Introduction and evaluation of an online assessment to enhance first year Urban and Environmental Planning students’ time-on-task

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Abstract: Planning studios are taught following ‘learning by doing’ approach to help students with a range of practical skills highly relevant to the planning profession. The problem is that not all students spend the required hours, to work on the hands-on activities, between the weekly studio sessions. They fall behind and it becomes more and more difficult for them to catch up as the semester progresses. The paper follows the ‘Community of Inquiry’ framework and proposes an online assessment task to ensure that three elements of teaching presence, social presence and cognitive presence are still strongly felt during the week when there is no face-to-face contact between the teaching team and students. The proposed ‘Online Studio Diary’ task aims to encourage students to actively engage with their learning tasks outside classroom. The paper also includes a range of evaluation techniques adopted to investigate the impact of the new assessment on learning outcomes. The proposed online assignment task could be understood as a much needed innovation in using technology for learning in studio teaching.

Keywords studio teaching, first-year experience, assessment, online, urban planning

Introduction: Studio teaching in planning

A studio-based approach has traditionally been seen as invaluable pedagogy in many creative discipline areas including built environment and planning at many universities (Gore, 2004; Oschner, 2000). As a learning and teaching approach, the underpinning value is that studio shifts the role of students from passive recipients of information to active and engaged learners (Tucker and Rollo, 2005), and provides them with confidence, self-esteem, substantive knowledge about a topic and a range of generic skills including communications skills, and critical thinking (Kotval, 2003). Studio teaching is also admired as it combines a variety of teaching modes while heavily counting on regular feedback through informal critiques of student work, student presentations, and small group discussions. Hence, studio provides a venue for students to engage in conversations, dialogues and collaboration related to open ended problems.

While it is fair to say that many urban planning programs in Australia tend not to have a comprehensive studio-based educational system (Zehner, 2008), the literature indicates that when studios occur in the planning curriculum they provide an especially powerful opportunity for integrative, student-centred learning (Corkery et al., 2007; Higgins et al., 2009; Rose et al., 2007). Moreover, based on a literature review of the characteristics of current first year university students and their first year experience, Bosman et al. (2010) suggest that planning studio offers a safe place for the first year students to have a smooth transition to university environment (Upcraft et al., 2005a; Williams et al., 2006). As studio highly engages students with ‘learning together’ experience, and develops collegiality and resilience within the student body. The first year planning studio is therefore discussed to be a critical component of the undergraduate planning program (Bosman et al., 2010).
There is a widespread recognition of the challenges involved both in studio teaching and first year teaching (Pitkethly and Prosser, 2001; Tippett et al., 2011; Upcraft et al., 2005b). Previous research supports a clear relationship between time-on-task and student achievement (Cotton and Wikelund, 1990), and acknowledges that many first year students spend less time on their studies out of class than what is deemed necessary for successful learning (Kuh, 2003). This paper introduces an innovative online assessment task embedded in a first year ‘Introductory Planning Studio’ course to encourage students to more actively engage with their learning tasks outside classroom and spend the required hours to succeed. More importantly, the paper evaluates the impact of the assessment task on students’ learning and experience, and also teaching quality.

The literature argues that each institution needs to develop its own creative response to the emerging educational challenges including but not limited to time-on-task in first year courses (Duggan, 2004). Yet, it is hoped that this case study inspires others to find innovative solutions to enhance time-on-task, and sustain student engagement in their specific situations.

Research Problem: Time-on-task in first year studio

‘Introductory Planning Studio’ is a 20 credit first year core course for Urban and Environmental Planning students, Griffith University, Australia. The studio course is taught following ‘learning by doing’ approach (Anzai and Simon, 1979; Thompson, 2010), and helps students with a range of practical skills while engaged in a problem solving process. It includes weekly full-day sessions (9am-4pm, 6 hours with an hour lunch break) in which the teaching team starts a range of hands-on exercises with students. Although the student number varies year to year there is always one full-time academic as the course convener, plus one student-teacher studio assistant for every 17 students. The enrolment for 2014 was 35. The course convener also schedules weekly 3 hour sessions of self-directed learning in which students continue their work mostly based on peer learning. These weekly sessions are well-attended and students have access to the course convener to ask further questions if needed. As part of Griffith University policy, students are expected to spend an average of 20 hours for a 20 credit course. Therefore, students are supposed to continue their work spending an average of 11 hours per week in their own time to finalize the exercises. The problem is that not all students necessarily spend the required hours, nor do they use their time in the most effective way. As a result the ones who do not spend the time required or waste their time fall behind and it will be more and more difficult for them to catch up as the semester progresses.
Introduction of a new assessment: Online Studio Diary

