Connecting Hotel ICON:
Developing multi-disciplinary experiences and reusable educational resources

Chloe Lau
School of Hotel and Tourism Management
The Hong Kong Polytechnic University
17 Science Museum Road, TST East, Kowloon, Hong Kong
chloe.lau@polyu.edu.hk

Pearl Shum
School of Hotel and Tourism Management
The Hong Kong Polytechnic University
17 Science Museum Road, TST East, Kowloon, Hong Kong
pearl.shum@polyu.edu.hk

Stanley Wong
School of Hotel and Tourism Management
The Hong Kong Polytechnic University
17 Science Museum Road, TST East, Kowloon, Hong Kong
stan.wong@polyu.edu.hk

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Abstract

This paper illustrates the new teaching and learning trend in the higher education field that aims to equip undergraduate students with practical skills in Hong Kong through the use of multi-disciplinary learning in an authentic environment and the possibility of implementation of students’ product that would be beneficial for the hotel and tourism industry. The School of Hotel and Tourism Management (STHM) initiated the “Connecting Hotel ICON: Developing multi-disciplinary experiences and reusable educational resources” project (the Project), working alongside with several other departments in The Hong Kong Polytechnic University (PolyU), including Department of Computing (COMP), Department of English (ENGL) and the Institute of Textiles and Clothing (ITC); to provide students with unique and valuable learning experiences in an authentic environment, through the use of the Hotel ICON, the newly opened research and teaching hotel built and owned by PolyU.

The Project allows students from each of the involved departments to participate in multi-disciplinary pilot projects, to learn from other disciplines while enhancing their own expertise and professional skills, and also gain experience in applying these knowledge and skills in the hospitality industry. Students from each of the participating departments with SHTM students’ contribution has developed reusable recourses that are either suitable in adapting in educational use as well as implementation in the industry. The COMP students developed the Delegated Management System and Banquet Management System for the use of events and conventions; ENGL students prepared invitation letters for participants of meetings and conference; and ITC students proposed innovative product design with improvement on hotel textile products.

Pre-course and post-course questionnaires were handed out to students that have participated in the various projects. The students indicated the project provided valuable experience in learning addition knowledge that is outside of their profession.
Introduction

Young adults are the new force of society. Undergraduate study is playing an important role in preparing them to meet the changing environments. The structure of the higher education system, with the establishment of departments and faculties, allow students to develop professional skills within a single discipline. Students are taught by scholars who are experts in the specific research area, and/or trained by professionals and experts with the necessary skills set of the field. Weingart and Stehr (2000) pointed out the establishment of disciplines is an intellectual method which permits the transfer of knowledge from one group to the next. Over the years, however, the provision of training on discipline development has been argued to be “narrow,” enabling only a partial exposure to knowledge (ASHEa, 2009). Many employers are now looking for knowledgeable potential employees that can handle challenges that are outside of their domain (Sager, Fernandez and Thursby, 2006). Graduates from these disciplines are in doubt to handle and build upon their career based on the skills they have learnt on their specific profession. They seem to be unprepared for the real world largely due to the lack of knowledge and experience outside of the discipline which one may be participated during their post-secondary education.

A newly adopted multi-disciplinary education trend is developing to cover a wider range of knowledge and experience, and better prepare students for the upcoming challenges after their graduation. Garner (1995) suggested multi-disciplinary work involve students participating in independent, discipline-specific team that conducts separate assessment, planning, and provision of services with little coordination; while each discipline would submit its their own findings and recommendations, working within the discipline-specific parameters and attaining discipline-specific goals for communication and information sharing at the end of the collaboration.
King (2010) suggested issues and concerns today are indeed complex and exceed the capabilities of any single discipline; it is often the combination of multi-disciplinary expert including politicians, environmentalists, economists and more to tackle one specific issue. Therefore the uses of curricula that involve one or more disciplines allow undergraduate students to “engage in critical thinking and synthesis beyond the capacity of a single discipline or major” (ASHEa, 2009). In a multi-disciplinary setting, students from each of the involved disciplines have the chance to participate in activities that require individuals from different disciplines to apply theories and concepts from their own disciplines to tackle and solve a common problem. One of the most noticeable features of multi-disciplinary project is its additive structure and parallel framework which differ from other cross-disciplinary, trans-disciplinary and inter-disciplinary education approach (ASHEb, 2009). The advantage of the multi-disciplinary education can lead to knowledge diversity; understand more in-depth team spirit and operation between different people (Webb, 1989; Wicklein & Schell, 1995; Robinson, 1997; Ratcheva, 2009).

