Instructional relationships within a web-based learning environment: Students’ perceptions in a Malaysian classroom

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Abstract

The tertiary education in Malaysia like many countries in the South-east Asia region has gone through a huge transformation since the enhancement of web technologies. With the easy access of Web 2.0 tools, learners are able to engage in meaningful social interaction that can be harness into the educational context. The shift towards active student-centred learning strategies has allowed educators to continuously transform their classroom into a more active and interactive learning environment. This study investigated the instructional relationships, created by the use of web 2.0 and multimedia technologies and using Laurillard’s (1993) Conversational Framework, between the teacher, students and technology. Results showed that using web 2.0 as a mediating component in the instructional process was interesting and effective for the student learning process and the Conversational Framework was successfully adapted in this learning environment.

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1. Introduction

Malaysia’s government has taking several initiatives to increase the role of science and technology education to achieve a develop country status by the year 2020 with a comprehensive 30-years plan to ensure that Malaysia becomes a developed nation in the new millennium to produce citizens who can apply knowledge in new domains and in different situations. The development of Information and Communication Technology (ICT) has given a tremendous boost in supporting new modes of delivery in training, teaching and learning within the last thirty years (Samuel & Zaitun, 2005). The utilization of ICT tools in education is increasingly felt in recent

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times and the utilization can bring a lot of advantages to both teacher and learner. ICT change the way teachers delivers content to students and students learn.

Research has shown that the traditional approach to teaching is of limited effectiveness (Jusoh & Jusoff, 2009), as emphasis is placed on theory without any practical and real life time situations (Ishak, Ariffin, Rosseni & Kari, 2002). This may lead to inadequate capability of handling different kinds of situations when students go out to the real world. In the traditional classroom, teacher is the one who delivers the lecturer content and controls the whole instructional process and the students listen to the lecture. Learners play a little part in their learning process and the learning mode tends to be passive. It has also been found by many teachers and students in most universities that the conventional lecturer approach in classroom is of limited effectiveness in both teaching and learning. Tan (2000), further noted that in order to address the development in education, there is a need to change the content of curriculum and the mode of delivering this curriculum to students. Laurillard (1993), stated that there is a need to look into university teaching and learning to promote effective teaching and learning and proposed a framework that emphasizes the importance of dialogue between student and teacher rather than the transmission of information from teacher to students which was used as a guide to design this study.

Addressing the issue of the passivity of students within traditional classroom settings has led to the development of student-centred learning environments and using constructivist learning approaches which are focused on giving the students control over their learning process and to develop their skills in active learning and problem-solving. As such, these approaches greatly affect the dynamics in the classrooms and the relationships between the students and the teachers (Jusoh & Jusoff, 2009). Laurillard’s Conversational Framework (1993) has been shown to be a framework that addresses the limitations of conventional teaching, and focus on the instructional relationships, defined as the “...learning process that will affect one another between teacher, student and technologies and how their roles changes in multimedia-mediated learning environment” (Laurillard, 1993), that emerge from the learning environments.

With the introduction of multimedia and web 2.0 technologies into the curriculum, these relationships become even more complex, sophisticated and deeper. Such inclusion of multimedia technologies into the classroom has changed the educational landscape and introduced important changes in the educational system and impact the way learners communicate information with each other (Muller, Lee & Sharma, 2008). With Web 2.0 technologies, educators can further ensure that students have access, collaborate, reflect on their learning, and be engaged with technology (Herrington & Kervin, 2007, Jusoh & Jusoff, 2009, Laurillard, 2002). However, technology alone will not replace intuition, good judgement and problem-solving abilities, and thus, there is a need for educators to adjust their pedagogical suit to the new kind of learner they are encountering in this new generation of digital-savvy students. According to Laurillard (1993), there are four main aspects of the teaching-learning process: (a) The teacher's concepts, (b) The teacher's constructed learning environment, (c) the student's concepts, and (d) The student's specific actions.