The new online assessment is based on the Community of Inquiry (CoI) framework (Garrison et al., 2010) as a theoretical foundation, and attempts to address the problem described above through a student-centred approach (Ramsden, 2003). The framework (Figure 1) has three overlapping elements: social, cognitive and teaching presence, educational experience at its core (Garrison et al., 2010). Whilst, these three elements are inextricably linked, teaching presence - in the form of structure and leadership - is critical for student learning (Garrison et al., 2010). CoI framework also puts a great emphasis on the importance of building a community of learners with a focus on cooperative student learning as opposed to individualistic learning which limits interactions with others (Boling et al., 2012). Here, social presence provides the interconnection between teaching and cognitive presence which reflects the learning and inquiry process (Garrison et al., 2010).

The new assessment targets the core of the educational experience and relates to all of the three elements. It offers a solution to ensure that the three elements of teaching presence, social presence and cognitive presence are still strongly felt during the week when there is no face-to-face contact between the teaching team and students, and the contact between students is limited. The solution includes the introduction of an online interactive community in the form of a blog that further develops one of the popular assessment tasks in the course. Traditionally, at the end of each weekly studio session students submit an ‘In-Class Diary’ that includes a short description of their progress during the session. Here, students state the most important points/skills that they learn on the day and point out if there is anything special that they are confused or struggling with. Students’ weekly submissions are then reviewed by the teaching team and addressed either publicly at the beginning of the next weekly session or privately by approaching the students in person. The new assessment suggests a further development of the same line of dialogue with the students outside the weekly sessions, through introducing a new online assessment task, namely ‘Online Studio Diary’. The main difference is that, the online platform provides a chance for...
students to see each other’s inputs. Students are then asked to make comments on each other’s progress and be part of an interactive online community. This will contribute to the enrichment of the social presence between the studio sessions when face-to-face contacts are minimal.

The new online assessment aims to encourage students to actively engage with their learning tasks outside classroom, enrich students’ educational experience (Garrison et al., 2010), pursue them to be active learners (Grow, 1991; Kugel, 1993), and generate enthusiasm and interest (Biggs, 2003). ‘Online Studio Diary’ is set up as a blog for the studio course, and comprises 10% of the final mark in the course. Students are asked to make an entry every time that they spend more than two hours on studio learning tasks outside the weekly sessions. Students are asked to follow a brief, describe what they worked on, what the main challenges were and what they enjoyed about that part of the work. They can even upload images of their work in progress. All students and the teaching team follow the blog entries and can comment, ask questions and start a dialogue, as they do during the studio sessions. Certain level of students’ participation in such an online dialogue is required as part of their assessed online activity. This ensures that by making comments on each other’s blog entries and also responding to the comments as needed, a real online interactive community based on peer learning is created.

Evaluation of the Online Studio Diary

The studio course design, in S1 2014, incorporated a range of evaluation techniques to investigate the impact of ‘Online Studio Diary’ on learning outcomes. Qualitative and quantitative data has been collected to understand students’ approach towards the Online Studio Diary. To identify how the first year Urban and Environmental Planning students used the ‘Online Studio Diary’, weekly observations of students’ entries were conducted. Each entry and comment was analysed to ascertain what work students had completed between the scheduled weekly studio sessions. Behaviour patterns relating to how the students utilised the ‘Online Studio Diary’ were also identified. An initial list of behavioural attributes was developed. This list was expanded on over the duration of the course until a comprehensive list of behavioural attributes was formed. Reassessment of earlier entries was carried out to ensure all behaviour attributes were assessed for the complete duration of the study. The qualitative data was compiled into an excel spreadsheet which detailed how each individual student utilised the ‘Online Studio Diary’ over the semester.

