Research Methodology
學術論文寫作工作坊
Day 1

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How to find a good topic
如何找一個好的題目

(1) To find an interesting topic
找一個有興趣的題目

(2) To find a topic that can handle
可以掌握範圍內的題目

(3) To find a topic with a lot of information (Journals)
要找一個資料充足的題目

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2. Research question(s)
研究論文題目及研究性

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3. Research Aim 研究論文目的

4. Research Objectives 研究論文目標

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5. Reasoned Justification of the study
研究論文中的學習性

6. Limitations of the Study 研究論文中的限制

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7. Relevant Theme and Discipline Area
探索主題內的研究領域

8. Initial Theoretical Research
核心基礎研究分析

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9. Method of Data Collection
選擇數據收集方法

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1. The Dissertation: an Overview 學術論文: 概要

1.1 What is a dissertation? 什麼是學術論文

A dissertation follows the fundamental principles of academic writing, but bear in mind the following key points. 學術論文是根據學術書寫的基本原則，但是記住以下重點。

- It is an extended piece of writing, usually divided into ***chapters***.
  它是書寫一個延長的論文，通常被劃分成***章節***。

- Make sure that you know the ***lower and upper word limits*** acceptable for your dissertation, and what that will look like in terms of word- processed pages. 切記你要知道你的學術論文的***文字限制***，並且要用電腦文字處理。

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1. The Dissertation: an Overview 學術論文: 概要

- Be sure to find our whether you should be following a particular ***sequence of chapter headings*** – for example, introduction followed by literature search followed by an experiment or a survey and/or an analysis of your research - or whether you are expected to plan your own sequence and structure. 請務必發現你是否應該跟隨***章節的次序***，例如，文獻搜集跟隨的介紹，然後跟隨由實驗或調查研究，或者對你的研究的分析 — 或你的進度是否如預計序列興結構方式一樣。

- It contains a ***detailed exploration of evidence***. The evidence referred to may comprise evidence from published texts, for example if you are exploring the literary texts of a particular writer, or it may consist of primary data gathered by your own, first-hand research, for example a sociological study of attitudes to gender roles based on research methods such as interviews and questionnaires. 它包含是一個***詳細的探索的證據***，提到的證據也許包括從出版文本的證據，例如，如果您探索一位特殊作家的文藝作文，或者它也許包括你自己從第一手研究收集的主要數據，例如一項社會學研究對根據研究方法的姓別角色的態度，例如採訪和查詢問卷。

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1. The Dissertation: an Overview 學術論文: 概要

1.2 How to manage your supervisor 如何與你的論文導師接觸

- Since a dissertation is an individually devised piece of work, you will be allocated a personal supervisor to ***support*** you while you are writing it. 因為學術論文是一個單獨構想的工作，你將被分配一位論文導師***輔助***你寫論文。

- ***Do not delay*** in having your ***first meeting*** with her or him, as it is vital to discuss not only what topic you will start by exploring, but also how you can best work on your dissertation. ***不要延遲***在開始時的與指導者的***首次會議***，因為談論是重要的不僅是什麼題目，你將通過探索開始，而且你怎麼能在學術論文達致最佳的工作效果。

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1. The Dissertation: an Overview 學術論文: 概要

1.3 The importance of time management 時間安排的算要性

- Writing a dissertation can be very demanding in terms of ***managing your time and the process*** itself. It is a major piece of work and you are likely to have months before it is due for submission, so the dissertation sometimes causes problems even for people who are normally good at meeting deadlines. 寫學術論文時，***管理時間和過程***是最重要及有要求的，它的寫作過程是一個重要工作，並且您可能要用幾個月，所以寫學術論文的最大挑戰是能最後期限完成。

- If you know that you have a problem with independent work, or if you think that such a major undertaking will cause problems, make sure you read the ***Guideline Book***, which is full of practical advice about keeping on top of your work. You might also want to look at guideline, which is about organizing your weekly schedule, and mapping out the weeks. 如果你知道要有獨立工作於一個研究問題時，或者如果你認為這樣工作將引起問題，你可參考 ***Guideline Book 論文指南***，及組織你的寫作學術論文每週日程表和星期進度。

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2. Selecting and Researching Your Topic 選擇和研究您的題目

- When you have been used to having essay questions and assignment topics set for you, it can be difficult to decide what to do when you have been given some freedom in this respect. There is also a risk that the freedom might go to your head so that you take on more than you can ***cope with in time available***. 當你習慣於問題和任務題目時，決定該做什麼是不容易的，你應當對此時給自己一些時間，以便可以善用在可***利用時間***內承擔更多的工作。

- When deciding on a subject for your dissertation keep in mind the research requirements, and be guided by the adage '***the narrower and more specific the better***'. If you are unsure consult your supervisor. 當要決定你的學術論文主題時，記住研究要求是要「***最好是更加狹窄和具體***」，如果你覺得缺乏信心，與你的論文導師諮詢。

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2.1 Choosing your topic: the hunt for an idea 選擇題目:憑直覺產生意念

Keep the following points in mind: 記住下列提示

- Is the topic of ***academic significance***, and not trivial?
  是否題目***有學術意識***和不是瑣碎?

- Is the topic really manageable in the time available? It is a common mistake to imagine that you can cover far more that is actually feasible, so keep a suitably narrow focus. Do not ask ***too big question***. Make sure that you take advice from your supervisor on this. 題目是否有時間地易於處理呢? 常見的錯誤是研究範圍太闊，因此論文題目是要有適宜地及狹窄的研究重點，不要問***太大的問題***，切記你要採取論文導師的忠告。

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Choosing your topic 選擇題目

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- Be aware of ***your own standpoint*** – your own take on the topic. How do your own attitudes, values and beliefs affect your research? No one can be entirely objective – be honest about your own interests and values. 注意你自己在***題目的立場***，你自己的態度、價值和信仰怎麼影響你的研究？ 沒有人可以是完全地客觀的- 能誠實地關於你自己的興趣和價值。

- As early as possible, ***write your thesis*** - the proposition that you are investigating. Keep this to hand whenever you are analysing evidence or writing out your argument, so that you do no fall into the trap of simply collecting facts rather than unfolding a clear argument relating to a narrowly defined issue. 儘早***寫下你的論文*** - 你調查的提議。保留此處，每當你分析證據或寫出你的論據後，不要落入簡單收集事實的陷阱，而不是展開一個清楚及專心的論據。

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2.2 Conducting a literature search or review 文獻搜集或回顧

- In order to write with confidence about your topic, you will need to read what members of the academic community have already been said about it. Read the Guideline Book to ensure that you know how to access relevant material in a variety of formats. 為了充滿信心地寫關於你的論文題目、你將需要參閱學術界對此題目學說。你可採取從論文指南中找尋相關的材料以及各種各樣的格式。

- Remember to look for ***up-to-date references*** to the topic. There may well be classic texts, particular relating to underpinning theories, but you should also see what has been said in recent years. The availability of electronic journals will help greatly with this, as they are easily searchable. 記住尋找在論文題目的***最新參考***，逆不定有經典文本，特殊與相關基本理論，但是你祇該也看到近年學說，因為他們容易地搜查，electronic journals 能提供很大的幫助以及非常容易找到資料。

- CRITICAL REVIEW 批判式檢討

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2.3 Researching and exploring your topic: methods and methodologies 研究和探索你的題目: 方法和方法學

- Research is a form of learning, or finding out. When you *find out* anything, you do it in a particular way, or using a *particular* methodology, even if you are not aware of it. Particularly if you are a Masters level student, you should be aware of the methodology you are adopting in your search for evidence, and of where that methodology fits in spectrum of possible approaches: ***quantitative research and qualitative research***. 研究是學習的一種形式或方法學去尋找。特別如果你是碩士學生，你應該合道你的查尋採取證據的方法學: ***定量研究和定性研究***。

- ***Quantitative research*** is based on scientific method. It purports to be as objective as possible, and is often based on statistics or other measurable, empirical data. Conclusions will be drawn from the analysis of things clearly measured. ***定量***研究根據科學方法，它聲稱是一種客觀和根據統計為依據的方法，結論是從清楚的事件分析結果。

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- ***Qualitative research*** is often based on subjective data items, which cannot be given a numeric value for example the attitudes and opinions of a range of individuals on an issue. Anthropological study, for example, may be based on small details of people's experience, collected through observation. These will be words rather than numbers, and statistical generalisations cannot be drawn from them. ***質性/定性研究***根據主觀資宗為主，不可能給一個數值，如個人態度和關於問題的觀點。例如人類學的研究，也許根據人的經驗小細節，收集通過觀察，這些研究是被描述而不是數字的，並且統計概念化不可能從他們觀察中容易得出。

- In practice, few dissertations involve only qualitative or only quantitative methods, but there is often a major focus on one end of the spectrum or the other, where will your focus lie? The answer should depend upon the kind of enquiry you are engaged in: again, ***ask your supervisor for advice*** about this. 實際上，少量學術論文只用定性或定量方法，經是兩者合一。你的研究焦點在哪裡?研究問題與答案應該相關的：與你的***論文導師***討論。

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Triangulation is often used to indicate that more than two methods is used in study with a view to double (or triple) checking results. 三角分析法是採用兩個或多個研究方法去發現結果。

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2.4 The importance of having a thesis and evaluating it critically 論文和重要評估的重要性

- Remember that you re constructing an argument or defending a thesis from the beginning to the end of your assignment. Keep your thesis - ***the statement you are defending or central argument*** you are asserting – in the forefront of your mind as you write. 從你的學術論文的結尾，記著你架構的***論據或支持論文的立論，***你要寫在你的思維前線上。

- Think of this central idea, and the logical development of your argument (***train of thought***) around this, as being the central path of your dissertation, and make sure that you do not have sections or paragraphs which are somewhere in the shrubbery out of sight of the main path. Every paragraph should further the central argument, by providing another angle on it, additional evidence, and evaluation of that evidence in relation to the central thesis. 思考這個中心意念和你的思路邏輯發展（***思維訓練***），作為是你的學術論文主要路，並且切記你不要衹見樹木不見森林。每一段應該通過提供另一個角度促進中心論文，及評估關於另外的證據的證據與中心論文的關係。

3. Writing up your findings 寫下研究結果

- As you carry out your research it is important to remember that time you have at your disposal is limited, and that the effort you put into this aspect of your dissertation needs to be ***reflected in the end product***. 因為你執行研究時要記得時間是有限的，並且你要將你的學術論文的努力能力最後的***研究反應出來。***

- To this end it is essential to ***plan your strategy and think about the overall structure of your dissertation*** sooner rather than later. Try to ensure that your search effort is aligned with the way in which your dissertation will be structured. 為達成此，你要盡早***計劃你的策略和考慮你的學術論文結構***，設法保證你的研究工作與學術論文將被有效地組織。

3.1 Planning and staging your deadlines 計劃和論文期限

Organising your weekly schedule 組織您的每週日程表

- Draw a typical week's timetable on a large sheet of paper 在一張紙上劃出一個星期的時間表
- Once you have marked in the essential, as you see them, take a good look at where you could commit time. 一旦你將主要工作計劃好，你要將做時間安排。
- Be realistic – do not aim for the impossible. 現實一點- 不要定不可能的目標。
- Once you have found a reasonably regular pattern of study that suits you, look for ways of prioritizing the work that needs to be done. 一旦你找到一個合適你的研究習慣，將優先的工作完成。
- Yourself to stay committed to your study times. 盡量用你自己承諾時間的完成研究。

3.2 Creating an appropriate structure for the dissertation 創造學術端文的一個適當的結構

- It is important to be clear about the structure of your dissertation, to ensure that your ideas are clearly and logically presented to your reader, so that your argument, with it is supporting evidence, can be followed. You will need a clear ***introduction***, followed by ***the main body*** of your argument, and then a ***conclusion***, but make sure that you talk to your supervisor about how your assignment should be structured. There may also be written guidance on this aspect in your School. 要注意你的學術論文結構，保證你的想法明顯地和邏輯上被提出來給讀者，因此你的論據，與它的附屬證據都可以被跟隨。你將需要清楚***介紹***，跟隨論據***主體***，然後***結論***。但是你與論文導師談及論文的應該構造，在這個方面也許也在論文指導上有幫助。

- Try noting down your ***provisional chapter headings*** here, together with a few initial thoughts on the contents of each chapter. 設法將你的***臨時章節標題***寫下，與在每個章節內容的最初的想法一至。

3.3 Maintaining academic principles: ethics, referencing and intellectual honesty 維護的學術原則：道德，參考和知識產權的誠實

- It is absolutely vial with a dissertation, as with all academic work, that your assignment meets the required standards in terms of ethics, accurate referencing and intellectual honesty. 它是一個絕對重要的學術論文部份，與所有學術一樣，你的任務必需符文它的道德標準，參考和知識產權的***誠實***。

ETHICAL STANDARDS; 道德標準

REFERENCING; AND 參考和

INTELLECTUAL HONESTY 知識產權的誠實

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4. Being your own Critic before Submitting your Work 在遞交論文前之自我評論

4.1 Using a self-critic 自我評論

- Depending on your subject discipline, you will probably find some terms and some categories more useful and important than others, but this is a generic overview of the kinds of criteria markers use for dissertations. 根據你主修的學科，你比其他也許發現有些名稱和有些類別是比較有用和重要，但是這種普通概要標準只是學術文用作評分的用途。

- Make sure that you also have in front of you a copy of the specific marking criteria for your dissertation: these should be available from your School or Faculty, and are often to be found on your Guideline Book. 切記你的學術論文也會在被這概要標準評分: 這些在你的 Guideline Book 論文指南中取得。

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4.2 Related approaches 相關方法

- When you have written something that relates to your dissertation, always put it aside for few of days. In other words 'sleep on it'. Then reread with a critical eye. Try to put yourself in the position of someone who is interested in your topic but knows nothing about it. Would it make sense to him or her? Have you used the best words to express the points you are seeking to make? Where does what you have written fit into the dissertation as a whole? 當年寫學術論文時，不妨為把它放到一邊幾天，換句話說讓它 〝放在一旁〞，然後用針對性地再讀它一次。不要將你的題目給感興趣的人但他對它一無所知。論文芍他或她是否有道理呢? 你已使用最佳的詞表達你要尋求的觀點? 在哪裡你能適合地將整體學術論文寫出?

- The Three **R**s of competent writing are revise, revise, revise. This is especially important with a substantial piece of work like a dissertation.