This study investigates Laurillard’s Conversational Framework in the context of a technology-backed classroom centred around a multimedia- and web-based project, to study these instructional relationships between students, teachers and the technology. The marriage of technology and a learning framework that emphasizes active participation through conversations and experiential learning would provide a deeper insight into these instructional relationships and create a community of learners mediated by multimedia and web 2.0 technologies.

2. Web 2.0 and web-based learning in the classroom

Web 2.0 is becoming the tools of choice to be use in education, particularly with the net generation (Jones & Cross, 2009). Web 2.0 technologies including social networking sites such as Facebook, MySpace,
Twitter, blog, content sharing site such as Youtube and Flickr change learners from passive to active. Web 2.0 empowers students, engage students and enhance communication skills with others, increase peer learning and to inculcate lifelong learning (Barnes & Tynan, 2007). Understanding how students learn today is important for teachers to understand not only for how to teach digital students but more importantly, for how teachers reach them (Prensky, 2001). Web 2.0 technologies including social networking sites such as Facebook, MySpace, Twitter, blog, content sharing site such as Youtube and Flickr change learners from passive to active, and are therefore becoming the tool of choice. According to O'Reilly (2007), Web 2.0 provides richer user experiences than web 1.0. Web 2.0 is a new generation of web-related technologies and standards. The current era of the Web is all about two-way communication, collaboration and the classroom is an ideal place to utilize these technologies (Ishak et. al., 2002).

With the expanding lexicon of Web 2.0 applications, the landscape of education has evolved from using technology to teach to using technology to construct knowledge. The current student body too has evolved to a more techno-savvy and techno-hungry users as social networking tools have become part of their social lives (Windham, 2005). As such, the need to include these techno-social tools into the classroom has become the focus of many research studies in the educational field. The advent of multimedia technology has also created a new arena in learning. Educators are beginning to switch their attention into the new directions through technology resources to motivate learning. In the process of multimedia learning and interaction, students were influenced by the way the material is structured, presented and processed and enabled them to participate and be involved with the content of the application (Kim & Gilman, 2008). With these emerging technologies, students were expected to learn in various ways other than the traditional “chalk & talk” teaching method. Moore (2008) urged teachers to consider a role to change by using projects as learning strategies and multimedia creates ideal environments for such activities in which learners are engaged in their learning process. In addition, web learning has become common in classroom teaching with most of the higher education institutions engaging in web learning or some form of online teaching.

Laurillard (1993) states that, "as an information and retrieval system, it [the Web] is a very well-designed medium" and can be used in addition to classroom teaching. In order to strengthen the face-to-face engagements between peers, stronger links between in-class and online environments needed to be created. In developing the student learning experiences, it is crucial to remember that an online connection is an important factor in forming a meaningful relationship and that physical interaction with peers is essential (McCarthy, 2010). Web 2.0, which includes social networking sites such as Facebook, MySpace, Twitter and blogs, empowers students, can engage students and enhance communication skills with others, increase peer learning and support in-class interactions (Barnes & Tynan, 2007). According to Hear (2006), the impact of web 2.0 is visible and teachers have started to use and explore the potential of blogs, social networking, and other social software which can empower students learning and create new way of thinking and learning opportunities. These tools allow teachers to share and discuss innovations more easily and, in turn spread good practice. It also allows students to become selectors, creators and collaborators while teachers have adopted the role of content shepherd, environment provider and facilitator, and enables them to interact and shift from passive learners to active and creative participation in multimedia content.