Quantitative data was also gathered. The number of entries, number of comments on other students’ entries and the number of images uploaded was recorded. The day on which students made entries was also documented. Furthermore, background statistics collected by Blackboard, relating to the date and frequency of students accessing the ‘Online Studio Diary’, was also used. Although it was intended to collect information on the hours students spent between the weekly studio sessions, it was difficult to gauge the exact hours. Students were required to make an entry every time they spent two hours working on studio activities. However, some students instead provided detailed summaries after multiple working sessions. While many students provided estimates of the hours they worked, this was not sufficient to draw solid conclusions. Despite this limitation, the students made enough diary entries to build an online community. Consequently, the analysis highlighted the behavioural patterns associated with students’ use of the ‘Online Studio Diary’ assessment, which in turn enhanced their time-on-task. Moreover, an online reflective survey was introduced to specifically assess students’ perception of how they used the ‘Online Studio Diary’ and their overall satisfaction of the assessment item. The survey consisted of a
multiple choice question and provided open ended responses for additional comments. The survey was completed anonymously by 97% of the cohort and provided quantitative and qualitative data. The following shows the evaluation of the ‘Online Studio Diary’, based on the data collected during its offering in S1, 2014:

**Students’ online behavioural patterns**

**Students’ engagement with the online assignment**

The ‘Online Studio Diary’ effectively engaged the cohort with their learning tasks outside the scheduled studio sessions. An analysis of students’ participation in the online assignment indicated that the ‘Online Studio Diary’ actively engaged 69% of the student cohort, while an additional 20% also met the satisfactory requirement for the assignment (Figure 2). Students’ engagement with the ‘Online Studio Diary’ fluctuated throughout the semester. The number of entries inclined in the lead up to an assessment due date, generally peaking the week before the assessment item’s submission date. Entries then declined the week that an assessment item was due, before gradually increasing each week in the lead up to the next assessment due date. These trends in the quantity of diary entries highlights the correlation between the ‘Online Studio Diary’ and students’ learning tasks, indicating that students gradually increased their work commitment for the course as assessment deadlines loomed closer. Furthermore, students’ comments on their peers entries tended to follow the trend of online diary entries. Like diary entries, comments peaked the week prior to assessment deadlines. Moreover, the week before assessment due dates also saw an increase in the number of images uploaded. This highlights a correlation between the quantity of entries and images uploaded and the quality of comments. Further, the link between entries, comments, images and assessment deadlines indicates that students gradually engaged with each new learning task outside of studio sessions.

**Students’ uses of the online diary** Beyond simply making diary entries to document their work progress, students used the ‘Online Studio Diary’ in a number of ways to engage with the learning tasks and interact with their peers. Students used the online assignment to: ask questions, provide encouragement to their peers, share tips, reflect on what they had learned, solve problems, get feedback and organise ‘work dates’ with other students. Figure 3 indicates that the online diary
was most commonly used by students to seek assistance when they required it, followed by providing encouragement and sharing their knowledge. While figure 3 does not indicate the occurrence of the online diary to compare progress, this is however reflected in the larger number of students views\(^8\) of the online diary, with the online diary being viewed on average 137 each week (in average 4 times by each student). Further, students recognised the value of the online diary, with a student stating that they “… think this online diary is a great concept to check in with you guys [other students of the course] and [b]ounce ideas of each other.” This showcases that the ‘Online Studio Diary’ was successful in establishing an online community for students enrolled in the studio course. Moreover, the range of students’ uses of the online diary supports the effectiveness of the online assignment in achieving the CoI framework (Garrison et al., 2010). The online assignment’s effectiveness in achieving a cognitive presence is evident through students’ use of the online diary to give feedback on each other’s work, solve problems, answer questions and provide tips to their peers. Students’ use of the online diary to encourage others, organise work dates, and share their progress shows the blog’s effectiveness in achieving a social presence.

**Students’ primary use and associated behaviour patterns**

Given the range of uses students had for the ‘Online Studio Diary’, a number of behavioural patterns were identified. Individual students primarily used the online diary for different purposes.