  三 **R**s 重要是：修訂，修訂，修訂，這是對學術論文的最重要的一項工作。

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5. Tips to You 技巧提示

- As has been emphasised, one of the key challenges in preparing a dissertation is consistency of effort. You must avoid the temptation to coast and cram, and know how to:
- Start a project writing plan 開始你的論文計劃
- When can you collect and how can you analyze your data? 你手上有什麼資料可供收集 (問卷調查對象) 及研究 (統計分析方法)
- Identify an appropriate topic 然後寫一個合適你的論文題目 (你熟識的)
- Find a suitable Supervisor 找一個合適你的論文導師
- Action is better than planning 行動比計劃重要

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組織一個合適你的論文架構(章節)

- Title page 標題頁
- Declaration 聲明
- Acknowledgements 致謝 (optional)
- Abstract 摘要
- Table of contents 內容頁
- Lists of tables, figures, appendices 圖目錄/表目錄

Chapter 1: Introduction 介紹
Chapter 2: Literature review 文獻回顧/文獻綜述
Chapter 3: Research Methodology研究方法
Chapter 4: Data Analysis 分析結果
Chapter 5: Conclusions 結論及建議

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組織一個合適你的論文架構(章節)

A. Introduction 介紹

Chapter I: Introduction介紹→ Research background (management problem/issue), objectives and questions 學術論文背景 (管理問題) ，目的及研究問題

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組織一個合論你論文架構(章節)

B. Main body of your argument 論據主題

Chapter 2: Literature review 文獻回顧 → Critical Review 批判式檢討及
Theoretical underpinnings 理論基礎

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組織一個合論你論文架構(章節)

B. Main body of your argument

Chapter 3: Research Methodology研究方法→(data collection methods, research sampling and analysis techniques)

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組織一個合論你論文架構(章節)

B. Main body of your argument

Chapter 4: Discussion of the results分析結果→ how it supports the dissertation

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組織一個合論你論文架構(章節)

B. Main body of your argument

Chapter 5: Conclusions →what the conclusions lead to research questions, and the recommendations 結論及建議

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組織一個合論你論文架構(章節)

C. Reference Page

1. References 參考
2. Appendices 附錄

- **Check for the correct format of Harvard reference**
  http://www.citethisforme.com/harvard

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Research Methodology
學術論文寫作工作坊
Day 2

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Course Introduction 課程簡介

➢Five Themes 五個主題

- ✓Introduction to Research 研究導論
- ✓Research Proposal 研究題案
- ✓Research Design 研究設計
- ✓Sources and Collection of Data 來源及數據收集
- ✓Analysis and Presentation of Data 分析及數據報告

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Part 1 : Introduction to Research

➢What is business research? 何謂商業研究?
➢Types of Research Studies 研究的種類
➢How to do research? 怎樣做研究?
➢What is Good Research? 怎樣才算好研究
➢Language of Research 研究的語言

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What is Business Research?

A process of determining, acquiring, analyzing, synthesizing, and disseminating relevant business data, information, and insights to decision makers in ways that mobilize the organization to take appropriate business actions that, in turn, maximize business performance

一個決定, 採集, 分析, 綜合及傳播相關的商業數據, 資訊及觀點給決策者去選擇適合的商業行動, 最後達致商業表現最大化的過程

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Types of Research 研究的種類

- Applied research 應用研究:
  - ✓ To answer questions about specific problems or to make decisions about a particular course of action 去回答特定的問題或決策特定的行動
  - ✓ Directed to making managerial decisions 管理決策的導向
- Pure research/ basic research 純研究/ 基礎研究:
  - ✓ To obtain new knowledge of an experimental or theoretical nature 為了獲得新的實驗性或理論性知識
  - ✓ Little direct impact on action, performance or policy actions 很少直接影響行動，表現或政策行動

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Four types of Practical Research Studies 四種類型的實踐研究

- Reporting 報告
  - ✓ Summation of data 概括的數據
- Descriptive 描述
  - ✓ Who, what, when, where, and how 誰, 什麼, 什麼時候, 什麼地方, 怎樣
- Explanatory 闡釋
  - ✓ Why — attempt to ex lain the reasons of the phenomenon 為何 — 嘗試解釋現象的原因
- Predictive 預測
  - ✓ To predict when and in what situations the event will occur 去預測什麼時候及什麼情況事件將會出現

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The Research Process 研究程序

- Clarifying the Research Question 澄清研究問題
- Research Design Strategy 研究設計策略
- Data Collection 數據收集
- Data Analysis and Interpretation 數據分析及解釋
- Research Reporting 研究報告
- Management Decision 管理層決策

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What is Good Research?
何謂好的研究?

- 遵從科學方法的準則
  Following the standards of the scientific method
  - ✓ 目標清晰 Purpose clearly defined
  - ✓ 過程詳細 Research process detailed
  - ✓ 策劃慎密 Research design thoroughly planned
  - ✓ 局限明確 Limitations frankly revealed
  - ✓ 情操高尚 High ethical standards applied

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The Manager-Researcher Relationship管理人員與研究人員的關係

- 管理人員的責任 Manager's obligations
  - ✓ 說明問題 Specify problems
  - ✓ 提供恰當的背景數據 Provide adequate background information
  - ✓ 保護公司的數據 Access to company information gatekeepers
- 研究人類的責任 Researcher's obligations
  - ✓ 製定一個有創意的研究計劃 Develop a creative research design
  - ✓ 為重要業務疑難提出答案 Provide answers to important business questions

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Sources of Knowledge知識來源

- 經驗主義者通過觀察來描述、闡釋及作出預測
  Empiricists attempt to describe, explain, and make predictions through observation

- 理性主義者相信一切知識皆可由已知定理及基本真理推論而得
  Rationalists believe all knowledge can be deuced from known laws or basic truths of nature

- 權威可作為知識的重要來源，但須視乎其誠信及是否不偏不倚
  Authorities serve as important sources of knowledge, but should be judged on integrity and willingness to present a balanced case

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The Essential Tenets of Science 科學原則的精

- 直接觀察現象 Direct observation of phenomena
- 明確界定變數、方法及步驟 Clearly defined variables, methods, and procedures
- 可實際測試的假設 Empirically testable hypotheses
- 排柔相悖假設的能力 Ability to rule out rival hypotheses
- 結論有統計數據支持 Statistical justification of conclusions
- 自我修正的過程 Self-correcting process

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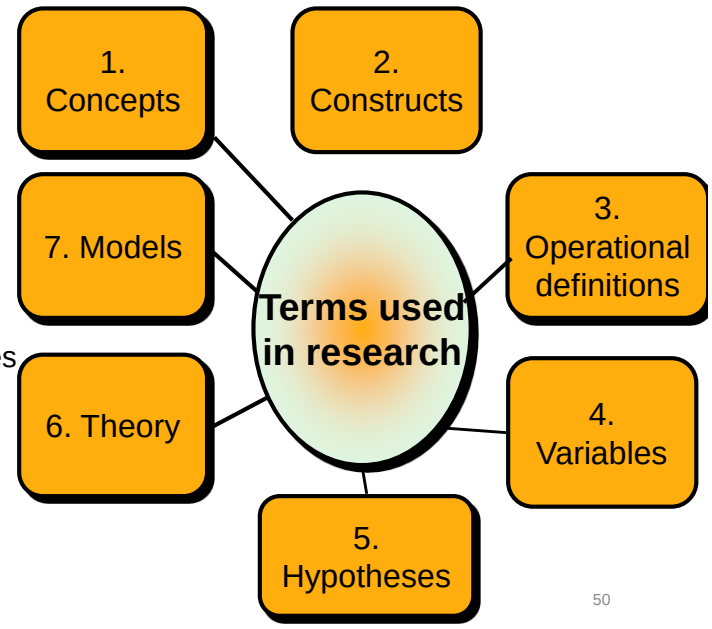
Important Arguments in Research
研究內的重要論據

- 演繹法以推論得出結論
  Deduction is a form of inference that purports to be conclusive

- 歸納法從一件或多件事實得出結論
  Induction draws conclusions from one or more particular facts

The Language of Research
研究的語言

- 概念 Concepts and 構念 Constructs
- 定義 Definitions
- 變數 Variables
- 命題及假設 Propositions and Hypotheses
- 理論 Theories
- 模型 Models



Concepts 概念

- Abstract meanings from reality and use words as labels to designate them 從現實摘要含義及用文字作為標籤去區分它們
- Generally accepted collection of meanings or characteristics associated with certain events, objects, conditions… 一般接受的含義或某些事件，對象，條件的特徵
- A concept is a bundle of meanings or characteristics associated with certain events, objects, conditions, situations, and behaviors 概念是一組含意或特徵，關係著特定的事件、對象、條件、情勢及行為
- Concepts have been developed over time through shared usage 概念一直由共用而得發展

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Concepts 概念

- 研究的成敗繫於The success of research hinges on:

  ✓概念化的清晰程度
  how clearly we conceptualize

  ✓他人對我們所用的概念有多瞭解
  how well others understand the concepts we use

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Constructs 構念

- An idea/ concept specifically invented for a given research/ theory building purpose 一個想法/概念為指定的研究/理論建設而特別創造的

  構念是一個特意構築的形象或意念，用作輔助研究及/或建立理論

- Build by combining single concepts 將單獨的概念組合起來

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Concept vs. Construct 概念與構念

➢Concept: 概念

- E.g. “Table” 例如: “桌子”
- Yes, “Table:” is a concept !! 對, “桌子”是一個概念!!
- Table has 4 legs and flat surface on top, right?! 桌子有四條腿及一個平面在其上面, 對嗎?!
- Shared usage & Shared knowledge 共享使用及共享知識
- It is a general accepted bundle of meanings or characteristics associated with certain events 一般接受的含義集合或幾件事件的特徵
- It has been developed over time through shared information 它已經通過共享資訊發展了一段時間
- We acquired them through personal experience 我們通過個人經驗獲得它們

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Concept vs. Construct
概念與構念

- What is “Client Satisfaction”? 什麼是 “客戶滿意度”?
- Deliver your goods or services on time. 按時交付貨物或服務
- Cheapest price in town. 城市最平的價格
- Speedy services. 快速的服務
- Have a lot of good looking sales people to serve your or me.
  有很多好看的銷售人員服務你或我
- Everyone would probably define it differently !!! 每個人可能有不同的定義!!!!
- Therefore “Client Satisfaction” is a Construct 因此 “客戶滿意度” 是一個構念

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Definition 定義(1)

- Why do we need DEFINITION? 為何我們需要定義?
- To avoid confusion 避免混淆
- To communicate on the same wavelength 在相同 “波長” 下溝通
- To make everything clearly identified 讓所有東西清楚認出
- One way to reduce miscommunication in a research study 在研究中減少誤解的一個方法
- There are 2 types of definitions that researchers must struggle with. 有2種定義研究員必須掙扎
- - Dictionary Definition & Operational Definition 字典定義及操作

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Definition 定義(2)

1.Dictionary Definition 字典定義

- ➢It is the definition from any dictionary 它是從字典的定義
- ➢It is not adequate for research purpose 它用於研究目的地上並不足夠

2.Operational Definition 操作定義(構面)

- ➢Stated in terms of specific testing or measurement criteria
  宣稱特定的測試或量度標準
- ➢We must be able to count, measure, or be able to gather information
  我們必須要數算, 量度, 或能夠收集信息
- ➢More rigorous definition 更嚴格的定義
- ➢Anyone try to use it would classify the object in the same way
  任何人嘗試使用它可能會以同樣的方法分類物品

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Definition 定義(3)

➢To classify a person as a Child or an Adult.
去區分一個人是小童或成年人

✓Dictionary Definition: 字典定義

- Adult: "noun, one who has reached maturity" Oxford English Dictionary
  成人: 名詞, 一個達致成熟 – 牛津英語字典
- Child: "noun, a young person of either sex below the age of puberty" --- Oxford English Dictionary
  小童: 名詞:, 任何性別的年輕人在青春之前的歲數- 牛津英語字典

✓Operational Definition(s): 操作定義

- Adult: " year 18 or above" or 成人: 18歲以上或
- Adult: " has a right to vote" 成人: 有投票權
- Child: " under 18 years old" or 兒童: 18歲以下
- Child: " between 3 to 7" 兒童: 3至7歲

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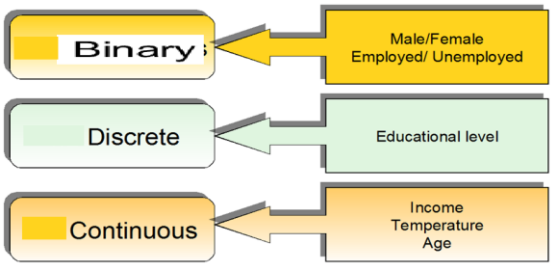
Variables 變項



- ➢Binary variable 二進制變項
  - ✓ Have only 2 values 只有2個值
- ➢Discrete variable 離散變項
  - ✓Can only assume certain values and there are usually "gaps" between values. 只可以承擔一定的值及通常值之間有 “差距”
  - ✓May take only a limited number of values 或許只需有限數目的值
  - ✓e.g.: the number of bedrooms in a house. (1,2,3,…,etc...). 例如: 在屋子裡房間的數目 (1,2,3,…,)
- ➢Continuous variable 連續變項
  - ✓May take on values within a given range or, in some cases, an infinite set. 可能在特定範圍內，或在某些情況下，無限集,所給出的值
  - ✓e.g.: time it takes to fly from Hong Kong to New York. 例如: 由香港飛到紐約所需的時間

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Variables 變項

- ➢Empirical measurement of construct 實證測量的構成
- ➢Different types: 不同種類
  - ✓Independent variables (IV)獨變項
  - ✓Dependent variables (DV)依變項
  - ✓Moderating variables (MV)緩和變項
  - ✓Extraneous variables (EV)外來變項
  - ✓Intervening variables (IVV)干擾變項

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Variables 變項

- $Y = \text{constant} + \beta_1 X_1 + \beta_2 X_x + \beta_3 X_3$
- What does the equation represent? 公式代表什麼?
- Y = Dependent Variable 依變項
- X_1, X_2, X_3, are all the Independent Variables 全都是獨變項
- β_1 β_2 β_3 are the slopes
- For example: 例如:

  Investment Return投資回報= constant + β_1 (inflation 通脹) + β_2 (Interest Rate 利率) + β_3 (Risk Level冒險程度)

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Variables 變項

- Researchers are most interested in relationships among variables.

  研究員最有與趣的是變項之間的關係
- Dependent Variable (DV)**依變項**
  - ✓E.g. Investment Return 例如: 投資回報
- Independent Variable (IV)**獨變項**
  - ✓E.g. Inflation 例如: 通脹
- At least 1 **DV** and 1 **IV** 最少一個**依變項**及一個**獨變項**
- It is normally hypothesized that in some way the **IV** "causes" the **DV** to occur

  通常假定**獨變項**導致**依變項**出現

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Independent vs Dependent
獨變項與依變項

Independent 獨變項	Dependent 依變項
Presumed cause 推測原因	Presumed effect 推測影響
Stimulus 刺激	Response 回應
Predicted from…預計從… (Predictor) (預測)	Predicted to…預計到… (Criterion) (標準)
Manipulated 操縱	Measured outcome 量度結果

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Variables 變項

- Moderating variable (MV) 緩和變項
  - ✓It is a 2nd Independent variable 這是第二個獨立變項
  - ✓it is needed when a simple one-on-one relationship needs to revised
    當一對一的關係需要修訂，它是需要的
  - ✓It has a significant contributory or contingency effect on the originally stated IV-DV relationship
    它對原本宣稱的IV-DV關係有一個顯著的分擔或應變效果
  - ✓E.g. interest rate 例如:利率

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Variables 變項

- Intervening variable (IVV) 干擾變項
  - ✓Inferred from the effects of the independent and moderator variables on the observed phenomenon 從獨娛及緩和變量觀察的現象推斷
  - ✓Is variable that cannot be seen, counted or observed in some way 這變項是不可見, 數算或觀察的
  - ✓e.g. Risk Level 例如:冒險程度

- Extraneous variable (EV) 外來變項
  - ✓It has little or no effect on the IV-DV relationship 它對IV-DV的關係有很少或沒有影響
  - ✓Irrelevant variable 不相關的變項
  - ✓Not included in the model 不包括在模型內
  - ✓e.g. Weather 例如:天氣

