

# The Impact of Online Discussion Platform on Students' Academic Performance

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**Abstract.** This paper reports on research investigating student experiences of learning through face to face and online discussions in business and marketing courses in a local self-finance institution. Using methodologies from relational research into university student learning, the study investigates associations between key aspects of student learning focusing on conceptions of what students learn, approaches to learning and learning outcomes. The students' views on using online discussion platform and the difference in learning performance between students who did use online discussion platform and who did not will be compared in this study. Furthermore, it was expected to find that these differences were reflected in the learning outcomes, that is, student approaches would be linked to more complete conceptions of learning and to better academic performance. In other words, the existence of causal relationships between the using of online discussion platform and academic performance was also explored. Data on students' conceptions and approaches was collected through group interviews and final marks were used as an indicator of the quality of learning in terms of students' academic performance.

**Keywords:** Online discussion platform · Online learning · Online forum · Learning performance · Academic performance · Moodle

## 1 Introduction

In recent years, online discussion platform has been rapidly becoming a significant part of the learning experience at the institution not only in distance education but also in campus based settings. An increasing number of predominantly campus-based higher education institutions are now making online learning platform a major part of the student experience through including a range of online activities such as online discussions, interactive case studies, quizzes, inquiry and self-assessment [12]. If the online part of the student experience is not integrated with the rest of the students' course, it will be meaningless at best and impede learning in more serious cases [17]. Integrating the online discussion experience with the whole student learning experience to promote meaningful learning is a key challenge for educators and course designers.

This paper presents research addressing specifically the issue of how students integrate online discussion and face to face learning. In particular, students' experiences of learning through both face-to-face and online discussions in a marketing course at a self-finance institution were explored. Our focus was the associations

between the way students conceive of learning through discussions (conceptions of learning – what students think they are learning about), the way they go about their learning through discussions (their approaches to learning) in both face-to-face and online contexts and academic performance. The objective of the study was to investigate the relationships between students' learning approaches to learning through face-to-face and online discussions and their academic performance in the two particular course contexts, Introduction to Marketing and International Business.

Academic performance assessed at the end of the courses was used as an indicator of the quality of learning. By looking at the relationship, we hope to achieve a better understanding of the ways students make sense of their face-to-face and online learning experiences thus help in designing the learning programmes that promote understanding.

## **2 Online Discussion in Higher Education**

Online discussion has been becoming common in higher education. In the following literature review, the trend of online discussion in higher education, perceptual and psychological factors affecting online discussions, approaches to learning of online discussions, factors of enjoying and learning with educational games affecting learning performance and the benefits of using online discussions will be discussed and proven by researchers.

### **2.1 The Trend and Importance of Online Discussion in Higher Education**

Internet has been playing an increasingly important role in higher education [16]. Asynchronous online discussion is one of the most used Internet-based technologies in higher education [30]. Taking Taiwan as an example, according to the survey conducted in 2005, about 80 % of surveyed institutes of higher education have adopted Internet-based asynchronous communications for teaching [24]. Asynchronous online discussion is used either for encouraging reflection as a complementary method to face-to-face teaching [30], or it is used as a major means for communication in distance learning [19]. The commonly reported advantages of online asynchronous discussions included promoting thoughtful and reflective content in the discussion, promoting active learning or self-regulated learning, encouraging critical thinking, and supporting collaborative knowledge construction [19]. However, researchers and practitioners still observed low contribution rates or lack of engagement in online asynchronous discussions at various contexts [13]. Past research discussed the impact of intervention factors, such as use of grades, use of posting guideline, the time-span of the discussion, peer facilitation and instructor's participation and mediation [13, 22]. Although these guidelines and facilitation provide structures and external motivation for some participants, they did not seem sufficient in promoting autonomy or sustained engagement for all the participants.

## 2.2 Perceptual and Psychological Factors of Online Discussions

Students' contributions in online discussions may be attributed to various factors. One fundamental reason may relate to how students perceived the affordance of the asynchronous communication tools. Students who have realized the affordance of online communication tools, such as the affordance of communicating at any time and the affordance of being able to review past messages, tended to use asynchronous discussion voluntarily [27]. Researchers also explored students' personal psychological status that may influence students' perception in online discussions. The study by [25] synthesized responses from open-ended questions and concluded that self-esteem, self-efficacy, psychological resistance and academic anxiety were the major themes associated with students' feelings of online discussions. Since [25] used a qualitative method, further research is required to validate these preliminary factors and understand their relationships to actual postings.