This paper provides a brief introduction on the use of multi-disciplinary teaching approach which is capable in applying in the higher education structure. The paper also rapes up by a thorough discussion on possible improvements concerning the use of multi-disciplinary teaching approach.

Project Background

The School of Hotel and Tourism Management (SHTM) of the Hong Kong Polytechnic University (PolyU) has initiated a multi-disciplinary project “Connecting Hotel ICON: Developing multi-disciplinary experiences and reusable educational resources” to be the first to deliver the use of multi-disciplinary approach in PolyU. The project aims at providing collaborative multi-disciplinary learning experiences for PolyU students. Several departments from PolyU are involved in this project which includes the Department of
English (ENGL), the Department of Computing (COMP) and the Institute of Textile and Clothing (ITC). The involved departments each lead and developed collaboration student projects with SHTM to provide authentic learning experiences through the use of Hotel ICON, the learning and teaching hotel built by PolyU in 2010.

The Project allowed students to learn from other disciplines while enhancing their own expertise and professional skills, and also gain experience in applying these knowledge and skills in the hospitality industry. Participated students have been able to work towards specific subject learning outcomes in a shared teaching and learning context. Students are benefited from getting new resources, also be engaging in an authentic environment through interactions with peers and industry experts in other disciplines.

**Develop a Multi-disciplinary Student Project**

A project team had been established with representatives from each of the involved departments to carry out the multi-disciplinary project. The role of these representatives was to ensure smooth coordination and implementation during the project. Other team members from the SHTM were also involved during the operation process of the pilot project.

A series of linked multi-disciplinary student projects were initiated as the primary strategy to build collaboration between the involved departments. During the initial planning stage, the project team would first need to study and examine the background information related to the subjects that were being offered by the participating department. The team would then propose possible collaboration project to subjects’ lecturers within the study area of the subject which could be linked and be beneficial to students from another discipline(s). Upon agreement by subject lecturers on running the proposed student projects, the project team would prepare a plan and schedule with different teaching and learning activities for the student projects. The subject lecturers would then incorporate the planned activities into their teaching schedule as well as their assessment scheme.
As the semester commence, briefing lecture(s) or guest lecture(s) would be conducted for students to ensure they are familiar with the upcoming collaboration with enough understanding and equip with knowledge required for the project activities. Different forms of groups would be formed in each of the subjects, and communication mechanism would be established for students to interact between disciplines. Throughout the project, students made use of the knowledge of their counterparts, interact and communicate with them and apply knowledge learned as the input of their own project to achieve multi-disciplinary learning experiences.

“Insert Figure 1 here”

**Collaboration Mode**

Multi-disciplinary student projects can be very flexible in its collaboration with other subjects. Sager, Fernandez and Thursby (2006) pointed out multi-disciplinary education could be carried out in different forms including group project in a single course to multi-year research project, where single course project is often used for students in the science and engineering disciplines. Due to the variation in the subject nature, the involving subject lecturers can modify the level of collaboration accordingly. Different kinds of collaboration mode had been carried out during the 2010/2011 and 2011/2012 academic years by the SHTM and various involved departments.

Mode 1 can be carried out in two different forms; where case 1 illustrates the use of one topic and case 2 presents the use of several topics in project implementation.

Mode 1 - Case 1:

One group of students from Department A gives input to different student groups from Department B for their project. The entire class would work on the same topic.

“Insert Figure 2 here”

“Insert Table 1 here”
There were 41 students from SHTM and 3 students from ITC. The SHTM students were required to focus on the three main categories of textile used in the hotel industry including textiles for bedding, bathroom and furnishing. SHTM students were responsible to discuss the 3Rs (reduce, reuse, recycle) concept in hotel industry and provide recommendations based on the knowledge obtain from their subject. On the other hand, the ITC students were asked to study the linens, towel, bathrobe and other textile materials from the Hotel ICON, and find out the specification of fabrics used in the hotel industry from the textile technology perspectives. ITC students then shared their knowledge in textiles to contribute to the SHTM students’ project. During the interaction, both groups of students exchanged knowledge from two different field of study and achieve the project objective, which is to provide students with a multi-disciplinary learning experience. According to the Pre-Course Questionnaires and the Post-Course Questionnaires, there is a significant gain in term of subject knowledge in the students own subject as well as the subject of the other department. Table 2 listed the detail statistic results. We also conducted a Focus Group interviews with the 3 ITC students during the end of the semester and positive feedbacks were received (Figure 3).