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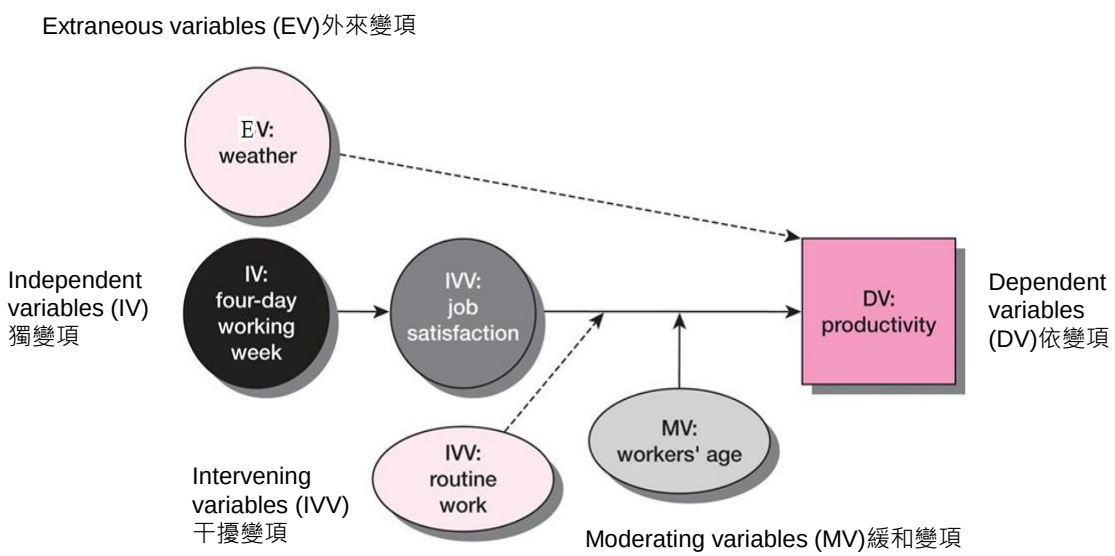

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Propositions & Hypotheses 命題與假說

- Propositions 命題
  - ✓statement about concepts 有關概念的聲明
  - ✓May be judged as true or false if it refers to observable phenomena
    如果它指的是可觀察的現象，可判斷為真或假

- Hypotheses 假說
  - ✓ Propositions formulated for empirically testing
    為實證測試制定命題
  - ✓ Tentative explanations 暫定的解釋

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Types of Hypotheses 假說的類型

- Descriptive hypotheses 描述性假說
  - ✓State the existence, size, form or distribution of some variables
    道出現存的, 大小, 形式或一些變量的分佈

- Relational hypotheses 關係假說
  - → Correlational Hypotheses相關性假說
  - → Causal (explanatory) Hypotheses因果假說

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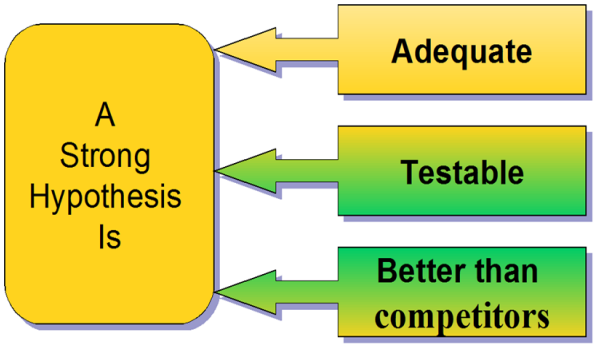
Roles of the Hypotheses 假說的角色



- 指導研究方向
  Guides the direction of the study
- 識別相關的事件
  Identifies facts that are relevant
- 啟示合適的研究計劃
  Suggests which form of research design is appropriate
- 提供框架以組織所得結論
  Provides a framework for organizing the conclusions that result

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The Value of a Theory 理論的價值

- 收窄所需研究的事件範圍
  Narrows the range of facts we need to study
- 啟發何種研究方法能得最大果效
  Suggests which research approaches will yield the greatest meaning
- 啟發合宜的數據分類體系
  Suggests a data classification system
- 總結某一對象的已明瞭知識
  Summarizes what is known about an object of study
- 預測將發生的事件
  Predicts further facts that should be found

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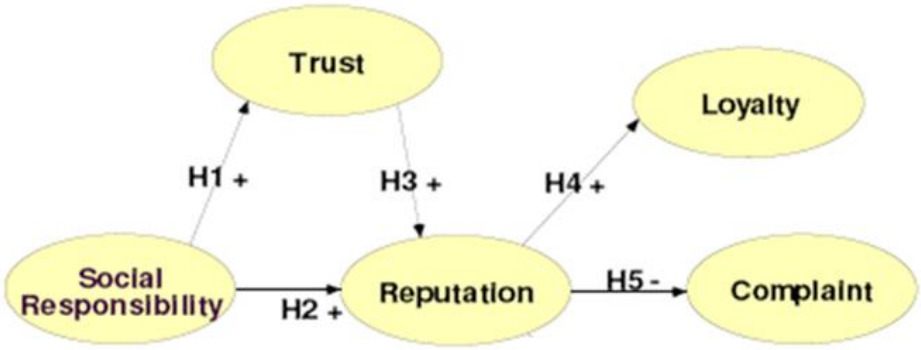
Research Model研究架構

- A model is used to represent events through the use of correlation.
- A theory's role is explanation whereas a model's role is representation.
- Example:



Part 2 : Research Proposal

- Research process 研究過程
- Research Proposal 研究提案

A : Research Process 研究過程

- Clarifying the Research Question 澄清研究問題
- Research Design 研究設計
- Research Proposal 研究提案
- Data Collection and Preparation 數據收集及準備
- Data Analysis and Interpretation 數據分析及解釋
- Reporting 報告
- Management Decision 管理決策

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Importance of Problem Definition... 問題定義的重要性...

The formulation of a problem is far more essential than its solution, which may be merely a matter of mathematical or experimental skill.

制定一個問題遠比制定一個解決方法更必要，它或許是數學與實驗技巧的融合。

To raise new questions, new possibilities, to regard old problems from a new angle requires creative imagination and marks real advance in science.

提出迎問題, 新可能性, 從一個新角度看待舊的問題, 它們都需要創造性的想像力並標誌著科技的進步。

Albert Einstein

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Step 1:Clarifying Research Question
第1部:澄清研究問題

- **Three-step process: 三個步驟**
  - ✓Discover the management dilemma 發現管理兩難
  - ✓Define the management question 解釋管理問題
  - ✓Define and refine the research questions 定義及再定義研究問題
    - Research Questions 研究問題
    - Investigative Questions 調查問題
    - Measurement Questions 量度問題

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管理研究的問題層級
The Management-Research Question Hierarchy

6管理決策 Management Decision
5量度問題 Measurement Questions
4探討問題 Investigative Questions
3研究問題 Research Questions
2管理問題 Management Questions
1 管理的兩難之局 Management Dilemma

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Step 1: Management Dilemma (1)
第一步:管理的兩難之局 (1)

- Identify: 定出
  - ✓What symptoms cause management concern?
    什麼症狀引起管理層留意?
  - ✓What environmental stimuli raise management interest?
    什麼環境刺激提高管理興趣?

- E.g. rising costs, declining sales, increasing employee turnover
  例如成本提升, 銷售下跌, 員工流失率提升
  - ✓Not difficult to identify a dilemma, however choosing one to focus on may be difficult 辨明困境不難，集中焦點卻難

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Step I: Management Dilemma (2)
第1步: 管理的兩難之局(2)

- Symptoms ≠ Problem 現象 ≠問題

- What should you do after define management dilemma?
  當你定義管理兩難之後應怎樣做?
  - ✓Review published sources, 翻閱已出版的資料來源
  - ✓Interview some information gatekeepers
    訪問一些擁有資訊的人

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Step 2: Management Questions (1)
第2步: 管理問題 (1)

- After review published sources and interview information to understand the true management dilemma, restate the it in question form.

  當瀏覽過已刊登的資料來潦及訪問資料去理解真實的管理兩難, 重新道出問題

- Three types of questions:
  - ✓Choice of purpose or objectives 目的或目標的選擇
  - ✓Generation and evaluation of solutions 造出及評估解決方案
  - ✓Trouble shooting or control situation 修正問題或檢驗狀況

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Step 2: Management Questions (2)
第2步: 管理問題 (2)

Choice of Purpose 選出目的	What marketing strategies should we achieve in coming year? 我們來年應該達成什麼市場策略?
Evaluation of solutions 評價解決方法	How can we achieve our 3-year plan of doubling sales and profits? 我們可以怎樣達成我們雙倍銷售及盈利的3年計劃?
Troubleshooting or control 找出問題或控制	What is our product line's sales-to-promotion cost ratio? 什麼是我們的生產線 銷售-宣傳成本比率? Why does our product line have the lowest sales-to-web page visit ratio? 為何我們的生產線擁有最低的 銷售-網頁瀏覽比率?

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Step 2: Management Questions (3)
第2步: 管理問題 (3)

➢**Exploration 瀏覽**

✓To clarify the possible management actions that might be taken to solve the problems
定義清楚可行的解決問題管理行

✓Common methods: 一致的方法
- Interview 訪問
- Focus Group discussions
- Brainstorming with experts 與專家共同想
- Other qualitative methods... 其他

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Step 3: Research Questions (1)
第3步: 研究問題(1)

➢Identify the possible courses of action that can correct the problem or take advantage of opportunity
闡明可行可改正問題或得到機會的行動

➢the objective of the research study (Research Objectives)
研究目的

➢fact-oriented, information-gathering questions
事實導向, 資料收集問題

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Step 3: Research Questions (2)
第3步: 研究問題(2)

- **Fine tune the research question微調研究問題**
  - ✓審視概念及構件 Examine concepts and constructs
  - ✓將研究問題拆分成更細緻的第二及第三層次問題
    Break research questions into specific second-and-third-level questions
  - ✓以素質測試來驗證假設 Verify hypotheses with quality tests
  - ✓確定何種證據能解釋各種問題及假設
    Determine what evidence answers the various questions and hypothesis
  - ✓設定研究範圍 Set the scope of your study

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Step 4: Investigative Questions
第4步: 探討問題

- Questions that the researcher must answer to satisfactorily arrive at a conclusion about the research questions.
  探討問題是研究人員必須解決以完滿地總結關乎研究中的問題

- Takes a general research question and breaks it down into more specific questions about which to gather data
  找一個一般的研究題目及將其分為更特定的題目去收集數據

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Step 5: Measurement Questions
第5步:量度問題

- The questions we actually ask or extract from respondents
  量度問題是研究人員實際想問或由答卷者的回答中抽取的問題

- Predesigned/ pretested questions vs. Custom- designed questions
  預先設計/預測試的問題與度身設計的問題
  - ✓ Predesigned/ pretested: formulated and tested previously b other researchers 預先設計/預測試的問題: 其他研究員在之前建立及曾測試
  - ✓ Custom-designed: formulated specifically for the project at hand. 度身設計的問題: 特別為手頭上的報告去制定的

- Questions to be asked in survey/ other Instruments 問題可以在問卷或用其他工具去問

- Refined after pilot testing 在預測後進行修正

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Management Research Question Hierarchy
管理研究問題的階層

Management Dilemma **管理的兩難**	**Symptom of an actual problem 實際問題的症狀**
Management Questions 管理問題	Restate the Management Dilemma in Question form 以問題形式重申管理兩難
Research Questions 研究問題	More specific Management Questions 更特定的管理問題
Investigative Questions探討問題	More specific Research Questions 更特定的研究問題
Measurement Questions 量度問題	Questions appeared on the questionnaire 問題在問卷上出現

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Example of Management Research Question Hierarchy 管理研究問題的階層的例子

- Management Dilemma: 管理兩難:
  - ✓Students do not like to study Chinese Subject. 學生不喜歡學習中文科
- Management Questions: 管理問題
  - ✓Why students do not like to study Chinese? 為何學生不喜歡學習中文科?
- Research Questions: 研究問題
  - ✓Do not like the textbook? 不喜歡該教科書?
  - ✓Do not like the course content? 不喜歡該課程內容?
  - ✓Do not like the lecturer? 不喜歡該講師?

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Research Design (1) 研究設計 (1)

- Select a research design from the large variety of methods, techniques procedures, protocols, and sampling plans

  從各種各類方法、投術、程序、協定及取樣計劃中選取一種研究計劃
- The blueprint for fulfilling objectives and answering questions 為實現目標和回答問題的藍圖
- Items included: 包括的項目
  - ✓Research Methods: 研究方法
    - Qualitative methods vs Quantitative methods 定性方法與定量方法
      - → Data collection methods 數據收集方法
      - → Data analysis methods 數據分析方法
  - ✓Target participants 目標參與者

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Research Design (2)
研究設計 (2)

- Sampling Design 樣本設計
  - ✓Target respondents 目標回應者
  - ✓Sampling frame 抽樣框
  - ✓Sampling procedure 抽樣程序
  - ✓Sample size 樣本大小

- Data collection procedures 數據收集程序
  - ✓Types of data involved: primary, secondary 包括數據
  - ✓Instruments 工具

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Contents of a Research Proposal
研究計劃內容

- Statement of the research question 研究問題的陳述
- Brief description of research methodology 研究方法的簡述
- Pilot Testing試驗性測試
- Data collection 數據搜集
- Data preparation數據準備
- Data analysis and interpretation 數據分析及詮釋
- Research reporting 研究報告

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Research Proposal
研究提案

- Incorporates decisions made during early project planning phases
  整合在項目的前期規劃時的決定

- Two basic sections: 兩個基本部分:
  - ✓Statement of research questions 研究問題的聲明
  - ✓Description of research methodology (research design)
    研究方法的描述 (研究設計)

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Data Collection 數據搜集

- Pilot testing: 先導測試
  - ✓to detect the weaknesses in design and instrumentation
    去檢測設計及工具上的弱點
  - ✓to provide proxy data 提供代理數據

- Data: facts presented from the study's environment
  數據: 從研究環境中陳述的事實

- Data should be: Accurate, Relevant, Updated, and Reliable
  數據應該是: 準確, 有關的, 已更新的及可靠的

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Data Collection數據搜集

- 特徵 Characterized by
  - ✓抽象 abstractness
  - ✓可驗證 verifiability
  - ✓難以捉摸 intangibility
  - ✓與現象的接近程度 closeness to the phenomenon

- 類別Types
  - ✓二手數據Secondary data
  - ✓一手數據Primary data

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研究的完成步驟
Final Steps in Research

- 數據分析 Data analysis

- 報告結果 Reporting the results
  - ✓執行總結 Executive summary
  - ✓研究概觀 Overview of the research
  - ✓落實建議的策略 Implementation strategies for the recommendations
  - ✓技術附錄 Technical appendix

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Data Analysis & Interpretation
數據分析及解釋

- Analysis involved: 分析包括
  - ✓reducing accumulated data to manageable size 減少積累的數據
  - ✓developing summaries 發展總結
  - ✓looking for patterns 找出模式
  - ✓applying statistical techniques 應用統計技術

- Make recommendations based on the interpretation of the data 根據對數據的解釋給予建議

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Reporting
報告

- to describe the findings — to transmit the results and recommendations to the intended decision maker.
  去解釋發現 -轉遞結果及建議決策者

- Researcher should assess the manager's needs and incorporate this understanding into the research report
  研究員應該評估經理人的需要並將這些了解融入到研究報告

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Common Problems (1)
共同的問題 (1)

- Favored Technique Syndrome 技術偏好現象
  - ✓Method-bound researchers: recast management questions to meet their favorite methodology
    綁定方法研究: 改寫管理問題達致他們喜歡的方法
- Company Database Strip-mining開發公司數據庫
  - ✓Over-reliance on the company database as their major information source 過渡開發公司數據庫

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Common Problems (2)
共同的問題 (2)

- Unsearchable Questions 無法研究的難題
  - ✓Observable? Data available? 可觀察? 有數據?
  - ✓Costs vs Benefits 代價對得益
- Ill-defined Management Problems 沒有釐定清楚的管理疑難
- Politically motivated research 基於政治動機的研究

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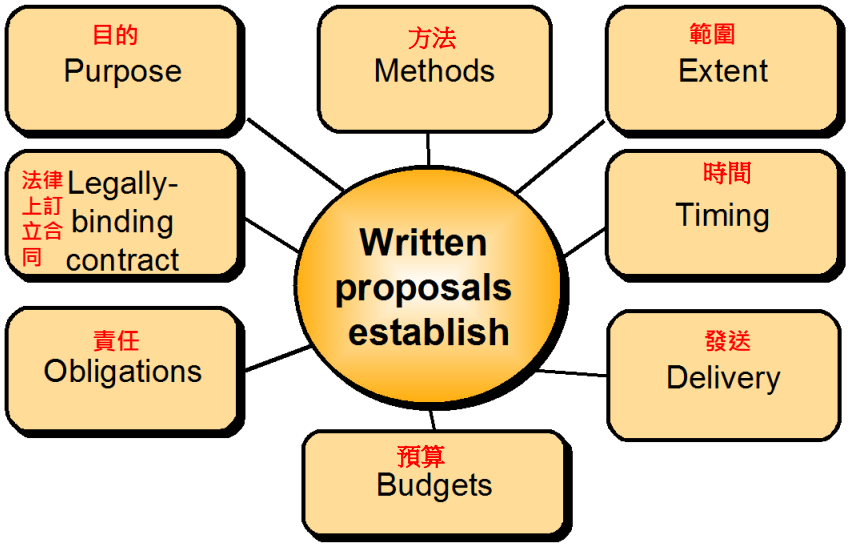
The Research Proposal 研究議案



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B：How to write a research proposal?
B：怎樣撰寫一個研究議案?

