DESIGNING A WEB-BASED MULTIMEDIA LEARNING ENVIRONMENT WITH LAURILLARD'S CONVERSATIONAL FRAMEWORK: AN INVESTIGATION ON INSTRUCTIONAL RELATIONSHIPS

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ABSTRACT

Classrooms today have received a significant overhaul with the inclusion of ICT and new learning pedagogies. Advancements in computing and multimedia technologies in education have resulted in an emerging breed of technologically proficient learners. Today's students are "digital natives' and very influenced by current digital environments for information acquisition, communication and interaction. Currently, many Malaysian classrooms still practice conventional teaching methods which pose many limitations to the student's learning process as interactions and communication processes are lacking. Therefore, there is a need for educators to adjust their teaching in order to suit the new generation of students and create learning environments that stimulate discourse, dialogue and engagement. In this study, Laurillard's Conversational Framework was adapted to investigate the interaction and communication processes between the students and teacher, mediated by multimedia and web 2.0. Results yielded several instructional relationships that showed that students experienced deep and meaningful learning when communicating and collaborating with each other, and that the teacher still played a central role in the learning process. The results provide encouraging support for incorporating dialogue and conversations in technology-backed learning environments.

INTRODUCTION: Changing dynamics of today's classrooms

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 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). In Malaysia, the Malaysian Government is taking several initiatives to progress accordingly with the initiative to increase the role of science and technology education to achieve a develop country status by the year 2020. In addition, there is a strong push by the Malaysian Government to develop creativity, communications skills, analytical and critical thinking, and problem-solving skills — skills that are significantly lacking in current graduates (Tan, 2000; Tan, Teo & Chye, 2009). This mismatch has prompted Malaysian educators to seek new ways to develop these appropriate skills and knowledge in students in order to meet the rising expectations of the knowledge society. Institutions of higher learning here in Malaysia have started meeting those challenges by integrating multimedia into various teaching and learning environments such as storytelling (Norhayati & Siew, 2004, Neo, Neo & Tai, 2007), problem-based learning (Hong, Lai & Holton, 2003), and web-based courses (Neo, 2005). However, the issue that still surround Malaysian education today is the need to adjust the way teachers deliver content and materials being presented in classroom, as many Malaysian classrooms are still very much curriculum-based and teachers practice conventional teaching methods. This creates instructional relationships and learning processes that lack of interaction and feedback between teacher and students, and of communication and collaboration (Philip & Luca, 2000; Jusoh & Jusoh, 2009; McLoughlin & Lee, 2010). Learners still play a passive role in their learning by being inactive in their learning processes. Therefore, educators in Malaysia are challenged to design a learning environment and curriculum that can encourage interaction, communication and collaboration among students and teachers, and increase their

motivation to learn and be independent in their learning process (Laurillard, 2008;, McLoughlin & Lee, 2010; Bower, Kennedy, Dalgarno, & Lee, 2011).

Even more challenging is the emergence of a new breed of technologically proficient learners, known as "digital natives". These students are very much influenced by these digital environments (Prensky, 2001) and depend heavily on technologies to gain information and carry out interactions with others (Oblinger, 2003) and thus have high expectations of the learning methods delivered and presented. Teachers are thus challenged to find innovative approaches to engage students in their classrooms and keep them involved in the learning materials, and make rational changes in their educational practices (Ditcher, 2001, Oblinger, 2003, Debressa, 2006). Laurillard (1993) posited that universities should rethink their educational strategies and teaching practices, in the face of these emerging technologies, in order to take advantage of the changing classroom dynamics. As such, challenges facing education now include creating new ways of using new technologies in teaching and learning that would satisfy and complement the new requirements for students (Damodharan and Rengarajan, 2007, Laurillard, 2008, Kimber & Wyatt-Smith, 2010). New paradigms for teaching and learning are being introduced to address such issues. Research finding in recent years, stated the importance of encouraging student to control the learning process as a whole (McLoughlin & Lee, 2010). One model that has been developed to address this was the Conversational Framework by Laurillard (1993). The Conversational Framework consisted of a balance set of learning experiences to students, and an emphasis on having dialogue in the student learning process. In other words, the learning process must consist of a combination of discursive, adaptive, interactive and reflective activities (Laurillard, 1993) to effectively engage students in deep meaningful learning.

