

## PERCEPTIONS OF SECONDARY SCHOOL STUDENTS OF BIOLOGY TOWARDS BLENDED LEARNING IN COMPARISON TO TRADITIONAL METHOD

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### Abstract:

Blended learning is a student centred flexible, self-paced multi model approach to learning. Learning is most effective when appropriate blends of different pedagogical strategies are used at in classroom in different subjects. It means that jumping on the latest bandwagon, or applying a single strategy will seldom be successful. Similarly, just because one course uses a particular teaching approach successfully doesn't mean that all our courses should make the switch. An appropriate blend means that it suits learning context - discipline, students, for academics and teaching staff. This research reported student perceptions from a batch of students (Experimental Group) completed the biology unit "Cell as a Unit of Life" in a traditional environment, while the other batch (Control Group) completed the same unit with instructor in a blended environment. Student responses suggest that experiences in terms of learning outcomes, learning resources, assessment tasks, workload, quality of teaching, motivation and overall satisfaction as "positive learning experience" in effective course delivery and course management i.e. With Blended Learning Environment. So, along with the increasing emphasis placed on blended learning approaches in education, there comes a need to engage and support teachers in developing knowledge and skills for designing and managing blended learning curricula.

### Keywords:

Blended learning, Learning of Biology, Secondary School Students

### INTRODUCTION:

The term blended learning was first used within American literature. The term should grasp the blend of traditional teaching and technology based teaching using a wide variety of pedagogical methods and different forms for technology (Gynther, 2005). The concept and understanding of the term blended learning is not a homogeneous field within learning theory (Oliver & Trigwell 2005, Whitelock & Jelfs 2003). The major conclusion to draw is that blended learning is difficult to conceptualise as one idea. There are several understandings of the field and consequently many

different aspects are investigated. The result is that blended learning is rather one mode to be used within other pedagogical models.

**Common pedagogical approaches and concepts used in blended and flexible learning are:**

**Student-centred learning**

**Authentic learning**

**Situational learning**

**Experiential learning (including multiple intelligences)**

**Networked learning**

**Reflective practice**

**Alternative assessments (e.g. portfolios)**

Blended learning is not a new approach in teaching. What is new is the sheer range of possible components in a blend. The institutions must decide, through selected criteria, how these components should be blended to produce fruitful blends constantly determine the balance between face-to-face and technological components. The adoption of blended learning approaches has been the need for teachers to make more explicit their intentions for learning and teaching, and curriculum design is now a more considered process and outcome than perhaps ever before. When designing a course, teachers now have to contemplate the notions of place, proximity and technology, and make decisions about what is best for learning within existing possibilities and constraints. For example, what is the value of bringing students together in a single place and time? How is it different when students are learning face-to-face vs. online/distance, or in real time vs. asynchronously? What resources do I, and my students, have access to?

The term 'blended learning' is now commonplace in higher education; there are differences in the interpretation and enactment of the concept. According to Wild (2007, p.1, blended learning is "...a blend or mix of the approaches that can be used to design a learning experience". So, even though essentially "...Learning is always blended" (p.1) we typically take this concept to mean the use of technologies in learning through the integration of online and face-to-face modes

There are a number of definitions of blended learning. These definitions were gathered by Graham, Allen and Ure (2003) under the following three headings:

1. Combining instructional modalities,
2. Combining instructional methods,
3. Combining online and face-to-face learning (cited by Graham, 2006).

Because the first two of these definitions are tools quite comprehensive, they cover almost all the teaching systems. The third definition, which draws researchers' attention to blended learning, brings two such different learning models together as online learning and face-to-face learning (Graham 2006).

One of the widely-accepted definitions of blended learning was proved by Singh and Reed (2001). According to their definition, blended learning is the transfer of "right" skills to the "right" person at the "right" time by matching the "right" learning technologies with the "right" learning style for the purpose of achieving the learning objectives.

According to (Horton, 2002; Osguthorpe and Graham, 2003), blended learning means combining the strong and advantageous aspects of web-based learning with those of face-to-face learning

As there are many definitions of blended learning and few of them can be also grouped as follows :

Blended learning combines online with face-to-face learning. The goal of blended learning is to provide the most efficient and effective instruction experience by combining delivery modalities

Blended learning is a mixed mode or hybrid learning which is the integration of face-to-face (F2F) learning with various online learning activities.

Blended learning is the thoughtful integration of classroom face-to-face learning experience with online learning experience.