“Insert Table 2 here”

“Insert Figure 3 here”

Mode 1 – Case 1 is suitable when the number of students in each class is significantly different. With less number of students to arrange, this mode can be quickly assemble and implemented. Subject lecturers can use this as a trial model in multi-disciplinary student project implementation. Despite each of the student groups would still have student representatives in each group, students from Department A will have a heavy workload, subject lecturers are suggested to take into consideration of the assessment weighting when preparing the assessment criteria.
Mode 1 - Case 2:

More than one group of students would be formed from Department A. These groups would then give input to different groups from Department B. In different in the previous case, the groups from Department A would be given different topics to work with their counterpart student groups.

“Insert Figure 4 here”

“Insert Figure 5 here”

“Insert Table 3 here”

There were 104 students from SHTM and 28 students from ITC. SHTM students were asked to study different areas in a hotel through site visit and interviewing of Hotel ICON staff. They have observed the current use of textile products and the standard and requirements of those products used in Hotel ICON, and find out which are the most concerned about fire-resistant. Their founding was then presented to those students from the ITC. ITC students were then needed to develop a new textile product by using new technologies in textile products with the information presented by the SHTM students. Significant gain in term of subject knowledge in the students own subject as well as the subject of the other department was recorded in Table 4.

“Insert Table 4 here”

Mode 2:

One group of students in Department A to be paired up with another group from Department B

Mode 2 is the ideal collaboration mode when the numbers of students from both involving departments are similar. The formation of each student groups can have approximately the same number of students with different academic background. With such group formation, more creative topics can be given out with little restrictions. This is largely
because of the balanced setting of the student groups, where there will not be any domination during the collaboration process.

“Insert Figure 6 here”

“Insert Table 5 here”

There were 25 students in HTM4118 and 33 students in ENGL317. Groups were formed with students from both SHTM and ENGL. ENGL students were responsible to review and give comments to the conference website which is established by students from SHTM. Through this collaborative exercise, ENGL students had the chance to build up their competence on web-based writing and be able to understand the discourse features, principles and characteristics of online documents and desktop publishing. SHTM students were benefited from the comments and suggestions provided by the ENGL students and improve the conference website. As we had been given data on the knowledge gain using the two previous examples, more questions were being asked during the third examples. Instead of knowledge gain, it was found that positive feedbacks were given by the students under the listed items in Table 7. The difference between the two groups of students could be explained by the level of involvement elaborated in Lau et al. (2012).

“Insert Table 6 here”

Mode 3:

Multiple groups are formed with students from their respective department. Students from Department A, however, are formed in groups that are assigned with different tasks to be carried out. Department B would then be working and communicating to only one group of students from Department A.

Mode 3 can be considered as an advance level of a multi-disciplinary project as it involves multiple subjects during the collaboration process. This type of project is tailor made for the involved subject where students from each involved subject are carrying out a
specifically designed role interrelated with the other two (or more) subjects. Where greater involvement is needed from students to ensure smooth project implementation, it leads to greater responsibility from students as well as increased time needed and weight of assessment of the subject. In comparison, such collaboration mode is more interested when more activities and longer time are designated, where the outcome of the project should be more beneficial for participating students. Yet, the comparatively complicated collaboration activities require longer preparation time, and also likely increased administratively issues as more subjects and personal are involved in the project.

“Insert Figure 7 here”

“Insert Table 7 here”

There were 3 subjects (HTM4118, COMP320 and ENGL304) involved in the multi-disciplinary project. HTM students have been assigned to be the 11th Asia Pacific Forum for Graduation Students Research in Tourism (APF) and The International Convention & Expo Summit 2012 (ICES). They have requested the COMP students to develop some mini games which can link with the themes of Hong Kong tourism on the conferences website. Where groups were mainly formed with students from both HTM and COMP, students from ENGL were also invited to join the student groups, taking the role as the administrator during group meetings for minute taking and other activities.

“Insert Table 8 here”

**Discussion and Conclusion**

**Curriculum Plan and Assessment**

As one of the most unique and outstanding features of a multi-disciplinary student project is the interactive exercises between different disciplines’ students, the first step in project planning is to carefully study the involved subjects, it is important to ensure the planned interactive teaching and learning activities are greatly beneficial for participating
students that fit the objective of the subjects, which offer an unique experience that is not available in the tradition teaching approach. It is important to align possible learning outcomes with the respective pairing subjects when planning a multi-disciplinary student project. Also, it is critical to set learning objectives for the project and identify the benefits for involved students from different disciplines.