Students' understanding of the purpose of online discussions or the value of contributing online is another important factor. Hew et al. [13] concluded that one of the major reasons for limited student contributions is because of "not knowing the need of online discussions." When students see the discussion topics directly related to the curriculum [11] or when students were instructed the purposes of the online discussion [17], they tended to contribute more.

## 2.3 Approaches to Learning in Relation to Online Discussions

Students' approaches to learning are defined as "the ways in which students go about their academic tasks, thereby affecting the nature of the learning outcome [5]. Deep approach is driven by learners' intrinsic motivation and learners tend to appropriately engage the task in order to maximize understanding [4]. Learners usually manage to invest minimal time and efforts to meet the minimal requirements [4]. Researchers also found that deep online approaches tend to associate with deep face-to-face approaches. Additionally, students who viewed discussions as not only collecting ideas but also "challenging and improving one's ideas or arriving a more holistic understanding tended to use deep approaches to online discussions.

## 2.4 The Factors of Enjoying and Learning with Educational Games Affecting Learning Performance

The growth of educational games in recent years has largely impacted learning procedures [26]. Studies indicated that playing video games gives learners as a mental workout and the structure of activities embedded in computer games develops a number of cognitive skills. Players are faced with a stream of decisions and must engage with problem solving strategies, which involve the engagement with a series or complex tasks and nested sub-tasks [15]. In addition, [23] linked game-playing with the potential to develop skills in decision making, design, strategy, cooperation, and problem solving. The emergence of educational games further facilitated the wide adoption of learner-centered education and other chances in educational practices.

Computer games and online discussions has drawn significant attention from educational institutions and business organizations due to the potential educational and cost benefits, however, the introduction of games and software in teaching is often complex, and learners do not always use them as expected [29], and learners do not have the expected performance when they are using them [18].

## 2.5 The Benefits of Using Online Discussions

Student learning research has systematically provided evidence over the last four decades for the idea of interrelatedness of the different aspects of student learning. The increasingly common use of innovative, integrated contexts of learning that combine face-to-face and online experiences suggests a need of a focus on key aspects of these experiences of learning. Drawing on a second area of research, which includes recent studies into student learning through discussions [8], this study attempts to replicate findings and further explore ideas initially introduced in the learning through discussion research.

When learning activities are structured comprising both face-to-face and online experiences, discontinuities of learning experience can occur as a result of lack of integration between the two learning experiences. For example, when online and face-to-face activities in seminars or lectures are perceived by students as unconnected, they are also perceived having little or no relation with the learning outcomes. Research has identified evidence showing how learning through online and face-to-face discussions is experienced by students [8]. The findings of these studies suggest that engineering students who conceived of discussions as a way of learning about the topic and deepening their understanding tended to perceived a close relationship between the discussions and the learning outcomes. In contrast, students who mainly saw discussions as a way of improving generic skills or using them to find the right answer had difficulty in perceived a relationship between their discussions and learning outcomes. Some students with cohesive conceptions tended to use discussions in a way which would deepen their understanding while the others tended to use them in a more instrumental way, to help them pass examinations and meet course requirements.

Although the relationships between key aspects of student learning and the quality of learning outcomes have been extensively researched, with many studies focusing on the link between learning approaches and academic performance [3], relatively little research has been explicitly conducted to investigate the existence of causal links between these aspects. One example of such research is a study by [7] looking at learning approaches as predictors of students' academic performance. Structural equation modelling was used to test a path model, which included students' learning approaches and academic performance. The analysis confirmed that academic performance was predicted by approaches to learning which, in turn, were determined by students' beliefs about learning and knowledge.

In addition, improving the quality of the student learning experience is a key issue in the higher education sector. It has been widely recognized that e-assessment can contribute to this. However, it is interesting that whilst much research has been carried out into the attitudes towards e-assessment on the part of instructors, e-learning experts

and educational technologists [6], there is relatively little research into what students think. Whilst we often make assumptions about what students feel, it would be useful and interesting to put these to the test and gain some first-hand data from students themselves. Moreover, the attitudes and opinions of candidates are always important because these affect their learning performance [1].

