

Final Report of Project

Project No. : 2008/0439

Part A

Project Title: Quantitative Methods for independent enquiry studies (IES): curriculum development for liberal studies 通識教育獨立探究量化研究方法之課程發展

Name of Organization/School : Education Convergence Education Foundation Limited

Project Period: From 1/2010 (month/year) to 06/2011 (month/year)

Part B

1. Attainment of objectives

Objective 1: To develop a set of high-quality teaching materials on quantitative methods for IES.

Activities: A set of teaching materials (a total of 7 single lessons) were designed on quantitative methods for IES. The materials were tested in 5 schools and refinements were made over the project period. Please see the outline of the course materials below.

Degree of Attainment: of 100%

Evidence: Feedbacks by teachers were encouraging as they were able to adopt and used the materials directly. The outline and sample contents were shown below.

Reasons for not attaining objective: NIL

The IES materials outline is as follows:

每堂 40 分鐘

堂數	目的、主題與重點	學生	教師
1, 2	目的：讓同學體驗量化專題探究過程 回答同學對探究過程的問題 主題與重點： 體驗量化專題探究過程：自尊心 ● 討論“自尊心”背景與重要性	填寫“自尊心”問卷，並分析自己的	示範 Excel 數據分析，並製作

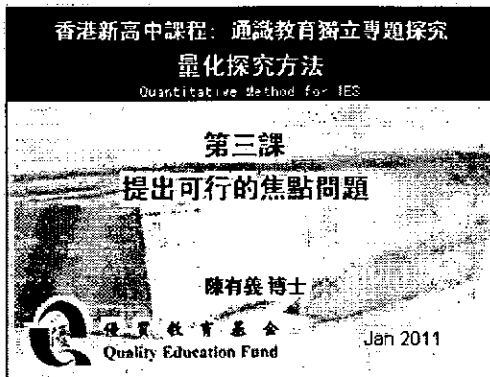


	<ul style="list-style-type: none"> ● 提出探究問題 ● 展示問卷設計 ● 收集與分析數據 ● 展示圖表製作 ● 回答探究問題 ● 討論整個探究過程 ● 量化探究方法為何重要? 	<p>自尊心</p> <p>針對自己要做的題目，提出過程中會面對的問題</p>	<p>圖表</p> <p>提供提問題的工作紙</p>
3	<p>目的：讓同學完成自己的探究問題 擬定自己的調查對象及人數</p> <p>主題與重點： 量化探究過程(一)：提出可行的探究問題</p> <ul style="list-style-type: none"> ● 如何選議題? ● 如何提出三類探究問題? (知識、態度及行為) ● 提出相關假設 ● 擬定調查對象及組別 ● 分辨不可行的探究問題 ● 在探究問題中加入區別分析 	<p>練習設計三類探究問題</p> <p>修定及完成自己的探究問題</p> <p>擬定自己的調查對象及人數</p>	<p>提供工作紙</p>
4	<p>目的：讓同學完成自己的問卷</p> <p>主題與重點： 量化探究過程(二)：設計問卷</p> <ul style="list-style-type: none"> ● 三個設計問卷方法 <ul style="list-style-type: none"> ■ 採用現有問卷 ■ 修改現有問卷 ■ 設計新問卷 ● 如何設計三類問題問卷? <ul style="list-style-type: none"> ■ 知識：選擇題 MC ■ 態度：Likert Scale (1 - 5) ■ 行為：選項題 MC ● 加入質化問題 	<p>修定及完成自己的問卷</p>	<p>提供工作紙</p>
5, 6	<p>目的：讓同學分析自己的數據 讓同學製作及解釋自己的圖表 讓同學回答自己的探究問題</p> <p>主題與重點： 量化探究過程(三)：數據收集與分析</p> <ul style="list-style-type: none"> ● 使用 Excel 分析數據 <ul style="list-style-type: none"> ■ Average, correlation ■ 圖表製作 ● 解釋圖表 ● 回答探究問題，驗證假設 	<p>分析自己的數據 製作及解釋自己的圖表 回答自己的探究問題</p>	<p>此堂可安排在同學完成收集自己的數據後</p> <p>如需要，可安排在電腦室</p>
7	<p>目的：讓同學選寫探究自己的報告</p>		



	<p>主題與重點： 量化探究過程(四)：選寫探究報告</p> <ul style="list-style-type: none"> ● 寫探究報告的成份技巧及次序： <ul style="list-style-type: none"> ■ 目錄 (7) ■ 背景 (5) ■ 探究問題與假設 (1) ■ 探究方法 (2) ■ 數據分析與討論 (3) ■ 結論與建議 (4) ■ 參考資料 (6) 	<p>讓同學選寫自己的報告</p>	<p>如需要 可安排在電腦室</p>
--	--	-------------------	--------------------

Sample materials are shown below



提出可行的焦點問題

1. 如何選題目?
2. 如何提出三類焦點問題?
(知識、態度及行為)
3. 提出相關假說
4. 擬定調查對象與組別
5. 分辨不可行的焦點問題
6. 在焦點問題中加入區別分析

2. 如何提出三類焦點問題?

