Effects of an Online Discussion Forum on Student Engagement and Learning in a First Year Undergraduate Nursing Unit
An Action Research Study

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Abstract—This paper reports on an action research study that aimed to investigate whether an online discussion board could provide feedback to a lecturer to cater for specific learning needs and improve student engagement and outcome in a first year undergraduate nursing unit delivered externally. And whether a reflective practice approach to content delivery based on student feedback could improve learning outcomes and student satisfaction.

An online forum was used to identify students’ learning needs, encourage collaboration, discussion of learning materials and create a learning community that is supportive of each other to enhance learning. A reflective practice approach was used to reflect upon student feedback and teaching practice that allowed modifying teaching materials and practice throughout the semester. At the end of week 10, students provided feedback on their learning experience that formed part of the qualitative data along with the researcher’s reflective journal which were analyzed using thematic analysis. Descriptive statistics were used to compare student engagement with the School of Health average for the semester and grades between two semesters of the same unit. It was found that on average the student engagement with the unit was more than the average for the school of health and there was a marked improvement on student grade. Three themes emerge from the student feedback (sense of belonging, sense of satisfaction and sense of ownership). The themes that emerge from the researcher reflections were: lack of engagement/anxiety, developing trust and enjoyment with engagement. It was concluded that an online discussion forum could provide an educator the opportunity to identify students’ learning needs and modify the educational materials and delivery according to the expressed needs. This has the potential to improve the time students spend on Learnline by enhancing their engagement with the learning materials and improving their academic performance.

Keywords—reflective practice, student engagement, discussion forum, student learning, online

I. INTRODUCTION

In this era of technology, higher education has moved from face-to-face teaching to online formats to embrace for the unique needs of today’s learners. Today, most of our students are mature aged, distance students who juggle their studies with work and family commitments. The National Survey of Student Engagement found that distance learners compared to their on-campus colleagues were significantly less engaged in active and collaborative learning [8]. Student engagement has been described as a construct involving three dimensions, namely behavioral (involvement); affective (personal attachment to others such as educators and peers) and cognitive (application to learning) [3]. Research indicates that there is a statistically significant relationship between academic achievement and student engagement especially in the areas of cognitive engagement, behavioral engagement and sense of belonging [16]. Engaged learners develop skills in learning and are able to engage and communicate what they learn leading to positive outcomes. Therefore, educators need to develop effective ways to engage students and create online communities of learners using the available technological resources.

This paper reports on an action research study that investigated the effects of an online discussion forum on student engagement and learning in a first year undergraduate nursing unit at Charles Darwin University. The forum was used to identify students’ learning needs, encourage collaboration, discussion of learning materials and create a learning community that is supportive of each other to enhance learning. A reflective practice approach was used to reflect upon student feedback and teaching practice that allowed modifying teaching materials and practice throughout the semester. Since Donald Schon [33] expanded on the theory of reflection and developed the concept of reflective practice, it has become the ‘buzz word’. However many researchers agree that there is a lack of consensus as to what reflective practice actually entails [20]. On the other hand almost all agree that it provides the
opportunity for practitioners to see things from a different perspective and gain insights that makes it an effective learning experience [2]. The objective of the current study was to identify strategies that enhance student engagement and learning on an online platform.

The paper describes the context of the study, the purpose and significance of the study, literature review, methodology, findings, discussions and conclusions before making specific recommendations for practice and research.

II. BACKGROUND / CONTEXT OF THE STUDY

Student engagement has become one of the most discussed contemporary issues in higher education as teaching and learning has moved from the traditional, face-to-face delivery to online platforms where the interactions among students and educators may or may not take place concurrently. As the characteristics of the learners change to include a majority of mature aged students with no recent educational experience and a range of family and social commitments, students are hard-pressed to find adequate time to engage with the learning materials and develop new relationships with other online learners. Therefore it comes to no surprise that 25% to 66% of students are considered to be disengaged [17].

The study was conducted at Charles Darwin University (a tertiary education institution) where education is delivered via mixed modes (on campus and distance). The specific unit in which the study was conducted was a first year undergraduate nursing unit and during the semester in which the study took place, the unit was delivered via distance mode only. The majority of the students were mature aged and full time employed with other family commitments. The students reside in different parts of Australia and do not have to attend the campus to complete the unit. The unit is delivered via Learnline (CDU’s branded iteration of Blackboard Learn) and have weekly lectures delivered via Blackboard collaborate and other online activities.