Laurillard's (1993) Conversational Framework was developed as a way of capturing the iterative, communicative, adaptive, reflective and goal-oriented actions with feedback that were necessary to support the complete learning process. The framework aimed to support the learning process by developing students’ understanding through reflection and adaptation in relation to a goal-oriented task, with feedback which are operated on a discursive level (discussion, conception, negotiation between teacher and students), where dialogues between teacher and student take place, and on an experiential level. (practice, action, application), where the process of adaptation and reflection of the discursive level occur.
The framework aimed to optimise the learning process by supporting the student in developing their understanding through reflection and adaptation in relation to a goal-oriented task, with feedback. It requires students to iterate through a cycle of attending, questioning, practising, adapting their actions, using feedback, reflecting, and articulating their ideas. Educators have used this framework as a basis to explore communication and discussions between students (Phillips & Luca, 2000) and of the mix of web technologies used in teaching. With the interaction and feedback gained from the teacher, students are encouraged and supported to understand the concept and objectives of their tasks and proceed to experiential level, which is where students will then implement their ideas and reflect on what they have done. It is the level where students involved themselves, and experience critical thinking skills, problem-solving skills and communication skills. The framework allows them to iterate through a cycle of attending, questioning, practising, adapting their actions, using feedback, reflecting, and articulating their ideas (Laurillard, 2002). As such, this Conversational Framework is adapted for this study to investigated these relationships when mediated by Web 2.0 and multimedia technologies.

3. Designing the web-based learning environment with Laurillard’s Conversational Framework

In this study, the learning environment was designed based on Laurillard's conversational framework. Laurillard maintains that the learning process must be constituted as a dialogue between teacher and student. Students are learning face to face in the class as well as learning using technology at their convenience time and place. Laurillard (1993) emphasized the importance of students getting feedback from their learning through reflection and adaptation in relation to a goal-oriented task, with feedback which is operated on two levels: discursive (upper half of the framework) and experiential level (lower half of the framework). On the discursive level, it is where all the discussion, conception, negotiation between teacher and students occur. With the interaction and feedback gained from teacher, it is to make sure that students understand the concept and objectives of the project and proceed on experiential level, which is where students work on their assignment. It is the level where students involved themselves, and experience which required critical thinking skills, problem-solving skills and communication skills. Figure 1 shows Laurillard’s Conversational Framework and Figure 2 shows the framework mapped to the learning environment.
This study took place at Multimedia University (MMU) and this learning environment applied to MCC 0023, Computer Graphics 2 course. The participants were 1st year students (Alpha year) from Faculty of Creative Multimedia (FCM). This course took 8 weeks to complete, total consist of 3 credit hours. These were students with little or no background in design foundations. The students’ ages ranged from 20-26 years old and consisted of 154 students (N=154) included mix of male and female. They came from different background and different races, consisted of Malay, Chinese, Indian and international students. The students were given a class project where The course design required students to form groups of 6 persons in a group and come up with a calendar design of their own choice. One group leader will be selected from each group. The calendar will have all 12 months and each member will be in charge of 2 months. In addition to the calendar, each group were required to create a blog to post and document the making of their calendars. The documentation would include ideation of the calendar and each of the months created. Students were encouraged to include their designs, sketches, ideation, and references to create the calendar. These blogs would be update continually on their work on their progress, ideation, information sharing, and would be maintained by each of the team members and team leaders. These blogs could be view by all the other members in class to comment and share opinions. Students now had the opportunity to share their ideas as well as their progressions with their fellow group members while cooperate with one another in order to complete the assignment. Here students would be able to reflect on their work and
make any necessary improvements before submitting their final application. Figure 3 shows an example of a group’s blogging progress, and Figure 4 shows an example of their final work.

Fig. 3: Students blogging on their progress on the calendar development and their peers’ comments during the collaboration

Fig. 4: The final output from one student team

4. Data analysis and results

A questionnaire was administered to gauge the student’s perceptions and attitudes on the learning environment. Questionnaires were measured in the Likert-type scale, the ranges for Likert-type scale are 1 - Strongly disagree, 2 - Disagree, 3 - Undecided, 4 - Agree and 5 - Strongly Agree and adapted from Burdett, (2003). The results of the survey were broken down into means (M), Standard Deviation (SD), and Percentage (%) of favourable
responses (i.e., scored between 4 and 5 on the scale). The results are presented according to the following categories: 1) Teamwork and collaboration, to gauge how well they communicated and collaborated with each other, where the effectiveness of student communication and collaboration would impact the instructional relationships among the students, and is presented in Table 1, and 2) role of the teacher, which would shed light on the interrelationships between the students and the teacher when in this learning environment, and presented in Table 2. The data was analysed with SPSS 18.0 and each category yielded a Cronbach Alpha of over 0.8, making them reliable (Lim, Khine, Hew, Wong, Shanti, and Lim, 2003). Student comments were also solicited to further support the findings.

