Title
Web 2.0 supported example-based learning

Abstract
The aim of this project is to investigate the effectiveness of using Web 2.0 supported example-based learning strategies to enhance student learning experience. Web 2.0 represents the development and evolution of web-based communities and hosted services, which can maximise collective intelligence and add value for each participant by formalised and dynamic information sharing and creation. As Web 2.0 is a new platform that can potentially enrich students learning experience, we use this platform to test if and how this can actually help students achieve the best learning outcomes. The outcomes of this project include the survey instruments on Web 2.0 supported example-based learning, data analysis from the surveys, implementation of an example-based online learning environment, and reports and other publications to inform academic staff within the University and the wider community about the experience on Web 2.0 supported example-based learning.

1. Objectives
The goal of this project is to investigate the effectiveness of using Web 2.0 supported example-based learning strategies to enhance student learning experience. Enriching the experience of students is the highest priority for CQUniversity (CQUniversity, 2008). We use this project to explore improving students’ generic skills such as acquire, evaluate and use information effectively, solve problems and apply scientific reasoning, use information technology, function effectively as team members and as team leaders, and communicate effectively.

The project aims to:

- develop a survey instrument for asking students which technology and approach of implementing the technology can be used to facilitate example-based learning
- identify which technology in Web 2.0 suite can be used in example-based learning in course ECOM20002
- implement an example-based online learning environment by using Web 2.0 technology
- develop a survey instrument for asking students how Web 2.0 supported example-based learning can enhance their learning experience
- determine what impact Web 2.0 technology may have on improving students learning experience
• share insights and experiences across the University to improve academic staff 
engagement in using Web 2.0 technology and example-based learning approaches 
in their discipline areas.

2. Outcomes and significance
Project outcomes include:
• a survey instrument to ask students which technology and approach of 
implementing the technology can be used to facilitate example-based learning 
• information based on survey data to determine which Web 2.0 technology can be 
used in teaching ECOM20002 course which will have wider application to other 
University courses 
• implementation of an example-based online learning environment by using Web 
2.0 technology 
• a survey instrument for asking students how Web 2.0 supported example-based 
learning can enhance their learning experience 
• reports and other publications to inform academic staff within the University and 
the wider community about the experience on Web 2.0 supported example-based 
learning

To ensure a quality learning experience, we can possibly use different technical 
approaches to support learning and teaching. In the course ECOM2002 that I am 
currently teaching, I have identified example-based learning can help student finish 
assessment items on time with good quality. I want to further explore the potential of 
Web 2.0 to assist student gain problem solving skills in this course.

Through this project, we find out whether Web 2.0 supported example-based learning 
will enhance student learning experience and how it can be actually implemented. The 
experience will be distributed to students and staff for discussion. Especially, we 
understand if it and how it can encourage contact between students and staff, develop 
reciprocity and cooperation among students, and encourage active learning. The 
outcome of this project is of vital importance not only to staff but also to 
implementing process of sharing good practice through sharing across schools and 
campuses. Another direct outcome of this project is one journal or conference 
publication.

The focus for this project is from CQU Management Plan for Learning and Teaching 
2007 - 2010: 2008 Edition where: “Student experience and support for learning and 
teaching…Enriching the experience of students is the highest priority for CQU… To 
ensure a quality learning experience, effective policies and systems must be in place 
to support learning and teaching. These include administrative and management 
systems, HR, ICT, library, learning support, and enabling programs.”

3. Context background – statement of the 
problem/issue to be addressed
ECOM20002, Security, Ethics, and Electronic Commerce Systems, is a recently 
redeveloped course. The new focus of this course is on Information Security 
Management, instead of introducing the general background knowledge on security
and ethics in e-commerce systems. In the area of Information Security Management, there are many standard procedures, models, and practices that students need to follow. As a result, example-based learning has been adopted as the learning and teaching strategy. Many existing examples and cases are used in teaching.

