

# Application of Blended and Traditional Class Teaching Approach in Higher Education and the Student Learning Experience

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**Abstract**—Blended learning is a student centered flexible, self-paced multi model approach to learning. This paper will explore the comparative usefulness and effectiveness of blended learning in effective course delivery and in effective course management with traditional teaching delivery methods on an undergraduate large core unit, “Advanced Separation Processes”. This study will present the impact of WebCT and blackboard technology based digital study material combined with traditional face to face classroom teaching on students learning taking a large core unit “Advanced Separation Processes at the Curtin University of Technology, Perth Australia. Student opinions (e-valUATE) reflect the use of the technology does not necessary much more effective made by their lecture in terms of well-designed and effective course delivery units with resources, learning outcomes, workload, quality of teaching, assessment tasks, motivation, good interaction and high satisfaction as ‘positive learning experience’

**Index Terms**—Blended Learning; online learning; WebCT; Blackboard; Student learning.

## I. INTRODUCTION

Traditional or classical teaching approach is mostly teacher centered. In traditional teaching approach, instruction occurs frequently with the whole class (face-to-face class), teacher talk exceeds student talk and use of class time is largely determined by the teacher. However, the advancement in technology such as cost effective high speed computer along with high-speed broad band network connections has been revolutionizing the way educators teach and students learn [1-2]. This advancement in technology transforming higher education [3], one example being the changes caused by broader use of digital course materials in course management and also in course delivery. There are various methodologies are developed in effective course delivery in higher educational institutions. Blended learning practices are becoming the basis for much of today’s academic teaching, research, collaborative writing, course design and professional learning. Blending is fundamentally a new paradigm in higher education that institutions are approaching with a variety of outcomes in mind including expanding access and improving the quality of learning outcomes. Though the term blended learning is becoming

widespread in use and its alternative names are mixed learning, hybrid learning, blended e-learning. There are many definitions of blended learning and few of them are as follows [4]:

- 1) 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.
- 2) Blended learning is a mixed mode or hybrid learning which is the integration of face-to-face (F2F) learning with various online learning activities.
- 3) Blended learning is the thoughtful integration of class room face-to-face learning experience with online learning experience.

Basically, blended learning here is used to describe student learning through traditional face-to-face teaching integrating with an online learning management system (LMS). A learning management system (LMS) is a software environment that enables the management and delivery of learning content and resources to students [1, 5]. Web-CT, blackboard are common LMS in higher education sector. WebCT is a course management system that enables the delivery of online education. With a complete set of teaching and learning tools for course development, course delivery and course management, WebCT provides a system for student learning and an efficient solution for faculty of all experience levels [6]. On the other hand Blackboard also provides a password-protected environment and has administration tools that make teaching online easier [7]. In this 21<sup>st</sup> century the increasing use of Learning Management Systems (LMS) across higher education institutions has, in theory at least, provided the potential for rich learning environments for all students but there was really no hard evidence that it works with very effectiveness. As for example, blended learning sounds like a nice idea-mixing a traditional class room environment with online LMS components but is it actually much effective? Or there are some other factors apart from technology for effective course delivery. Is there any difference in student learning (as measured by students feedback, e-Valuate results) and /or student satisfaction when learning blended teaching style versus learning in a traditional classroom teaching without technology? Traditional teaching style means course with no online technology used-content is delivered during face-to-face class delivery in writing or orally. The authors here trying to find answer by their comparative study on a large units taught by the different teacher using two different delivery models: one purely traditional (i.e. only face to face

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classical classroom approach), the other blended learning approach during two different academic calendar year of 2009-2010 respectively. Zhang, et al 2004 [8] identify a number of advantages to traditional classroom learning, such as immediate feedback to the student, familiarity with the experience and the cultivation of a social community. On the other hand, theoretically a blended learning approach allows teachers to blend quality teaching practices with the increasing availability of LMS. Garrison and Kanuka (2004) [8] commented that the combination of classroom and online LMS settings has simplicity but there is also a complexity to the concept which is evident in the wide variety of settings, diversity of the student population and their background and consequent learning designs.