From the past feedback received for the unit, distance students often feel lonely, isolated and demotivated to engage in the learning materials and online activities. While some students prefer to engage on collaborate, others prefer to listen to the recorded sessions. Some students prefer to go through minute details on academic writing and referencing (as this unit is often their first unit at university), others feel that they need more time on the content of the subject and sometimes get irritated with the other students’ questions. Consequently some students stopped using the opportunity to question and clarify issues and became disengaged from the unit. The previous unit reports also highlight that the students were more focused on assessment tasks and had minimal interactions with their peers. While the different learning needs and styles can be explained and understood, lecturers are left to cater for all the varying needs within the limited time available to them.

Reflective practice is both a skill and tool used in many professions to reflect and improve own practice. It involves critical thinking and reflection of one’s own practice to become aware that every situation is different, complex, dynamic and interconnected, opening many potential approaches [34]. It allows the practitioner to consider what he/she feels was good, not so good and what needs to be changed to improve own practice. The insights gained from reflection maybe considered as experiential learning, and have many benefits for the educator as well as the students. The educator is able to redefine their own understanding of professional knowledge, expand personal knowledge and self-awareness and evaluate the appropriateness of actions [27]. Hence it was considered to be an appropriate approach to achieve the goals of the current study.

A. Research Aims

The study aimed to investigate whether a student discussion board could provide feedback to a lecturer to cater for specific learning needs on an online platform and improve student engagement and outcome in a first year health sciences unit delivered externally. And whether a reflective practice approach to content delivery based on student feedback could improve learning outcomes and student satisfaction.

B. Significance of the study

There are many studies that investigated the impact of student engagement on learning outcomes and student satisfaction [10][17][22]. However, no study was found that investigated how student feedback and changing of learning content and delivery in an action research design could impact on student engagement and learning outcomes. The study was the first of its kind to be implemented in this unit and it provides valuable insight on student engagement and learning in this unit and their suggestions on how to improve teaching and learning in this unit. Since this is a large unit with over 500 students in the first semester, this would allow the lecturer to plan future unit improvements accordingly. This may also have implications for other areas of study with a similar student cohort.

III. LITERATURE REVIEW

Student engagement has been used in a range of meanings to describe concentrated effort or very broad types of involvement. The literature does not agree on a specific definition of student engagement. However several types of engagement are noted including academic, cognitive, intellectual, institutional, emotional, behavioral, social and psychological engagement. Hu and Kuh [18] define engagement as “the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes.” Historically student engagement has focused upon increasing achievement, positive learning behaviors and ensuring a sense of belonging among students [36]. Recently, the focus has changed to enhancing abilities to learn how to learn or how to become lifelong learners in a knowledge based society [14]. Today, many educators believe that student engagement is one of the biggest pedagogical challenges and highest priorities faced by educators. Consequently it has become a strategic process for teaching and learning. This is further strengthened by the fact that student engagement has been linked to measures of student success including student learning and satisfaction [24]. Several studies have affirmed the relationship between student
engagement and student outcomes of learning, persistence, engagement and satisfaction [6].

Since there is no consensus on a specific definition of student engagement [36], it is difficult to determine how to measure student engagement. A number of measures have been used to identify student engagement in learning of which the majority has been quantitative measures such as assessment scores and attendance. Among the many tools developed to measure engagement, the tool used for the National Survey of Student Engagement [28] in the United States appears to be the most popular. It divides student engagement into five areas: level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment. It is agreed that these areas capture a sufficient range of educationally important qualities of student experience at university and the data can be used to generate aggregate reports to institutions. In Australia, the first year experience studies were initiated in mid-1990s and the first study was conducted in 1994 [25]. The questionnaire was modified and updated before the study was repeated in 2004 [23]. The latest of this series was conducted in 2014 [4]. These studies found a positive correlation between student engagement and academic score [16][4][29][23]. More recently, there is an emerging trend of using qualitative data from students and educators to compliment the quantitative findings.

All the literature reviewed show a positive relationship between student engagement and learning outcomes [6]; [12] [31]. In fact many authors considered student engagement as vital for learning and achievement [1] [6] [11] [21]. Therefore, further studies need to investigate methods and strategies that can be applied to increase student engagement. In a recent study, Fredrikson [10] examined the impact of a collaborative writing project in an online class setting on student outcomes. She found that while there was a positive impact on student engagement, there was a negative impact on student satisfaction with faculty-student interaction. However, it is widely accepted that student engagement on online platforms for teaching and learning would improve student outcomes and therefore the goal for the educators on designing online courses are to utilize student engagement techniques that would be successful [26].

