Design for engagement in blended learning: insights, practices, and challenges

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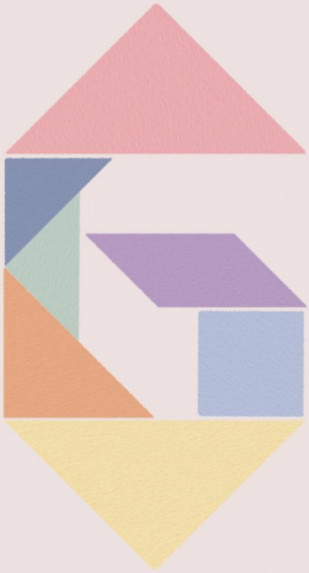

General Discussion

Chapter 6 General Discussion

Improving student engagement in blended learning is essential, as blended courses are increasingly prevalent in higher education. The popularity of blended learning stems from its combination of the benefits of both online and in-person learning. However, these benefits are not automatically realized by simply merging the two parts. The integration of online and campus learning can present challenges in maintaining student engagement when transitioning from online to in-person learning. To support student engagement in blended learning a comprehensive understanding of the factors associated with engagement is needed. Because as yet there was no comprehensive overview of the factors associated with student engagement, I first investigated these. Additionally, in blended learning students have more control over their learning, as some learning content is shifted from in-class to pre-class parts. However, in previous research the focus has not been on student-perceived content control and its relationship with engagement at the activity level. Hence, I explored the relationship between learner control and student engagement. Another important aspect of promoting engagement is the role of pre-class learning, which requires students' self-regulated learning. While previous research has examined pre-class learning based on students' online learning

behaviors, there has been no research based on both online and offline pre-class activities as indicators for pre-class learning. Therefore, I investigated the relationship between pre-class learning based on both students' online and offline learning behaviors and student engagement in blended learning. Below the specific descriptions of the findings from Chapters 2-5 are summarized.

6.1 Main Findings

To facilitate student engagement in blended learning, it is essential to first understand the factors that influence student engagement. Therefore, the factors affecting student engagement were analyzed through a narrative literature review, which addressed the research question: Which factors are associated with student engagement in blended learning in higher education? (Chapter 2) The findings of this study highlight that behavioral, emotional, and cognitive engagement are more prominent than social and agentic engagement. Additionally, the literature review suggests that individual and instructional factors are most closely related to student engagement. The review also shows how different factors can influence engagement across out-of-class and on-campus modes, as well as the unique challenges that arise from the interplay between these modes in blended learning contexts.

The comprehensive review of factors influencing student engagement showed that the flexibility inherent in blended learning can

sometimes challenge students' engagement. To explore this, a study was designed (Chapter 3) intended to examine the relationship between perceived learner control and student engagement within a blended course. Two research questions are addressed: "What are students' perceptions of learner control and their engagement across different activities in a blended course?" and "How does perceived learner control influence student engagement in various activities in blended learning?" The findings indicate that most students responded positively to knowledge clips and workgroups, appreciating both the clips' structured content and the interactive nature of workgroups. Notably, perceived learner control, behavioral engagement, and emotional engagement varied by activity, while cognitive engagement maintained a moderate level across activities. Although no significant positive relationship was found between perceived learner control and engagement across activities, some negative correlations emerged. Specifically, perceived learner control was negatively related to both cognitive and behavioral engagement regarding reading literature, and negatively associated with behavioral engagement regarding attending lectures. These findings suggest that lower perceived control may enhance engagement in specific activities, although perceived learner control is generally not a strong factor for student engagement in blended learning.

The results from Chapter 3 imply that student engagement may be impacted by the way students use the control they have. This led us to examine students' actual behaviors, specifically in pre-class learning, where they have considerable control over their activities, in order to see how these behaviors relate to in-class engagement. Therefore, we investigated the extent of students' pre-class preparation across both online and offline activities and how these activities correlate with in-class engagement (Chapter 4). The research questions that guided this study were "What are the students' levels of preparation through pre-class learning activities?" "What are the factors affecting students' preparation before tutorials from the students' perspective?" and "How do students' pre-class learning behaviors relate to their in-class engagement?" The findings indicate that literature reading represented the largest portion of pre-class preparation and was the only consistent predictor of multiple dimensions of student engagement—behavioral, emotional, cognitive, and social. Additionally, in-class social engagement was enhanced by reviewing notes and peer learning, although these activities did not significantly influence the other engagement dimensions. Student interviews provided further insights into the factors affecting student preparation and in-class engagement. Some students did not put much effort into reading literature because they did not find it interesting or easy to read, and because of the overlap between the