## II. METHODOLOGY AND DATA COLLECTION

### A. Participants

Curtin University of Technology, Perth is offering four year engineering undergraduate programme and two years post graduate programme. There are many core engineering units that students have to complete during their course of study. WebCT at Curtin University was implemented as an institution-wide centrally supported Learning Management System (LMS) since 2001. Blackboard has been implemented here at Curtin University since 2009. This study was conducted on undergraduate students taking final year core unit "Advanced Separation Processes" (ChE 422) at two different years of 2009 and 2010 but at same semester one respectively. The design of blended learning on this unit 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, multimedia presentations, class lecture recording and online posting, team project, learning assessments, and guest lecture etc. There were two batches of students and followed a common course outlines. The students were both male and female with similar educational background. Class lecturer was different, one lecturer followed blended learning (combination of traditional face to face class room teaching + blackboard/Web-CT based online technology) in semester-1 of the year of 2009 and another lecturer followed only traditional class room based teaching without utilization of blackboard/WebCT on same unit (Advanced Separation Processes) in semester 1 of 2010. The lecturer/instructor who took this unit in the year of 2009, 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, Lecturer/Instructor, who took this same unit in semester-1 of this current year 2010, followed only traditional teaching delivery without using digital coarse materials through LMS and without visual class material presentation.

### B. Measurement

EVALUate is Curtin's online system for gathering and

reporting student' perceptions of their learning experiences. Students can give feedback about their unit and their teacher: 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 administered online through OASIS, the student portal. Students are notified by an official communications channel (OCC) message sent from the eVALUate team. 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 Curtin University from SA to UJ, where SA= strongly agree, A = Agree, D = Disagree, SD = Strongly disagree and UJ = Unable to Judge.

## 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 on "Advanced Separation Processes" (Table 1). Student's enrolment on this unit for both the year was above 100. But student's response rate was 38% in the year of 2009, whereas response rate was 44% in the year of 2010. The eVALUate survey results on the unit, ChE 422-Advanced Separation Processes are reported in terms of Full Unit Report (FUR) and a Unit Summary Report (USR). USR are automatically published and anybody from Curtin online users can visit the report. Table-1 has been prepared from USR data for the period of 2009-2010. It has been found from Table 1 (USR) that there were only few differences between the effectiveness of a traditional course delivery method and a blended one. The item wise results analysis are 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 [8]. 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 [9].

#### 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), 86% agreement on blended methods compared to 73% agreement with conventional resource sets of traditional method. Blended method is effective on course delivery but there is not 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 poorly 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 undergraduate unit "Advanced Separation Processes" in a traditional environment, while the other batch completed the same unit with different lecturer/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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TABLE 1: EVALUATE UNIT SUMMARY REPORT UNIT NAME: CHE 422 ADVANCED SEPARATION PROCESSES EVALUATION PERIOD: 2009 SEMESTER 1 AND 2010 SEMESTER 1

Evaluate quantitative items	Traditional Learning		Blended Learning	
	Percentage Agreement	Percentage Disagreement	Percentage Agreement	Percentage Disagreement
The learning outcomes in this unit are clearly identified	80	20	95	5
The learning experience in this unit help me to achieve the learning outcomes	77	20	89	11
The learning resources in this unit help me to achieve the learning outcomes	73	23	86	14
The assessment tasks in this unit evaluate my achievement of the learning outcomes	75	25	81	19
Feedback on my work help me to achieve the learning outcomes	59	36	54	43
The workload in this unit is appropriate	88	11	95	5
The quality of teaching in this unit helps me to achieve the learning outcomes	84	13	84	14
I am motivated to achieve the learning outcomes in this unit	88	11	86	14
I make best use of the learning experience in this unit	89	7	86	14
I think about how I can learn more effectively in this unit	84	13	84	16
Overall, I am satisfied with this unit	81	17	86	14