



Completion Report
Project Supported by LTC/OBA Funding*

(Period covered: 01/07/2008 – 30/06/2011)

Part I: General Information

Funding Source (please tick ✓ as appropriate): LTC OBA Funding

Project Code: 2007-08/OBA/FCLU

Host Department: LSGI

Project Title: Assessing student generic programme outcomes with final year projects

Project Leader (Name & Dept):

Team Member(s) (Name & Dept):

Project Team: Prof Esmond Mok, LSGI

Prof Albert Chan, BRE
Ms Hebe How, BRE
Dr T M Chung, BSE
Dr K T Chan, BSE
Dr Joseph Lai, BSE
Prof S K Tang, BSE
Prof S L Chan, CSE
Prof K T Chau, CSE
Dr W T Hung, CSE
Dr Tzung-may Fu, CSE
Dr A Sumalee, CSE
Prof Onyx Wai, CSE
Dr H C Wong, CSE
Dr Baki Iz, LSGI
Mr Steve Lam, LSGI
Dr Lilian Pun, LSGI
Dr Conrad Tang, LSGI
Mr Geoffrey Shea, LSGI
Prof John Zhi, LSGI
Dr Patrick Lai, EDC

Part II: Project Details

1. Financial Information

(a) Overview

Approved Funding: + Additional Funding Received (if any): = Total Funding Received:

Source of Additional Funding:

(b) Project Expenditure

¹ Please give reasons for the revised budget and quote the relevant authority's approval reference where appropriate.

2. Project Schedule

| | | |
|---------------------------------------|--|---|
| Dates as Stated in Original Proposal: | Start date (dd/mm/yyyy): 01/07/2008 | Completion date (dd/mm/yyyy): 30/06/2010 |
| Actual Start and Completion Dates: | Start date (dd/mm/yyyy): 01/07/2008 | Completion date (dd/mm/yyyy): 30/06/2011 |
| Project Period Extension(s) (if any): | Total no. of extension(s) obtained : 1time | Obtained during the project period: For a total of 12 month(s) |
| Reason(s) for Extension(s) (if any): | The Department of BRE required its second year students attending dissertation clinics to brainstorm their final year projects in the second semester of 2009/10. Their final year projects were completed by the end of the second semester of 2010/11. | |

* LTC: Learning and Teaching Committee
OBA Funding: Funding for Promoting Outcome-Based Approaches to Student Learning

3. Project Implementation

(a) Project objectives

- Design and develop a mechanism to assess student generic programme outcomes with final year projects;
- Evaluate the effectiveness of the mechanism; to help the Department of Building and Real Estate (BRE), the Department of Building and Services Engineering (BSE), the Department of Civil and Structural Engineering (CSE) and the Department of Land Surveying and Geo-informatics (LSGI) to complete the Programme Learning Outcomes Assessment Plan (PLOAP) required of all programmes in PolyU from 2009.

(b) Overview of specific work undertaken for achieving the project objectives (including any changes to original proposal)

Initial stage: Development of assessment mechanisms

To enable the project team to understand the procedures involved and to lay a well-informed foundation for the project, the project team designed relevant handbooks for final-year project supervisors and students, and distributed to them to the respective target groups. Briefing sessions were held in October 2009 to facilitate the participation of final year project supervisors to understand the whole process and their responsibilities in taking the second stage of the project forward.

The initial interim findings of the project were presented at a research seminar in the Department of BRE held in October 2009 and the 3-3-4 Symposium organised by PolyU in December 2009. In response to the feedback obtained from the four FCLU departments during the trial-run period, a checklist was developed to help the grading of the “process” types of assessments based on observations of student performance. The wordings of the checklist, the pre- and post- student self-evaluation forms and the scoring rubrics for the five generic programme outcomes were realigned, with a view to enhancing the effectiveness of the assessment mechanism in assessing the student’s achievement of the five generic programme outcomes such as critical thinking, creative thinking, problem solving, communication and teamwork. Four sets of comprehensive assessment rubrics embedding the professional and generic competencies for grading the final year projects of the four departments, were developed.

In order to reduce time and effort required to score complex rubrics, summarize data from large numbers of individual rubrics, assign appropriate grades to students, and collate rubrics where multiple assessment tasks are used for one outcome, an electronic grading excel sheet or e-rubric assessment system was used to facilitate the scoring and grading done by the faculty members, as deemed appropriate.

