching tools to facilitate individual learning [7]. It provides multiple channels for teaching learning like teacher led activities, videos, digital tasks and physical face-to-face interactions. This approach of having multiple channels facilitate the learning of students to a large extent. The popularity of blended learning in leading educational institutions of the world is a visible indicator [4,5]. The ease and on the go availabilityof digital platforms or resources has led into digitization of higher education in India. The availability of learning videos and online courses has made transformation in the traditional approaches of educational institutions of higher education [6]. This paper tries to identify the inclinationof students to take up blended learning and measure effectiveness of blended learning.

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II. BLENDED LEARNING MODELS

There are four major blended learning models which are in vogue [10]. As the concept of blended learning is still evolving there are no major standardizations which are being followed but to a very great extent the following models are considered as relevant and useful in higher education.

A. Rotation Model

In this model in a single class session, student is exposed to different types of learning activities out of which at least one is from online or virtual task. The rotation can be need based and this would also lead to personalization of learning for students. Flipped classrooms are example of this model.

B. Flex Model

In this model, the student can learn from online resources and also with direct interaction with the teacher. The basic concepts are provided online and the teacher can focus on application-oriented concepts in the direct interaction in the physical class room sessions. This approach leads to better interaction between students and teachers and size of the class does not impact this model.

C. A'La Carte Model

This model provides the student to take up courses online as per their requirement and interest. These courses would be additional courses which a student would apart from the regular conventional course. These are quite different from a complete online program, where all the course are available online.

D. Enriched Virtual Model

In this model the emphasis is on complete virtual learning. All courses are done by the student through online and physical classroom sessions are only need based and are not mandatory. This kind of model does not require the physical presence of student in the institutions.

The following fig 1 depicts the elements of blended learning models.

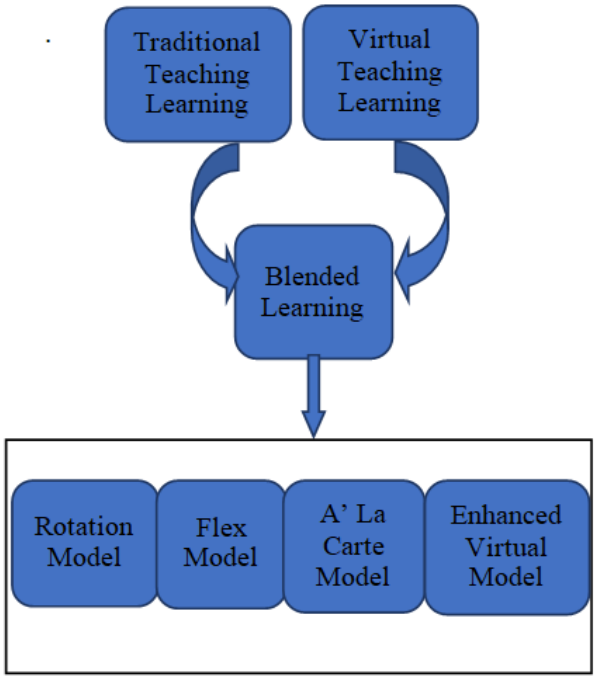

Fig 1. Blended Learning Models

III. METHODOLOGY

Understanding the inclinationof students and teachers to introduce and implement blending learning models is essential. To obtain the inclinationof students, an instrument was devised and administered to a group of 332 undergraduate students in an educational institute in Bengaluru, India. The respondents were given hard copy of the instrument, as well as online survey was also administered. Consent was taken from all respondents and the survey was without any compulsion and no data was captured which identify the respondents.

Table1. Demographic Profile of the respondents

Demographics	Respondents	Percentage(%)
Gender		
Male	187	56
Female	145	44
Age		
19 or below	91	27
20-21	241	73
Stream		
Science	332	100

A. Instrument

A Blended Learning Inclination Instrument (BLII) was developed to understand students' interest for blended learning in higher education institutions. The BLRI contained four basic demographic questions namely age, gender, Stream of Studyand graduate level of education and the sixareas which mapped various aspects of students' inclinationfor blended learning. The six areas are as follows: technology related skills, usage of technology, availability of internet(technology), self-motivated learning, Ease of use of computer and internet, and attitude A 5-point scale ranging from strongly disagree (1) to strongly agree (5) was used in the questionnaire.