Table 1: Survey items on teamwork and collaboration

<table>
<thead>
<tr>
<th>No</th>
<th>Items in the survey</th>
<th>(M)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I was able to cooperate with my leader</td>
<td>3.99</td>
<td>76.7</td>
</tr>
<tr>
<td>2</td>
<td>Class discussions generated close relationships between the students, teacher and vice versa</td>
<td>3.98</td>
<td>75.8</td>
</tr>
<tr>
<td>3</td>
<td>I enjoyed group discussions with my peers</td>
<td>3.92</td>
<td>76.7</td>
</tr>
<tr>
<td>4</td>
<td>I was able to cooperate with my team members</td>
<td>3.91</td>
<td>75.9</td>
</tr>
<tr>
<td>5</td>
<td>Class discussions helped me to understand the topic better</td>
<td>3.91</td>
<td>77.5</td>
</tr>
<tr>
<td>6</td>
<td>I learnt something from peer’s feedback</td>
<td>3.86</td>
<td>72.4</td>
</tr>
<tr>
<td>7</td>
<td>I was not afraid to speak out my opinions in my group</td>
<td>3.80</td>
<td>64.7</td>
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Cronbach’s Alpha =0.858

Student comments:
1. “Able to communicate with the leader, share and compare ideas and thoughts.”
2. “Great. We were able to communicate easily and finish work on time.”
3. “We had fun and good discussions. We enjoy working in the group.”
4. “Good. We have some problems at the beginning but after that we manage to solve it.”
5. “We have good relationship. Communication is the best to maintain our relationship.”
6. “My relationships with them are great. We share our opinions and suggestions to improve our project.”

Results from Table 1 showed that 77.5% of the students enjoyed having class discussions to help them understand their topic better (Item 5, M=3.91). 72.4% of students reported having learned from their peer’s feedback (Item 6, M=3.86), and being able to cooperate with their leader and team members (Item 1, M=3.99, 76.7% and Item 4, M=3.91, 75.9%). Furthermore, students enjoyed group discussions with peers (Item 3, M=3.92, 76.7%), which generated closer relationships among them, as they were able to contribute and voice their opinions (Item 2, M=3.98, 75.8%, and Item 7, M=3.80, 64.7%). The survey results were also supported by student comments, which showed that student found communications among their peers and leaders contributed considerably to their relationships and collaboration process.

Table 2: Survey items on the role of the teacher

<table>
<thead>
<tr>
<th>No</th>
<th>Items in the survey</th>
<th>(M)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The teacher played an important role in this class</td>
<td>4.22</td>
<td>91.4</td>
</tr>
<tr>
<td>2</td>
<td>Communications between the teacher and students were important to me</td>
<td>4.03</td>
<td>81</td>
</tr>
<tr>
<td>3</td>
<td>Conversations between teacher and peers were important to me</td>
<td>3.91</td>
<td>74.1</td>
</tr>
<tr>
<td>4</td>
<td>I enjoyed class discussions with the teacher</td>
<td>3.90</td>
<td>75.9</td>
</tr>
<tr>
<td>5</td>
<td>I learnt something from the teacher's feedback</td>
<td>3.88</td>
<td>75.9</td>
</tr>
<tr>
<td>6</td>
<td>I learnt best when I interacted with teacher and peers</td>
<td>3.85</td>
<td>74.2</td>
</tr>
</tbody>
</table>
Students’ comments
1. “As a consultant, source of advice and progress monitor.”
2. “To guide and help the students to understand better.”
3. “Act as a guide for our studies. Students have to take the initiative to learn for themselves.”
4. “Give us lecturer, explanation and as a consultant. Give us more useful information and tutorial.”
5. “The one who we can refer to when we have problems.”
6. “Motivate students; widen student’s point of view and knowledge.”