Initial stage: Pilot implementation of assessment mechanisms

A total of 22 final year project supervisors and more than 100 students from the Departments of BSE, CSE and LSGI participated in the pilot implementation stage of the project which started in the first semester of 2009/10. Since the assessment rubrics, developed for the 4 FCLU departments to assess students’ generic programme learning outcomes with final year projects (FYPs), have been fine-tuned, only students’ self-assessment surveys and supervisors’ observation checklists that were sent to respective participants have been analyzed at the time of this report. The findings were presented at the executive meeting of the project in November 2010. The initial analysis shows that teachers’ assessment of students’ generic competencies and students’ perception of their generic competencies perception is different. The actual performance of the students in respect to the generic learning outcomes at programme level would be analyzed according to the data collected at the implementation stage which would include student self assessment survey, supervisor observation checklist and the final year project (FYP) assessment results.

Implementation stage: Operation and evaluation

This stage involved implementing assessment mechanisms developed for the four FCLU departments to assess students’ generic programme learning outcomes with their FYPs. Teaching staff from 4 departments in FCLU were invited to participate in this last round of implementation during the period of September 2010 to May 2011.

A total of 19 teaching staff from BRE, BSE CSE and LSGI departments participated in the implementation stage. Participating staff who agreed to take part in this round of implementation made use of the assessment mechanisms to assess students’ FYPs with the facilitation by either department staff/teaching staff/project team. The student post-self-assessment form and supervisor observation checklist were provided to the participating staff through internal email and/or face-to-face meetings. Table 1 shows the total number of students participating in this stage by completing both student self-assessment survey and supervisor observation checklist.

Table 1. Total number of staff and students participated

| Department | Total number of participating academic staff | Total number of students participating pre-and post self-assessment survey | Total number of students participating pre and post self assessment survey, and being assessed by FYP assessment |
|-------------------|---|---|---|
| | | | |

| | | | |
|--------------|-----------|-----------|---------------|
| | | | rubric |
| LSGI | 5 | 20 | 20 out of 48 |
| CSE | 7 | 2 | 2 out of 18 |
| BSE | 2 | 11 | 11 out of 15 |
| BRE | 5 | N/A (*) | N/A |
| TOTAL | 19 | 33 | 33 |

* Since the teaching staff of BRE had noted the progress of students' learning with FYPs, it was agreed in the executive meeting that it would be unnecessary for the teaching staff of BRE to re-submit the checklist form. Also, as the staff adopted the e-system of their department, the project team simply needed to convert the data from the BRE system to the project one. As such, students did not need to complete the pre- and post self-assessment surveys.

The generic learning outcomes (oral communication, written communication, critical thinking, and problem solving) at programme level were analyzed according to the data collected in the implementation stage which included student self assessment survey, supervisor observation checklist and the final year project (FYP) assessment results. Figure 1 is the summary of the generic outcomes assessment at faculty level.