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 can change the educational landscape and impact the way learners communicate information with each other (Muller, Lee & Sharma, 2008). With multimedia, the marriage of content and technology not only provides the teacher with a more effective way to transfer knowledge and information to students, but also enables them to have more flexibility and scope in communicating instructional materials effectively to the learners, and for students to learn in more productive ways (Hillis, 2008; Kim & Gilman, 2008). It can also foster collaborative efforts, created scaffolds, allowed reflection, allowed students to focus on the depth of the situation rather than the breadth of it, and enable them to become more responsible for their learning via its asynchronous mode of access and delivery (Keengwe, Onchwari, & Wachira, 2008). 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 students and peers, stronger links between the activities in the classrooms and in the virtual environments need to be generated. Web 2.0, which includes social networking sites such as Facebook, MySpace, Twitter and blogs, have been shown to engage students and improve their communication skills with other students, and increase their interactions and peer support during the learning process (Hear, 2006; Barnes & Tynan, 2007). They also allow students to become "selectors, creators and collaborators while teachers have adopted the role of content shepherd, environment provider and facilitator", and enable them to interact and shift from passive learners to active and creative participators in multimedia content (Talandis, 2008). With collaborative tools like Facebook, students develop relationships over the discussions from formal critiques and informal social interactions (McCarthy, 2010; McLoughlin & Lee, 2010)

As such, further understanding of how technological tools can support student learning appropriately for a networked society (Laurillard, 2002; Oblinger, 2003; Prensky, 2007; Jones & Cross, 2009; McLoughlin & Lee, 2010; Price & Kirkwood; 2010) would provide a deeper awareness of the complexities in managing a dynamic learning environment. In addition, the combination of technology and a learning framework that emphasizes active participation through conversations and experiential learning would produce several instructional relationships that would thus provide a stronger insight into developing more dynamic and engaging learning environments and create a community of learners mediated by multimedia and web 2.0 technologies.

Therefore in this research study, Laurillard's Conversational Framework (1993) was adapted to a multimedia and web-based learning environment to investigate the communication and collaboration processes between the teacher, student and technology. The learning was designed around a multimedia and web-based \project which served to provide students with a platform to collaborate, communication and cooperate with members of their team, of other teams and with the teacher, to form a communicative community of learners.

Laurillard's Conversational Framework

The learning environment was designed based on Laurillard's (1993) conversational framework. Here, students combined learning face-to-face in the class with learning using technology. Laurillard's conversational framework was developed to guide and provide what learners needed and to explore how best to support their learning (Laurillard, 2008). Laurillard's Conversational Framework was a way of "capturing the iterative, communicative, adaptive, reflective and goal-oriented actions with feedback that were necessary to support the complete learning process" (Laurillard, 2008), as shown in Figure 1. The framework aimed to emphasis the learning process by highlighting the student's process of understanding learning content through their reflection and adjustment of information with respect to their tasks, as well as with feedback from the teacher. There are two levels on which this process occurs: A discursive level and an experiential level. On the discursive level, which constituted the upper part of the framework (theory, ideas, concepts, and principles), discussion, conception, negotiation between teacher and students occur, and the learning process constituted a dialogue between teacher and student. At the experiential level, which constituted the lower part of the framework (practice, action, application), the process of adaptation and reflection of the discursive level occur.