The designed students’ learning activities should stimulate students’ achievement of course concept and skills. Subject lecturers are often concern whether such innovative project could be beneficial for their students to gain additional knowledge and experience then the existing curriculum. The project’s activities should be able to promote students’ interpersonal skills. This is an important component in the implementation of multi-disciplinary project as students are required to interact with students from other disciplines. The common language and skills that are widely used in one discipline may not be commonly known in another discipline. It is necessary for students to be able to communicate with others with strong interpersonal skills to exchange professional knowledge throughout the collaboration process. While students are working alongside with multi-disciplinary expertise, students are able to gain experience and further enhance their critical thinking and problem solving skills.

The assessment method and criteria may be a major concern for both subject lecturers and students in the use of multi-disciplinary project when another class of students is also contributing to the project. However, subject lecturers are solely responsible in assessing their own student performance according to their respective subject requirements. The intension of the multi-disciplinary learning project is an innovative approach to help student to better understand their own subject, with the opportunity to gain experience outside of their discipline. Subject lectures are recommended to indicate to student what products/artifacts will be assessed during the course of the project. Once the project assessment rubrics has
been developed, it shall be incorporated and make modifications if needed to fit into the syllabus guideline.

**Time Management**

Time management is one of the biggest challenges in planning and preparing a multi-disciplinary student project. As such project requires collaboration between different classes from other departments, the scheduling of activities for all participating students become a major barrier in project implementation. Usually, students are required to interact and combine efforts with other group of students both in-class and outside class hours to achieve the project goals. Therefore project activities should be carefully planned with sufficient time for involved students to complete. Furthermore, students are likely to require equipping with some knowledge from another discipline before they can fulfill the project requirement and interact with other group of students. It is important and necessary to cover the topics needed in briefing and guest lecturers before the collaboration as previously mentioned.

During the actual planning stage, it is necessary to develop a joint project activities schedule for the project. This schedule will able both subject lecturers and students to be aware of the dates when the collaboration activities will take place. This helps the involved parties to better prepare for the upcoming events. This schedule will help demonstrate the project planning and ensure whether students will have enough time to finish assigned tasks. This schedule also helps define a critical path of the multi-disciplinary student project if there is one, so that modification can be made in advance if any project component is delayed and modification is needed.

**Communication**

There are several methods that can be used as the communication channels during the multi-disciplinary collaboration project. Each of these methods can be used in different stage of the project to maximize its effectiveness.
For the project team and involved subject lecturers, face-to-face discussion is strongly encouraged during the initial discussion and project planning and design phase. In-person meetings allow greater involvement of stakeholders from different partner departments. Involved subject lecturers can express their view to their pairing partners as well as the project team members during meetings. While all information is stated at the initial planning stage, back-and-forth discussions and misunderstanding between departments can be reduced significantly in comparison to other means of communication.

Subject lectures can adopt the use of online learning management system of the university into the collaboration project. As the project involves students from different departments, their class schedule may vary significantly. Other than the arranged collaboration activities, students may have little available time to arrange meetings with their counterpart. As a result, students rely heavily on e-communication channels to communicate and share founding and information. The use of university learning management system also allows subject lecturers to monitor and assist during the collaboration process and also ensure communication between involved students. Besides, it is suggested consultation hours and other communication methods should be made available for students when issues cannot be overcome by themselves. This can ensure students can achieve their expected outcome for the multi-disciplinary project. It is very important to keep the communication channel open between subject lecturers and students during the project.

Student presentations by the joint student groups are recommended. While different groups may have a different interpretation on the assigned topic, and the deliverables of the project may be varied; it is important for groups to present their product to the entire class. Besides, the deliverables may be different for students from various academic backgrounds; class presentation can be another learning experience for students to learn from outside of their disciplines.
Multi-disciplinary student project maybe varied in scale depending on the degree of integration as well as the complexity of the project itself. To ensure student can finish the assigned project and achieve all learning outcomes of the project, milestones should be setup during the planning stage to monitor students’ working progress. Project timeline in the project development form include all teaching and learning activities of the project can be used as these milestones. Project that involves multiple site visits or guest lectures, however, may be difficult to fill in at this stage.

The implementation of multi-disciplinary project can generate new and creative activities, which can be applied into the current subject and help to modify the existing curriculum to become more innovative. Since every single multi-disciplinary project is specifically designed for the involved subject, with the contribution from the subject lecturers, each project is unique in its own way. Various projects will have its own involved subjects from various disciplines and academic background. Therefore each project will have its specific learning experiences and opportunities for those participating students accordingly. Despite the great variation of project arrangement and deliverables, it is suggested from previous experience a set of criteria should be applied as the foundation of a well-designed multi-disciplinary project.
Figure 1 Project Development and Implementation Process

Figure 2 Mode 1 - Case 1

<table>
<thead>
<tr>
<th>Class</th>
<th>Environmental Management in the Hospitality Industry</th>
<th>Final Year Project</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>41</td>
<td>3</td>
<td>44</td>
</tr>
</tbody>
</table>

Table 1 Example 1: HTM4005/ITC4692 Pilot Project
Table 2 Knowledge Gain Before/After the project of Example 1

Q1: What were the challenges?