literature and other activities. However, students did mention the usefulness of literature for completing assignments and for learning in tutorials. Regarding assignments, the lack of feedback, the ungraded nature of the assignments, and the high workload negatively impacted students' motivation and completion rates. Regarding video watching, students found the information presented in the videos useful and easy to understand. They appreciated the autonomy in choosing when and how to watch them. However, some criticized the videos for being too long. In addition, going through their notes saved some students from re-reading literature and re-watching videos. According to the students, peer learning clarified knowledge and pushed students toward higher levels of engagement and success.

Reflecting on the insignificant relationships between learning in different pre-class activities and student in-class engagement, we continued to investigate students' participation in learning activities, wanting to find out whether students displayed different learning patterns and whether students' in-class engagement and learning outcomes differed among these patterns (Chapter 5). The research questions were "How does students' behavioral participation in pre-class activities vary across different weeks, and what are the reasons for the variations?", "What patterns of students' pre-class behavioral participation across different weeks can be discerned?"

and “How do students’ pre-class learning behavior patterns relate to student in-class engagement and learning outcomes?” The study described in Chapter 5 showed an overall decline in student participation in pre-class learning activities. Students most frequently mentioned instructional aspects as the reason for this decline. Students’ in-class engagement and learning outcomes did not differ between the profiles, but self-regulation skills were related to students’ in-class engagement and learning outcomes. The findings highlight the function of instructional design in sustaining student engagement and the importance of self-regulation learning in promoting student in-class engagement and learning outcomes.

6.2 Discussion of the Main Findings

6.2.1 Dynamics of Student Engagement

The dimensions of student engagement—behavioral, emotional, cognitive, agentic, and social—play distinct roles in supporting learning outcomes depending on contexts. Some dimensions of student engagement may become more dominant than others, in particular learning environments based on the demands and characteristics of those learning activities. For instance, cognitive engagement may be essential in learning activities that demand deep thinking, critical analysis, and knowledge integration. These learning activities often require sustained mental effort and self-regulation. However, in courses that involve learning activities with lower cognitive

difficulty levels, such as those in Chapters 3 and 4, cognitive engagement may be less emphasized, because students can succeed through other dimensions of engagement. Agentic engagement becomes critical in learning activities in which students are encouraged to shape their learning experience and influence the teaching-learning process. Social engagement is paramount in learning activities that emphasize group and peer learning, such as in the tutorials in the course discussed in Chapter 3. However, in highly individualized or self-paced courses, for instance, the asynchronous pre-class learning activities in the targeted course described in Chapters 3 and 4, social engagement may be less important, as students are focused on their own independent progress. Furthermore, behavioral and emotional engagement seem to be more stable across different learning contexts. As the influence of different dimensions of student engagement may vary across different courses, recognizing which dimension prevails over other dimensions for a specific course will enable educators to design targeted interventions and measure engagement meaningfully.

6.2.2 Measuring Student Engagement

Student engagement can be measured at different levels, such as program, course, and activity levels. In the studies included in this dissertation, I measured student engagement in different activities. Based on these findings I conclude that different activities may lead to different

engagement levels. This may be because engagement is highly dynamic, fluctuating, context-dependent, and interactive (Shernoff et al., 2016), and each learning activity has different characteristics. This was confirmed by the findings described in Chapter 3, which suggest that behavioral and emotional engagement vary across different learning activities. The findings also lead to the conclusion that task-specific instructional features may be associated with student engagement. Thus, measuring student engagement at an activity level helps to understand the complexity of student engagement at the course or program level (Shernoff et al., 2016). This understanding can help teachers to support student engagement more effectively by focusing on engagement at an activity level.

6.2.3 Challenges of Improving Student Engagement in Blended Learning

Designing blended learning comes with several challenges. The first challenge of promoting student engagement lies in the interplay of four factors with different levels of malleability, i.e., individual, instructional, interactional, and learning environment factors. Teachers can actively adjust instructional aspects of a course to promote engagement. However, whether the adjustment leads to higher engagement is associated with other non-malleable or less malleable factors, such as gender, motivation, and self-regulation skills. These factors can influence the effectiveness of instructional factors on student engagement.