更多例子:

類別	焦點問題
1. 知識	<ul style="list-style-type: none"> • 香港人對理財的認識有多少? • 中學生對特區政府的財政預算案認識有多少?
2. 態度	<ul style="list-style-type: none"> • 香港人對新高中課程的態度如何? • 香港人對打H1N1疫苗的關注度如何?
3. 行為	<ul style="list-style-type: none"> • 香港人的旅遊習慣如何? • 香港人如何投資?

2. 如何提出三類焦點問題?

自我評價：我的探究題目好嗎?

焦點問題	問題
可行性	能完成問卷、數據收集及分析嗎?
有意義	<ol style="list-style-type: none"> 1. 很多人期待我焦點問題的答案嗎? 2. 我焦點問題的答案會改變許多人的認知、態度或行為嗎?

3. 提出相關假說

針對焦點問題，同學可嘗試推測其答案

假說

- 是該焦點問題的預期/臨時答案
- 可根據以前的數據做推測
- 不是每個焦點問題都要有假說
- 設定及驗證假說能強化同學的推測、分析及判斷能力

3. 提出相關假說

1. 高中學生的自尊感健康嗎?
假說：高中學生的自尊感是健康的
2. 針對自尊感，男女同學有別嗎?
假說：高中男女學生的自尊感是有差別的
3. 自尊感與學業成績有關嗎?
假說：有的，自尊感越好，學業成績也越高



4. 擬定調查對象與組別

調查對象：學生、成人（可考慮家長）或特別組別（按探究主題需要）

例如：麥當勞客戶

人數：至少 30 人（數據才可靠）

考慮因素：能順利得到受訪者提供數據，並完成探究報告。

5. 分辨不可行的焦點問題

1. 港人支持2012年雙普選嗎？
難，因為需要大量人數
2. 增加廣告能否提高麥當勞的顧客人數？
非常難，因為要驗證因果關係
因：增加廣告 果：顧客人數
3. 本校高中生對個別麥當勞廣告的看法如何？
可行

Objective 2 & 3:

To develop teachers' knowledge and skills in facilitating quantitative methods
To establish teaching and learning models of quantitative methods for IES lessons

Activities:

Consultation meetings were setup with each school to review student's work for all 3 stages of IES. Critical cases were reviewed and discussed to ensure students were going on the right track before next stage. Viewpoints of all teachers in the same school were streamlined based on the same common understanding.

Degree of Attainment: 100%

Evidence:

After reviewing more than 600 student's products from stage 1 to 3, the following critical issues were identified, discussed and solved so that teachers could give accurate feedback to students. The issues were:

Stage 1:

- Project title is not concise and does not tell the method and respondent group
- Students did not have sufficient background reading prior to write stage 1 proposal
- Does not know how to generate good focus questions
- Range of focus questions were too narrow
- Some focus questions were too difficult to collect good data
- Some focus questions may involve sophisticated statistics in order to analyze the data
- Insufficient meaningful focus questions to get good marks
- Lack of hypothesis for focus questions
- Teachers lacked the knowledge of the outcome of some particular topics

Stage 2

- Questionnaire was not well evaluated before data collection



- Does not have a summary of collected data and respondents profile
- Data collected do not answer the focus questions
- Does not know how to explain the Bar or Pie chart

Stage 3

- Data analysis section does not follow the recommended format
- Conclusion does not summarize the answers to focus questions
- Recommendations do not based on answers to focus questions
- Reports lack of cohesiveness with respect to the main theme of the IES

Reasons for not attaining objective: NIL

Objective 4 & 5: To train students to use quantitative methods for IES correctly
To develop student's ability to analyze and interpret quantitative data

Activities:

Degree of Attainment: 100%

Evidence: Students were trained at each stage the necessary skills to do IES according to the course materials.

In stage 1, feedbacks from teachers indicated that students were able to ask focus questions based on the perspective of respondent's knowledge, attitude and behavior towards an issue. These 3 perspectives provide students simple and clear method to develop necessary focus questions for their IES.