In a field with lots of confusion and multiple definitions around what blended learning—sometimes called hybrid learning—is, a simple, umbrella definition:

**Blended learning is any time a student learns at least in part at a supervised brick-and-mortar location away from home and at least in part through online delivery with some element of student control over time, place, path, and/or pace.**

## BLENDING LEARNING'S

### POTENTIAL

Blended learning has the potential to revolutionize education in terms of quality and cost, as it allows for a fundamental redesign of the educational model around the following:

- **A more consistent and personalized pedagogy that allows each student to work at her own pace and helps each child feel and be successful at school.**

leverage technology ,Blended-learning programs can let students learn at their own pace, use preferred learning modalities, and receive frequent and timely feedback on

their performance for a far higher quality learning experience. As online programs capture student achievement data in real-time across the school, teachers can spend more time helping personalize learning for students.

- **Productive new school models that require fewer, more specialized teachers and use space more efficiently.**

Schools can leverage technology to create radically different staffing structures that increase school-wide student-teacher ratios, even as students experience more personalized learning from more effective teachers. Leveraging technology in this way changes the assumptions of the traditional school model, where labour has accounted for 70 to 85 percent of costs and where only a fraction of students have access to great teachers. Teachers shifting to blended-learning models are finding that they have more time to focus on high-value activities like critical thinking, writing, and project based learning as they spend less time on low-value, manual tasks

Bersin (2004) offers two concrete approaches and finds that the goal of blended learning to synthesize the face-to-face and technology-based teaching into an integrated mix. In this way one can tailor the teaching more as needed. First of all - the technology can complement traditional instructor-led program and second it can complement technology-based training where the socialization process is lacking and where the students lack motivation and excitement from an instructor.

## HOW IS ONE GOING TO CHOOSE THE RIGHT BLENDED MODEL?

Bersin (2004) further lists eight criteria for selecting the blended learning model:

Program type: driven by business needs like costs. If the problem is a training issue and not management issue and impact on management.

Cultural goals: create relationships, linkage and shared values.

Audience: size, education level technology competence access, motivation to learn, personal motivation, time.

Budget: development.

Resources: time, money and persons. Time to launch and complete the program and the content.

Learning content: complexity and interactivity.

Technology: standards, plug-ins, bandwidth, display, security.

What effects program cost: Total audience size.

Media selection: In-house vs. outsourced.

## II. METHODOLOGY AND DATA COLLECTION

### A. Participants

Class X11 student sample (N=210) was drawn randomly from the different schools of Amritsar city. The sample comprising of 210 students was administered two tests- test of learning in Biology and test of intelligence. Out of 210 students, eight students did not respond to all the items of learning and two students did not respond to some items of intelligence test i.e. total of 10 students were dropped from the sample of 210 students. The scores of these students were not considered at the time of analysis. Hence sample comprising of 200 students were randomly divided into two groups- the experimental group and the control group. In order to make equivalent groups, matching was done at the pre-test stage for two variables- variable of learning in Biology (pre-test) and intelligence. Insignificant t-ratio showed that both the groups were matched and equivalent. The experimental group was taught with method that leads to blended learning and the control group was taught with conventional mode of instruction.

The design of blended learning in different units of learning has been made in the areas of course orientation, course information documents such as syllabi, schedule, unit outcomes, grading procedure and policies, class announcements, information transmission via lectures, power point slide presentation, multimedia presentations, class lecture recording and online posting, team project, learning assessments, and guest lecture etc. There were two batches of students (i.e. experimental and control group) followed a common course outlines. The students were both male and female with similar educational background and intelligence. Investigator followed blended learning (combination of traditional face to face class room teaching +blackboard/Web-CT based online technology) in experimental group and followed only traditional class room based teaching without utilization of blackboard/WebCT on same units "Cell as a Unit of Life" in control group. The investigator who took this unit of syllabus, uses digital course delivery in terms of softcopy on power point course material presentation (visual presentation), class problems/tutorial through blackboard, online test, other administrative instructions apart from face-to face regular teaching classes. On the other hand, investigator took this same unit in control group, followed only traditional teaching delivery

without using digital course materials without visual class material presentation.

### B. Measurement

Students were evaluated after gathering and reporting students' perceptions of their learning experiences. Students can give feedback about their learning unit and these are two separate surveys, the evaluate unit survey and evaluate teaching survey. The evaluate unit survey asks students their perceptions of what helps and hinders their achievement of unit learning outcomes, their motivation, engagement and their overall satisfaction with the unit at the end of course delivery. The evaluate instrument is used.

#### The unit summary survey prepared which had 11 questions:

- (1) The learning outcomes in this unit are clearly identified,
- (2) The learning experiences in this unit help me to achieve the learning outcomes,
- (3) The learning resources in this unit help me to achieve the learning outcomes,
- (4) The assessment tasks in this unit evaluate my achievement of the learning outcomes,
- (5) Feedback on my work in this unit helps me to achieve the learning outcomes,
- (6) The workload in this unit is appropriate to the achievement of the learning outcomes,
- (7) The quality of teaching in this unit helps me to achieve the learning outcomes,
- (8) I am motivated to achieve the learning outcomes in this unit,
- (9) I make best use of the learning experience in this unit,
- (10) I think about how I can learn more effectively in this unit and
- (11) Overall, I am satisfied with this unit.