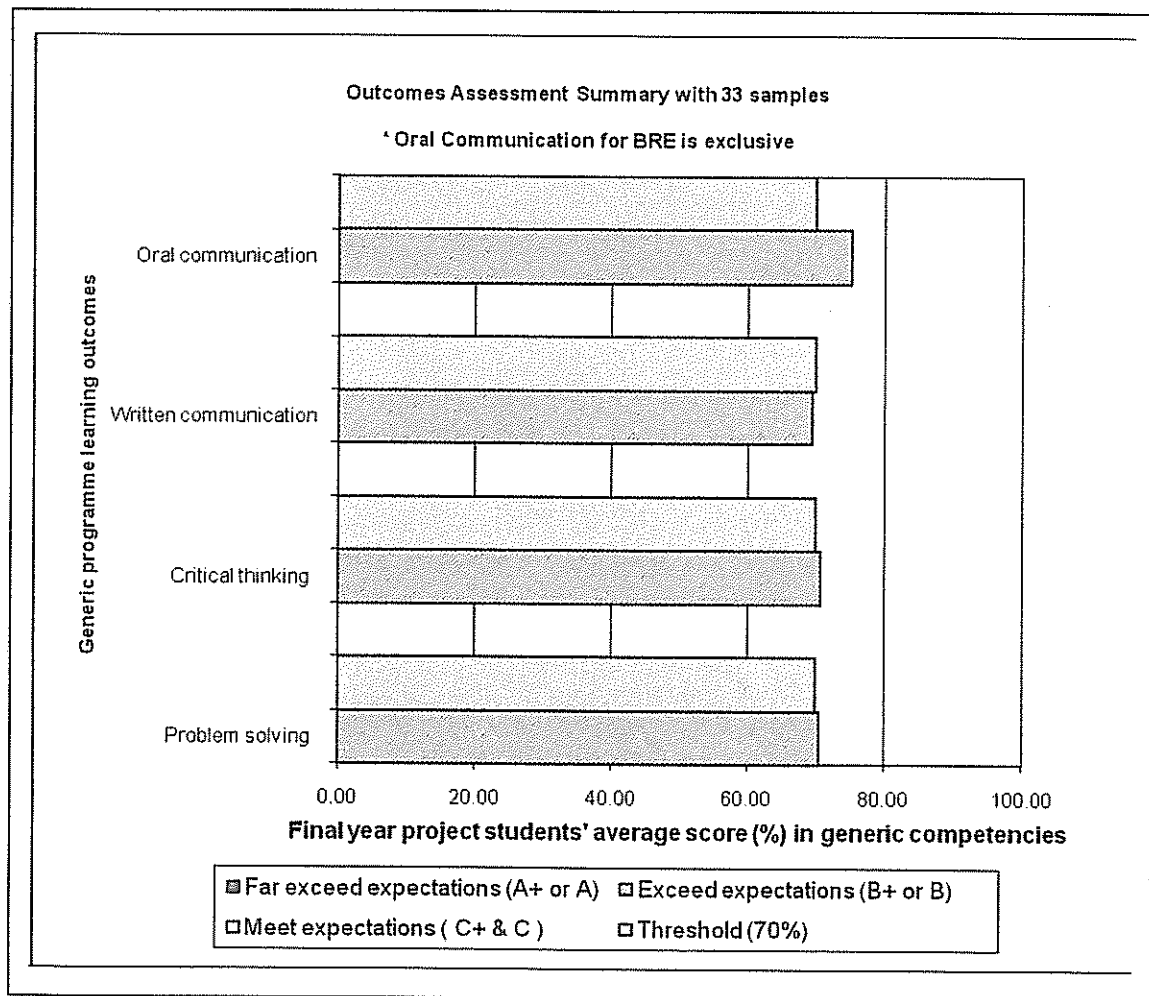


Figure 1. Generic outcomes assessment summary for FCLU

Results from the assessment rubrics

In Figure 1, the actual performance of students is shown against the pre-set threshold value (70%) of the four generic outcomes, **oral communication, written communication, critical thinking and problem solving**. The average score of these students is beyond 70% of the total score based on the university grade scale. Both **critical thinking (70.71%)** and **problem solving (70.55%)** are slightly above the threshold value. For **written communication (69.50%)**, it is slightly below the threshold whereas **oral**

communication (75.11%) is above the threshold.

Due to the fact that the individual sister departments have different sub-items for the 4 generic outcomes, the project team selected the sub-items in common for each of the generic outcomes for comparison. **Oral communication**, use of '*visual aids*' (76.07%) and '*presentation-organization*' (74.68%) were selected to evaluate the students' performance. For **written communication**, only '*grammar, spelling & presentation*' (69.5%) was in common for the 4 departments. For **critical thinking**, '*identifies and summarizes the problem/question/work assignment*' (73.42%) and '*identifies and assesses conclusions, implications and consequences*' (69.69%). For **problem solving**, '*Interpreting findings and solving the problem*' (70.55%) is the only common sub item for comparison.

Correlations between assessment rubric results against teachers' observation check lists

Correlation analysis had been conducted to compare the data from the assessment rubrics results to teachers' perception based on their rating indicated in the observation check lists. The findings show that there is no significant correlation between the two factors. This indicates that the assessment rubrics are useful tools to constitute more objective results on students' performance rather than merely based on teachers' perception to grade students' work in a subjective way. Another implication is that, teachers may have different standards to assess students' performance by using the observation check lists. The assessment rubrics would then be a good tool to align the standards of teachers to reduce the discrepancy. Further discussion within individual department would be needed in order to refine the assessment rubrics best-fit in future use.