In the next step the effectiveness of the blended model was also measured with help of indicators like academic performance, satisfaction, intrinsic motivation and knowledge enhancement for the same group of respondents.

B. Analysis

To understand the inclinationof students towards blended learning models,mean and standard deviation was calculated. This provided better understanding of student's inclinationfor blended learning. The correlation between the academic performance and other indicators was identified also the comparison of academic performance in a traditional and blended model was performed to understand the effectiveness of blended learning using python.

IV. RESULTS AND DISCUSSIONS

In the first stage student'sinclination as analyzed for blended learning. The study indicated that the students areeager to take up the blended learning model as the overall mean was 2.17 and standard deviation 1.69. The table 2 gives the six areas considered and it can be seen that the area of technology related skills is rated high. The result is summarized in the table 2

Table 2. Students Inclination

	Mean	Standard Deviation (SD)
Overall	2.12	1.69
technology related skills	3.52	2.26
usage of technology	2.16	1.65
availability of internet(technology)	2.37	1.70
self-motivated learning	1.15	1.45
Ease of use of computer and internet	2.38	1.93
attitude	2.49	2.22

In the second stage the data on indicators like satisfaction, intrinsic motivation and knowledge enhancement were taken from the respondents. The following table gives the details of the "ease of use "by the students in using the Learning Management System platform (LMS).

Table 3 Satisfaction on use of LMS

	Agree (%)	Disagree (%)	Neutral (%)
Found the LMS easy to use	87	8	5

Using course resources and assignments on LMS was easy	93	6	1
submitting assignment on LMS was easy	89	8	3
Interacting with the teacher and other students on LMS was easy	83	15	2

The figure 2 summarizes the academic performance of the students with and without

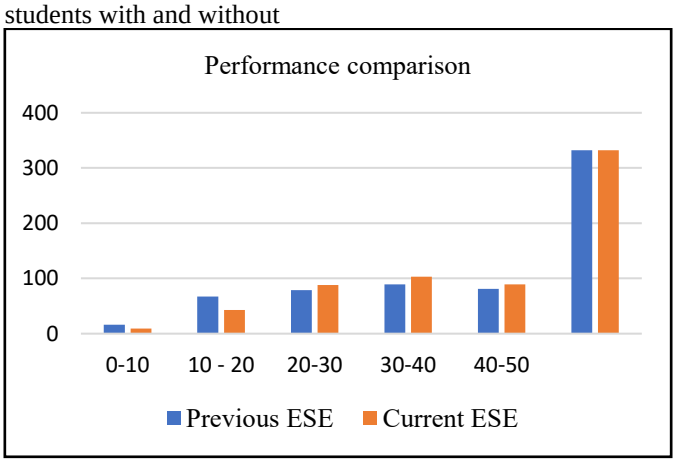

Fig2. Academic Performance Comparison

The study conducted in two stages indicate the inclinationof the students for taking up blended learning as high and the indicator technology related skills as the most prominent one where as self-motivated learning was least. In the second stage the satisfaction of students in using LMS is high and also there is a significant increase in academic performance after administering blended learning. There had been a reduction of 10% in failures and a 17% increase in overall grades of the students.

V. CONCLUSION

Adopting blended models in higher education is the need of the hour. To redefine the teaching-learning to cater to the heterogenous learners blended learning models to essential. An effective blended learning environment is essential to obtain the advantages associated with this pedagogic practise. To move towards learner-centric approach it is essential that the higher educational institutions explore various models of blended learning. The study was limited to one institution and number of respondents were also limited. The same can be extended to generalize the sample size for better understanding.

With these findings future research can be focused on the course design and the level of engagement of students. Further learning styles, course types can be considered to adopt the desired blended learning model. Teachers inclinationis also very important for the successful implementation of blended learning models. Directed training to the teachers would facilitate them to enhance the teaching learning process.

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