From the experience in term 2, 2008 we found that many students experienced difficulty in doing the assessment item 2, developing security policy. This assessment item requires that students develop a working issue-specific security policy. This demands not only the understanding of knowledge in security policy, but also the skills in using knowledge to create real security policy. The benefits of introducing this new assessment item include enhancing problem solving skills and gaining work-ready experience for students.

The staff in the other campuses of CQU also felt challenges in assessing students’ assignment. The reasons are the unfamiliarity with the assessment as well as the communications between students and staff. As Web 2.0 is a new platform that can potentially enrich students learning experience, we use this platform to test if and how this can actually help students achieve the best learning outcomes.

4. Conceptual framework
There are evolutionary trends in the use of World Wide Web technology and web design that aims to enhance creativity, information sharing, and collaboration among users (Wikipedia, 2008). Currently we have seen development and evolution of web-based communities and hosted services, such as social-networking sites, video sharing sites, wikis, blogs, and podcasting. These innovations are summarised as a single term: Web 2.0. The underlying idea of Web 2.0 is to maximise collective intelligence and add value for each participant by formalised and dynamic information sharing and creation (Høgg, Meckel, Stanojevska-Slabeva, & Martignoni, 2006).

The innovations of Web 2.0 provide us a potential platform for learning and teaching, in particular, for example-based learning. Example-based learning is a teaching philosophy that the knowledge can be explained by using very simple and concise sentences, examples, diagrams, or cases, understood easily with minimum special knowledge in the topic. The worked-out examples include problem description, solution steps, and final solution (Schworm & Renkl, 2006). Many people believe if teaching is not built on students’ existing knowledge and understanding, the teaching will fail to produce meaningful learning. The use of examples is often viewed as one of the effective means of teaching by many other people (Royer & Cable, 1976; Simons, 1984).

5. Methodology
We use the action research framework to conduct this research. Action research is a reflective process that allows for inquiry and discussion as components of the research (Ferrance, 2000). It is a collaborative activity among participants searching for solutions over which the participants can exhibit influence and make change. The framework can be illustrated as a planning-acting-observing-reflecting cycle as follows.
Ethical clearance has been approved prior to the commence of this project. In this project, we conducted 2-round action research cycles, which include 8 phases in total. In each of the phases, we carried out the following research tasks:

(1) Planning phase 1

Develop a pre-test survey instrument for asking students which technology and approach of implementing the technology can be used to facilitate example-based learning. The survey will cover the attributes such as participants’ age, campus, daily Internet usage level, and gender. Questions on Wikis, blogs, Facebook, Podcasting, and YouTube will be designed. We focus on how these Web 2.0 technologies can best facilitate example-based learning.

(2) Acting phase 1

Online pre-test anonymous survey will be conducted. The participants are ECOM20002 students in term 2, 2009.

(3) Observing phase 1

In this phase, we determine the feasibility of using Web 2.0 supported example-based learning based on the data collected through survey. We also determine the approaches to facilitate example-based learning.

(4) Reflecting phase 1

Based on the results from the previous phase, the Web 2.0 supported example-based learning environment implementation will be carried out. The details are which examples will be used online, what are the schedules of the online interaction activities for students, and the monitoring plan to measure students’ progress.

(5) Planning phase 2

We implement the Web 2.0 supported example-based learning environment. Research assistant will be involved to set up the website. In this phase, a post-test survey will be designed aiming for testing the perception, usefulness, and impact of the Web 2.0 supported example-based learning environment.
(6) Acting phase 2
Participants will use Web 2.0 supported example-based learning environment during their study towards the assessment item 2 - developing security policy. Interaction and communication among students and staff will be conducted to help students use the examples. The post-test online anonymous survey will be conducted. The anticipated participants are ECOM20002 students in term 2, 2009.