IV. METHODOLOGY

It is agreed that effective learning that improves educator effectiveness and student outcomes occurs within a 'community' of learners who are committed to continuous improvement, collective responsibility and goal alignment. In order to create such an environment it is vital for the students as well as the educator to use the available data to use their learning needs and set shared goals. By allowing them to reflect upon their learning and asking them for suggestions, it is hoped that students would be more aware of their learning needs and the goals and actions they require to achieve the learning outcomes and therefore become more active in their learning. There is no doubt that different people learn differently. There are many theories that try to explain how people learn, among which cognitive and social theories are the most common. This study uses the theory of constructivism that is based on the notion of continuous building and amending of structures in the mind that contain knowledge. As new knowledge, understanding and experiences are assimilated and accommodated, these structures change and learning occurs. Hence, learning is an active process of constructing knowledge [5]. The educator facilitates learning by providing an environment that promotes discovery and assimilation.

The study used a mixed methods action research design which is congruent with the reflective practice approach that was used for data collection and analysis. Action research studies are conducted within the interpretive paradigm to understand the multiple dimensions of socially constructed behaviors and processes [35]. It allows the implementation of an action, collection of data and analyzing the data to be fed to further cycles of planning, action and evaluation known as action research cycles [7]. In other words, action research allows researchers to engage in ongoing testing and monitoring of their practice and therefore it is often used by educators.

Gibbs’ [13] reflective cycle was used to reflect on the weekly activities of the unit and student feedback. The cycle was chosen as it was used by the researcher previously and also because it is a form of reflection on action which is retrospective. It involves describing what has happened, describing the feelings and thoughts that arose, analyzing what was good and bad about it, analyzing the situation and asking what else could have been done and finally preparing an action plan if the situation arose again.

![Figure 1. The reflective cycle [13]](image)

A reflective practice Journal template would be used to record the weekly reflections.

A. Sampling:

The study population was all students enrolled in NUR115 in the second semester of 2016. The details of the study were discussed with the students before they were invited to take part in the discussion forum. Participation was voluntary and students were assured that their decision to participate, or not
would not have any impact on their access to the learning materials and any support they received from the unit.

B. Data Collection:

At the beginning of the semester, as part of a reflective practice exercise by the educator/researcher, it was decided to implement online discussion forums to improve student engagement and get their input on what they wanted to learn and to some extent how they wanted the sessions to be conducted. The students were encouraged to post questions, comments or suggestions on the discussion forums by creating a thread, so other students can comment on them and the educator/researcher monitored and guided the discussions. The students also had a social discussion thread that encouraged them to collaborate among themselves and develop a sense of trust and belonging to a learning community. At the end of every week, from week 3-10, the educator/researcher completed a reflective practice cycle using a template (See Appendix A) that was then fed to the next week’s actions.

From the initial discussions, it was agreed to conduct extra sessions that were open to all students enrolled in the unit. These sessions were run from week 3-10 and were facilitated by the unit coordinator, liaison librarian and another first year nursing unit coordinator. This was decided after many discussions with students and the other unit coordinator. It was welcomed by the other unit coordinator as most of the students were enrolled concurrently in both the units. These sessions were run face-to-face and online and were recorded for the benefit of those who could not attend at that time.

At the end of week 10, students were asked to provide feedback on the discussion forums and the extra learning sessions that were the result of the discussions. The student feedback and the educator/researcher reflections were analysed using a qualitative, thematic analysis approach. Descriptive statics was used to describe the participants while student engagement was compared with the School of Health average in the same semester using the Blackboard Analytics tool. Student grades were compared between semester 2 of the previous year and this year to see the difference between learning outcomes for the two semesters.

C. Study Rigor or Trustworthiness:

To improve the trustworthiness of the findings, a peer was asked to do a random review of the content analysis and found that she agreed on the themes that came out.

V. RESULTS/FINDINGS

At the start of the semester, there were 178 students enrolled in the unit. By census date, this number fell to 110. The students who communicated the reason for withdrawal from the unit stated time management and family commitments. Out of the 178 initially enrolled, only 4 students (0.02%) were international students and the rest were domestic students. However, 12% of students identified themselves as having a Non English Speaking Background. The average age of the students was 20-35 years.

A. Student Engagement on Discussion Forums:

Hundred percent of students engaged in more than one discussion forum and 42% students constantly engaged in the social discussion forum. The highest engagement (90%) was on forums related to assessments. On average, students have spent 25 hours on the discussion forums during the semester.