- Purpose of Research Proposal 研究議案目的
  - ✓Clearly present the management question to be researched and relate its importance
    提出需研究的問題及其重要性
  - ✓To discuss the research efforts of others who have worked on related questions
    論述他人在研究有關問題上所作的努力
  - ✓To suggest the data necessary for solving the problem and how the data will gathered treated and interpreted.
    提出解決問題所需的數據

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研究的發起者
The Research Sponsor

All research has a sponsor in one form or another:
任何研究皆有形形式式的發起者:

- 在企業環境內，管理層發起研究
  In a corporate setting, management sponsors research

- 在學術環起內，學生需向論師負責
  In an academic environment, the student is responsible to the class instructor

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對研究員的好處
What are the Benefits of the Proposal to a Researcher?

- 容許研究員策劃及檢討計劃步驟
  Allows the researcher to plan and review the project's steps

- 作為整個計劃的指引
  Serves as a guide throughout the investigation

- 促使對時間及預算作出評估
  Forces time and budget estimates

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研究計劃的種類
Types of Research Proposals

- 內部 Internal
- 外部 External

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計劃的複雜性
Proposal Complexity

三重複雜性 3 levels of complexity:

1. 探索式研究是最簡單的計劃
   The exploratory study is used for the most simple proposals
2. 小規模研究較複雜，公司較多採用
   The small-scale study is more complex and common in business
3. 大規模專業研究最為複雜，耗資數以百萬計
   The large-scale professional study is the most complex, costing millions of dollars

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如何建立研究計劃
How to Structure 'the Research Proposal?

➢建立計劃組件Create proposal modules

➢因應擬定的受眾，結合各組件,組成計劃書

Put together various modules to tailor your proposal to the intended audience

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研究計劃中的組件
Modules in a Research Proposal

- 摘要 Abstract
- 疑難陳述 Problem Statement
- 研究目的及目標 Research Aim & Objectives
- 文獻評述 Literature Review
- 研究的重要性 Importance of the Study
- 研究的設計 Research Design
- 數據分析 Data Analysis
- 研究結果的本質及研式 Nature and Form of Results

研究人員的資歷 Qualifications of Researcher
預算 Budget
時間表 Schedule
設備及特殊資源 Facilities and Special Resources
項目管理 Project Management
參考書目 Bibliography
附錄 Appendices

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Structure of a Proposal (1)
議案的結構 (1)

➢Abstract 摘要

- an informative abstract 內容摘要
- allows a busy manager to understand quickly the essentials of the proposal 讓忙碌的經理去快速了解該提案的要領
- include brief summary of the management dilemma, management questions, research questions, and benefits of your research包括管理兩難的簡單摘要, 管理問題, 研究問題, 及你的研究之得著

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Structure of a Proposal (2)
議案的結構 (2)

➢ Problem Statement (Introduction) 問題的聲明(介紹)

- stating the management dilemma, background, consequences and resulting management question
  說明管理的困境, 背景, 後果以及由此產生的管理問題
- State the importance/ benefits of your study
  說明你的研究之重要性/ 得著
- state any restrictions or areas not be addressed
  說明限制或不加以解決的領域

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Structure of a Proposal. (3)
議案的結構 (3)

➢**Research Aim and Objectives 研究目的及研究目標**
- Addresses the purpose of the investigation 點出調查的目的
- Descriptive study: objectives can be stated as the research question 描述性研究: 目的可以表述為研究問題
- Causal study: objectives can be stated as a hypothesis
  因果關係研究: 目的可以表述為一個假說
- List the objectives in order of importance or in general terms then move to specific terms
  按目的之重要性列出或先列出一般的術語之後才到特別的術語

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Structure of a Proposal (4)
議案的結構 (4)

➢ Literature Review 文獻回顧
- examines recent research studies, company data, or industry reports 探討最近的研究, 公司的數據, 或行業報告
- discuss the related literature (from a comprehensive perspective to more specific studies) 討論相關文獻(從全面的角度到更具體的研究)
- summarize the important aspects of the literature and interpret them in terms of your problems
  總結文獻的重要方面, 並在你的問題上作解釋

➢Example : 例子
- Yu and Dean (2000) proposed that satisfaction involves both cognitive and affective (emotional) components.

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Structure of a Proposal (5)
議案的結構

➢**Purpose of Literature Review 文獻回顧的目的**
- To refine research questions and objectives 優化研究問題和目的
- To highlight research possibilities that have been overlooked
  為了較出研究的可能性已被忽略
- To avoid simply repeating work 避免重複的研究
- To gain insights into your research questions
  深入研究問題的見解
- to discover and provide an insight into research approaches, strategies, and techniques
  發現研究方法, 策略, 及技術並為它們提供見解

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Structure of a Proposal (6)
議案的結構 (6)

➢**Structure of Literature Review 文獻回顧的結構**
- From a more general question to a more specific research questions
  由最基本的問題到更指定的研究問題
- Provide a key overview of key ideas 為重要的想法提供一個總概觀
- Summarize, compare, and contrast the work of key writers
  總結, 比較及對比主要作者的研究
- Highlight those issues where your research will provide fresh insights
  較出你的研究將提供新見解的問題
- Lead the reader into subsequent sections of your project
  帶領讀者到你的項目的後續章節

➢**Examples and Citation Format 例子與引述方式**

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Structure of a Proposal (7)
議案的結構 (7)

➢**Research Design 研究設計**

✓describes what you are doing in technical terms
以專業的術語去解釋你正在做什麼

✓should include: 應包括:

- research method used 所用的研究方法
- sampling plan 樣本計劃
- data collection method 數據收集方法
- Instrumentation & procedures, and 工具和程序, 及
- data analysis methods數據分析方法

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Structure of a Proposal (8)
議案的結構 (8)

➢Budget 預算

➢Schedule 議程

- describe the major phases of the project, timetables, and the milestones that signify completion of a phase

➢Others 其他

- Bibliography 書目
- Appendixes: Glossary, Measurement Instrument, other information 附加資料

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附錄包含什麼?
What to include in the Appendices?

- A glossary of concepts, constructs, and definitions
  有關概念、構件及定義的術語表
- Samples of the measurement instrument
  有關量度工具的樣品
- Other materials that reinforce the body of the proposal
  其他能鞏固計劃內容的素材

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評估研究計劃
Evaluating the Research Proposal

- 計劃書內容須書寫工整、體材合宜
  Proposal must be neatly written in appropriate writing style
- 主要主題須易於查閱及條理分明
  Major topics should be easily found and logically organized
- 計劃書須符合發起人的特定指引
  Proposal must meet specific guidelines set by the sponsor
- 技術性寫作體材須寫清楚瞭解及解釋
  Technical writing style must be clearly understood and explained

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(1) Keys To Write A Good Proposal
(1)撰寫好議案的關鍵

➢**Overall Quality of the Study 研究的總體質素**

- Good research question 好的研究問題
- Appropriate research design 適合的研究設計
- Careful and feasible methods 嚴格的和可行的方法
- Qualified research team合資格的研究隊伍

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(2) Keys To Write A Good Proposal
(2) 撰寫好議案的關鍵

➢**Quality of the Proposal 議案的質素**

- Informative title 有資訊的題目
- Self-sufficient and convincing abstract 自給自足和令人信服的摘要
- Clear research questions 清晰的研究問題
- Good literature review 好的文獻回顧
- Appropriate population and sample design 適合的人合及樣本設計
- Appropriate measurement and intervention methods Sound analysis plan 健全的分析計劃
- Ethical issues well addressed 好好處理論理問題
- Tight budget and realistic timetable 嚴格的預算和切合實際的時間表

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What are Research Ethics?
何謂研究的論理?

- Ethics are norms or standards of behavior that guide moral choices about our behavior and our relationships with others 論理是行為的規範或標準，指導我們在行為方面的道德選擇以及與他人的關係
- The goal is to ensure that no one is harmed or suffers adverse consequences from research activities 其目標是確保沒有人因研究活動而受損害或遭致不良反果

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Ethical Treatment of Participants
對參與者合符道德的對待

- Begin data collection by explaining to the participant the benefits expected from the research 從開始時向參與者解說預期研究可帶來的益處
- Explain to the participants that their rights and well-being will be adequately protected, and say how this will be done 向參與者解說他們的權利及利益都會得到適當的保護，並說明如何做到
- Be certain that interviewers obtain the informed consent of the participant 確定採訪者得到參與者的瞭解及同意

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Deception 詐騙

- The participant is told only part of the truth or when the truth is fully compromised
  參與者僅知部份真相或真相已遭全然歪曲
- To prevent biasing the participants before the survey or experiment
  預防參與者調查在或實驗前受影響而生偏見
- To protect the confidentiality of a third party
  保護第三者的隱密性

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Issues Related to Protecting Participants
保護參與者的有關問題

- Informed consent 事先瞭解並且同意
- Debriefing 詢問
- Right to Privacy/Confidentiality 私隱/隱密權
- Data Collection in Cyberspace
  在電腦世界中搜集數據

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Ethical Issues related to the Client
關乎客戶的倫理問題

- Sponsor non-disclosure 保密發起人
- Purpose non-disclosure 保密研究目的
- Findings non-disclosure 保密研究結果
- Right to quality research優質研究的權利

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關乎發起人的倫理
Ethics Related to Sponsor

- **Sometimes researchers will be asked by sponsors to participate in unethical behavior 研究人員布時會被發起人要求參與不道德行為**
- **To avoid coercion b sponsor the researcher should: 為避免發起人的壓迫，研究人員應：**
  - Educate sponsor to the purpose of research 教育發起人關於研究的目的
  - Explain researcher's role 解釋研究人員的角色
  - Explain how distortion of the truth leads to future problems 解釋歪曲真相會如何導致將來的問題
  - If necessary, terminate relationship with sponsor 必要時結束與發起人的關聯

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Ethical Issues related to Researchers and Team Members
關乎研究人員與組員的倫理問題

- Safety 安全
- Ethical behavior of assistants 助手的道德操守
- Protection of anonymity保護匿名

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Research Methodology
學術論文寫作工作坊
Day 3

Katherine Mo
mowykat1hkma@gmail.com

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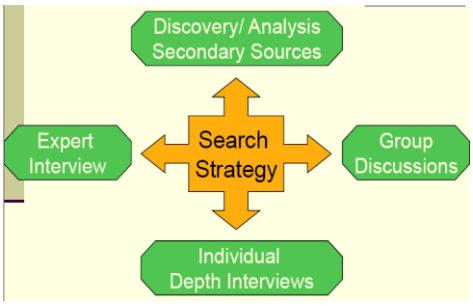
Part 3 : Research Design
第3部分: 研究設計

- **What is research design? 什麼是研究設計?**
- **Quantitative vs Qualitative Techniques 定性與定量技巧**
- **Three kinds of Research 三種研究:**
  - Exploratory research 探索性研究
    - Interview: Individual & Group 訪問:個人及一組
  - Descriptive research 描述性研究
    - Observation 觀察
    - Survey 問卷調查
  - Causal research因果研究



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何謂研究設計?
What is Research Design?

- 研究設計是一個計劃，用以選擇資源及資訊來解決所研究的疑難
  A plan for selecting the sources and types of information used to answer research questions
- 研究設計是一個框架，用來指明所研究的各個變數之間的關係
  A framework for specifying the relationships among the study variables
- 研究設計是一個藍圖, 提鋼挈領地略述由假設到分析的步驟
  A blueprint that outlines each procedure from the hypothesis to the analysis
  - ✓blueprint for the collection, measurement, and analysis of data
  - ✓the plan and structure of investigation to obtain answers to research questions

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Essential Elements of Research Design
研究設計的必要元素

- an activity- and time-based plan 以活動和時間成基礎計劃
- focused on the research question 集中到研究問題
- sources and types of information 資料的來源及種類
- specifying the relationships among the variables 指定的變量之間的關係
- outlines procedures 概述程序

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Key questions in Research Design
研 究 設 計 的 關 鍵 問 題

- What techniques will be used? 有什麼技巧將會使用?
- What kind of sampling will be used? 會使用怎樣的樣本?
- How will time and cost constraints be dealt with? 怎樣處理時間和成本限制?

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Classifications of Research (1)
研究的分類(1)

- Degree Of research question crystallization: 研究問題的結晶度:
  - Exploratory vs Formal Study 探索性與正規研究
  - 探討性研究通常用作發展假設或問題以作進一步研究之用
  - 正規研究用作測試假設或解答所研究的問題
- Method Of data collection 數據收集方法
  - Monitoring (e.g. Observation) vs Communication (e.g. Survey, Interview)
  - 監察, 此中包含觀察性研究 vs 查問 / 溝通研究
- Manipulate variables? 操縱變量?
  - Experimental (Control) vs. Ex post facto study (No Control)
  - 在實驗裏，研究人員試圖控制及 / 或操縱研究中的各個變數
  - 在事後設計裏，研究人員不能控制變數, 祇能報告所發生的事

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Classifications of Research (2)
研究的分類 (2)

- Purpose of the study 研究的目的
  - Exploratory, Reporting, Descriptive, Causal
  - 描述性研究試圖解釋各變數間的關係
  - 因果性研究著眼於某一變數如何促使另一個變數產生改變
- Time dimension 時間尺度
  - Cross-sectional vs. Longitudinal
  - 典型性研究是祇選取某一時刻的事件作典型
  - 縱向或研究是在一段長時間裡重複不斷
- Scope 範圍
  - Case vs. Statistical Studies
  - 個案研究著重全面分析少數事件或情況的背景及此等事件彼此的關係
  - 統計式研究嘗試以一個樣本的特徵來捕捉全體人員的特徵
- Research Environment 研究環境
  - Field setting, Laboratory research, Simulation
  - 現場狀況、實驗室狀況、模擬

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Research Techniques 研究技巧

➢**Quantitative 定量**

✓Attempts precise measurement of something
試圖精確測量東西

✓Rely on the frequency of measurements
依靠頻率測量

➢**Qualitative 定性**

✓Come to the terms with the meaning, not the frequency.
術語的含義、而非頻率

✓Provide detailed description of events
為事件提供詳細的解釋

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Qualitative Techniques 定性技巧

- Focus on understand and interpret 注重理解及解釋
- Theory building, in-depth understanding 理論建構, 深入了解
- Nonprobability, purposive sampling design 非概率, 立意抽樣設計
- Small sample size 樣本小
- Data type: verbal or pictorial descriptions 數據種類: 口頭或繪畫描述
- Data analysis: Human analysis after coding
  數據分析: 編碼後作人力分析
- Insights: deeper level of understanding 見解: 更深的認識水平
- Limitations: not generalizable : 限制: 不普及

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Quantitative Techniques 定量技巧

- To describe, explain and predict 去說明, 解釋, 預測
- To build and test theory 建立並測試理論
- Probability sampling with large sample 大樣本的概率抽樣
- Data: verbal descriptions with numerical codes
  數據: 有數字代碼的口頭說明
- Data analysis: statistical testing 數據分析: 統計測試
- Limited by the opportunity to probe respondents
  探討受訪者的機會有限
- Results are able to generalized to other situations
  結果能夠推廣到其他情況

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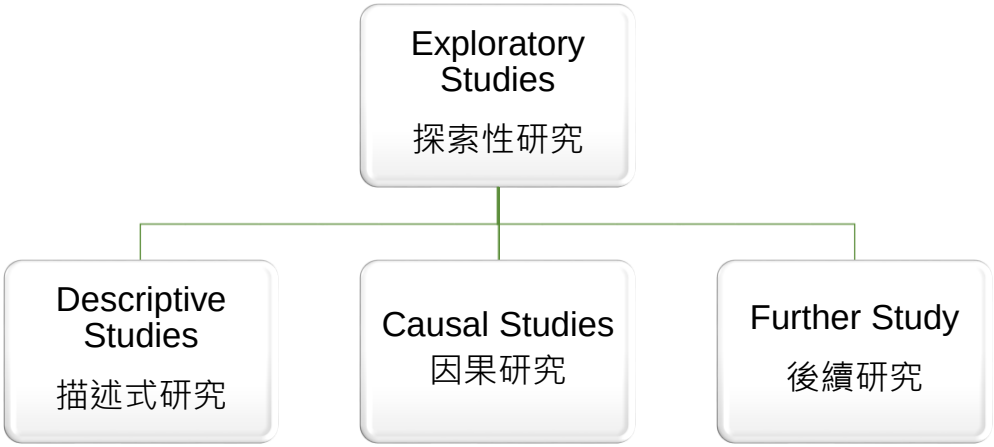
Research Studies 研究



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Why do Exploratory Studies?
為何要做探討式研究?