(a) Discursive level
In the discursive level, teachers express the ideas and concept of the tasks at hand. The students then have the chance to question and express their own ideas. The process then continues with students and teacher engaging in an iterative process of challenging each other's views until students reach a final understanding of the concepts. (Laurillard, 1993).
(b) Experiential level
In the experiential level, students transform their conceptual understanding into a practical adaptation of what was discussed and reflected. For the teacher, this level represents modifications and adjustments of the learning environment based on the discussions with students earlier. The teacher then modifies and suitably adapts the learning environment to the student's needs culled at the discursive level so as to support them at the experiential level (Laurillard, 2002).

In other words, in order to support the complete learning process, the learning environment would have to offer the following: (1) a working environment (2) a task goal (3) learner actions (4) meaningful feedback (5) learner revisions (6) the chance to adapt and reflect in the light of experience (Laurillard, 2008), blending both theory and practice. Laurillard's Conversational Framework included four important components (1) Teacher's concept, (2) Teacher's constructed learning environment, (3) Student's concept, and (4) Student's action. With the interaction and feedback gained from teacher, students would better understand the concept and objectives of the project and proceed on experiential level, where students would then work on their assignment. It is at this level that students would involve themselves, and acquire experience in critical thinking skills, problem-solving skills and communication skills. The framework requires them to iterate through a cycle of attending, questioning, practising, adapting their actions, using feedback, reflecting, and articulating their ideas (Laurillard, 2002). Figure 1 shows the Conversational Framework design which was adapted to this study.
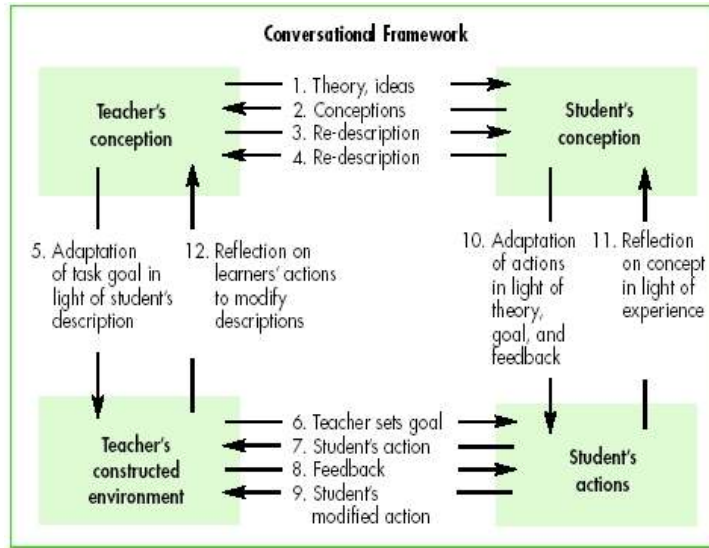
Figure 1: Laurillard's Conversational Framework (Source: Quinn & Reid, 2003)

DESIGNING THE CONVERSATIONAL LEARNING ENVIRONMENT

In adapting this framework, subjects from Multimedia University (MMU) taking an "Interactive Multimedia" course were used in this study. The participants were undergraduate students in the second year of their degree course from the Faculty of Management, Faculty of Information Technology and Faculty of Engineering. These were students with little or no background in design foundation. There were 42 students (N=42), which consisted of local and foreign males and females. The course design required students to create an interactive website (an online magazine) using multimedia elements such as Adobe Flash, Adobe Photoshop, Adobe Illustrator and Dreamweaver and they were given 14 weeks to complete the assignment. The course combined face-to-face lectures with interactive modules to allow students to learn asynchronously online, a multimedia- and web-based project to enable students to develop with multimedia and web tools, and collaborative activities through social networking and web-blogging to enable students to communicate and collaborate online on their project.