Second, blended learning requires students to possess certain competencies in order to effectively use their autonomy; however, students may not always have these. Specifically, the lack of a significant relationship between perceived learner control and student engagement in the study discussed in Chapter 3 suggests that simply providing students with learner control does not inherently boost engagement. In addition, students' pre-class learning, when they are provided with a large amount of autonomy, is not related to student in-class engagement. Specifically, the results described in Chapter 5, based on students' participation in pre-class learning activities, show that student in-class engagement did not vary across different pre-class learning patterns. These findings suggest that increasing student participation in pre-class learning activities does not necessarily lead to higher in-class engagement. The insignificant results identified might be due to students' lacking the necessary competencies—such as self-regulation skills—that are crucial for effectively managing their learning tasks. Even if students perceive a high degree of control, their engagement may remain unaffected if they do not possess the skills to leverage that autonomy. Teachers should help students to develop and use their competencies, such as self-regulation skills, while they have the freedom to learn.

Third, improving student engagement involves addressing the challenge of supporting engagement across different learning activities. Enhancing engagement is not straightforward. For example, the findings in Chapter 4 suggest that students' literature reading was the only consistent factor contributing to behavioral, cognitive, emotional, and social engagement in tutorials. However, students' participation in other activities, including watching videos, completing assignments, peer learning, and reviewing notes, did not seem to be significant predictors of student in-class engagement. In addition, instructional aspects were the reasons most cited for students' participation or non-participation in activities. The study discussed in Chapter 3 also shows that student engagement varies by activity, with characteristics of each activity influencing engagement. These findings suggest that promoting engagement across different activities is challenging, requiring teachers to focus on individual learning activities rather than solely on course-level design, as each activity has distinct instructional features.

6.2.4 Strategies for Promoting Student Engagement

Considering the complex challenges arising from the interplay of various factors, I recommend that teachers adopt a holistic approach when if they want to promote student engagement in blended learning. While educators need to focus on adjusting factors that can be easily influenced,

such as teaching methods, activity design, and technological tools, they also need to recognize the role of non-malleable and less malleable factors that may impact engagement, such as students' gender, prior knowledge, and cultural backgrounds. These factors cannot be easily changed, but they can significantly shape students' learning experiences. Therefore, by balancing the manipulation of more flexible factors with an understanding of the less malleable ones, teachers can create a more inclusive and engaging learning environment in blended settings.

Another way of addressing challenges in blended learning is by supporting the development of students' self-regulation skills. These skills are essential given the increased autonomy students have in blended settings, as the study described in Chapter 5 confirms. Improving students' self-regulation skills includes explicit guidance on students' planning, monitoring, reflecting, and adjusting their learning strategies (Bannert, 2007). Such support helps students better organize their cognitive processes, increasing their engagement and learning outcomes (Thai et al., 2017).

In addition to supporting students' self-regulation skills, attention should also be given to the design of specific activities and support of learning at the activity level. First, when learning tasks are designed as authentic tasks, reflecting real-world scenarios, students are more easily motivated for the task. I discovered that students were more motivated to

engage in activities that simulated real situations (see Chapter 3). For example, in lectures, teachers gave contexts in which students could apply what they learned. Second, the delivery method for these tasks is equally crucial. My research indicates that interactive elements appealed to students in the targeted courses, suggesting that how content is presented can significantly influence engagement. Third, giving choices to students rather than just granting them the autonomy to skip activities, may foster a greater sense of autonomy and, in turn, increase student engagement. Fourth, timely support and information are essential. Blended learning environments enable students to access resources as needed, promoting self-directed learning. However, as discussed in Chapter 4, students often faced challenges in receiving prompt and personalized feedback after assignment completion, which can diminish engagement. Adaptive learning technologies, such as AI-based platforms, can help bridge this gap by providing immediate, tailored feedback, which sustains engagement and reduces the teacher's workload.