(7) Observing phase 2
In this phase, we determine the perception, usefulness, and impact of the Web 2.0 supported example-based learning environment based on the data collected through survey. We also determine how Web 2.0 supported example-based learning environment can enhance students generic attributes such as problem solving, communication, and critical thinking.

(8) Reflecting phase 2
Based on the results from the previous phase, report is written in this phase. A research paper will also be submitted to a referred international conference or journal. The report and research paper will inform academic staff within the University and the wider community about the experience on Web 2.0 supported example-based learning.

6. Result of pre-test survey
In Term 2, 2009, we conducted a survey to explore possibilities of Web 2.0 in ECOM20002. The survey was an online survey. Invitations of participation were sent to all ECOM20002 students. The online survey was anonymous and not obligated. Participation was strictly voluntary. The survey has 20 questions. The questions and the responses are shown in Appendix A. We received 40 responses. From the survey, we find that:

Finding 1 – ECOM20002 students actively use Web 2.0 technologies in their daily learning.
The survey shows that the majority (97%) of the students spend more than 1 hour per day on using Internet for their study. 44% of the students spend more than 3 hours per day on using Internet. The majority (79%) of the students frequently use YouTube. More than half of the students frequently use Facebook. Other Web 2.0 technologies that are frequently used are Wikis and Blogs. More than one third students frequently use Wiki or Wiki-like websites to get information to do their assignments. About one third students have their own Blog or frequently visit other people’s Blogs. All these facts demonstrate that ECOM20002 students actively use Web 2.0 technologies in their daily learning.

Finding 2 – ECOM20002 students want more interactive information sources to assist their learning.
The survey result depicts that ECOM20002 students want more interactive information sources to assist their learning. As we know, the course profile and the static course website are one-way information channels. The majority (82%) of the students want information sources other than the course profile and course website. More than half (60%) of the students believe online discussion between students and
lecturers will help students finish their assignment. Another question also shows that the majority (67%) of the students prefer video or audio demonstration over the text-based information. When being asked the question “I want more online communications” there is no “Disagree” or “Strong disagree” answer. In summary, ECOM20002 students are keen to get more interactive information sources to assist their learning.

Finding 3 – ECOM20002 students think Web 2.0 technologies can help them finish assignment.

Only 3% of the students disagree that “an online interactive learning environment will be very helpful”. In particular, the majority (71%) of the students believe that Blogs can be used to help them finish assignment. 62% of the students believe that Wikis can be used to help them finish assignment. Some other percentages of students think Facebook, YouTube, and Podcasting can be used to help them finish assignment. While the strength of Web 2.0 technologies is that they facilitate the collaboration and communication among people, the survey result clearly shows that the Web 2.0 technologies can help them finish assignment.

7. Implementation of the Web 2.0 supported example-based learning environment

According to the result of the pre-test survey, we implemented a Blog-based example-based learning environment. The website snapshot is shown in Figure 2. This Blog website is not a replacement of the course website, which is hosted in Webfuse system. However, the website is designed to facilitate the interactions and discussions among students and lecturers. It includes posts that show students the hints and examples for their assignment – developing security policy, the YouTube presentation to enhance the visual effect, and a reminder of the due date to students. Any student can provide comments on any of the post. The website was open to students two weeks before the due date. The reason of choosing the date is that two weeks prior to the due date is another due date for the previous assessment item. Students will be working on this assessment item after the previous one.

The examples are carefully chosen. Because the assignment is to develop real security policy for an organisation, some real working security policy examples are posted in the Blog. These examples span a wide range of security policies from system level security policy to application specific security policy. The examples are from industry, universities, and governments. Not only the existing policy examples are given, but also the process of developing security policy is demonstrated by different approaches. For example, the processes of developing security policy in different organisations are posted in the Blog. The underlying philosophy is to help students gain the knowledge of developing security policy and the skills to solve the problem in the defined scenarios.