This course project was group-base and required students to also develop the interactive multimedia project using multimedia and web 2.0 tools. There were 9 groups with 4-6 members and 9 group leaders were appointed for each of these groups. As part of their collaboration, students were required to choose their own leader and the theme/title of their magazine. Each of the group was required to design one section of the magazine. At the end of the project all the sections will be combined and linked to a main page. In addition to that, students were also required to create a Facebook page for the magazine to comments, news, pictures, and updates of their project. This was to give the magazine an online presence in a popular social media website, and allow for more comments to be given outside of the classroom environment. In order to document their development progress, each group was required to create a blog for their work using a Web 2.0 blog application and manage their project's discussions there, as well as posting their development of the assignment. The blog had to be updated constantly by each of the group members as part of their weekly progress, monitored by the Group Leader. The blog could be viewed by all the students to make comments on. In this learning environment, the face-to-face classroom teaching approach was expanded to also include online learning, web-blogging, social networking, and collaborative activities.

Furthermore, the 12 areas of focus of Laurillard's Conversational Framework in Figure 1, which constituted the areas of conversation and discussion among students, and the areas of adaptation and reflection of what was discussed, were mapped to the development of their project. Figure 2 shows the mapping of Laurillard's Conversation Framework to the class design.
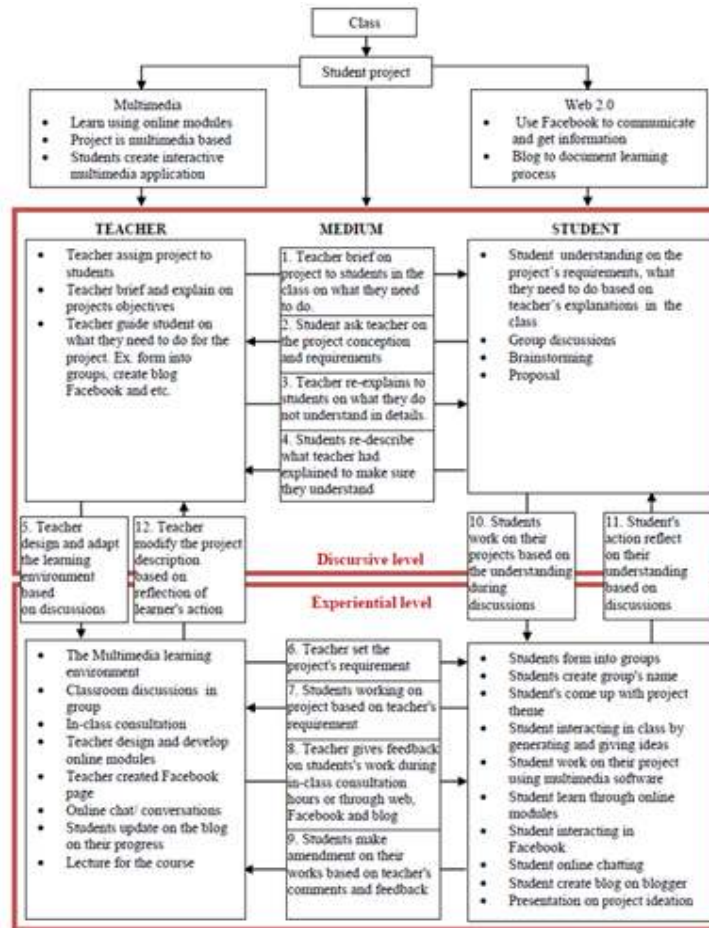
Figure 2: Mapping Laurillard's conversational framework into class design

At the end of the project duration, students completed and submitted their multimedia and web project. Figure 3 shows an example of on student group's application of a travel magazine website, Figure 4, the blog that they created for the project, and Figure 5 shows the Facebook page used for communication.

Figure 3: Student final work – A travel website

Figure 4: One student group's blog

Figure 5: Students' Facebook page

ANALYSIS OF RESULTS

Students were given a survey questionnaire, which was adapted from McCarthy (2010) to gauge their perceptions about the learning environment. The questionnaires were measured using a 5-point Likert scale, ranging from 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree and 5 = Strongly Agree. Their comments were also solicited in order to obtain deeper feedback on their perceptions, as well as to examine their relationships with the teacher, other students and with the technology. The results would provide insight to the interrelationships between teacher and students, when mediated by multimedia and web 2.0 technologies.