- Exploration is particularly useful when researchers lack a clear idea of the problems
  當研究人員對疑難感到茫無頭緒時, 探討式研究便格外有用

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Exploratory Research 探索性研究

- Expand understanding of management dilemma
  擴大對管理上兩難之局的理解
- Expand understanding of research question
  擴大對所研究問題的理解
- Identify plausible investigative questions
  識別看似可研究的問題

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Exploratory Study 探索性研究

- **Major purposes 主要目的**
  - ✓develop concepts more clearly 更清晰的發展概念
  - ✓establish priorities of tasks 建立工作的優先次序
  - ✓develop operational definitions 建立操作定義
  - ✓improve research design 改進研究設計
  - ✓save time and money 省下時間和金錢
  - ✓develop hypotheses for the research 為研究發展假說

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Major techniques used in Exploratory Study 探索性研究主要使用的技巧

- **Qualitative Techniques 定性技巧**
  - ✓Secondary information search 二手資料的搜尋
  - ✓Individual Interviews 個人訪問
  - ✓Group Interviews 團體訪問

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Secondary Information 二手資訊

- **Secondary data: studies made by others for their own purposes 二手數據: 由其他人按照其目的所做的研究**
- **Advantages: 優點:**
  - ✓Quick, low costs 快, 成本低
  - ✓Provide a base for research design 為研究設計提供基礎
- **Major sources: 主要來源**
  - ✓Internal Records 內部記錄
  - ✓Published sources: Market/ Industry information, Competitor intelligence, Related research studies
    已發佈的來源: 市場/ 行業的資訊, 競爭對手的情報, 相關研究

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Searching Academic Papers 搜尋學術文章

- Use online database of Library 在圖書館使用網上資料庫

- Commonly used databases: 常用的資料庫:
  - ✓Wisenews/ Wisesearch — For newspaper articles 用作找尋新聞
  - ✓Academic journal articles and books: 學術論文及書本
    - PROQUEST: ABI/INFORM
    - EBSCO

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Types of Information Sources
資訊來源的種類

- Indexes and Bibliographies 索引及參考書目
- Dictionaries 辭典
- Encyclopedias 百科全書
- Handbooks 手冊
- Directories目錄

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二手資訊來源的種類
Secondary Sources by Type

- **Indexes and Bibliographies 索引及參考書目**
  - to find or locate books or articles
    查找書籍或文章
  - to find authors, topics to use in online searches
    查找作者, 用線上搜尋的主題

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Secondary Sources by Type
二手資訊來源的種類

➢Dictionaries 辭典

- ✓to identify jargon of an industry--used for online searches 鑒別某種工業的行語- 用於線上搜尋
- ✓to identify bell-weather events in an industry 鑒別某工業上的先導性事件
- ✓to identify knowledgeable people to interview 鑒別有見識人直以訪問
- ✓to identify organizations of influence 鑒別有影響力的機構

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Secondary Sources by Type
二手資訊來源的種類

➢Encyclopedias 百科全書

- To identify historical or background information 鑒別歷史或背景資訊
- To find critical dates within an industry 查找某種工業中的重要時期
- To find events of significance to the industry, company 查找對某工業或公司有重要意義的事件

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Secondary Sources by Type
二手資訊來源的種類

- **Handbooks 手冊**
  - ✓To find facts relevant to topic
    查找關乎主題的實情
  - ✓To identify influential individuals through source citations
    根據來源的引述鑒別有影響力的人士

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Secondary Sources by Type
二手資訊來源的種類

- **Directories 目錄**
  - ✓To identify influential people and organizations
    鑒別機構內有影響力的人士及機構
  - ✓to find addresses, e-mail, other contact info on these people and organizations
    查找這些人士及機構的地址、電郵郵址及其他聯絡資料

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評價資訊來源
Evaluating Information Sources

- 目的Purpose
- 範圍Scope
- 權威Authority
- 聽眾Audience
- 形式Format

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對來源的評價
Evaluating Sources

- **權威Authority**
  - ✓鑒別作者背景Identify background of author
    - 學歷: 教育、專業Credentials: educational, professional
    - 經驗: 持續時間、環境、等級 Experience: duration, setting, level
  - ✓鑒別的內容中的學識級數Identify the level of scholarship in content
    - 腳註、尾註footnotes, endnotes

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對來源的評價
Evaluating Sources

➢ **聽眾 Audience**

✓鑒別知識程度及背景
Identify knowledge level and background

✓鑒別取向及偏差
Identify orientation and bias

✓查尋有偏差及沒想到偏差的來源
Seek biased and unbiased sources

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對來源的評價
Evaluating Sources

➢ **目的Purpose**

✓作者要達成的事
What the author is attempting to accomplish

- 鑒別背後的動機 identify hidden agenda(s)
- 鑒別偏差的方向 identify direction of bias

✓查尋有偏差與沒有偏差的來源
Seek both biased and unbiased sources

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對來源的評價
Evaluate Sources

- **範圍 Scope**
  - ✓鑒別納人及排除的時期
    Identify dates of inclusion and exclusion
  - ✓鑒別納人及排除的對象
    Identify subjects of inclusion and exclusion

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對來源的評價
Evaluating Sources

- **形式 Format**
  - ✓內容次序 Order of content
  - ✓通用性 Versatility of use
    - 有否加上索引? Indexed?
    - 可否搜尋? Searchable?
    - 可否下載? Downloadable?

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網上搜尋
Web Searches

➢選擇搜尋引擎或目錄

Select Search Engine or Directory

✓Danny Sullivan's Search Engine Watch
https://searchenginewatch.com/

✓Greg Notess' Search Engine Showdown
http://searchengineshowdown.com/

✓ Emerald | Journal of Managerial Psychology information
http://www.emeraldgrouppublishing.com/products/collections/index.htm

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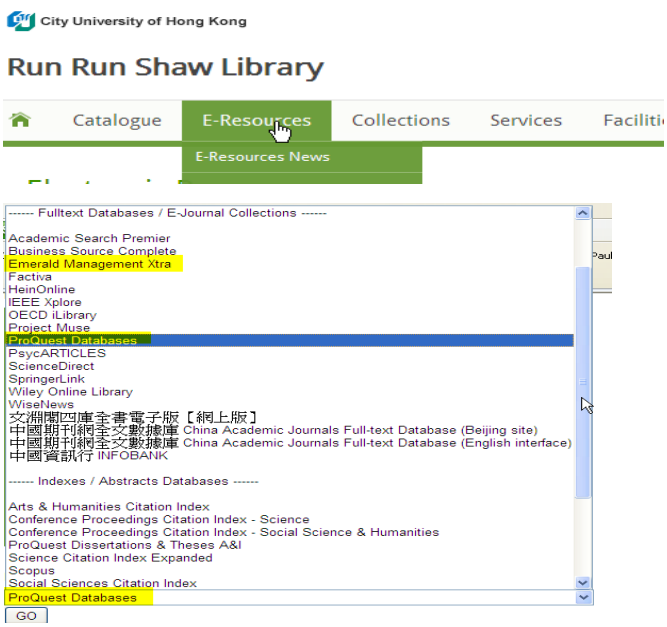

Some of the popular journal database providers are:

- Business Source Complete
- Emerald Management Xtra
- IEEE Explore
- ScienceDirec
- Pergamon
- International Journal of Information Management www.elsevier.com/locate/ijinfomgt
- http://www.academicjournals.org/AJBM
- www.ccsenet.org/ijbm

網 上 搜 尋
Web Searches

1. 選擇搜尋引擎或目錄
   Select Search Engine or Directory
2. 選定搜尋項目及協定
   Determine Search Options and Protocol

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網上搜尋
Web Searches

1. 選擇搜尋引擎或目錄 Select Search Engine or Directory

2. 選定搜尋項目及協定 Determine Search Options and Protocol

3. 建立搜尋問題 Construct search query
   - 檢查搜尋結果 Review search results
   - 修改搜尋問題 Modify search query
   - 以另一個搜尋引擎作搜尋 Search using a different search engine

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Web Searches網上搜尋

1. 選擇搜尋引擎或目錄 Select Search Engine or Directory
2. 選定搜尋項目及協定 Determine Search Options and Protocol
3. 建立搜尋問題 Construct search query
4. 為搜尋結果留紀錄 Document your findings
   - 搜尋結果 search findings
   - 來源全文full text sources

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特定的網上搜尋 Specific Web Searches

- 已知項目 Known-Item
- 人物 Who
- 地點 Where
- 事物 What

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政府來源
Government Sources

- 政府機構 Government organizations
- 法律、條例、法院判決 Laws, regulations, court decisions
- 政府統計數字 Government statistics

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內部來源的採探
Mining Internal Sources

- 數據倉庫Data warehouse
- 數據市場Data mart
- 數據探尋Data mining
  - 發掘模式Pattern discovery
  - 預測趨勢及行為 Predicting trends and behaviors

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數據採探技巧
Data Mining Techniques

- 數據的視覺化 Data Visualization
  - 規模 Dimensions
  - 度量 Measurements
  - 層級 Hierarchies
- 群組 Clustering
- 神經網絡 Neural Networks
- 樹狀模式 Tree Models
- 分類 Classification

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數據採探技巧 (續)
Data Mining Techniques (con.)

- 估計 Estimation
- 聯想 Association
- 購物籃分析法Market-Basket Analysis
- 次序為本分析Sequence Based Analysis
- 模糊邏輯 Fuzzy Logic
- 基因運算法Genetic Algorithms
- 分數為本轉換法Fractal-Based Transformation

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數據採探的過程
Data Mining Process

- 樣本 Sample
- 發掘 Explore
- 修改 Modify
- 模型 Model
- 評定 Assess

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Interviews 訪問

- Primary data collection techniques for gathering data in qualitative methods 在定性方法內的原始數據收集技巧
- Variations 變化
  - Individual vs Group 個人與團體
  - Unstructured, Semi-structured, and Structured Interview 非結構化, 半結構化, 結構化訪問
  - Purpose disclosed? Vs Projective Techniques 目的披露? 與投影技巧
  - Data collection methods: face-to-face, phone, etc. 數據收集方法：面對面，電話等

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Individual vs Group 個人與團體

➢Individual 個人

- Explore opinions of an individual 探索個人的意見
- Detailed individual experiences choices, biographies 詳細的個人經驗選擇, 人物傳記
- Deal with sensitive issues 處理敏感問題

➢Group 團體

- Explore a range of attitudes, opinions and behaviors 探索一個範疇的態度, 意見和行為
- Observe the process 觀察過程
- Issues of public interests or common concerns 有關公眾利益或普遍人關心的議題
- Similar backgrounds vs Different backgrounds 相似的背景與不同的背景

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Interviewers（1）訪問者（1）

➢Skills required 需要的技巧

- Making respondents comfortable 讓受訪者覺得舒服
- Probing for detail without making the respondent feel harassed 細試探時不會讓受訪者覺得騷擾
- Remaining neutral 保持自然
- Listening carefully 小心聆聽
- Following a participant's train of thought 跟隨參與者的思路
- Extracting insights from dialogue 從對話中提取見解
- Know how to mine for information 知道怎樣挖掘資訊
- Convey sympathy and understanding 表達同情和理解

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Interviewers（2）訪問者(2)

➢**Responsibilities 責任**

- Develop interview or discussion guide 發展訪問或討論指南
- Recommends topics and questions 建議題目及問題
- Controls the interview and the plan 控制面試及計劃
- Writes the recruitment screener and recruit participant撰寫招聘篩選和招募參與者
- Develop the various pretasking exercises 制定各項任務預演
- Prepares any research tools to be sued during the interview 準備訪問時用的研究工具
- Supervises the transcription process 監督轉錄過程
- Analyze data and writes reports 分析數抓及撰寫報告

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Types of Research using Individual interviews 個人訪用於的研究

➢Oral history 口述史

➢Cultural interviews文化訪談

➢Life histories 生活史

➢Critical incident technique 關鍵事件技巧

➢Convergent interview 收斂訪談

➢Sequential interview 連續訪談

➢Ethnography 民族志

➢Grounded Theory 紮根理論

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Projective Techniques 投影技巧

- **To look for hidden or suppressed meanings 為了尋找隱藏或壓抑的含義**
  - ✓Word or picture association 文字或圖片聯想
    - ✓E.g. Internet … 例如: 互聯網
  - ✓Sentence completion 句子完整性
    - ✓E.g. People who buy over the Internet... 例如:在互聯網購物的人
  - ✓Thematic Apperception Test 主題統覺測驗
  - ✓Imagination exercise 想像練習
    - ✓E.g. if Sony PSP is an animal, what type of animal would it be? 例 如 : 新力psp 是一隻動物 , 會是什麼動物 ?
  - ✓Personification 擬人
  - ✓Brand mapping 品牌映射

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Group Interview 群體訪問

- Using a Single interviewer with more than one research participant 使用單一訪問員與超過一個研究參與者進行訪問
- Varied group size and composition 不同的組別規模及組成
  - ✓Size: mini-groups (2-6) , small groups (6 -10) , supergroups (<20)
    規模 : 小組 (2 - 6) , 細小團體 (6-10) , 超級團體 (< 20)
  - ✓Composition. 組成
    - Heterogeneous vs Homogeneous 相異與相同
    - Experts vs Nonexperts 專家與非專家

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Focus Group Interview
焦點小組訪問

- a panel led by a trained moderator 由一個訓練有素的主持人領導小組
- 90 minutes to 2 hours 90分鐘至2小時
- use group dynamics to focus or guide the group in an exchange Of ideas, feelings, and experiences on a specific topic 使用動態組去集中或指引該組別去交換想法,感受,及特定題目的經驗
- Higher homogeneity: more intense discussion 同質性越高: 更強烈的討論
- Substitutes: Telephone/ Online/ Video- conferencing focus group 替代:電話/網絡/視頻會議的焦點小組