The other function of the Blog is to collect information from students and provide feedback to them. According to the information from students, via email, their local lecturers, or this Blog, customised guidelines to finish this assignment were posted in the Blog. A timely feedback is very important to students. Therefore, the Blog is updated frequently.
8. Result of post-test survey

In the end of Term 2, 2009, we conducted a post-test survey to understand the impact of using Web 2.0 in ECOM20002 teaching. Like the pre-test survey, it an online and anonymous survey. Invitations of participation were sent to all ECOM20002 students. The survey has 10 questions. The questions and the responses are shown in Appendix B. We received 34 responses. From the survey, we find that:

Finding 1 – This Web 2.0 supported example learning environment effectively helped ECOM20002 students finish their assignment
The survey shows that the majority (94%) of the students agree or strongly agree that this Web 2.0 supported example learning environment effectively helped them finish their assignment developing security policy. Only one response disagreed this and another one response was neutral. It also shows that 94% of the students think this Web 2.0 supported example learning environment enhanced their learning experience. Only 2 responses out of 34 responses disagreed on this and their reasons are “no time” and “other forms of Web 2.0 can be used.”

Finding 2 – Web 2.0 technologies can enhance students learning experience in different ways
While most (94%) students agree that the Web 2.0 supported learning environment helped them gain authentic knowledge in information security, they show their viewpoints that Web 2.0 technologies can enhance students learning experience in different ways, such as developing reciprocity and cooperation among students, and getting prompt feedback from staff. More than half of the students agreed on the above two points. Some other students think this environment can effectively demonstrate examples. In particular, we received email feedback from students that they especially like the YouTube instructions as they are “easy to follow” and “good to see the course coordinator’s face”. 18% of the students think the Blog-based learning environment can foster interaction between students and staff.

Finding 3 – Web 2.0 technologies can help improve students’ generic attributes
The survey shows that the majority (99%) of the students agree that the Web 2.0 supported example-based learning environment helped them in enhancing their attributes. 82% of the students think that it enhanced their attribute of communication. 52% of the students think that it enhanced their capability of critical thinking. 24% the students think that it improved their problem solving skills.

9. Discussion

9.1 Benefits that Web 2.0 brings
The pre-test survey results generally provide the evidence of the possibility of using Web 2.0 technologies in ECOM20002 teaching. Students appear well motivated to use Web 2.0 technologies in their learning, and participation levels are high. Students’ acknowledge of Web 2.0 technologies has become part of their ‘normal acknowledge’. Students, by and large, accept the potential and effectiveness of the Web 2.0 technologies for enhancing their learning. This supports the view that the need for Web 2.0 technologies to facilitate the engagement of both students and lecturers, and that Web 2.0 technologies can be included in the routine processes of course development of ECOM20002.

Web 2.0 technologies’ strength is to facilitate interaction, communication, and collaboration. Instead of waiting for the final solution, the Web 2.0 technologies can provide students with interactive help on each step of problem solving. The level of help can vary from signalling about a wrong step, to giving a hint, or to executing the next step for the students. Therefore, choosing an appropriate technology which can perform the above tasks is essential.
The post-test survey results demonstrate that the Web 2.0 supported new pedagogies can facilitate more effective ways of learning and teaching. Web 2.0 applications can support universities in their aim to produce independent, autonomous and self-directed students, e.g., learners who are able to set their own learning goals, develop strategies and plan how to achieve those goals, work towards realising the goals, either on their own or with others, and reflect on their learning processes and outcomes, in turn learning by that process of reflection. Of course, if the learner does not use the Internet, or has no motivation to use it, Web 2.0 technologies can be just some terminologies. However, fortunately the majority (91%) of the students frequently participated in the interaction provided by the Web 2.0 supported learning environment in ECOM20002.