In stage 2, students were able to design questionnaire to collect data. Because the focus questions in stage 1 were well guided according to the 3 perspectives, the data collection and analysis in stage 2 were rather smooth. However, teachers need to advice students how to explain the charts in greater depth.

In stage 3, students were trained to write a good literature review, data analysis and conclusion.

Reasons for not attaining objective: NIL

Objective 6: To establish detailed assessing strategies on IES using quantitative methods

Activities:



Degree of Attainment: 100%

Evidence: Based on the SBA criteria, schools have further refined their detailed assessment criteria and rubrics for all 3 stages. Students were informed of the assessment criteria. Sample below shows and assessment rubrics of one of the participating school for stage 1 of IES.

Reasons for not attaining objective: NIL

【評量表一】 過程：探究題目發掘

方向/表現	高 (3分)	中 (2分)	低 (1分)	分數
基本資料	● 辨識相關的材料及背景資料。	● 辨識頗為相關的材料及背景資料。	● 辨識不太相關的材料及背景資料。	
文章分析	● 能夠辨識出相關的論點和論據。	● 辨識頗為相關的論點和論據。	● 辨識不太相關的論點和論據。	
發掘具爭議性的探究題目	● 能夠辨識出相關的爭議點，以及提出有探究價值的題目。	● 只能夠略為辨識出相關的爭議點，以及提出一般探究價值的題目。	● 未能辨識出相關的爭議點，未能提出少量具探究價值的題目。	
教師評語 (如有)： (除上表外，建議教師就探究計劃書給予意見，讓學生在重溫探究計劃書，及/或開始下一階段探究，如搜集資料/數據時，能作出改善。)				總得分： ___/9

2. Project impact on:

(a) Learning effectiveness

By adopting the quantitative method for IES and applying them into participating schools situation proved to be effective because:

- The method streamline the concepts and practice among teachers and students
- Ready materials for facilitation and adoption
- Feedback after adoption were shared and evaluated
- Teachers could use the materials at different stages to best meet student's needs

(b) Professional development

Teachers training, sharing and consulting sessions have enhanced teacher's professional development in the following ways:

- Obtained correct concepts on quantitative method for IES
- Knew the entire process of quantitative method for IES



- Understood the critical issues students faced while using quantitative method for IES
- Knew how to facilitate students using quantitative method for IES

(c) School development

School development has taken place in the following dimensions:

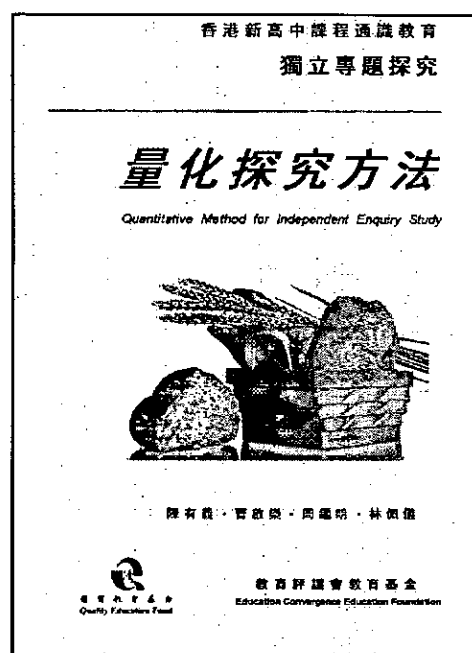
- Improved and streamlined the IES culture of the schools
- Enhanced the teacher's professional development
- Raised student's ability to do projects

3. Cost-effectiveness – a self-evaluation against clear indicators and measures

4. Deliverables and modes of dissemination; responses to dissemination

- Consolidated teaching materials for IES

A total of 1,200 copies of this textbook were printed for 5 participating schools. Coming form 5 students will have the opportunity to use this book for their IES lessons.



- Refined teaching materials and assessments tools among 5 schools

5. Activities list

Activity	Date	No. of Activity
Steering committee meeting	18/12/2009, 3/2010, 16/4/2010, 3/2011, 20/6/2011	5
Teacher's training and consultation	18/12/2009, 19/1/2010, 20/1/2010, 24/1/2011, 16/4/2010, 5/1/2011, 11/2/2011, 15/2/2011, 23/2/2011, 28/3/2011, 20/6/2011	10
Total		15

6. Difficulties encountered and solutions adopted

Name of Project Leader: _____ Name of Grantee*: _____

Signature: _____ Signature: _____

Date: _____ Date: _____

**The report should be signed by the supervisor of the school/the head of the organization or the one who signed the Quality Education Fund Agreement for allocation of grant on behalf of the organization.*

For Office Use Only

DI

V

D

E

RC