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Factors affecting contributions
影響貢獻的因素

- **Positive 正面**
  - Recognition認可
  - Personal contribution 個人貢獻
  - Validation 驗證
  - Load-sharing 負載分擔
  - Personal growth 個人成長
  - Socialization 社會化
  - Extrinsic rewards 外在的獎勵
- **Negative 負面**
  - Use Of abstract terminology 使用抽象的術語
  - Ego threats 自我威脅
  - Political correctness 政治上的正確性
  - Ego defense 自我防禦
  - Memory decay 記憶力衰退
  - Communication ability 溝通能力
  - Reticence 沉默
  - Time 時間
  - Dominating 支配

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Focus Group Interview焦點小組訪問

➢**Advantages 優點**
- Quick 快
- Inexpensive 不昂貴
- Flexible 有彈性
- Generate new ideas and insights 得 出 新 想 法 和 點
- Get an in-depth of understanding 得到深入的了解

➢**Disadvantages 缺點**
- Cannot be generalized 不可以一般化
- Limited sampling accuracy 有限的採樣精度

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Achievements of Focus Group Interview 焦 點 小 組 訪 問 的 成 果

- Establish the major dimensions of the research 建立研究的主要範疇
- Defined a set of investigative questions and measurement questions 定義了一套調查問題和量度問題
- Developed and refined hypotheses 發展及優化假說
- Concluded additional research is not needed or not feasible 不需要或不可行去總結額外的研究

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Descriptive Research（1）
描述性研究（1）

➢**Research Aim and Objectives 目的和目標**

- Descriptions of phenomena or characteristics associated with a subject population
  人口主題相關的現象或特徵的說明
- Estimates of the proportion of a population that have these characteristics 估計擁有這些特徵的人口比例
- Discovery Of association among different variables 不同變量之間聯想的發現

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Descriptive Research（2）
描述性研究（2）

➢Use quantitative methods 使用定量方法

➢Major research methods: Observation & Survey Analysis: 主要研究方法:觀察及問卷分析

➢Univariate question or hypothesis 單因素問題或假設

➢Test of correlation: Cross-tabulations, bivariate analysis, correlation analysis 測試相關性:交叉製表,二元分析,相關分析

178

Observation 觀察（1）

➢Types Of Observation 觀察的種類

✓Non-behavioral observation 非行為觀察
- Record analysis 記錄分析
- Physical condition analysis 身體狀況分析
- Physical process analysis 物理過程分析

✓Behavioral observation 行為觀察
- Nonverbal analysis 非語言分析
- Linguistic analysis 語學分析
- Extra-linguistic analysis 語言以外的分析
- Spatial analysis 空間分析

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Observation（2）觀察 (2)

➢Observer-participant relationship 觀察者與參與者之間的關係

✓Direct observation VS Indirect observation 直接觀察與間接觀察
- Direct: personal, physically present 直接: 個人,物理表達
- Indirect: mechanical, photographic, or electronic means 間接:機械,攝影,或電子方法

✓Concealment: 隱蔽性：
- Participants know Of the observer's presence? 參與者知道觀察員存在嗎?

✓Participation: 參與
- observer enters the social setting and acts as both an observer and a participant? 觀察員進入社交設置並同時扮演著觀察員和參與者?

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How to conduct Observation? 如何進行觀察?

- Structured vs Unstructured 結構化與非結構化
  - ✓Test hypotheses or generate hypotheses? 測試或生成假說?
- Observation checklist 觀察清單
- Observer training 觀察員訓練
- Data collection 數據收集
  - ✓Who, what, when, how, where? 誰,什麼,什麼時候,怎樣,什麼地方 ?

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Survey (1) 問卷 (1)

- Communication approach 溝通方法
- Survey: 問卷
  - Measurement process used to collect information during a highly structured interview
    在高度結構化的訪問中, 用來收集資料的量度過程
  - Goal: derive comparable data across subsets of the chosen sample
    目標:得出樣本間可比較的數據

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survey（2）問卷（2）

➢Common errors Of survey 問卷的一般錯誤

✓Interviewer errors 訪問員錯誤

- Failure to secure full participant cooperation (sampling error) 未能取得充分參與合作 (抽樣錯誤)
- Failure to record answers accurately and completely (data-entry error) 未能準確及完整記錄答案 (資料輸入錯誤)
- Failure to consistently executive interview procedures 未能貫徹執行訪談程序
- Failure to establish appropriate interview environment 未能建立適合的訪談環境
- Falsification of individual answers or whole interviews 偽造個人的答案或整個採訪
- Inappropriate influencing behaviors 不適當的影響行為
- Physical presence bias 實際存在偏差

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survey（3）問卷（3）

➢Participant Error 參與者的錯誤

- Participation-based errors (willing to response?) 以參與為基礎的錯誤
- Pleasant and satisfying? 愉快和滿意?
- Important and worthwhile use of his time? 重要的和有價值的使用他的時間？
- Dismiss any mental reservation? 駁回任何心理的保留?
- Non-response errors 不回應的錯誤
- Cannot locate the respondent 無法找到受訪者
- Unsuccessful in encouraging that person to participate 不成功令該人參加
- Response-based errors (able to response?) 回應的錯誤
- Response bias 回應的偏見
- Social desirability bias 社會可取性偏差

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survey（4）問卷（4）

- Communication Methods 溝通方法
- Self-administered survey 自我管理的問卷
- Telephone survey 電話問卷
- Survey via Personal interview 通過個人訪問的問

185

Comparison of Communication Approaches 溝通方法的比較

186

Self-Administered Survey (1)
自我管理問卷

➢Description 解釋

- Questionnaires are: 問卷是:
  - (a) Mailed, faxed, or couriered to be self-generally included (denoted below as a). 郵寄, 傳真, 或快遞
  - (b) Compute-delivered via intranet, Internet, stores/forwards completed instruments automatically; 通過內聯網, 互聯網, 儲存/轉寄進行電子發布
  - (c) People intercepted/studied via paper or computerized instrument in central location-without interviewer assistance. 人們在集中的地方沒有訪問員的協助下通過紙或電子儀器攔截/考究

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Self-Administered Survey（2）
自我管理問卷（2）

➢Advantages 好處

- Allows contact with otherwise inaccessible participants (e.g., CEOs). 允許與無法接觸的參與者 (例如, 行政總裁) 接觸
- Incentives may be used to increase response rate.
- 獎勵或許會用於增加回應率
- Often lowest-cost option. 通常為最低成本的選擇
- Expanded geographic coverage without increase in costs (a). 地理覆蓋範圍增加不會提升成本
- Requires minimal staff (a). 需要最少職員
- Perceived as more anonymous (a). 感覺上更匿名
- Allows participants time to think about questions (a). 讓與者有時間去想問題

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Self-Administered Survey（3）
自我管理問卷（3）

➢**Advantages 好處**

- More complex instruments can be used (b). 可用更複雜的工具
- Fast access to the computer-literate (b). 快速存取的能力
- Rapid data collection (), c). 快速收集數據
- Participant who cannot be reached by phone (voice) may be accessible (b, c). 不能電話找到的參加者可能用這個方法可以
- Sample frame lists viable locations rather than prospective participants (b, c) 抽樣框列出了可行的地點, 而不是潛在的參與者
- Visuals may be used (b, c). 可以使用視覺效果

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Self-Administered Survey（4）
自我管理問卷（4）

➢**Disadvantages 壞處**

- Low response rate in some modes. 低回應率
- No interviewer intervention available for probing or explanation (a). 沒有訪問員干預探索或解釋
- Cannot be long or complex (a). 不可以長或複雜
- Accurate mailing lists needed (a). 需要準確的郵寄列表
- Often respondents return in survey represent extremes of the population - skewed responses (a). 經常調查的受訪者寄回問卷代表人口極端 - 傾斜回應
- Anxiety among some respondents (b). 一些受訪者感到焦慮
- Directions software instruction needed for progression through the instrument (b). 方向/軟件指示要工具進展
- Computer security (b). 電腦安全性
- Need for low-distraction environment for survey completion (c). 需要低分心的環境去完成問卷

190

Telephone survey 電話問卷 (1)

➢Description 解釋

- People selected to be part of the sample are interviewed on the telephone by a trained interviewer. 人們被選擇為樣本的一部分會由訓練有素的訪問員進行電話訪問

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Telephone survey (2) 電話問卷 (2)

➢Advantages 好處

- Lower costs than personal interview. 較個人訪問的成本為低
- Expanded geographic coverage without dramatic increase in cost 擴大地理覆蓋範圍, 沒有令成本急劇增加
- Uses fewer, more highly skilled interviewers. 用較少高技巧的訪問員
- Reduced interviewer bias. 減少訪問的偏見
- Better access to hard-to- reach participants through repeated callbacks. 反复致電可找到一些很難找到的參與者
- Can use computerized random dialing. 可以用電腦隨機撥號
- CATI - computer-assisted telephone interviewing:
- responses can be entered directly into a computer file to reduce error and cost. 電腦輔助電話訪問回應以直接進入電腦檔案去減少錯誤及成本

192

Telephone survey 電話問卷(3)

- **Disadvantages 壞處**
- Response rate is lower than for personal interview. 回應率較個人訪問低
- Higher costs if interviewing geographically dispersed sample. 若果樣本地理分散, 成本會較高
- Interview length must be limited. 訪問長度會受限制
- Many phone numbers are unlisted or not working, making directory listings unreliable. 很多電話號碼沒有列出或無法正常作的, 令目錄列表不可靠
- Some target groups are not available by phone. 有部分目標組別使用電話是不可行的
- Responses may be less complete. 回應可能會較少完整
- Illustrations cannot be used. 不能使用插圖

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Telephone survey (4) 電話問卷 (4)

➢ **Trends and solutions 趨勢和解決方案**

✓Computer-administered telephone survey 電腦管理的電話問卷

- Increase in refusal rate 拒絕率增加
- Reduce noncontact rate 減少非接觸率

✓Random dialing 隨機撥號

194

Survey Via Personal interview (1)
透過個人訪問的問卷 (1)

➢Description 解釋

- People selected to be part of the sample are interviewed in person by a trained interviewer.

人們被選擇成為樣本的一部分會被一位訓練有素的訪問員個別訪問

195

Survey Via Personal Interview (2)
透過個人訪問的問卷 (2)

➢Advantages 好處

- Good cooperation from participants 參與者的好合作關係
- Interviewer can answer questions about survey, probe for answers, use follow-up questions, and gather Information by observation. 訪問員可以解答問卷的問題, 探測答案, 使用後續問題及根據觀察收集資訊
- Special visual aids and scoring devices can be used 特別視覺輔助和記分設備均可使用
- Illiterate and functionally illiterate participants can be reached 文盲和半文盲的參與者可以參與
- Interviewer can prescreen to ensure he or she fits the population profile. 訪問員可以預審參與者, 以確保他或她是適合的人口結構
- CAPI - computer-assisted personal interviewing: responses can be entered into a portable micro-computer to reduce error and cost. 電腦輔助個人採訪: 可以進入一個便攜式微型電腦以減少錯誤和成本

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Survey Via Personal Interview（3）
透過個人訪問的問卷（3）

➢Disadvantages 壞處

- High costs 高成本
- Need for highly trained interviewers. 需要高度培訓的訪問員
- Longer period needed in the field collecting data. 需要很長時間在場地收集數據
- May be wide geographic dispersion. 或許廣闊的地理分佈
- Follow-up is labor intensive. 後續需要大量人手
- Not all respondents are unwilling to talk to strangers in their homes. 有些受訪者不願意在他們的家與陌生人說話
- Some neighborhoods are difficult to visit 一些社區是難以訪問的
- Questions may be altered or respondent coached by interviewers. 問題可能會改變或受訪問員執教

197

Web survey 網上問卷

➢Advantages 好處

- Short turnaround 週期短
- Ability to use visual stimuli 有能力使用視覺刺激
- Ability to do numerous surveys over time 隨著時間推演, 有能力做大量問卷
- Ability to attract participants 有能力吸引參與者
- Participants feel anonymous 參與者感到匿名

➢Disadvantages 壞處

- Difficult to recruit right samples 很難得到適當的樣本
- Quality of samples 樣本的質素
- Converting surveys to the web can be expensive 問卷轉換到網站可以很昂貴
- Technical skills required 需要技能

198

(1) Tips on Intercept Survey Design 攔截調查設計的提示

1 · When screening for multiple studies at the same time, make your questionnaire distinctive: 當在同一時間進行多個研究篩選, 應讓您的問卷鮮明 :

- Use colored paper. 使用色紙
- Use paper with a distinctive color or pattern edge. 使用色彩鮮明或有圖形邊緣的紙張

2 · Make surveys clipboard-friendly: 讓問卷剪貼板友好 :

- Never print questions on both sides of the paper. 永不列印問題與紙張的兩面
- Keep font style and point size legible in Inconsistent and dim light.
- 保持字體樣式和人小於在不一致及昏暗的燈光下均清晰可辨
- Confine your questionnaire to four pages or less. 限制你的問卷只有四頁或以下

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(2) Tips on Intercept Survey Design 攔截調查設計的提示

3. Write the "respondent approach" section include answers to the following often-asked questions: 編寫"受 訪 者辦法"的部分, 包含經常問到的問題的答案:

- What's the study about? 研究是關於什麼?
- What's in it for me if I participate? 若我參與, 裡面有什麼?
- How long will I take? 需要花多久的時間?
-

4. Limit the number of screening questions to avoid participant termination: 限制篩選問題的數量, 以免參與者終止 :

- Keep screening question(s) to the point; Ask only for critical data. 保持重點題; 只要求關鍵數據 。
- Build screening questions on facts not assumptions or generalities篩選問題建立在事實, 而不是假設或泛泛而談
- If you need to speak with the primary purchaser, don't specify gender, family status, or age in the screeners如果您需要與主要購買者談話, 在篩選時不要指定性別, 家庭狀況, 或年齡

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(3) Tips on Intercept Survey Design 攔截調查設計的提示

5 . Keep screening question(s) safe from respondent's eyes: 保持篩選從受訪者眼中感到安全的問題:

- Choose normal, not bold, type style. 選擇普通, 沒有粗體, 鍵入的風格
- Put in parentheses or use another separation device. 放在括號中, 或使用其他分離設備

6 . Don't overuse skip patterns; The more cumbersome the patterns; The more cumbersome the patterns, the more likely the won't be followed consistently or effectively. 不要過度用跳過模式; 模式越繁瑣, 人們越有可能不遵循一致或有效

7 . Don't force the interviewer to remember responses to questions on previous pages in order to ask questions on the current page. 不要強迫訪問員在問現在這一頁的問題時記著之前一頁的回應

201

(4) Tips on Intercept Survey Design 攔截調查設計的提示

8 . Tally where respondents terminate the screening process or survey: 受訪者終止篩選過程或問卷調查:

- Include a horizontal string of question numbers at the button of each page so the interviewer can circle the number of the next question after termination. 包括在每一頁水平串的按鈕問題號碼, 訪問員可在終止後圈出下一條問題的號碼

202

Causal Studies 因果研究

- A produces B? A產生B?
- Three types Of evidence 3種證據
  - Covariance between A & B. **A 和 B 的 共 變**
  - A occurs before B. **A 在 B 前 出 現**
  - No other possible causes of B. **沒 有 其 他 可 能 導 致 B**

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Elements of Causal Relation
因 果 關 係 的 元 素

- A→B
- NO 沒有 A → No沒有B; and
- A comes before B **A導致B**

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Evidence needed in Causal Research
因 果 研 究 需 要 的 證 據

- Covariation between A & B **A和B之間的共變**
- Time order Of events moving in the hypothesized direction
  時 間 的 時 間 序 移 向 假 說 的 方 向
- No other possible causes of B **沒 有 其 他 可 能 導 致 B**