Furthermore, as the post-test survey results illustrate, Web 2.0 technologies can be very powerful tools for diversifying and simplifying teaching, in particular by interconnecting students and lecturers. We believe that the interconnected knowledge exchange among the students and lecturers, enabled by Blog-based environment, does not only improve communication and collaboration among students and lecturers with the same topic, but also enhances professional development. The results on improvement of students’ generic attributes clearly prove this.

Access to the collaborative learning environment enables students to tailor their informal learning to their own interests, to access information of relevance to them, to communicate with people who can support their learning, and to share ideas and expertise within informal learning communities. We argue that different courses can be empowered to better understand the skills, resources and interests of students, including these people as experts and participants in more expansive networks of learning. The project involves students across five campuses and a group of FLEX mode.

9.2 Risks associated with Web 2.0

In this project, we used the Web 2.0 technologies such as Blogs, YouTube, and Google Documents. In fact, in most cases, Web 2.0 initiatives will make use of an external service provider – either an external service, like a publicly available Web 2.0 (e.g. blogspot, YouTube, MySpace, Second Life, Deli.cio.us, etc.) or some educational software, whether freely available or not, which is adapted to the particular educational context and only accessible within a closed environment (e.g. Moodle at CQUniversity). In both cases, problems arise concerning control and preservation of data. Franklin & Harmelen (2007) list the following risks:

1. Loss of content in case of the sudden termination of the service
2. No or insufficient back-up facilities, procedures and responsibilities
3. Sudden introduction of fees
4. Limited control by teaching staff, in particular over unacceptable use
5. Potential problems attempting to provide multiple versions

Copyright is another concern when we use Web 2.0 technologies in learning and teaching. Since Web 2.0 gives rise to content generation, re-purposing and consumption, many people will create and modify content, which may lead to questions as to who owns the content (Franklin & Harmelen, 2007). When anybody can use, create and publish content online, both conscious and accidental
infringements of copyrights and moral rights, and personal misunderstandings can occur (Ala-Mutka, 2008). Although copyright protection is automatic upon the creation of a qualifying work, many users of Web 2.0 technologies are not aware of this and mistakenly believe that because of the ability to create, share and adapt material, the Internet contains vast amounts of information that can be freely accessed and used (Franklin & Harmelen, 2007).

10. Conclusion

Web 2.0 technologies support innovation in learning and teaching in many ways such as changed cognitive processes and learning patterns, increased motivation, participation and the development of course-related knowledge, and enhanced graduate attributes. The outcomes of this project include the survey instruments on Web 2.0 supported example-based learning, data analysis from the surveys, implementation of an example-based online learning environment, and reports and other publications to inform academic staff within the University and the wider community about the experience on Web 2.0 supported example-based learning.

This project has investigated the effectiveness of using Web 2.0 supported example-based learning strategies to enhance student learning experience. We have tested if and how this can actually help students achieve the best learning outcomes. Web 2.0 technologies provide the platform of interactions and communications, which can be very beneficial to assist students to understand the knowledge in the course and apply it in finishing assignment. This project showed that students are keen to use Blogs and YouTube in their daily learning experience. This project also showed that the Web 2.0 supported example-based learning environment did effectively improved students’ learning experience.

References


Appendix A – pre-test survey results

There are 20 questions. We received 40 responses.

1) How many hours per day do you spend on using Internet?

<table>
<thead>
<tr>
<th>Hours per Day</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 hour</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>1 hour - 3 hours</td>
<td>21</td>
<td>54%</td>
</tr>
<tr>
<td>3 hours - 5 hours</td>
<td>11</td>
<td>28%</td>
</tr>
<tr>
<td>5 hours - 7 hours</td>
<td>5</td>
<td>13%</td>
</tr>
<tr>
<td>More than 7 hours</td>
<td>1</td>
<td>3%</td>
</tr>
</tbody>
</table>

2) What Web 2.0 technology do you frequently use?