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\(^8\) Views reflects the number of times students just visited/accessed the online diary, it does not indicate any active participation.
These primary uses were identified and based on individual student's online behaviour patterns. Students were classified into one of the following groups: Problem solvers (7%), Encouragers (12%), Questions askers (30%), Tip sharers (19%), Reflectors (7%) and Limited participation (9%), Minimal participation (16%)\(^9\). Each of these primary use categories has distinct behaviour patterns (Table 1).

‘Problem solvers’ were the most engaged users. The large number of comments made by ‘Problem solvers’ suggest that they solved problems by directly responding to other students entries. Beyond this, the numerous images uploaded and views ‘Problem solvers’ made suggest that these students used the online diary to compare their progress with others and gain feedback on their ‘work-in-progress’ maps. ‘Problem solvers’ also used the online diary for a number of secondary purposes including providing encouragement, sharing tips and asking questions. This is evident as ‘Problem solvers’, when compared to the other classification groups, averaged the second highest participants in these behaviours. Considering these behaviour patterns, ‘Problem solvers’ align with Honey and Mumford’s (1992) activist learning style. ‘Problem solvers’ high level of activity in the online assignment suggests that these students learn by being involved.

<table>
<thead>
<tr>
<th>Primary Classification Types</th>
<th>Percentage of Student Cohort</th>
<th>Total Number of Entries</th>
<th>Comments</th>
<th>Tips Shared</th>
<th>Questions Asked</th>
<th>Encouragement Given</th>
<th>Problems Solved</th>
<th>Reflections</th>
<th>Images Uploaded</th>
<th>Views</th>
<th>Description of Task Undertaken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Solvers</td>
<td>7%</td>
<td>66</td>
<td>35</td>
<td>6</td>
<td>10</td>
<td>8</td>
<td>16</td>
<td>4</td>
<td>41</td>
<td>223</td>
<td>63</td>
</tr>
<tr>
<td>Encouragers</td>
<td>12%</td>
<td>89</td>
<td>30</td>
<td>8</td>
<td>12</td>
<td>20</td>
<td>4</td>
<td>10</td>
<td>51</td>
<td>219</td>
<td>71</td>
</tr>
<tr>
<td>Question Askers</td>
<td>30%</td>
<td>238</td>
<td>65</td>
<td>23</td>
<td>49</td>
<td>18</td>
<td>24</td>
<td>24</td>
<td>85</td>
<td>686</td>
<td>201</td>
</tr>
<tr>
<td>Tip Sharers</td>
<td>19%</td>
<td>129</td>
<td>34</td>
<td>24</td>
<td>11</td>
<td>13</td>
<td>12</td>
<td>16</td>
<td>46</td>
<td>341</td>
<td>120</td>
</tr>
<tr>
<td>Reflectors</td>
<td>7%</td>
<td>55</td>
<td>11</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>13</td>
<td>4</td>
<td>184</td>
<td>52</td>
</tr>
</tbody>
</table>

‘Encouragers’ were also highly engaged users. While students in this category made a large number of diary entries (an average of 18 per student) they also made a number of comments on their peers’ entries (an average of 6 per student). This suggests that encouragement is given to individual students as well as to the general group. Analysis of the encouragement given by students of this group found that 53% of the encouragement given was to individuals on their entries, particularly to those students who uploaded ‘work-in-progress’ maps. In addition to this, Encouragers’ secondary use of the online diary was to reflect on their learning process.

\(^9\)Some students equally used the online diary for multiple purposes. As a result the breakdown of the cohort differs to the graph that compares students’ engagement with the online diary.
'Question askers' were the third most active group of students. Question askers’ behaviour patterns suggest that this group of students occasionally sought feedback on their ‘work-in-progress maps’ and regularly checked the online diary to see if their questions had been answered. ‘Question askers’ also used the online diary to solve problems. The primary and secondary use of the online diary by ‘Question askers’ highlights that while ‘Question askers’ sought out assistance, they also helped others solve their questions.