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Conditions of Causal Research
因 果 關 係 研 究 的 條 件

➢Two additional requirements: 兩個附加要求:
- Control: to confirm the effects of independent variable 控制:確認自變量的影響
- Random assignment: to equalize the groups 隨機分配:以平衡各組別

➢Use "matching" to match the background of person in the study 在研究中使用 配對"去找背景相匹配的人

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Causation vs Ex Post Facto Design
因 果 關 係 與 事 後 設 計

- Ex Post Facto Design: compare subjects who have exposed to the IV with those who have not
  事後設計:比較有和沒有暴露IV的主題
- Methods used: Cross-tabulation and Longitudinal study
  方法使用:交叉製表和縱向研究
- Post hoc misjudgment: conclusion is unwarranted
  事後謬論:結論是不必要的

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Procedure of Experiment
實 驗 步 驟

- Select relevant variables 選擇相關的變量
- Specify treatment levels 指定的處理水平
- Controlling the experimental environment 控制實驗環境
- Choosing the experimental design 選擇實驗設計
- Selecting and assigning participants 選擇和分配參與者
- Pilot testing, revising, and testing 試點測試, 修改和測試
- Data analysis 數據分析

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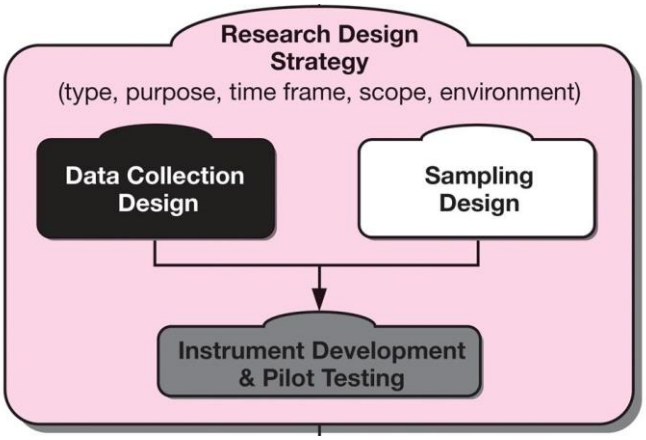
Stages of carrying out a Survey

- Define the objectives of the survey
- Define the target population
- Decide on the sampling method
- Perform a focus group
- Design questionnaire
- Carry out a pilot survey
- Carry out the main survey
- Analyze and present the results



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Part 4a : Sources and Collection of Data 來 源 和 數 據 收 集

➢**Measurement and Scales 量度與尺度**
- Nature Of Measurement 量度的本質
- Types Of Data 數據的種類
- Measurement Scales 量度的尺度

➢**Sampling Design 樣本設計**
- Characteristics of Good Sampling Design 好的取樣設計的特徵
- Six Steps Of Sampling 6個步驟去取樣
- Major Sampling techniques 主要的取樣技巧
- Determine the Appropriate Sampling Size 決定當的取樣大

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Nature of Measurement 量度的本質(1)

- **Measurement process: 量度過程**
  - Three steps: 3個步驟
    - Select observable empirical events 選擇可觀察的經驗事件
    - Develop a set of mapping rules 開發一組對應規則
    - Applying the mapping rules to each observation of that event 在事件中的每個觀察使用對應規則
  - E.g. Examination 例如考試
    - Select chapters to be tested, learning outcomes intended to achieve 選擇章節進行測試, 目的是為了實現學習成果
    - Develop a set of criteria 制定一套準則
    - Applying the exam questions to students 對學生使用考試卷

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Nature of Measurement (2) 量度的本質(2)

- **What is measured? 什麼是量度**
  - Concepts and constructs (Theoretical level) 概念和建構 (理論層面)
    - Objects 對象
    - Properties 屬性
  - Variables and Operational Definitions (OD) (Empirical level) 變量和操作定義 (實證級別)
  - E.g. To measure Knowledge of BRAND 量度對BRAND 的知識
    - Constructs - Knowledge of BRAND 建構 - BRAND的知識
    - OD - performance in the exam, assignments, and projects 考試, 功課, 及報告的表現

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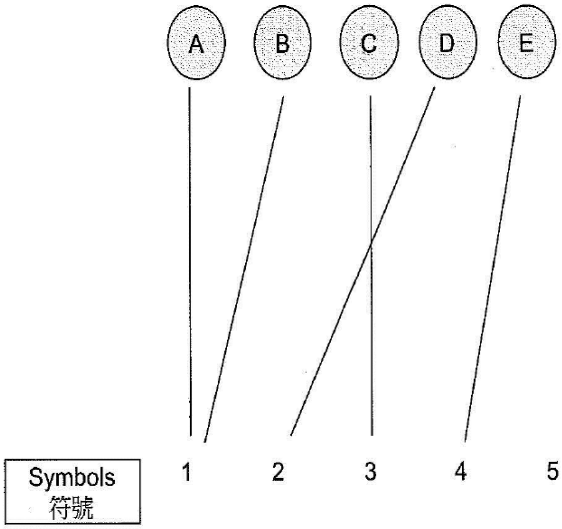
Characteristics of Measurement
量 度 的 特 徵

- Sample Elements 樣品的元素
- Empirical Observations實證觀察
  - e.g. Satisfaction of goods
  - 例如商品滿意度
- Mapping rule 對應規則
- Assign. 分配:
  - 5 - Highly satisfied 高 度 滿 意
  - 4 - Satisfied 滿 意
  - 3 - Neutral 中 性
  - 2 - Dissatisfied 不 滿 意
  - 1 - Highly Dissatisfied 高 度 不 滿 意



Concepts Of Measurement Scales
量 度 尺 度 的 概 念

- **What do you plan to do with the data?**
  你 計 劃 怎 樣 使 用 那 些 數 據 ?
  - Description? 說 明 ?
  - Exploration? 探 索 ?
  - Discovering the difference? 發 現 其 不 同 ?
  - Findings Of relationships? 找 出 它 們 的 關 係 ?

Data types 數 據 種 類

- Four characteristics 4個特質
  - Classifications: group or sort responses? 分類: 組別或排序的回應?
  - Order: numbers are ordered? 次序: 數字有排序?
  - Distance: differences between numbers are ordered? 距離: 數字之的差異是有序的嗎?
  - Origin: absolute zero? 原點: 絕對零點?

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Nominal data 名 義 數 據

- With classifications, no order, distance relationship and no arithmetic origin 有分類, 沒有次序, 距離關係及沒有運算起源
- Least powerful measurement 最不強大的量度
- Only quantification: frequency count, mode 只有量化: 頻率計算, 眾數

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Ordinal data 有 序 數 據

- With classifications and order, no distance relationship and no arithmetic origin 有分類和次序, 沒有距離關係及沒有運算起源
- Analysis: 分析
  - Central tendency: median, percentile 中央傾向: 中位數, 百分
  - Analyzed by: nonparametric methods 分析: 非參數方法

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Interval Data 區 間 數 據

- Equality Of interval 平 等 的 區 間
- Descriptions: 解 釋 :
  - ✓Mean, Standard Deviation (except skew data) 平 均 , 標 準 差 (偏 斜 數 據 除 外)
- Analysis: parametric methods 分 析 : 參 數 方 法
  - ✓T-tests T 測 試
  - ✓F-tests F 測 試
  - ✓Correlations 相 關 性

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Ratio data 比 率 數 據

- With all major features: 所有主要特點:
  - ✓Classification 分類
  - ✓Order 次序
  - ✓Distance 距離
  - ✓Absolute zero or origin 絕對零點或原點
- All statistical techniques are usable 所有統計技巧皆可用

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Types of Scale

- **Nominal** (Categorical and Qualitative種類和性质)名義上的
  - Use: identity (identical or distinct)相同(處).
  - Examples: marital status, gender, occupation.
  - Analysis: frequency, mode (highest frequency).
- **Ordinal** (Categorical and Qualitative)順序的
  - Use: ranking order (higher or lower)
  - Examples: brand preferences, letter grades.
  - Analysis: frequency, mode, median (middle point).
- **Interval** (Numerical and Quantitative 数字和数量)間隔; 距離
  - Use: equivalent intervals.
  - Examples: temperature, brand attitude.
  - Analysis: mean (average), standard deviation（平均数）, 标准差.
- **Ratio** (Numerical and Quantitative)比例
  - Use: Ratio.
  - Examples: units sold, weight, price, purchase probability.
  - Analysis: almost all kinds of statistics.

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Type of Scales

1: (Nominal) (Categorical and Qualitative种类和性质)

Which of the four brands of jeans do you like most?

Levi ____Lee ____ Apple_____Giordano_____.

2: (Ordinal) (Categorical and Qualitative)

Rank the brands of jeans according to your degree of liking

(1 is most preferred and 4 least preferred).

Levi_____ Lee_____ Apple____ Giordano_____.

3: (Interval) (Numerical and Quantitative 数字和数量)

Indicate your degree of liking of each brand.

	Dislike a lot						Like a lot
Levi	1	2	3	4	5	6	7
Lee	1	2	3	4	5	6	7
Apple	1	2	3	4	5	6	7
Giordano	1	2	3	4	5	6	7

4: (Ratio) (Numerical and Quantitative)

Divide 100 points among the following brands based on your degree of liking for each.

Levi	_____.
Lee	_____.
Apple	_____.
Giordano	_____.
Total	100

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Data types 數據種類

	Order 次序	Distance 距離	Origin 原點
Nominal 名義	✓	X	X
Ordinal 有序	✓	X	X
Interval 區間	✓	✓	X
Ratio 比率	✓	✓	✓

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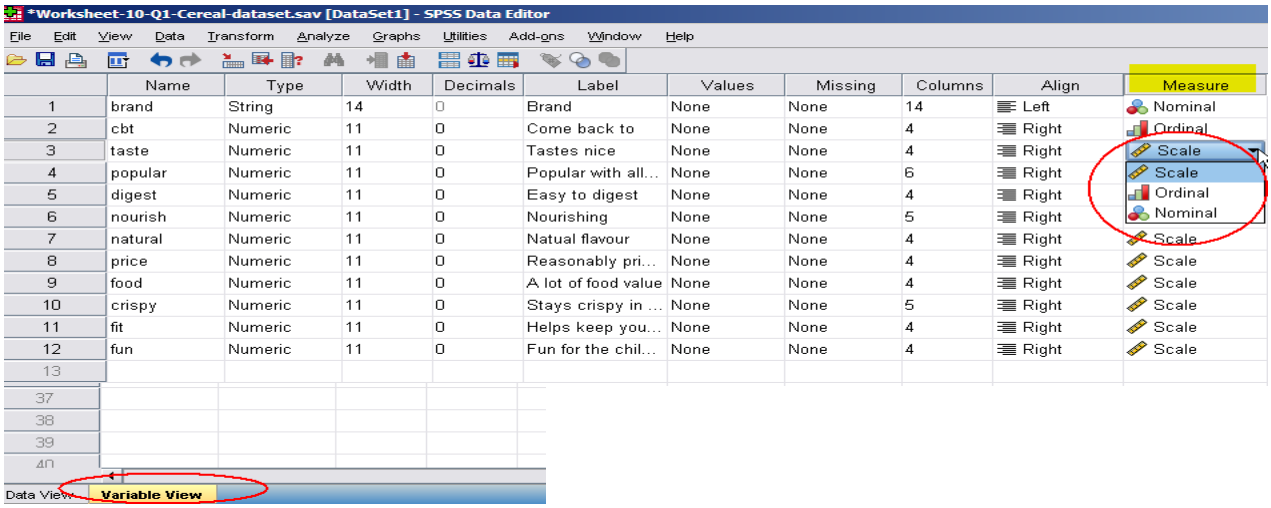
How to set measurement for variables in SPSS



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	brand	String	14	0	Brand	None	None	14	Left	Nominal
2	cbt	Numeric	11	0	Come back to	None	None	4	Right	Ordinal
3	taste	Numeric	11	0	Tastes nice	None	None	4	Right	Scale
4	popular	Numeric	11	0	Popular with all...	None	None	6	Right	Scale
5	digest	Numeric	11	0	Easy to digest	None	None	4	Right	Ordinal
6	nourish	Numeric	11	0	Nourishing	None	None	5	Right	Nominal
7	natural	Numeric	11	0	Natual flavour	None	None	4	Right	Scale
8	price	Numeric	11	0	Reasonably pri...	None	None	4	Right	Scale
9	food	Numeric	11	0	A lot of food value	None	None	4	Right	Scale
10	crispy	Numeric	11	0	Stays crispy in ...	None	None	5	Right	Scale
11	fit	Numeric	11	0	Helps keep you...	None	None	4	Right	Scale
12	fun	Numeric	11	0	Fun for the chil...	None	None	4	Right	Scale
13										
37										
38										
39										
40										

Sources of Measurement Errors 量度錯誤的來源 (1)

- **Participant 參加者**
  - ✓Reluctance 不情願
  - ✓Temporary factors limit ability to respond accurately and fully : fatigue, boredom, anxiety 暫時的因素限制準確和完滿回應的能力: 疲勞, 厭倦, 焦慮
  - ✓Impatience and variations in mood 急躁和情緒的變化
- **Situational factors 情況上的因素**
  - ✓Places a strain on the interview? 在訪問時放置應變?

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Sources of Measurement Errors 量度錯誤的來源(2)

- **Measurer 測量器**
  - ✓Interviewer distort responses by rewording, paraphrasing, or reordering 面試官以重述, 改寫, 或重新安排去扭曲回應
  - ✓Stereotypes in appearance and action 外觀和行動的成見
  - ✓Influences Of voice and behavior 聲音和行為的影響
  - ✓Incorrect data analysis methods 不正確的數據分析方法

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Sources Of Measurement Errors (3) 量度錯誤的來源(3)

-
- **Instrument 工具**
- Defective instruments: 有缺憾的工具
- Too confusing and ambiguous 太混亂和含糊
- Leading questions 引導性問題
- Mechanical defects 機械缺憾
- Fail to explore important issues 無法探索重要問題

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Characteristics of Good Measurement 好的量度的特質

- **Validity 效度**
- measures what we actually wish to measure
- 量度我們實際希望量度的東西
- **Reliability 信度**
- Accuracy and precision of a measurement procedure 測量過程的準確度和精密度
- **Practicality 實用性**
- Concerned With economy, convenience 關注經濟, 方便
- (Details of this part would be covered in Week 3)

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Construction of Scale (1) 尺度的建構 (1)

-
- **Research Objectives 研究目的**
- **Response Types 回應種類**
- Rating scale: score without making a direct comparison to another object 平方尺度: 分數不會與其他物品直接比較
- Number of scale points 尺度點的數量
- Alternative scales (styles) 替代尺度 (樣式)
- Ranking scale 排名規模
- Categorization 分類
- Sorting 排序

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Construction Of Scale (2)
尺 度 的 建 構 (2)

- **Data properties 數據屬性**
- Nominal, ordinal, interval, ratio 名義的, 順序, 間隔, 比例
- **Number Of dimensions/ attributes 維度/屬性**
- Unidimensional vs. Multi-dimensional 一維與多維
- **Balanced** vs. Unbalanced 平衡與不平衡
- **Forced vs. Unforced 強迫與非強迫**
- **Number Of Scale points 尺度的點數**
- **Rater Errors 評估者的誤差**

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Commonly used Scales (1)
常用的尺度 (1)

- **Rating scales 評定尺度**
- Simple Attitude Scales - Nominal 簡單的態度尺度 - 名義
- Simple Category Scale 簡單類別尺度
- Multiple-Choice (Single/Multiple-Response Scale) 多重選擇 (單一/多重回應尺度)
- Likert Scale (Summated Rating) - Interval 李克特尺度 (累加評分) - 區間
- Semantic Differential Scale - Interval 語義差異尺度 - 區間
- Numerical Scale/Multiple Rating List Scale - Interval 數字尺度/多重評價尺度-區間
- Constant Sum Scale - Ratio 恆常的總和尺度 - 比例
- Stapel Scale - Ordinal or Interval 次序或間隔
- Graphic Rating Scale - Ordinal or Interval or Ratio 圖形量表 - 次序或區問或比例

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Commonly used Scales (2)
常用的尺度(2)

- **Ranking Scales (Ordinal) 排名尺度 (次序)**
- Paired-Comparison Scale 配對比較尺度
- Forced Ranking Scale 強制排位尺度
- Comparative Scale 相對尺度

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What is Sampling? 何謂取樣?