When compared to the School of Health average, the students in NUR115 accessed the unit materials and discussion forums more than the average of the school as seen in Figure 2 above. They have also spent more time on Learnline and their interactions were more than the average School of Health unit. The only exceptions were during week 7 and week 12. This may be because week 7 was just after mid-semester break and submission of their first major assessment and week 12 was the last week of lectures and students were busy preparing for exams and assessments in other units.
B. Academic results compared to Semester 2 of the previous year:

The academic results are summarized in the following table for Semester 2, 2015 and the current semester.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Semester 2, 2015</th>
<th>Semester 2, 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students (numerical)</td>
<td>Students (percentage)</td>
</tr>
<tr>
<td>HD</td>
<td>4</td>
<td>2.4</td>
</tr>
<tr>
<td>D</td>
<td>15</td>
<td>8.9</td>
</tr>
<tr>
<td>C</td>
<td>28</td>
<td>16.6</td>
</tr>
<tr>
<td>P</td>
<td>58</td>
<td>34.3</td>
</tr>
<tr>
<td>F</td>
<td>6</td>
<td>3.5</td>
</tr>
<tr>
<td>Did Not Finish</td>
<td>58</td>
<td>34.3</td>
</tr>
<tr>
<td>Total</td>
<td>169</td>
<td>100</td>
</tr>
</tbody>
</table>

From the table it can be seen that the number of students who failed the unit has decreased from 3.5% in 2015 to 1.2% in the current semester. The average grade has also improved for the current semester.

C. Themes arising from student feedback:

Three themes arose from the student feedback. They were:

1) Sense of belonging:
Many students expressed that they felt a sense of belonging and their confidence in what they learn and question things they did not understand or agree increased as they realized that other students had the same reservations and concerns of being judged by fellow students. As one student said, “At the beginning of the semester, I was fearful of sounding silly and being judged by my fellow students. So I did not ask any questions. Then when I started reading the forums, I realized other students had the same questions and I saw how they were encouraged by the lecturer and peers. So I decided to join in and ask the questions I had. I am glad I did… Now I feel I belong to this community.”

2) Sense of satisfaction:
Almost all the students who provided feedback at the end of week 10 expressed that they felt a sense of happiness and satisfaction to contribute in the forums especially during the extra sessions. They saw it as an opportunity to clarify any questions and contradictory understandings they had between the two units about referencing writing styles and the meaning of terminologies used in assessments. Students constantly thanked the lecturers and their peers for clarifications. As one students said “This is the best two hours I spent in learning during the week and I really learn what I need to learn… thank you for this.”

3) Sense of ownership
Another theme that arose from student feedback is that students felt that they are the drivers of their learning and they can take it wherever they wanted to. They saw learning as something they can achieve through discussion and collaboration with their peers and lecturers.

D. Themes arising from the researcher reflections:

There were three themes that came out of the researcher reflections. They were:

1) Lack of engagement / anxiety
The initial cycles of reflections show that there was a heightened anxiety from both the researcher as well as the students. Students were reluctant to actively participate in the discussions and the comments were short and abrupt. As one reflection stated, “students are still not asking many questions, neither providing much feedback on the learning activities. The few times they asked questions, they were quick to defend their understanding and stopped engaging in further clarifications. This makes me anxious and feels that I need to give them more time to get used to the idea of active participation.”

2) Developing trust
As the semester progressed, more and more students got engaged in the discussions, sharing their knowledge and experiences. The tone of the discussions became more relaxed and more and more students were thanking each other and the educator. In one reflection, the educator noted that, “it took multiple posts on the forum for a student to accept her understanding of referencing was incorrect. When she finally understood, she was quick to thank me and her peers and emphasized that she has learned it well and is not likely to forget it ever.”

3) Enjoyment with engagement
By the end of the 10th week, the reflections show that students were enjoying to be leading the discussions and the direction of their learning. They expressed happiness to feel in control of their learning. Students were responding to each other almost instantly and the educator was left to confirm their understandings most of the time. Students were actively engaged in teaching and learning with each other. As one reflection reads, “students are enjoying teaching and learning with each other. There are multiple posts thanking each other and stating how glad they are to be engaging in these activities. The language is very encouraging and appreciative.”
E. Discussions

Since the majority of the students were mature aged, undertaking a tertiary education program and 86% of students having English as their first language, it was assumed that the students had the capability to express themselves and communicate their learning needs on the discussion boards. The study largely depended on the assumption that students were capable of articulating their needs and interacting with their peers and educators to construct meaning and understanding. This is considered ‘constructivist learning’ [30].