Results from Table 2 showed that 91.4% of the students preferred to have teacher in the classrooms (Item 1, M=4.22). Students also reported that communication and conversations with the teacher were important to them (Item 2, M=4.03, 81% and Item 3, 74.1%). Class discussions with the teacher were also enjoyable (Item 4, M=3.91, 75.9%) and students enjoyed giving responses when teacher asked questions (Item 7, M=3.53, 49.1%). Students learn from teacher's feedback (Item 5, M=3.88, 75.9%) and reported learning best with class discussions with teacher (Item 6, M=3.85, 74.2%). Student comments solicited also supported these findings, as students commented on the various types of assistance they received from the teacher during their learning process. It was evident from the results that students saw the teacher still playing an important role in the learning environment.

5. Discussion and conclusion

From the results of the study, students showed that they were motivated to learn in this learning environment. They had fun and thought that it was interesting to do web-based multimedia project with their peers. By working collaboratively in a group to complete the project they were able to gain real life working experiences and learned to communicate and collaborate with one another. They acted as creative learners and active learners, and gave their opinions and ideas in the group, something which was lacking in the conventional teaching and learning classrooms, and was consistent with Burdett’s (2003) finding that working collaboratively improves the learning process, builds friendships and sharing workloads. Students took on the role of supporter and helper to their peers to help solve problems together. Findings also showed that communication was everything, thus supporting Laurillard’s framework for conversation and dialogue. From the finding from the survey, 91.4% of students still preferred having the teacher in the classroom. Students reported that the teacher played an important role in their learning and enhanced the learning environment. However, in this environment, the role of the teacher evolved, as students preferred that the teacher act as helper, guidance and reference for them to help and assist them in explaining the multimedia project, learning content, and for providing them feedback, thus supporting Ashe & Bibi (2011) who stated that in such learning environments, the teacher’s role evolves to become providers of information, creators of communication spaces, facilitators of discussions, and designers of the environments. In addition, students found themselves in a two-way learning where communication and feedback occurred in the classroom as well as in web learning environment through blogs between them and the teacher, and amongst themselves as well, which facilitated increased productivity and collaboration. Their relationships became more transparent and dynamic, and the web 2.0 technology became an enabler for them to solve problems, communicate and collaborate. Giving and getting feedback was important to students, unlike in conventional classrooms, where the transmission of knowledge only occurs from teacher to students. With web 2.0 tools, students are able to obtain information anytime and anywhere. It moved from teacher-centric teaching to student-centered learning. Learning using web 2.0 showed the student learning process was more fun, challenging and motivating to them. Students were highly motivated to learn using technologies as they became active in the learning process. They showed that they were more willing to learn and explore in order to learn the content. They took the initiative to find out the answer for the problems, and became more confident in their learning. Learning using web 2.0 in the classroom had a positive impact on student
learning process. The findings thus extend the conventional teaching and learning to include the dialogue and feedback between teacher and students and between students to students, consistent with that of Phillips & Luca (2000), to provide educators with better understanding of the impact of technology on the teaching and learning process and their roles in new learning environments. Figure 5 presents the conceptual model of the instructional relationships in this learning environment, culled from the results of using Laurillard’s (1993) framework.

Fig. 5: The instructional relationships between teacher, students and technology

The study also showed that Laurillard’s (1993) Conversational Framework was an effective instructional guide for creating discourse and dialogue among the learners and the teacher. Mapping the framework to the group project and supported by web 2.0 technologies, to create this learning environment further strengthened the value the framework as practical guide to building engaging learning environments.

References