Table 1: Means of survey items on motivation

Item in the survey	(M)	(SD)	(%)
Multimedia helped me to understand topics better	4.38	0.62	92.2
I enjoyed learning with multimedia	4.36	0.69	88.1
I liked to contribute ideas in my group	4.29	0.64	90.5
The multimedia project is challenging but motivating	4.26	0.63	90.5
I was able to motivate myself to complete my work	4.17	0.7	83.3
Interactions with online multimedia modules motivated me to learn the content	4.14	0.75	88.1
I was able to actively participated in class activities	3.88	0.8	76.2
Cronbach Alpha = 0.766			

Student comments
"Make me more motivated to learn."
"Challenging but motivating. I had fun and great experiences."
"I feel motivate in myself and it is very interesting."
"Every team members are highly motivated. We had fun working together and the leader was able to divide the task properly."
"It is interesting and fun. I am motivated to learn with this learning environment."
"I felt interesting and not bored. It makes me want to learn more."
 "Stressful yet interesting and motivating."
"I felt happy and motivated."

Table 1 presents students have high motivation to learn in multimedia-mediated learning environment. Students think that multimedia helps them to understand the topic better (Item 1, M=4.38, SD=0.62) and they enjoy learning with multimedia (Item 2, M=4.36, SD=0.69). Students reported that they think that the multimedia project is challenging but motivate them to learn (Item 4, M=4.26, SD=0.63) and to complete their work (Item 5, M=4.17, SD=0.7). Students also reported that they like to contribute ideas in the group (Item 4, M=4.29, SD=0.64) and they are able to actively participated in class activities (Item 7, M=3.88, SD=0.8). Students think that interactions in the online modules motivated them to learn the content (Item 6, M=4.14, SD=0.75).

Student comments also supported these findings. From their comments, students learned to be more independent in their learning process when exposed to a more authentic and relevant learning environment such as this. Most of the students were experiencing doing a multimedia project for the first time and found the project to be fun and interesting while at the same time being challenging. In doing so, they became more engaged and involved.

Table 2: Means of survey items on teamwork & collaboration

Item in the survey (N=42)	(M)	(SD)	(%)
Class discussions generated close relationships between the students, teachers and students vice versa	4.24	0.63	90.5
I was able to cooperate with team members	4.24	0.76	85.7
I was not afraid to speak out my opinions in my group	4.22	0.91	80.5
I learnt something from peer's feedback	4.19	0.59	90.5
I was able to cooperate with my leader	4.19	0.89	81
I enjoyed group discussion with my peers	4.07	0.75	85.7
Class discussions helped me to understand the topic better	4.05	0.8	76.2
Cronbach Alpha =0.861			

Student comments
"I liked to work as a team."
 "I felt its help me in my learning and I enjoyed working in a team."
"Team communication is very important."
"Good. Can learn something new and strengthen our friendship."
 "I can share my opinions."
"I don't really enjoy it as I am not a social person. But in this group was very different, I really enjoyed it."
"I feel great! We faced problems and solved it together although feeling very tired."
"Team work is very important."

In this teamwork & collaboration construct in Table 2, students were measured on their teamwork spirit in completing their project and willingness to collaborate with one another. Students reported that class discussions generated close relationships between teacher and among students (Item 1, M=4.24, SD=0.63). They were not afraid to speak out their opinions in the group (Item 3, M=4.22, SD=0.91) and they learned from peer's feedback (Item 4, M=4.19, SD=0.59). Results also showed that they are able to cooperate with leader, team members ((Item 5, M=4.19, SD=0.89, Item 10, M=2, SD=0.76). Students reported that they enjoyed class discussions with peers (Item 6, M=4.07, SD=0.75), which helped them understand the topics better (Item 6, M=4.05, SD=0.8). Results from the survey showed that students were able to achieve their learning goals through team and collaboration with teacher and peers. Students reported that communication between one another plays an important role in order to complete their tasks and to avoid any misunderstanding in order for them to learn the contents. These were also supported in their comments. In their feedback, students commented that they learned to work in a group with other team members, learned about group responsibilities to commit and finish up their

work. It also showed that students enjoyed working in a group, with a majority of them commenting that they communicated well. Their relationships between one another were important factors in their project development process and they were willing to help each other. They felt less pressure by working in group, as team members were able to share ideas which, in turn, led them to feel more motivated to move on.

