

Impact of Blended Learning on Students' Engagement in a Skill-Based Module

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ABSTRACT--- *Amidst the rapid social, economic and technological changes, schools in this new educational paradigm are facing challenges to meet the demands of the well informed society and 21st century learners of today. The use of information and communication technology (ICT) and advancement in online technologies seems to provide greater flexibility in learning and approaches to teaching. As such, e-learning and blended learning have gained interests and are being implemented within higher education courses and programs.*

This study reports an investigation on the impact of adopting blended learning for a skill-based subject, in a block scheduling environment. Due to the intensity of block scheduling there was a need to rethink and restructure the curriculum and teaching approach. E-learning was adopted. However, as the approach for skill based modules in a design environment was akin to that of a master (teacher) instructing the apprentice (student), adopting e-learning was not as feasible as blended learning. Framing around the key and overarching question of whether blended learning will offer the flexibility needed to impact students' engagement in learning in a skill-based subject, this study investigates how blending of different instructional approaches with technology can encourage students' engagement. A mixed method was conducted aiming to ascertain the benefits and challenges by focusing on the learners' experiences and their perceptions.*

Overall, the results indicated that combining elements of face to face and well-crafted online interactive activities can empower students to take control of their own learning and creating positive learning impact on a skill based subject.

Keywords--- Blended learning, engagement in learning.

1. INTRODUCTION

With the affordability and advancement of computer-based communication technologies and the omnipresence of the Internet, education is seen to have been influenced by the fast moving revolution in computer and internet technologies. With the arrival of the World Wide Web, educational institutions see 'a need to incorporate information and communication technologies into their offerings' (Ginns & Ellis [1] citing Bell et al, 1999 and Katz, 1999). Concepts like online learning or e-learning have emerged leading to distance learning. Even though online learning is seen to have helped to expand the possibilities for distributed communication and interaction (Bonk & Graham [2]), it has some limitations as well. A number of studies have revealed both its strengths and weaknesses (Wang [5]; Álvarez-Trujillo [3]; Grossman & Grossman, [4]).

Although e-learning have potential benefits such as providing flexible scheduling and self-paced courses, it is also seen to have presented some problems to students. Adoption of fully e-learning revealed that students and teachers were not ready for that kind of teaching approach. It appears to be difficult for the teachers to accept e-learning as a substitute for traditional face-to-face practice as it is seen to contradict the teachers' teaching beliefs and traditional approach to teaching design. It is challenging for those who had low computer literacy skills. Students who procrastinate and not so independent learners indicated adversities when there is a long period of low or no staff-student contact time (Clarke et al [6]). The lack of social interaction was unfavorable for fully e-learning. Hence fully e-learning functions remain uncommon and alienated in some disciplines.

* Block scheduling is a system implemented to enable a module of 15 lessons to be offered daily within a 4-week period

However with the increase in online courses, researchers suggested that the combination of traditional face-to-face instruction and online learning to create “blended learning” is valuable and will make a better impact in learning outcomes (Garrison & Kanuka [7]; Bonk & Graham [2]).

Theoretical Perspectives for Blended Learning

Research in education has maintained that the main emphasis in learning must be on interaction and collaboration. This sociocultural perspective claims that learning occurs and happens in social interactions and environment. (Greeno & van de Sande[8]). Building on the theory of a cognitive constructivist Dewey, researchers have progressively developed his idea by placing importance on interactions between student and student, student and teacher and student and content (Moore [10]., Wagner [11] and Kearsley[12]). Interactions are considered as an important and fundamental factor to the learning process and a “defining characteristic of education” (Moore [10]).

As such the approach in this study is structured in a constructivist learning perspective where students become actively engaged in their learning process. Believing that interactive activities can engage and motivate learning, online tools such as audio and video communications, blogs and wikis and e-portfolios are used to engage students and develop cognitive abilities (Garrison & Vaughan [9]).