<table>
<thead>
<tr>
<th>Technology</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wikis</td>
<td>14</td>
<td>37%</td>
</tr>
<tr>
<td>Blogs</td>
<td>8</td>
<td>21%</td>
</tr>
<tr>
<td>Facebook</td>
<td>22</td>
<td>58%</td>
</tr>
<tr>
<td>Podcasting</td>
<td>3</td>
<td>8%</td>
</tr>
<tr>
<td>YouTube</td>
<td>30</td>
<td>79%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>11%</td>
</tr>
</tbody>
</table>

People may select more than one checkbox, so percentages may add up to more than 100%.

3) Examples of developing security policies can help me finish the ECOM20002 assessment item 3 - developing security policy.

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong Disagree</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Neutral</td>
<td>10</td>
<td>26%</td>
</tr>
<tr>
<td>Agree</td>
<td>20</td>
<td>51%</td>
</tr>
<tr>
<td>Strong Agree</td>
<td>7</td>
<td>18%</td>
</tr>
</tbody>
</table>
4) I need examples that clearly demonstrate the procedures to develop security policies.

5) I want to discuss on how to develop security policies with my lecturer/tutor/peer students before I finish the ECOM20002 assessment item 3 - developing security policy.

6) I want information from sources other than the course profile and course website to finish the ECOM20002 assessment item 3 - developing security policy.

7) I need more detailed examples which contain steps to show me how to develop security policies as well as the developed security policies.
8) I believe the following approach/es can be used to help me finish the ECOM20002 assessment item 3 - developing security policy.

<table>
<thead>
<tr>
<th>Method</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wikis</td>
<td>21 62%</td>
</tr>
<tr>
<td>Blogs</td>
<td>24 71%</td>
</tr>
<tr>
<td>Facebook</td>
<td>8 24%</td>
</tr>
<tr>
<td>Podcasting</td>
<td>7 21%</td>
</tr>
<tr>
<td>YouTube</td>
<td>12 35%</td>
</tr>
<tr>
<td>Other</td>
<td>3 9%</td>
</tr>
</tbody>
</table>

People may select more than one checkbox, so percentages may add up to more than 100%.

9) A sample security policy in the course website is enough for me to finish the ECOM20002 assessment item 3 - developing security policy.

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong Disagree</td>
<td>3 8%</td>
</tr>
<tr>
<td>Disagree</td>
<td>10 26%</td>
</tr>
<tr>
<td>Neutral</td>
<td>11 29%</td>
</tr>
<tr>
<td>Agree</td>
<td>10 26%</td>
</tr>
<tr>
<td>Strong Agree</td>
<td>4 11%</td>
</tr>
</tbody>
</table>

10) I believe online discussion between students and lecturers/tutors will help students finish the ECOM20002 assessment item 3 - developing security policy.

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong Disagree</td>
<td>2 5%</td>
</tr>
<tr>
<td>Disagree</td>
<td>6 16%</td>
</tr>
<tr>
<td>Neutral</td>
<td>7 18%</td>
</tr>
<tr>
<td>Agree</td>
<td>18 47%</td>
</tr>
<tr>
<td>Strong Agree</td>
<td>5 13%</td>
</tr>
</tbody>
</table>
11) The examples with video or audio demonstration are better than the text-based examples.

<table>
<thead>
<tr>
<th>Strong Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strong Agree</th>
</tr>
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<tbody>
<tr>
<td></td>
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<td></td>
<td>14</td>
<td>36%</td>
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</table>

12) Teamwork is a better approach to do this assessment item than individual work.

<table>
<thead>
<tr>
<th>Strong Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strong Agree</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>0</td>
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<td>5</td>
<td>13%</td>
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<td></td>
<td>3</td>
<td>8%</td>
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<td></td>
<td>16</td>
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<td></td>
<td>14</td>
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13) I frequently use wiki or wiki-like websites to get information to do my assignments in other courses.

<table>
<thead>
<tr>
<th>Strong Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strong Agree</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td>9</td>
<td>23%</td>
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<td></td>
<td>6</td>
<td>15%</td>
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14) I have my own blog or frequently visit other people’s blogs.