To conclude, improvements in technology allow online resources to be used more extensively to enhance traditional forms of course delivery, such as face-to-face lectures and tutorials. Students' learning experience and performance can be improved when online resources are integrated with these traditional activities [28]. It is important to understand the aspects of online learning environments that are related to improvements in students' performance so that limited resources can be applied where they are most effective. Studies by [21, 20] have shown that improvement can be achieved if online resources are introduced, if they complement existing course delivery methods, and where it is possible to make improvement without a significant application of resources [10]. The use of internet can provide a range of functions for learners and teachers to give some real benefits to traditional environments, such as reducing the time-lag between production and utilization of materials and the free sharing of information [9]. When properly designed and implemented, the use of online learning technologies empowers students by giving them freedom and responsibility to control their learning environment [2]. In addition, academic staff become facilitators who advance the learning process rather than being merely a conduit for content delivery [14]. Improvements in students' performance can be achieved with only a moderate increase in the expenditure of time and other resources [10]. Therefore, a review of existing literature shows that there have been many studies of online learning environments and their relationship to students' performance.

### 3 Implementation of Online Discussion

Two degree courses have been selected and implemented the online discussion platform through Institute's Moodle system in the period of September 2014 – January 2015. The first course is *Introduction to Marketing (MKT 201)* and the second course is *International Business (BUS 301)*; both courses have 13 weeks of 3-h class. Lecturer of these two courses used the most update news clip from the market and raised relevant discussion topics for students to discuss and share their opinions through the Moodle's online discussion platform.

For example, for the course *MKT 201 – Introduction to Marketing*, the discussion topics are adopted from local products or services which have been just introduced to Hong Kong market, for example: “[www.washyourpetpet.com](http://www.washyourpetpet.com)” (Fig. 1). Students based on the captioned topics, and shared their comments and opinions on the online discussion platform; other students were able to view all the online discussion and they may give their responses to the online discussion as well (Fig. 2).