Why adopt blended learning

It has been observed that in education the availability of computer technologies has increased focus on key traits, needs and competencies for 21st century learners and expanded educational options available to both students and teachers (Foong [13]). The influences of these technological changes have formed a generation of students who effortlessly engage in the online environment. They expect a relevant and engaging learning approach and might not be comfortable with the transmission of information in lectures (Garrison & Vaughan [9]). In order to nurture students’ socialization and improve their learning outcomes there is a growing need of new methodologies and tools for student centered approaches. Blended Learning techniques have been raised as potential to facilitate this process (Dalsgaard & Godsk [14]).

The use of online components is relatively limited in our school particularly in design disciplines. This slow pace of adoption may be because the approach for skill-based modules was akin to that of a ‘master (teacher) instructing the apprentice (student)’ (Bender & Vredevoogd [15]). This can easily be related to a teacher-centered approach to education. These students, through no fault of their own, can result to a passive approach to learning as they rely on the didactic way where the teacher is considered as the ‘master’ as compared to a facilitator of knowledge acquisition in an online learning environment.

Influenced by the culture of education and own experiences, we were inclined to support that technology is an essential part of students’ life and it is important as an educator to incorporate it into the classrooms to engage them (Oblinger [16]., Prensky [17]). By offering students the potential to foster engagement through creating and sharing knowledge, their learning can be more creative, challenging and open ended (Sharpe et al [18]). A study by Creanore & Trinder has revealed that ‘technology enhanced learning is often recognized as means of providing flexibility through easier access to course and activities’ (cited in Sharpe et al, [18]).

Drawing on existing literature and the work of Hinterberger *et al* [19], it is debatable that blended learning is not just a combination of face-to-face and online learning but involves a variety of teaching and learning approaches. Through the use of synchronous and asynchronous learning activities enhanced with technologies, blended learning aims to foster an active learning approach (Garrison & Kanuka[20]; Vaughan [21]). As such, deploying blended learning in a skill based module aims to enhance learning through integration of active learning approaches and extensive use of “masters’ work experiences. By utilizing technology-enabled and collaborative activities it aspires to encourage creativity and innovation to occur in an engaging and active learning environment. However this can be very challenging for current teachers to detach from their current strategies and deploy new innovation such as blended learning. This describes a study adopting an approach that:

1. encourages a design department to innovate through initiating change
2. allows students to engage in learning activities rather than passively accepting information
3. empowers students to take control of their own learning and creating positive learning impact on a skill based subject
4. promotes collaboration between cross-disciplinary teams to discover and build on innovative teaching approaches

2. METHOD

Overview

This study arises from the increased focus on key traits, needs and competencies for 21st century learners in a design department. Despite utilizing the conventional approach of studio culture and transmitting skills from master (teacher) to apprentice (student), student evaluations were generally positive. However, on reflection, I felt that deep learning was

hampered. This approach does not seem to embolden students to be self-directed but was more teacher-centered with projects initiating superficial engagement.

With desired outcomes of enhancing student engagement, autonomous learning and promoting lifelong and flexible learning we had to radically redesign and pilot run a skill based module in terms of teaching approaches and content. With the combination of face-to-face and online learning, we viewed blended learning as an opportunity to merge different methodologies and technologies.

Transforming the module

Adopting student-centered approach, this skill based module was redesigned and structured to blend face-to-face and online content learning to entice a total of 30 students to be engaged in their learning. The primary philosophy that emerged was a constructivist approach (Mishra [22]). Traditional face-to-face demonstrations, videos, online activities and group assignments (Mishra [22]) were incorporated where the set-up is to ‘enable the learners to be self-directed and have control over their learning’ (Bonk cited in Vandermolen, [23]).

Adhering to constructivist approaches (Vygotsky [24] Bates, [25]) where learning is understood to be collaborative and interactive, individual activities such as viewing of videos and online exercises and group assignments where students collaborated as a team, were put in place. An induction workshop was setup to ensure students were comfortable with using the technology.