Students' perception on generic competencies – pre- post student surveys

Due to the fact that the post student surveys had just finished in the middle of June right after the completion of the FYP, statistical test is now being analysed. Findings will be presented in the book publication.

(c) Difficulties encountered, if any, which have affected progress, and remedial actions taken

A deficit of about HK\$23,000 was informed by FO on 04-July-11. After detailed discussion between our general office and FO, it was discovered that the FO treated the amount of HK\$50,000 for the order of professional consultancy for book editing under this project as direct payment only. That means when the invoice of first phase of HK\$25,000 was sent to FO for payment arrangement, the amount was charged to the project account but the rest of HK\$ 25,000 was not reserved and monitored throughout the project period. This practice is different from our understanding that we considered that, once the order was raised the sum of money would be committed and monitored by FO. To resolve this problem the department needed to absorb this overspending. Since the current practice of FO is confusing because the financial statements provided cannot reflect the actual spending. To avoid such case happen again, it is suggested that the current practice of handling contract of service for T&L projects be reviewed.

Low response rates for both the post-student self assessment survey and the post-supervisor observation checklist were received among the four FCLU departments (BRE, BSE, CSE and LSGI). The valid sample for a t-test of significant differences occurring between two sets of data (students' pre and post self-assessment survey) was only 33. In fact, staff workload issues constituted the major difficulty for the in the implementation.

The project team envisages two major sources of resistance from the colleagues related to workload issues, namely psychological and technical. From the psychological perspective, colleagues have concerns about the implementation of any change that might imply an additional workload. From the technical aspect, colleagues experienced difficulties with marking their students' FYPs by using the computer-based assessment rubrics. This makes it clear that technical support from the department is essential.

In fact, the workload issue did affect the supervisors' participation in the project, particularly in relation to assessing student performance in the project meetings. In view of this, several invitations were made to the academic staff of the four departments in FCLU in order to boost

the participation rate. Despite the fact that the project team encouraged the teaching staff to participate in the project through invitations, the final responses to join this final round of implementation between 2010 and 2011 was less than expected. The actual number of participation from the four departments in FCLU was less than 1/3 of the overall students.

(d) Deliverables/useful findings/good practices emerged

Overall, the project was conducted successfully to develop the following deliverables:

- An assessment mechanism was developed by using the Final Year Project (FYP) to assess students' generic programme outcomes
- A set of assessment rubrics for individual departments to grade the final year projects which incorporated the learning outcomes for both professional competence of each discipline and the five generic competencies, namely critical thinking, creative thinking, problem solving, communications, and teamwork had been tailor-made to cope with the specific needs of individual departments on FYP assessment.
- An e-platform had been developed to help teachers enhance final mark / grade generation from the assessment rubrics.
- The analysis of students' perceptions of the generic competencies development and the assessment by the teachers is a very useful piece of information to develop teaching and learning activities further to nurture students' generic competencies in future.
- Drafts of the finished papers will be sent to relevant academic journals for review.
- A book publication is under the production in the final stage.

Interviews were conducted to solicit feedbacks from the participating teachers from the four departments. Generally speaking, the project has been successful in tailor-making 4 sets of assessment rubrics for the participating departments. Also, the assessment rubrics have been found useful for teachers to grade the students' performances in terms of the generic learning outcomes. Moreover, the evaluation of students' generic learning outcomes can help to complete the Programme Learning Outcome Assessment Plan (PLOAP) in an efficient way.

The project has helped the collaborators to better understand better the assessment practices from other sister departments. The process of the assessment rubric development also helped collaborators to understand that it is difficult to develop one assessment tool fit for all departments since different departments have their own cultures and concerns.

In order to convince colleagues to use the new assessment tool, it is important to give a demonstration to show that this is made to streamline the work of colleagues and is beneficial for future contributions. Also, it is important to note that such soft influence is much effective than top-down the work to the colleagues in the department.

Some front line teachers agree that it is good to have such analytic rubrics to provide detailed descriptions for each grade by individual criteria. Moreover, the rubrics are effective to provide an objective standard to measure students' performance. Having said that, the teachers from BRE, CSE, and LSGI think that there is still room for improvement to refine the wording in the assessment descriptors.