‘Tip sharers’ and ‘Reflectors’ used the online diary the least (after those who were classified as Limited or Minimal participation). ‘Tip sharers’ made an average of 16 online diary entries and 4 comments indicating that these students tended to provide general tips, rather than specific tips to individual students. Additionally, reflecting on their learning process was the secondary use of the online dairy for Tip sharers.

‘Reflectors’ also made an average of 4 comments but a greater number of diary entries (an average of 18 per student). ‘Reflectors’ primarily used the blog to document and reflect on what they had learnt or experienced. ‘Reflectors’ viewed the online diary very often. This suggests that they may have used the online diary to observe the works of others before drawing their own conclusions. These behaviour patterns of ‘Reflectors’ align with Honey and Mumford’s (1992) reflector learning style.

**Students' perception of their use of the online assignment**

The correlation between students’ actual usage of the online diary and their perception of their usage was identified through the reflective online surveys conducted at the end of the semester. In order to understand how students perceived the new assessment, the reflective survey asked students about their primary use of the ‘Online Studio Diary’, what they liked most about it, and what they disliked most about it. Students perceived that they foremost used ‘Online Studio Diary’ to compare their work (Figure 4). While the content of students’ entries did not directly indicate that they used the online diary to compare their work, particularly in regards to students’ uploaded ‘work-in-progress’ maps, this is inferred by the large number of weekly views (an average of 4 times per week for each student), and students’ comments such as, “[l]ooking at some other examples I feel as though I may have missed a few things.” Therefore, there is a clear link between students’ perception of their use and their actual use of the online diary in regards to comparing their work.
Interestingly, students recognised the value of the online diary as an avenue to reflect. Students’ perception and actual use of the online diary as a place to reflect on what they had learned, matched (18% of the cohort). Students’ perception of the online diary as a place to reflect is evident through students mentioning that “reflecting on the day and just recapping what I have learnt so it was still fresh in my head” was the aspect of the online diary they liked the most. On the reverse, students underestimated their use of the online diary to ask questions (13%). Their actual use (21%) indicated that asking questions was the primary use of the online diary by the cohort.

Moreover, the aspect students liked most about the ‘Online Studio Diary’ was that they could compare their progress (47%), followed by asking questions (16%). This is evident through students’ responses such as “[b]eing able to see the progress of other students. It is then easy to tell if you are behind or ahead of schedule”, “… [y]ou (are) also able to get help with questions others have already been through”, “… having the ability to ask others for help whilst at home. I found that viewing other people’s work was helpful to check against my own progress” and “… I used online diary to ask questions and I would get very fast reply from classmate, which really helped me …”.

The online diary therefore served as a valuable resource to students, assisting them with managing their time-on-task and seeking and receiving assistance. Furthermore, this suggests that while students may undervalue the extent to which they used the online diary to ask questions, they valued the online diary as an important avenue to get help.

The relationship between online participation and academic performance

The link between students’ online participation and academic performance was evident. In the case of students overall grade for the course, 100% of students who achieved 75% or above made more
than 20 entries over the 13 week semester (were all active participants). At the other end of the scale, 62% of students who received 64% or less made a maximum of 12 diary entries over the 13 weeks (were minimal requirement or limited participants). Furthermore, 67% of students who made comments achieved 75% or above, while 17% of students who made comments received below 64%. Similar observations were recorded for each assessment item. This indicates that those students who actively participated in the online diary generally achieved better academic results. Further, those who had limited online involvement tended to have poorer academic outcomes. Thus, the online diary can be used to identify and support students at risk through observations of students’ online participation in an effort to enhance students’ academic performance.

The value of the Studio Online Diary to the teaching team

A place to track students’ progress
The ‘Online Studio Diary’ proved to be a valuable asset to the teaching team, helping them to better support the cohort. Foremost, the ‘Online Studio Diary’ was a platform to track students’ progress with the learning tasks. The electronic database of each individual student’s progress provided a mechanism to identify those students who were at risk and required additional support. Those at risk were identified through either their absence in the online environment or by the content of their diary entries which expressed concern, confusion or stress. The ‘Online Studio Diary’ provided clarity to the teaching team, allowing them to know where each student was at with the learning tasks before the commencement of the next studio session. This ensured that those who were behind the pace of the course were able to be approached and given support at the commencement of each weekly studio session. In the context of resource scarcity and increasing class sizes, the ‘Online Studio Diary’ therefore served as a valuable tool to assist the teaching team in effectively allocating their time and resources to support students at risk.