Responses to each item were based on scale designed by Investigator from SA to UJ, where SA= strongly agree, A = Agree, D = Disagree, SD =Strongly disagree and UJ = Unable to Judge.

TABLE 1: EVALUATE UNIT SUMMARY REPORT UNIT OF BIOLOGY

|                                                                                    | Traditional Learning  |                          | Blended Learning      |                         |
|------------------------------------------------------------------------------------|-----------------------|--------------------------|-----------------------|-------------------------|
|                                                                                    | Percent age Agreement | Percent age Disagreement | Percent-age Agreement | Percentage Disagreement |
| Evaluate Quantitative items                                                        |                       |                          |                       |                         |
| The learning outcomes in this unit are clearly identified                          | 81                    | 21                       | 96                    | 6                       |
| The learning experience in this unit help me to achieve the learning outcomes      | 75                    | 20                       | 89                    | 11                      |
| The learning resources in this unit help me to achieve the learning outcomes       | 74                    | 23                       | 80                    | 15                      |
| The assessment tasks in this unit evaluate my achievement of the learning outcomes | 76                    | 26                       | 80                    | 20                      |
| Feedback on my work help me to achieve the learning outcomes                       | 60                    | 37                       | 55                    | 45                      |
| The workload in this unit is appropriate                                           | 91                    | 12                       | 90                    | 6                       |
| The quality of teaching in this unit helps me to achieve the learning outcomes     | 85                    | 15                       | 86                    | 15                      |
| I am motivated to achieve the learning outcomes in this unit                       | 89                    | 12                       | 87                    | 15                      |
| I make best use of the learning experience in this unit                            | 89                    | 8                        | 87                    | 15                      |
| I think about how I can learn more effectively in this unit                        | 85                    | 13                       | 86                    | 17                      |
| Overall, I am satisfied with this unit                                             | 82                    | 15                       | 89                    | 15                      |

### III. RESULTS AND DISCUSSION

#### A. Student Perceptions

Generally, student perceptions were positive for both the adopted course delivery methods, namely traditional and blended learning systems in Biology (Table 1).

a. The item wise results analysis is given below:

##### A-1: Difference in overall satisfaction

Satisfaction has been widely used as one of the important parameter to evaluate learning effectiveness in academic institution. Higher student satisfaction is the results of

good learning. It has been found from Table-1 that high positive student's satisfaction (above 80%) for both the methods but no significant difference in overall student satisfaction between the two types of course delivery. This may be due to the fact that the "experience" in the classroom based traditional method was more or less

same with blended a learning method which is also reported by Daniel, 2005.

##### A-2: The learning resources

The learning resources in blended learning settings provide the content and course materials that learners access to achieve the planned learning outcomes. In

learning settings that are technology-facilitated, there are substantial amounts of course material provided for learners. Again from the survey results (Table 1), 80% agreement on blended methods compared to 74% agreement with conventional resource sets of traditional method. Blended method is effective on course delivery but there is no significant difference with traditional method course delivery.

### A-3: The quality of teaching

High positive quality of teaching (above 80%) has been reflected in both the methods and practically there is no difference of percentage agreement (Table 1).

### A-4 Motivation, learning experience utilization

Again it has been observed from Table 1 that there is no difference in terms of positive learning experience between two adopted teaching methods.

### A-5 Feedback on my work

Students reported poor percentage agreement on feedback (Table 1) for both the course delivery methods as negative learning experience (above 50%). This may be due to large class, as well as less interactions between student and instructor

### A-6 Assessment

Many reports suggests that assessment through blended teaching delivery for large unit is advantageous than traditional approach. The students evaluate results (Table 1) also reflected but there is no significance difference between two adopted methods.

## IV. CONCLUSION

Today one of the most challenging tasks for modern higher education is to deliver course material and teach effectively so that learning outcomes can be achieved. Blended learning comprises traditional face-to-face teaching with blackboard/Web-CT LMS is an increasingly popular methodology in effective course delivery. This research reported student perceptions from a batch of students completed the biology unit "Cell as a Unit of Life" in a traditional environment, while the other batch completed the same unit with instructor in a blended environment. Student responses suggest that experiences in terms of learning outcomes, learning resources, assessment tasks, workload, quality of teaching, motivation and overall satisfaction as "positive learning experience" in effective course delivery and course management but no significant differences between the effectiveness of a traditional course delivery method and a blended one. Therefore there may be some other additional factors plays a role on effective course delivery which is remaining unanswered.

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