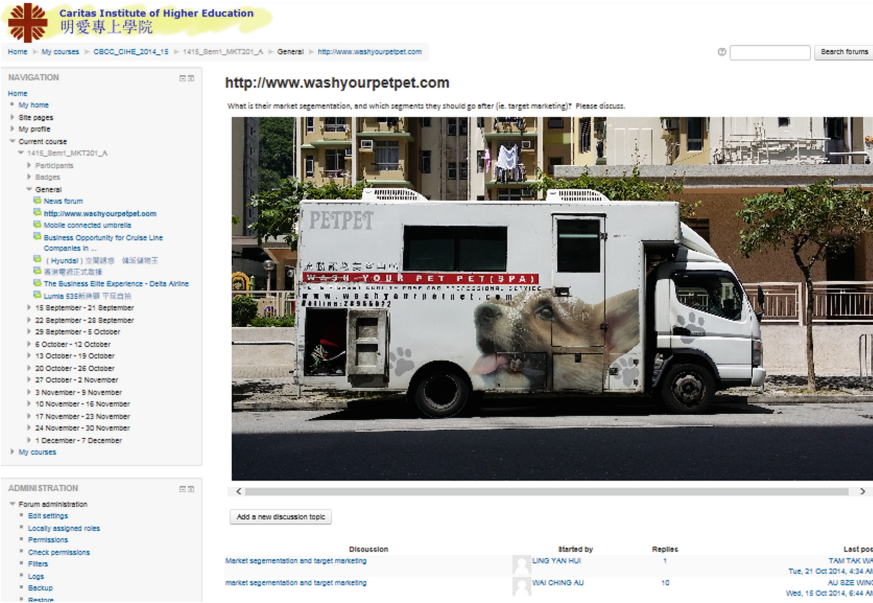


Fig. 1. Discussion topic of MKT201

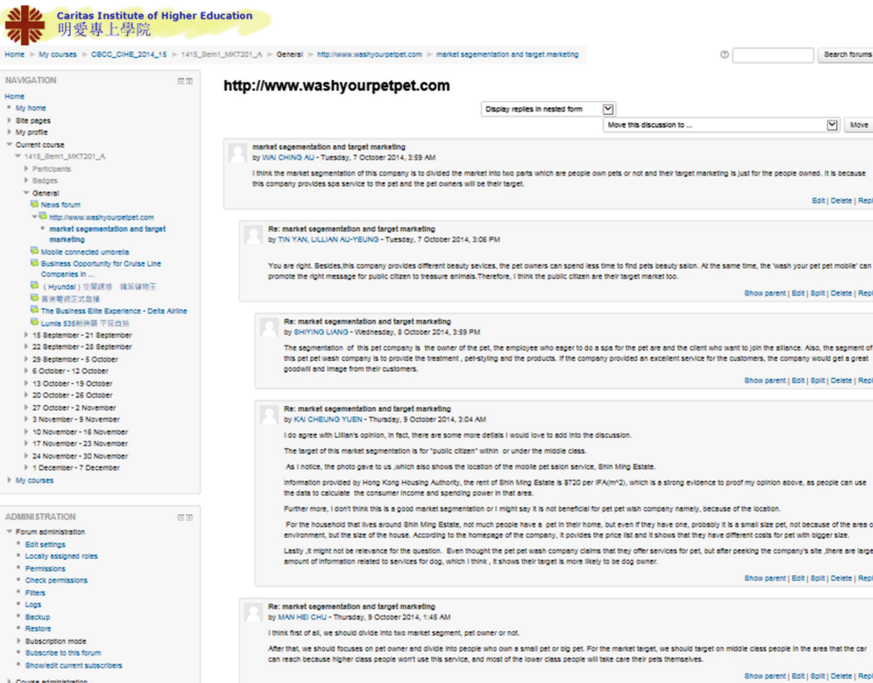


Fig. 2. Student's online discussion of MKT201

## 4 Evaluation

In order to analyse the impacts of online discussions on students' academic performance, two courses, i.e. *Introduction to Marketing (MKT201)* and *International Business (BUS 304)*, the academic performance in these two courses between students who did online discussions and who did not will be compared and the results will be shown in the following parts.

### 4.1 Research Findings

When compared the respond rate between these two courses, i.e. *MKT201* and *BUS304*; 19 students from *MKT201* participated in the online discussion (32 % participation rate) with 3.58 responses per person for the whole semester, 37 students from *BUS 304* participated in the online discussion (55 % participation rate) with 2.72 responses per person. Even though *BUS304* has a higher participation rate, but its average responses are lower than *MKT201*.

In term of the results, the final marks of those students who participated in online discussion are compared against those who did not join the online forum for *MKT 201* (Table 1) and *BUS304* (Table 2).

**Table 1.** MKT 201 final marks

MKT 201	Overall	Joined online discussion	Didn't join online discussion
No of students	58	19	39
Lowest mark	14	37	14
Highest mark	77	77	66
Average mark	49.3	58.3	44.9
Std. dev. of marks	15.1	10.0	15.3
Passing rate	81 %	95 %	74 %

**Table 2.** BUS 301 final marks

MKT 201	Overall	Joined online discussion	Didn't join online discussion
No of students	67	37	30
Lowest mark	21	27	21
Highest mark	61	61	54
Average mark	44.8	46.7	42.4
Std. dev. of marks	7.3	6.4	7.7
Passing rate	88 %	95 %	80 %

The results for both *MKT201* and *BUS301* illustrate that the student groups who have participated in online discussion receive better academic results than those who have not participated in terms of “lowest mark”, “highest mark”, “average marks”, and “passing rate” too. Especially when compared the top 10 students of the class, 7 students and 8 students have participated in the online discussion platform in the

courses of *MKT201* and *BUS301* respectively. Thus, students should be encouraged to actively participate in the online discussion platform if they want to enhance their learning performance and academic performance as well.

## 4.2 Limitation & Future Development

Due to limited time and resource, the samples size are limited in current research project, and it is difficult to draw a definite conclusion about the positive correlation among the online discussion platform, learning performance and academic performance; however, this paper may serve as a beginning stage to conduct an in-depth research study in the relationship among these three factors in future. Researcher suggests comparing those students' results with other courses that did not have online discussion in the same period of September 2014 – January 2015 and investigating if those students who participated in the online discussion and received good results were also the students who received good grading in other courses that did not have online discussion. Especially researcher would recommend further research should conduct a focus group of students and a focus group of lecturers to review their comments and experience in online discussion platform, as well as to study if online discussion platform would actually deliver positive enhancement on students' learning performance and academic performance.

## 5 Conclusion

The main objective of this study is to explore the relationship between the usage of online discussion and academic performance. In particular, the results show that the groups of students who have participated in the online discussion of both courses could have a better result, which can be shown in terms of “lowest mark”, “highest mark”, “average mark”, “number of passes”, “number of fail”, and “passing rate”. This confirms that students' contribution and participation in online discussions has a positive impact on academic performance. Therefore, especially in blended environments where participating online is not in isolation of other means for learning, e.g., lectures or face-to-face discussions, lecturers should consider how to enhance students' motivation in general and better incorporate online discussions into other learning experiences in the courses. In order to have a deeper understanding in the impact of online discussion on academic performance, future research can be conducted to study the students' views on online discussion learning method through in-depth focus group interviews and questionnaires, which can help strengthen the research results and findings.

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