<table>
<thead>
<tr>
<th>Strong Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strong Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15) I often miss the information from my lecturer through email because I do not check my university email account frequently.

Strong Disagree 15 38%
Disagree 15 38%
Neutral 5 13%
Agree 3 8%
Strong Agree 1 3%

16) An online interactive learning environment will be very helpful for me to finish assessment items.

Strong Disagree 0 0%
Disagree 1 3%
Neutral 10 26%
Agree 19 50%
Strong Agree 8 21%

17) I want more online communications with my lecturer/tutor/peer students.

Strong Disagree 0 0%
Disagree 0 0%
Neutral 16 41%
Agree 17 44%
Strong Agree 6 15%

18) Which is your campus?

Melbourne 10 26%
Sydney 16 42%
Brisbane 7 18%
Gold Coast 1 3%
FLEX 2 5%
Rockhampton 2 5%
19) Your age is in the follow range

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 20</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>20-25</td>
<td>25</td>
<td>64%</td>
</tr>
<tr>
<td>26-30</td>
<td>8</td>
<td>21%</td>
</tr>
<tr>
<td>31-35</td>
<td>3</td>
<td>8%</td>
</tr>
<tr>
<td>36-40</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>Above 40</td>
<td>1</td>
<td>3%</td>
</tr>
</tbody>
</table>

20) What is your gender?

- Female: 6 (15%)
- Male: 33 (85%)

![Gender Pie Chart]
Appendix B – post-test survey results

There are 10 questions. We received 34 responses.

1) The Web 2.0 supported example-based learning environment effectively helped me finish the ECOM20002 assessment item 2 - developing security policy.

- Strong Disagree: 0 0%
- Disagree: 1 3%
- Neutral: 1 3%
- Agree: 14 41%
- Strong Agree: 18 53%

2) I frequently participated in the interaction provided by the Web 2.0 supported example-based learning environment.

- Yes: 31 91%
- Other: 3 9%

3) I feel that the Web 2.0 supported example-based learning environment is good on

- Fostering interaction between students and staff: 6 18%
- Effectively demonstrating examples: 15 44%
- Developing reciprocity and cooperation among students: 23 68%
- Getting prompt feedback from staff: 18 53%
- None of above: 0 0%
- Other: 0 0%

People may select more than one checkbox, so percentages may add up to more than 100%.
4) The examples provided in the Web 2.0 supported example-based learning environment are relevant to this course

<table>
<thead>
<tr>
<th>Strong Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strong Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>

Strong Disagree 1 3%
Disagree 2 6%
Neutral 5 15%
Agree 14 41%
Strong Agree 12 35%

5) The Web 2.0 supported example-based learning environment helped me in enhancing my attributes as

<table>
<thead>
<tr>
<th>Problem solving</th>
<th>Communication</th>
<th>Critical thinking</th>
<th>None of above</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>28</td>
<td>18</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Problem solving 8 24%
Communication 28 82%
Critical thinking 18 53%
None of above 1 3%
Other 0 0%

People may select more than one checkbox, so percentages may add up to more than 100%.

6) Did the Web 2.0 supported example-based learning environment enhance your learning experience?

Yes 32 94%
Other 2 6%

7) Did the Web 2.0 supported example-based learning environment help you gain authentic knowledge in information security?

Yes 32 94%
Other 2 6%
8) Which is your campus?

- Melbourne 10 29%
- Sydney 11 32%
- Brisbane 4 12%
- Gold Coast 4 12%
- FLEX 3 9%
- Rockhampton 2 6%

9) Your age is in the following range

- Below 20 0 0%
- 20-25 2 6%
- 26-30 23 68%
- 31-35 9 26%
- 36-40 0 0%
- Above 40 0 0%

10) What is your gender?

- Female 5 15%
- Male 29 85%