(e) Dissemination activities taken/planned to sustain impact

1. Two presentations were made to disseminate the project findings:
"Assessing Student Generic Programme Outcomes with Final Year Projects", presented in the University's OBA Projects Sharing Seminar, held on Feb 3, 2009 and in the 3+3+4 Symposium on Dec 14, 2009.
2. A book recording the outcomes of this project is under preparation. The book is expected to be ready

for printing by Sept 2011.

3. Final year project (FYP) rubrics including the assessment of generic competence and academic/professional learning outcomes specific to individual department have been developed and ready for use by departments. The rubrics developed for LSGI was discussed and formally adopted in the department in 10/11.

(f) Self-evaluation or additional information/remarks

This is the final phase of the project. The project objectives have been met. Over the past two years, the project team endeavoured to design, test, and improve a suitable mechanism and rubrics development for assessing students' generic competencies through their performance in the process of FYP. Some of the project outcomes have been adopted by departments for PLOAP reporting. The rubrics developed in this project have been used as a base for rubrics development in a recently approved institutional T&L project on "Freshman Seminar" led by Prof. S.K. Tang of BSE.

Name of Project Leader:

Prof Esmond Mok
(in block letters)

Date: 30 June 2011

Part III: Evaluation by D/SLTC (or by HoD/Dean of School[^])

(a) Rating and comments/recommendations on the following areas of the project
(please put a ✓ in 1 of the following 2 ratings and provide comments)

| Areas | Rating | | Comments and Recommendations |
|---|--------------|-------------------|------------------------------|
| | Satisfactory | Needing attention | |
| Overall financial management/ use of funding | ✓ | | |
| Overall project progress | ✓ | | |
| Outputs /deliverables / dissemination | ✓ | | |
| Overall rating / comments on the project (Please suggest remedial actions if the rating is 'Needing attention') | ✓ | | |

(b) Issues requiring the attention of FLTC/Dean of School and/or the funding authority

(c) Outputs/deliverables/good practices of the project that can be shared with other subjects, programmes or departments within the Faculty, or with the wider PolyU community

(d) Additional comments/remarks

| | | | |
|--|--------------------|-------|--------------|
| Name of D/SLTC Chair (or HoD/Dean of School): | X.L. DING | Date: | 10 July 2011 |
| | (in block letters) | | |

[^] To be prepared by HoD/Dean of School **if** the PL is also the D/SLTC Chair, **or if** the Centre/Unit/Office does not have a DLTC.

Part IV: Evaluation by FLTC/Dean of School#

(a) Overall rating on the project (please put a ✓ in 1 of the following 2 ratings):

- Satisfactory
- Needing attention

(b) Overall comments and recommendations on the project:

(c) Issues requiring the attention of the funding authority:

Name of FLTC Chair/Dean of School: Prof. Geoffrey Qiping SHEN Date: 10 AUG 2011
(in block letters)

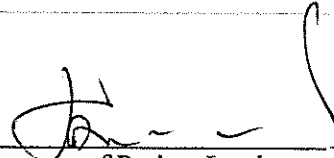

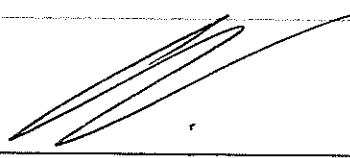
The Dean of School or HoD of the Centre/Unit/Office needs not fill this part if he/she has already commented in Part III.

Part V: Response & Follow-up Plan by Project Leader

(Response and follow-up plan is required from the Project Leader if there is any area rated as 'needing attention' in Part III and/or IV.)

[Empty box for response and follow-up plan]

Name of Project Leader: _____ Date: _____
(in block letters)

| | | |
|---|---|--|
|  _____ Signature of Project Leader |  _____ Signature of D/SLTC (or HoD)@ |  _____ Signature of FLTC/ Dean of School |
| <u>Prof. Esmond Mok</u> (Name in block letters) | <u>Prof. XL Ding</u> (Name in block letters) | <u>Prof. Geoffrey Qiping SHEN</u> (Name in block letters) |

@ To be signed by HoD if the PL is also the DLTC Chair, or if the Centre/Unit/Office does not have a DLTC; leave this blank if the PL is also the SLTC Chair.

The Project Leader and D/SLTC Secretary should each keep a copy of this *Completion Report* for records.
A copy of this *Completion Report* will be submitted along with the *F/SLTC Annual Report (Form 20)* to LTC/WGOBE as a supporting document.