Table 3: Means of survey items on web-mediated learning

Item in the survey (N=42)	(M)	(SD)	(%)
I enjoyed learning in a multimedia mediated learning environment	4.33	0.65	95.3
The multimedia assignments enhanced my learning process	4.19	0.55	92.9
I understood the topic better after using the multimedia modules	4.19	0.74	85.7
I understand the subject matter better after the multimedia project development	4.19	0.7	83.3
I like to learn with online multimedia modules	4.17	0.79	85.7
I was able to understand teacher's lecture	4.02	0.69	83.3
I used instant messaging to communicate with others	4.02	0.78	81
Blogging allowed me to voice my opinions	3.79	0.81	71.4
Blogs assisted my creative thinking skills when doing my project	3.74	0.89	71.4
Comments on my blog entries were helpful	3.67	0.93	66.7
I found blogs were user friendly and easy to use	3.66	0.88	65.9
I liked to share my knowledge with others using blogs	3.64	0.85	61.9
Blogging helped in my learning	3.48	0.99	52.4
Blogs generated close relationships between the teacher and students vice versa	3.45	0.99	47.6
Cronbach Alpha = 0.824			

Student comments
"Easy for my understanding because I am a slow learner."
"It helped me to understand the topics better."
"I learned to find certain information by myself without any helps from others."
"Very helpful because information is at your fingertips."
"I can learn anytime, anywhere with internet connection and with a personal computer.
"It's better than learning using a book."
"Gain more knowledge and easy access to information."
"Help in researching information during the learning process."

Table 3 shows results that students have positive attitudes towards learning in web-mediated learning environment. Results showed that students enjoy learning in multimedia mediated learning environment (Item 1, M=4.33, SD=0.65). Students think that by doing the multimedia assignments it would enhances their learning process (Item 2, M=4.19, SD=0.55) and they find that they understand the subject matter better after the multimedia project development (Item 4, M=4.19, SD=0.7). Students reported that they like to learn with online modules (Item 5, M=4.17, SD=0.79) and understood the topic better after using the online modules (Item 3, M=4.19, SD=0.74). Students reported that they are able to understand teacher's lecturer in multimedia-mediated learning environment (Item 6, M=4.02, SD=0.69). They like to use instant messaging to communicate with others (Item 7, M=4.02, SD=0.78).

Students also reported that by using blog in their learning, it allowed them to voice out their opinions (Item 8, M=3.79, SD=0.81). In addition, blog has assisted students creative thinking skills when doing their project (Item 9, M=3.74, SD=0.89). It allowed them to share knowledge with others (Item 12, M=3.64, SD=0.85) and able to generate close relationships between teacher and students (Item 14, M=3.45, SD=0.99). Students think that blog were user friendly and easy to use (Item 11, M=3.66, SD=0.88) and the comments on the blog entries were helpful to them (Item 10, M=3.67, SD=0.93). Students find that using blog helped in their learning process (Item 13, M=3.48, SD=0.99).

Analysis of student feedback showed that multimedia allowed them to learn at their oen pace and improved their understanding. By being able to access the web, Facebook, blogs and online modules, student commented being able to asynchronously learn, and not be pressured to learn the course content within the physical local of the classroom. Students also liked sharing their knowledge using blogs and commented that the blogs helped them in their learning; that by using blogs to document their progress and communicate, they were more comfortable to voice out their opinions and ideas. It also enabled them to keep in touch with friends anytime and anywhere, and allowed those peers to comment on their work, even if they weren't part of their class. Students commented that they liked the flexibility to be able to stay connected anywhere and anytime and have unlimited access to internet to reflect on their work at any time, and to receive from and comment on any of their friends' work as well.