This study has shown that as students became familiar with the educator and fellow students, they spent more time accessing the unit materials and discussion boards (better than the average for the School of Health) and the academic performance has improved from the previous semester. This is similar to the studies that demonstrated a positive correlation between student engagement and student learning that has been discussed earlier. This study also supports Gunuc and Kuzu’s [16] study that examined engagement as a multidimensional concept in which sense of belonging, peer relationships and cognitive engagement were investigated among six dimensions and found them to have a positive influence on academic achievement. Goodenow [15]; Kember, Lee and Li [19] affirmed that students’ sense of belonging have a positive influence on their academic achievement and motivation.

This study also demonstrated cognitive engagement from the students. Students invested their time and effort to provide feedback to the educator as well as peers and by doing so improved their understanding of their own learning needs and the learning materials provided. The reflections also demonstrated a high level of emotional engagement. The participants expressed their happiness to be involved in the action research cycles and felt a sense of belonging. According to Patrick Ryan and Kaplan [32], these are prerequisites to student engagement. Finn [9] agrees that student participation in class activities can improve their performance and achievement and this in turn gives them a sense of belonging.

What is different in the current study is that it demonstrates the ability of reflective practice to improve strategies for student engagement and the many benefits associated with it. These include enjoyment, ownership, collaboration and academic achievement.

VI. LIMITATIONS OF THE STUDY:

The study was limited to one unit and the data was collected over a single semester. Therefore it cannot be confirmed that the effects observed can be replicated if the data were collected over a longer period and in different units. It also did not differentiate between the different domains or areas of engagement as it was mainly interested in identifying the effect of reflective practice in improving student engagement with the learning materials and learning outcomes as measured by the assessment marks.

VII. RECOMMENDATIONS:

Based on the findings, it is recommended that pedagogical changes be initiated with the input of learners so that they feel a sense of ownership and responsibility to make the changes work for themselves. It is also recommended to replicate the study over a longer period to confirm the results. This would capture a more comprehensive view of student engagement and what dimensions are affected by reflective practice. It is recommended to incorporate the different dimensions of student engagement in the survey and analysis of future studies.

VIII. CONCLUSIONS

This paper presented the results of an action research study that used critical reflection to modify learning content and delivery and see the effect on student learning and engagement on an online unit. It analyzed the effectiveness of an online discussion forum where students identified their learning needs and provided suggestions that were then used by the educator to inform her practice. The outcome was analyzed using content analysis of the reflective diary and student feedback at the end of the semester and compared the time students spent on the Unit Learnline site with the average of the School of Health using Learnline Unit Analytics. It also compared the grades of the current semester with the semester 2 of last year.

Three themes (Sense of belonging, sense of satisfaction and sense of ownership) arose from student feedback that was collected at the end of Week 10 of the semester. From the educator’s reflections, three themes (lack of engagement/ anxiety, developing trust and enjoyment with engagement) were also developed. These reflections were from the start to the end of the study and capture the whole process.

It was found that the reflective practice approach helped the lecturer to modify the educational materials and delivery according to the student’s expressed needs and this improved the time students spent on Learnline (from the School of Health average) and their academic performance has improved compared to the semester 2 of the previous year.

IX. REFERENCES

X. APPENDICES

Appendix – A: reflective practice tool
### APPENDIX A. REFLECTIVE PRACTICE TOOL

<table>
<thead>
<tr>
<th>Gibbs (1998) model of reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>This is context of the event. e.g. Who was there? Why were you there? What was happening?</td>
</tr>
<tr>
<td><strong>Feelings and thoughts</strong></td>
</tr>
<tr>
<td>This is self-awareness. e.g. How did you feel? How did the others around you feel? How did you feel about the outcome of the event?</td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
</tr>
<tr>
<td>Consider your judgments. e.g. Consider what went well, what not so well. What was good and not so good about your experience</td>
</tr>
<tr>
<td><strong>Analysis</strong></td>
</tr>
<tr>
<td>Break down the event and explore each part separately. Here you may need to ask yourself more detailed questions</td>
</tr>
<tr>
<td><strong>Conclusion</strong></td>
</tr>
<tr>
<td>This is the synthesis. During this stage you should be exploring what you could have done differently.</td>
</tr>
<tr>
<td><strong>Action plan</strong></td>
</tr>
<tr>
<td>Consider what you would have done differently if you encountered this situation again. Would you act differently or the same?</td>
</tr>
</tbody>
</table>