A place to identify cohort and individual concerns
The online assignment also proved to be resourceful in identifying cohort issues. Mid-week observations of the online diary provided an insight into students’ time-on-task. In some cases, the absence of online diary entries or the content of the entries indicated that a significant proportion of the cohort had not commenced work on a key element of the learning task (i.e. conducting site visits or starting the report). Consequently, a reminder email, indicating the time commitments of these aspects of the learning task, was sent to students. Thus, the online diary allowed the teaching team to bring important time-on-task matters to the attention of the class between weekly studio sessions.

Individual students concerns and issues were also raised via the online diary. In some cases a written reply to students’ online diary entries were made, providing an immediate response to individual concerns, such as confusion regarding report requirements. These matters were further followed up at the beginning of the next weekly studio session to ensure the students matter was addressed and that confusion was alleviated. Other situations saw students express that they would like clarification of specific aspects of the course content (i.e. scale) or expressed concern about the elements of an assessment (i.e. presentation). In these cases, the teaching team were able to talk with the student or group of students early on in the next studio session to provide clarification of content or discuss tactics the student(s) could employ to address their concerns and achieve their desired outcome. Thus, the online diary brought student matters to the attention of the teaching team, which may have otherwise gone unattended.
**A place to examine students’ written expression**

The online assignment was an avenue to examine students written communication skills. The online assignment enabled the teaching team to identify several students by the second week of the course that required extra assistance with written communication. These students were approached in class by members of the teaching team and were assisted with booking an appointment with university Learning Advisors to assist with improving their written communication skills. The requirement for students to make weekly entries thus provided a place to examine students’ written expression.

**A place to identify individual group work commitments/examine the dynamics of group work**

The online diary also provided an electronic record of each student’s contribution to group work. Students provided details of the work they completed, providing the teaching team with knowledge of each student’s individual contribution to group assessment. Beyond this, it also provided students’ reflections on their group members’ contribution. Issues such as group member contributions and difficulties organising group meetings were identified through the online diary entries. These issues were discussed with the group during the studio sessions. The online diary was therefore another source of information to identify students’ contribution to group assignments for mark allocation.

The uses of the online diary by the teaching team support the effectiveness of the online assignment in achieving the CoI framework. The online assignment effectiveness in achieving a teaching presence is evident through the teaching team using the online diary to confirm students understanding, share learning expectations and identifying and supporting at risk students and individual and cohort concerns.

**Conclusion**

The ‘Online Studio Diary’ represents an innovative approach to exploit the potentials embedded in the new technology. The new technology offers a range of creative flexible learning opportunities and enables learners to actively engage in the learning process, share and exchange ideas, receive ongoing feedback and improve their understanding and skills (Lewis et al., 2005; Yelland et al., 2008). However, the technology itself is rarely designed with teaching and learning principles in mind. As a result it is not always easy to achieve the desired educational outcomes from the perspective of learners’ and teachers’ needs (Harden, 2008). However, the ‘Online Studio Diary’ being based on a solid theoretical framework ensures that “pedagogy exploits the technology, and not vice versa” (Laurillard, 2009). In line with what has been already discussed in the literature, the learning technology design process for the ‘Online Studio Diary’ began from the point of view of user requirements, following a clearly identified learning issue (time-on-task). In other words, the design process was based on what is already known about what it takes to learn, and then challenged the technology to deliver the desired learning outcome (Jefferies et al., 2004). The new assessment could be understood as a much needed innovation in using technology for learning outcome. More specifically, the project focusing on a first year core course, enhances the quality of the first year experience, and provides more opportunities to identify and support students at risk. By increasing teaching presence, social presence and cognitive presence (Garrison et al., 2010) outside the classroom, the ‘Online Studio Diary’ facilitates the enhancement of learning and teaching practices, and offers an innovative blended-learning-based assessment design that has the potential to support strategic change.
References