Table 4: Means of survey items on the teacher's role

Item in the survey	(M)	(SD)	(%)
The teacher played an important role in this class	4.52	0.59	95.2
I learnt best when I interacted with teacher and peers	4.21	0.72	88.1
Conversations between teacher and peers were important to me	4.19	0.89	85.7
Communications between the teacher and students were important to me	4.17	0.66	85.7
I learnt something from teacher's feedback	4.17	0.7	83.3
I enjoyed class discussions with the teacher	4.14	0.78	85.7
I enjoyed gave responses when the teacher asked questions	3.76	0.79	64.3
Online multimedia modules cannot replace teacher in classrooms	4.14	0.84	88.1
Cronbach Alpha = 0.785			
Student comments "Act as a guide for us if we don't understand. We can ask the teacher we don't understand and she will give us feedback." "Teacher is able to give instruction and feedback to us." "To motivate and guide students learning in multimedia environment." "Give us useful information and help us to understand better what we suppose to do." "The teacher was there to guide us and help us." "Guide us face to face." "The teacher is an expert." "Teacher playing an important role. She is the one who motivate us to learn more about multimedia." "Teacher assists us learning in multimedia learning environment." "The teacher's role is to guide and make us understand more about the content." "Teacher's role is to give more explanations about the content and help in learning process."			

Results in Table 4 showed that teachers played in important role in the students' learning process (Item 1, M=4.52, SD=0.59, Item 7, M=4.14, SD=0.84), regardless of the technologies used, and that conversations/communication between teacher and students were important to them (Item 3, M=4.19, SD=0.89, Item 4, M=4.17, SD=0.66). This finding is consistent with Laurillard's (2002) suggestion that in order for students to learn the learning content, communications between teacher and peers should play an important in part of their learning process. Students also reported that they learned from teacher's feedback (Item 5, M=4.17, SD=0.7) and that they learned best when interacted with teacher and peers (Item 2, M=4.21, SD=0.72). Students reported that they enjoyed class discussions with teacher (Item 6, M=4.14, SD=0.78).

Students comment that they saw their teacher's role positively as a guide and a facilitator, and a key component in keeping them motivated and engaged. In their comments, students looked to the teacher as a motivator, facilitator, resource guide, and an important to the effectively learning environment.

DISCUSSION
Results from the study showed that overall there were very positive attitudes and perceptions of the learning environment and in the project development process. Clearly students enjoyed learning with multimedia and web technologies, but they preferred having the presence of the teacher in the class as they need feedback and guidance from them. Technology became an enabler for them to create, communicate and develop applications as well as relationships with their peers and the teacher. By creating a learning environment that emphasized conversations and dialogues between students and teacher, mediated by multimedia and web technologies, the Laurillard Conversational Framework yielded several interrelationships between the teacher, students and technology. Figure 6 illustrates the resulting relationships.
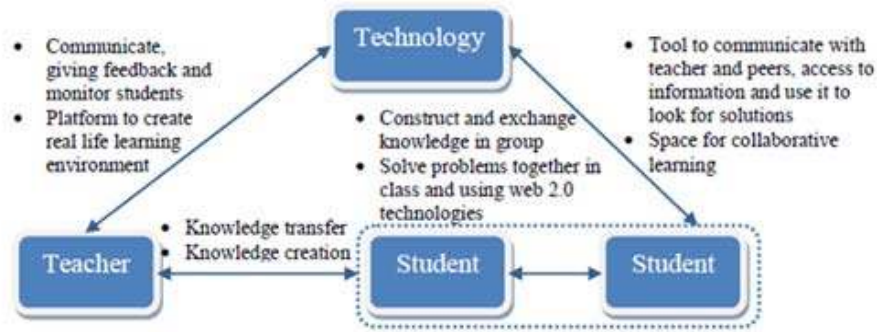
Figure 6: The instructional relationships in the learning environment