The online activities were created to encourage individual students to view and participate without any facilitation from the teacher and outside classroom time. These activities were not graded to research on whether students will continue to invest their attention and energy despite no extrinsic factors. This is in consideration that engagement will occur when students have choices in what they participate in (Renzulli [26]) and are more likely to take on a deeper learning approach and be engaged (Biggs [27]) when learning actively.

Students were tasked to form a group. Upon return for face-to-face lesson they were encouraged to demonstrate a range of design skills and develop new designs that they had learnt online and observed after viewing the videos. This group assignment was crafted to help promote student collaboration where the activities involved the sharing of knowledge, responsibilities and interactions amongst the members of the workgroup.

Through students’ feedback and teachers’ observations, students seem to have a preference to participate in the relevant, interactive projects and joint activities where features of engagement were seemed to have been established ie engaging in online environment, engaging in the content, engaging in a collaborative group and engaging in a discussion. However due to some technical difficulties affecting the accessibility of the online activities (which could only be access within institutional compound) has deterred the students from a 100% acceptance of this approach.

Data Collection

Utilizing a mixed methods design, both quantitative and qualitative data were collected and analyzed to obtain thorough and detailed results. This approach was necessary to select the appropriate participants from an e-survey by categorizing and generalizing and deepen understanding by focusing on the learners’ voice in a face-to-face interview. The first stage of data collection incorporates purposive sampling of volunteers and online e-survey. Questions were set to target towards analyzing the following topics (Foong [13]):

- Students’ perceptions on blended leaning
- Whether videos and online activities are meaningful
- Readiness and preparation of the module and
- Students’ engagement in learning and motivation and learning.

A mixture of 5-point Likert scale-based questions, multiple choice and open ended questions were utilized. The neutral option was provided to ensure a degree of flexibility and liberty was provided to the participants. Likert scale-based questions were measured based on mean, minimum and maximum responses, percentages and standard deviation.

Data Analysis

Table 1 – Overall summary of mean value and aggregate % of questionnaires for each theme

Theme	Total Count	Total Score	* Mean (S/C)	Strongly Agree & Agree	Neutral	Strongly Disagree & Disagree
i. Students’ perceptions of blended learning – Not in favor of BL	120	411	3.42	51.65	28.35	20.00
ii. Whether videos and online activities are meaningful	180	596	3.31	48.88	32.76	18.36
iii. Readiness and preparation of the module	150	421	2.81	44.98	38.00	16.68

*(Scores on a 1 – 5 scale, 1 strongly disagree and 5 – strongly agree)

Theme	Total Count	Total Score	* Mean (S/C)	Very Likely & Likely	Neutral	Very Unlikely & Unlikely
iv. Students' engagement in learning	150	535	3.56	51.98	41.34	6.68
v. Motivation and learning	150	610	4.06	76.02	18.66	15.32

*(Scores on a 1 – 5 scale, 1 very unlikely and 5 – very likely)

i. Students Perceptions of Blended learning

From the results of individual question, 56.6% still prefer the traditional face-to-face whilst 6.6% were not in favor with 36.7% being impartial. Although they still prefer lectures, participants did not consider videos or online activities to be problematic or difficult to comprehend but 73.3% highlighted that insufficient time was a hindrance instead. 53.3% concurred that more effort is needed to complete the blended learning activity in their own time as they tend to procrastinate

ii & iii. Whether videos and online activities are meaningful, Readiness and preparation of the module

Findings showed that blended learning was believed to have enhanced students' learning. 60% of participants claimed that the online activities were engaging and interesting. The online activities and videos have been rated effective providing independence and helping them to be responsible in their own learning. Yet neutral votes were 23.3% and 16.7% voted negatively. 53.3% voted that the videos and activities have encouraged them to interact more with facilitator and peers whilst 36.7% was on a neutral and 10% disagreeing. In the open ended questions positive comments indicated an appreciation of the new teaching approach (Foong [13]):

Videos are helpful and can be referred to anytime, website is a platform to seek help, able to practice and repeat and learn at my own pace

Independent learning, no need to waste so much of curriculum time

Interactive, descriptive, fun, interesting and most of all something new

More techniques can be learnt through videos

Appreciate the effort to provide up to date and improved forms of teaching

Although engaging I still think class demonstrations are crucial, revision of the lesson should be demonstrated once more in class.