The most challenging part maybe the focus is different. Actually we are textile student so what we are focusing is the textile part. But hotel management students may more concern about the hotel service and operations. Maybe the most challenging part for us is to explain the textile, how to apply the textile become more useful and meaningful to the hotel management students. So they can learn the things they want from our presentations.

Q2: What you had learnt from the multi-disciplinary project?

First of all I learn some analysis skill through researching the hotel textiles, I have so many journals and I need to sort out some useful information for my presentation. Also I had learnt some decision making skills to sort out what is important factors for our part in this project. And I had learnt some communication skills with my classmates, supervisor and research assistant to express my feel about this project.

Q3: Suggestions from the actively participated students:

I think we would like to have more communication with the hotel management students because during the project we have chance to communicate with the hotel management students we find out that we learn a lot more from those students, hotel textile not just about appearance but also required a higher standard so they can be functional and also has comfort purpose.
Table 3 Example 2: HTM4102/ITC3105 Pilot Project

<table>
<thead>
<tr>
<th>Class</th>
<th>Hospitality Facilities Management &amp; Design</th>
<th>Textile Product Development</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>104</td>
<td>28</td>
<td>132</td>
</tr>
</tbody>
</table>

Table 4 Knowledge Gain Before/After the project of Example 2

<table>
<thead>
<tr>
<th></th>
<th>SHTM Students</th>
<th>ITC Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Knowledge in Hospitality Facilities Management &amp; Design</td>
<td>2.99</td>
<td>3.49</td>
</tr>
<tr>
<td>Knowledge in Textile Product Development</td>
<td>2.25</td>
<td>2.89</td>
</tr>
</tbody>
</table>

Figure 5 Mode 2 – Case 2 – Topic 2

Figure 6 Mode 2
Table 5 Example 3: HTM4118/ENGL317 Pilot Project

<table>
<thead>
<tr>
<th>Class</th>
<th>Special Event</th>
<th>English for Technical and Web-based Writing</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>25</td>
<td>33</td>
<td>58</td>
</tr>
</tbody>
</table>

Table 6 Significant Gains rated by students in Example 3

<table>
<thead>
<tr>
<th>SHTM Students</th>
<th>ENGL Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>I am able to support where necessary to achieve goals.</td>
<td>4.27</td>
</tr>
<tr>
<td>I am able to contribute to others by sharing information and expertise.</td>
<td>4.27</td>
</tr>
<tr>
<td>I gain new knowledge which will benefit me in my job in the future.</td>
<td>4.19</td>
</tr>
<tr>
<td>The project helped me to strengthen my communication skills.</td>
<td>4.31</td>
</tr>
<tr>
<td>The project was a good learning experience.</td>
<td>4.35</td>
</tr>
<tr>
<td>I worked efficiently and effectively with different teams from SHTM/ENGL.</td>
<td>4.35</td>
</tr>
<tr>
<td>I communicated with student(s) from SHTM/ENGL using different communication channels.</td>
<td>4.12</td>
</tr>
<tr>
<td>I was being helpful and provided prompt input for the project.</td>
<td>4.15</td>
</tr>
</tbody>
</table>

Figure 7 Mode 3

Table 7 Example 4: HTM4118/COMP320/ENGL304 Pilot Project

<table>
<thead>
<tr>
<th>Class</th>
<th>Special Event</th>
<th>Introduction to Internet Computing</th>
<th>English for Administration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Students</td>
<td>25</td>
<td>82</td>
<td>44</td>
<td>151</td>
</tr>
</tbody>
</table>
Table 8 Significant Gains rated by students in Example 4

<table>
<thead>
<tr>
<th>Communication Type</th>
<th>Ranking</th>
<th>Number of SHTM students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guest Lecture</td>
<td>4.38</td>
<td>62</td>
</tr>
<tr>
<td>Face-to-face Interaction</td>
<td>4.26</td>
<td>62</td>
</tr>
<tr>
<td>Forum Discussion</td>
<td>3.98</td>
<td>37</td>
</tr>
<tr>
<td>Student Presentation</td>
<td>3.71</td>
<td>37</td>
</tr>
</tbody>
</table>

Table 9 Feedback from Students concerning the different communication methods

Reference