1.   Between students and teacher

Results showed that the teacher played an important role in the learning environment. This relationship was characterized by knowledge transfer and knowledge creation. The learning process between the

teacher and students involved the teacher playing an important role in their learning process as a guide, facilitator, coach, consultant and helper to students at the beginning of the project.   As indicated in the framework, teachers were responsible for giving clear instructions to students, and involved in facilitating collaborations between students and their peers. They also encouraged students by providing support and feedback in class and online interaction, monitored student's learning process using Facebook and blog, and provide formative assessments and evaluate student's progress during the project development. As commented by students, the teacher acted as a resource, guide, consultant and facilitator, much of which took place through emails, blog and Facebook. On the part of the student, by understanding the concepts afforded by the teacher, they were able to create and develop ideas from their feedback, and progress further in their project development. This promoted active learning, engagement and two-way communication between the teacher and student, enhancing the previously traditional teaching method.

2.   Between students and students

The relationships among students were characterized by collaboration and communication.   Students constructed ideas and concept together, and members made an effort to assist each other. Group members were able to harness their creativity and positively contribute ideas to the project's concept through the collaborative processes incorporated in the class and asynchronously through emails, Facebook, blogs and online chats. Students engaged in negotiations and arguments during the decision-making process, communicated with peers through Facebook, blogs and online chats, and engaged in reflective dialogues. Thus, students cultivated collaborative experiences with other students, fostering teamwork and problem-solving skills, strengthening their relationships with their peers and groupmates. Students became motivated to learn on their own and became active participants in their learning process, as evidenced by their completed projects. Students were able to practice their problem solving skills, be independent and enhance communication skills by doing online discussion, getting feedback from online. In other words, their role changed and they active learners, creative thinkers, decision makers, problem solvers and collaborator.

3.   Between teacher and technology

Technology then became a platform for the teacher to adopt and encourage students to construct their own knowledge.   With multimedia and web 2.0 tools available, teachers were able to design the learning environment and provide real life experiences to students through the use of Youtube, forums and online videos and external websites. This allowed students to see the authenticity of their work and relate it to their knowledge construction. Assessments and progress monitoring also became effective as teachers were able to monitor student's progress using blogs, make project and class announcements using Facebook, communicate and give feedback to students using blogs and Facebook.

4.   Between student and technology

In this relationship, technology became a tool that enabled students to connect their topics to other relevant materials using online discussions in their blogs, thus improving their knowledge construction process and creating deep learning. Technology also allowed them to create a collaborative learning community among themselves and with the teacher. It provided a shared conversational learning space not only for individual but learning groups and allow them to access to information anytime and anywhere, which they then used to find solutions and answers. Multimedia technology allowed them to transfer their innovative and creative concepts from paper to digital applications, and provided them the motivation to present their information in a dynamic and visually appealing way. In addition, Web tools became a way for them to communicate, exchange and develop ideas. Facebook and blogs became the platform for students in this study to keep a record of their learning process and activities, participate in debate, discussions and negations with other students,

communicate with the teacher to ask questions, and to solve problems they otherwise could not solve when in class.

CONCLUSION

In conclusion, this study has shown that Laurillard's (1993) Conversational Framework was an effective framework to design a learning environment that would encourage improved student participation and engagement, and was able to yield several important interrelationships between the teacher, students, and technology. The incorporation of multimedia and web 2.0 technologies in the classroom were motivating for students to collaborate and communicate with each other, and enabled the teacher to make the learning process fun for students and also enables them to enjoy the learning process, consistent with research by Damodharan and Rengarajan (2007). These results show encouraging support for educators who are seeking to improve student engagement in technology-backed classroom.

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