6.3 Limitations

The primary limitations of this dissertation relate to the generalizability of the findings across different contexts. First, the study focused on three humanities courses aimed at enhancing students' conceptual understanding and academic skills. As such, the hypotheses

regarding learning activities and engagement should be tested in other higher-education contexts, such as STEM or practice-based courses that emphasize practical skill development. Second, participants in my studies had considerable control over their learning process, which may limit the applicability of the findings to blended courses with restricted student autonomy, in which the relationship between student engagement and perceived learner control and pre-class learning may be different. Third, this study does not offer insights into agentic engagement, as the courses studied provided limited opportunities for students to exercise agency. Consequently, the relationship between agentic engagement, perceived learner control, and pre-class learning warrants further investigation.

6.4 Implications for Practice

6.4.1 Supporting Students to Use Learning Autonomy

Given that perceived learner control and pre-class preparation were generally found to be not strongly related to student engagement, teachers and course designers should focus on supporting students' use of autonomy and improving their self-study skills in blended learning. First, teachers could provide more targeted learning support to students during independent study. For instance, implementing a learning analytics-based system can help students monitor their learning processes, understand their progress, and reflect on their strategies. Second, as the lack of self-regulation skills

often hinders students' effective use of autonomy in blended learning, teachers may consider teaching self-regulation strategies explicitly. This goes beyond simply modeling these skills; it requires structured instruction. In addition, teaching should be tailored to meet the diverse needs of learners; teachers might personalize instruction to accommodate students with varying levels of self-regulation skills. For example, teachers can consider offering personalized support for those who require additional guidance while challenging self-regulated learners to maximize their potential.

6.4.2 Insights for Learning Activity Design

The following insights regarding the design of learning activities could be derived from the interviews conducted in the studies described in Chapters 3-5. First, student engagement can be promoted if the redundancy across different learning activities is minimized, as excessive repetition may reduce the value of different learning activities. Each activity needs a distinct, well-defined goal, with clear instructions guiding students toward achieving it. Second, delivering content through multimodal channels can enhance engagement by providing complementary forms/ of the material. Third, increasing interactivity in learning activities can foster higher engagement. If teachers interact with their students more frequently, it fosters greater engagement in learning. Fourth, incorporating feedback into different activities can further support student engagement. For instance, the

absence of feedback following an activity may result in lower engagement in the activity. Lastly, assessment formats play a crucial role, as they significantly impact engagement and participation. For example, open-book exams may lead students to invest less effort in certain activities.

6.5 Implications for Future Research

Several recommendations for future research can be offered. First, while behavioral, emotional, and cognitive engagement have been widely investigated, social and agentic engagement is still relatively underexplored. I recommend that future studies explore how different factors are associated with student agentic and social engagement. Second, as students' perceived learner control may not be associated with student engagement, future researchers may consider investigating further how students' use of the control they have is related to student engagement. Third, literature reading has been shown to be essential for student engagement; however, there is a gap in research on how academic reading strategies relate to engagement. Future studies should explore strategies to improve students' academic reading skills to enhance engagement in both pre-class and in-class learning. Fourth, since most students' pre-class learning has not been identified as a significant predictor of student in-class engagement, future research should address which pre-class learning activities can support student engagement, and the characteristics of these activities. Fifth, as student engagement levels

may not vary across different learning patterns, it is important to examine the factors that influence these patterns to gain deeper insights.

6.6 Conclusions

In these four studies included in this dissertation, I have explored student engagement in blended learning, investigating key factors influencing engagement at an activity level. My findings contribute to the growing body of research on blended learning by highlighting how perceived learner control and student pre-class learning shape engagement. In general, perceived learner control, pre-class learning, and different pre-class activities were found not to be significant predictors of student engagement. Instead, self-regulation learning skills were identified as a significant predictor of student engagement. In addition, instructional characteristics of learning activities were reported to be relevant to student engagement. These findings indicate that promoting student engagement in blended learning is influenced by the interplay of different factors. In addition, student engagement is context-based and may differ across different learning activities, requiring teachers to promote student engagement at an activity level. Specifically, when learning activities have been designed in such a way as to minimize redundancy, increase interactivity, utilize multimodal channels to deliver content, provide timely feedback, and incorporate appropriate assessments, student engagement is

likely to improve. Furthermore, more support is needed when students are given control over their learning, particularly during individual study in pre-class activities. For example, supporting students' self-regulated learning can help them better leverage the control they have, resulting in higher engagement in blended learning.