Although participants seems to favor adopting blended learning for the skill based module, only 20% voted for and 50% was neutral to enroll in another subject delivered in the same manner. This seems to be the outcome of the issues of accessibility to the website beyond institution compound as commented by a participant: '...perhaps the videos should be made accessible from home as well as from school, because its current disposition limits accessibility' (student xxx3B cited by Foong [13]). For clarity this was probed further in the structured interviews.

iv. Students engagement in learning

Student participants have optimistically viewed the classroom activities as engaging and enhancing learning. Ranging from 50% to 70% they deemed the activities as fostering peer collaboration and improving academic performance. Many commented that they were actively engaged and involved in the activities of blended learning describing them as "...fun, interactive and educational, convenient, different and most of all enjoyable". Nevertheless some expressed their primary concern was the inflexibility of the activities due to limited access to the website where it infringes into their leisure time and learning styles thus affecting the interest of this approach. It also hindered them from enjoying and learning from the online activities.

In the face-to-face interviews valuable comments on how students accommodated and engaged in blended learning was generated. Insufficient contact with the teachers has provided a wrong perception that there was a delay in explanation to students who were not fully supportive of blended learning. Many believe that teachers do play a major part in their learning and without their guidance they will not progress.

Benefits of blended learning

- Time flexibility and better utilization of classroom time - Reviewing the videos before lesson enabled students be more primed enabling a discussion rather than a monologue. It also aid teachers to concentrate on deepening students' understanding. However, they do realize that the reduced hours in a face-to-face classroom does not equate to a lighter course workload (Vaughan [21]).
- Increased student-student interactions, student-content and student-teacher interactions - An increased in interactions was observed with a more rounded teaching that substantiated Dziuban *et al's* [25] theory highlighting that blended learning should be a fundamental redesign of instructional model with the shift from lecture to student-centred instruction increasing in interactions.
- Improved student's engagement and knowledge and skills - Contributed to improving learning outcomes (Dziuban *et al's* [25]) for students who recognized the enrichment of blended learning, meaning and value of the tasks and

commitment to the workload.

- New teaching approaches - Utilizing technology blended learning provides an alternative platform for teaching but cannot replace total classroom environment.
- Self-paced learning and independent learning – Online activities provide limitless access to course materials and offers an avenue for absentees to review and repeat when necessary.

Challenges

- Preparation prior to execution – Time in preparation is a challenge as observed by the teachers in this study. Preparing videos and online activities were time consuming tasks.
- Acquiring new technology skills and confidence – Proper training is a necessity and on-going technical support is essential in the use of technology and online courses. Merging technology to pedagogy for effective learning is no easy task.
- Lack of immediate clarification for students – With the reduction in face-to-face lessons teachers are required to provide clarity and consistency in communications to facilitate blended learning to counteract the lack of spontaneous feedback.
- Necessity to consider the best activities for the module – The blended learning activities must be effective enough to engage the learner where meaning and connection to the subject can be constructed.

3. CONCLUSION

Findings from this study demonstrated that adopting blended learning for a skill based module did benefit and empowered students to be independent learners. Although students were positive about blended learning, they still regard the teacher as the essential element attributing to their learning, engagement and construction of meaning from their experiences Vandemolen [26]. However to engage students in deeper understanding blended learning must be designed specifically to encourage autonomy through interactions, collaborations and participating in challenging activities.

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