- **Population: 人口 :**
- the subject on which the measurement is being taken 測量正在採取的主題
- Total collection Of elements about which we wish to make some inferences 這是我們希望做一些推論的共有元素的集合
- Census - count elements in the population 普查 - 計算人口中的所有元素
-
- **Sampling: select some of the elements in a population so that we can draw conclusions about the entire population 樣本: 從人口中選擇一些元素, 我們可以對該人口得出結論**

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Why sample? 為何要樣本?

- Low cost 低成本
- Greater accuracy of results 結果的準確度較大
- Greater speed Of data collection 數據收集較快
- Availability Of population elements 人口要素的可用性
- Not feasible/ necessary to conduct a census 不可行/沒有必要進行人口普查

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What is a Good Sample? 何謂好樣本?

- **Accuracy 準確**
- Degree to which bias is absent from bias 偏見程度是沒有偏見
- No systematic variance 沒有系統的變異
- Variation due to some known or unknown Influences that cause the scores to lean in one direction 變異是一些可知或不可知的影響令分數傾斜到, 一個方向
- **Precision 精確**
- Sampling error 樣本錯誤
- Standard error of estimate: the smaller, the better 估計的標準錯誤: 越小越好

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Six Steps of Sampling
取 樣 的 6 個 步 驟

- What is the relevant population? 什麼是有關的人口?
- What are the parameters of interest? 感興趣的是什麼參數?
- What is the sampling frame? 什麼是抽樣框?
- What is the type of sample? 樣本的種類是什麼?
- What size sample is needed? 需要多大的樣本規模?
- How much will it cost? 會花多少成本?

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What is the relevant population?
什麼是相關人口?

- What is the definition of population in this research study? 這個研究所定義的人口是什麼?
- What is the unit of analysis? E.g. Individual? Households? Families? 分析的單位是什麼? 例如個人? 住戶? 家庭?
- Any operational definitions involved? 包含任何操作上的定義?

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What are the parameters of interest?感 興 趣 的 是 什 麼 參 數 ?

- Population parameters: descriptors of variables of interest in the population 人口參數: 描述人口的利益變數
- Sample statistics: Estimators of population parameters 樣本統計: 人口參數的估計

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What is the sampling frame? 什 麼 是 抽 樣 框 ?

- The list of elements from which the sample is actually drawn 從樣本實際制定的元素列表
- Ideal: complete and correct list of population members only 理想: 只有完整及正確的人口成員
- E.g. telephone directory 例如電話目錄

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What is the type of sample?
樣 本 的 種 類 是 什 麼 ?

- **Probability/ Random Sampling 概率/隨機抽樣**
  - Simple random 簡單隨機
  - Systematic 系統的
  - Stratified 分層
  - Cluster 群集
  - Multi-phase/ Sequential 多階段/時序
- **Nonprobability/ Nonrandom Sampling 非概率 / 非隨機抽樣**
  - Convenience 方便
  - Purposive / Judgmental 立意
  - Snowball 雪球

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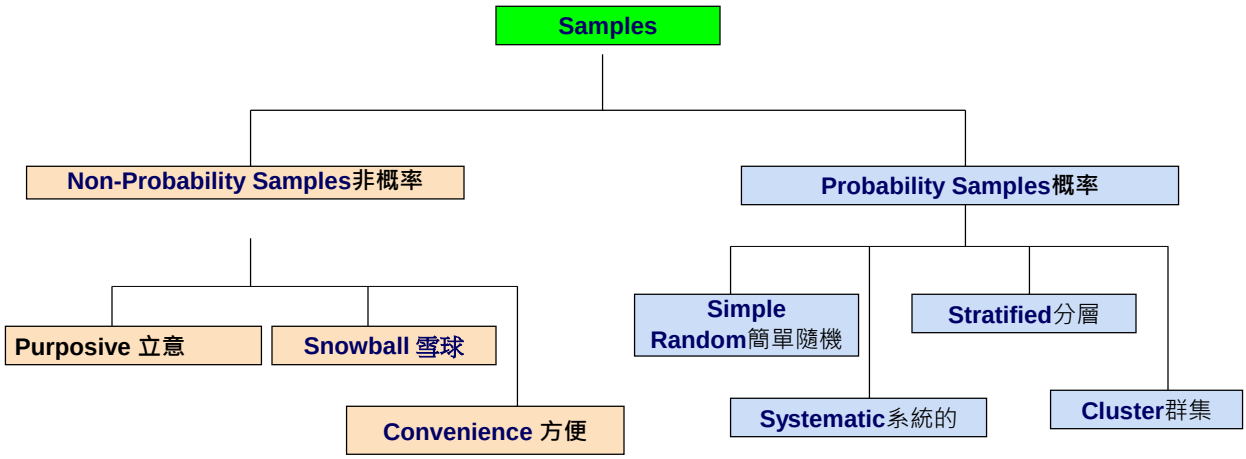
Types of Samples Used



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Probability Sampling 概 率 抽 樣

➢Simple random sample 簡單概率抽樣

- Equal chance of selection 同等機會選擇
- using random number table/ generator 使用隨意的數字表/產生器
- **Advantages: 優點 :**
  - ✓easy to implement with automatic dialing system 有自動撥號系統容易執行
- **Disadvantages**: **缺點** :
  - ✓requires a list of population elements, 需要人口元素列表,
  - ✓takes more time 需要多點時間
  - ✓uses larger sample sizes 使用較大的樣本規模
  - ✓Expensive 昂貴
  - ✓produces larger errors 製造人量誤差

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Complex Probability Sampling (1) 複 雜 的 概 率 抽 樣 (1)

➢Systematic sampling 系統性抽樣

- Random start, selects every kth element 隨機開始, 選擇每kth 元素
- **Advantages: 優點**
  - ✓simple to design 容易設計
  - ✓Easier to use 較易使用
  - ✓Less expensive than simple random sampling 比簡單隨時抽樣便宜
- **Disadvantages: 缺點**
  - ✓Periodicity (e.g. 1 week, 7 days) bias sample
    週期性 (例如1星期, 7日) → 有偏見的樣本
  - ✓Monotonic trend in the list → bias sample
    在列表中的單調趨勢 → 有偏見的樣本

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Complex Probability Sampling (2)
複 雜 的 概 率 抽 樣 (2)

➢Stratified Sampling (1) 分層抽樣

- Divide population into subgroups (homogeneous) and randomly choose elements within each subgroup 將人口分開不同的小組 (同質) 及隨機選擇同一組裡的元素
- Why stratified? 為何分層?
  - ✓To increase sample's statistical efficiency 去增加樣本的統計有效性
  - ✓To provide data for analyzing the various subpopulations 提供數據分析亞人口
  - ✓To enable different research methods to be used in different strata 在不同的階層使用不同的研究方法

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Complex Probability Sampling (3)
複 雜 的 概 率 抽 樣 (3)

➢Stratified Sampling (2) 分層抽樣

- Proportionate vs Disproportionate Sampling 比例與非比例抽樣
- Process of stratified sampling: 分層抽樣的過程
  - ✓Determine the variables to use : 決定使用的變量:
  - ✓Determine the proportions of the stratification variables in the population 決定人口中的分層變量的比例
  - ✓Select proportionate or disproportionate stratification 選擇比例或不成比例的分層
  - ✓Divide the sampling frame into separate frames 將抽樣框分割成獨立的框架
  - ✓Randomize the elements within each stratum 在個階層中的隨機元素
  - ✓Follow random or systematic procedures to draw the sample 跟從隨機或系統程序去取樣

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Complex Probability Sampling (4)
複雜的概率抽樣(4)

➢Advantages 優點

- Controls sample size in strata 在基層中控制樣本規模
- Increased statistical efficiency 提高統計效率
- Provides data to represent and analyze different subgroups 提供數據來描述和分析不同組別
- Enables use of different methods in strata 基層中使用不同的方法

➢Disadvantages 缺點

- Increased error if subgroups are selected at different rates 若果小組以不同的比例去選擇會增加誤差
- Expensive 昂貴

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Complex Probability Sampling (5)
複雜的概率抽樣(5)

➢Cluster Sampling 群集取樣

✓Divide into subgroups and randomly choose la number of subgroups to study 分成小組並隨機選擇一些小組去研究

✓Economic efficiency vs Statistical efficiency 經濟有效與統計有效

✓Design 設計

- How homogeneous are the clusters? 群集有多相近?
- Shall we seek equal or unequal clusters? 應該找相等的或不相等的群集?
- How large a cluster shall we take? 群集要多大?
- Shall we use a single-stage or multi-stage cluster? 我們應否用單一階段或多階段的群集?
- How large a sample is needed? 需要多大的樣本?

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Nonprobability Sampling (1)
非概率抽樣(1)

➢**Why Nonprobability Sampling? 為何非概率抽樣?**
- Exploratory study only 僅探索性研究
- Lower cost 較低成本
- Time constraint 時間限制
- The only feasible alternative: e.g. the list of population is not available, high errors
  唯一可行的選擇: 例如人口列表不可用, 高誤差

Nonprobability Sampling (2)
非概率抽樣(2)

➢**Convenience Sampling 方便取樣**
- Unrestricted sampling 無限制的取樣
- Cheapest and easiest to conduct 最平及最容易執行
- No controls to ensure precision 沒有控制確保精度

➢**Purposive Sampling 立意抽樣**
- Judgment sampling 判斷抽樣
- Quota sampling 配額抽樣

➢**Snowball sampling 滾雪球抽樣**

What size sample is needed?
需要多大的樣本規模?

- **The larger sample is used when 當 … 會用較低的樣本:**
  - The greater the dispersion 更大的分散
  - The greater the desired precision of the estimate 更大所需的估計精度
  - The narrower the interval range 較窄的區間範圍
  - The higher the confidence level in the estimate 估計的置信水平較高
  - The greater the number of subgroups of interest within a sample 樣本內更大的利益群
- **If sample size exceeds 5 % , smaller size is ok 如果樣本大小大於5 %, 較小的規模就可以了**

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Determine Sample Size (1)
決定樣本大小 (1)

- **Information needed: 需要的資訊**
  - Precision desired 精確期望
  - Expected dispersion in the population 預期人口分散
  - Population Size 人口規模
  - Whether a finite adjustment is needed 是否需要有限調整

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Determine Sample Size (2)
決定樣本大小 (2)

➢**Precision desired: 精確期望**

- The confidence level wants in the estimate
  希望在估計中的置信水平
- E.g. 95 % Confidence (Z = 1.96)

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Determine Sample Size (3)
決 定 樣 本 大 小 (3)

➢**Population Dispersion 人口分散**

- The greater the level of dispersion, the larger the sample needed 分數程度越大, 樣本需要越大
- Used standard deviation of the sample as a proxy:
  使用樣本的標準差作代理
  - ✓Obtained from previous research 從以前的研究獲得
  - ✓Pilot test or pretest of data instrument 預試或預測數據工具
  - ✓Rule of thumb
    大拇指規則

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Determine Sample Size (4)
決 定 樣 本 大 小 (4)

➢Population size 人口規模

- When the size of sample > 5 % of the population, the finite limits of the population constrain the size needed
  當樣本規模 >5 % 人口, 有限的人口限制
- Sample size Correction: $n_c = nN/(N+n-1)$
  樣本的規模改正

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Calculating Sample Size - Based on Means 計算樣本大小 - 根據平均數

$$Z = (\overline{X} - \mu) / \sigma_{\overline{x}}$$

$$\sigma_x = \frac{\text{Estimate Population Dispersion}}{\text{Sq Root of Sample Size}}$$

$$\sigma_x = \text{Level of Precision (Difference)} / Z$$

Thus: $\sigma / \sqrt{n} = D / Z \rightarrow \sqrt{n} = Z \times \sigma / D$

$n = Z^2 \times \sigma^2 / D^2$

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Example 例 子 :

1. Specify level of precision 指定精度水平: 0.1
2. Specify confidence level 指定置信水平: 95 %
3. Determine z value 決定的Z值: 1.96
4. Estimate sd of the population 估計人口的標準差 : Assume range from 假設範圍 1 to 6, σ or Obtain from previous studies 或由之前的研究得到:

   σ= 1.2

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Example 例 子 :

5. Determine sample size 決定樣本規模

   $n = (1.2 \times 1.96)^2 / 0.1^2$

   $= 553.19$

6. Assume Population Size 假設人口規模= 10,000, adjustment needed 需要調整: $n_c = nN/(N+n-1)$

   $n_c = 553.19 \times 10{,}000 / (10{,}000 + 553.19-1)$

   $= 524.24$

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Determine Sample Size: Proportions 決定樣本大小：比例

n = n(1- n) x z^2 / D^2

D = level Of precision 精度水平(p - n)

n - Estimated from previous research
從以前的研究中預測

- Or assume 或 假 設 n = 0.5

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Part 4b : Sources and Collection of Data 來源及數據收集

- What type of data is needed? 需要什麼種類的數據?
- What communication approach will be used? 會用什麼溝通方法?
- Should the question be structured or unstructured? 問題應該結構化或非結構化?
- Should the questioning be undisguised or disguised? 訊問應毫不掩飾或隱蔽?

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Phase 1 : Instrument Design
第一階段: 工具設計

➢Select Scale Type 選擇尺度種類

- ✓Nominal 名義
- ✓Ordinal 次序
- ✓Interval 區間
- ✓Ratio 比例

➢Select Communication Approach 選擇溝通方式

- ✓Personal 個人
- ✓Phone 電話
- ✓Electronic 電子
- ✓Mail 郵寄

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Phase 1 : Instrument Design
第 一 階 段 : 工 具 設 計

➢Select Process Structure 選擇過程結構

- ✓Structured, Unstructured Questions and/or Combined questions
  結構化, 非結構化問題及 / 或混合問題
- ✓Disguised vs. Undisguised 隱蔽與毫不掩飾
- ✓Willingly shared, conscious-level information
  願意分享, 有意識層面的信息
- ✓Reluctantly shared, conscious-level information
  不情願共享, 有意識層面的信息
- ✓Knowable, limited-conscious-level information
  可知, 有限的意識層次的信息
- ✓Subconscious-level information 潛意識的層次信息

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Phase 1 : Instrument Design
第 一 階 段 : 工 具 設 計

Examples: 例子

- Willingly shared, conscious-level: Disguised 願意共享, 自覺級: 隱蔽
  - ✓Have you attended the showing of a foreign language film in six months? 你在過去6個月有否出席過外電影的展示?
- Reluctantly shared, conscious-level: Projective

  不情願共享, 自覺級: 投射
  - ✓Have you downloaded copyrighted music from the Internet without paying for it? 你有沒有曾在互聯網下載有版權的音樂但沒有付錢?
  - ✓Do you know people who have downloaded copyrighted music from the Internet without paying for it? 你知誰曾在互聯網下載有版權的音樂但沒有付錢嗎?

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Phase 1 : Instrument Design
第 一 階 段 : 工 具 設 計

- **Knowable, limited-conscious-level: 可知, 有限的意識層次:**
  - ✓No direct "why" 沒有直接的"為什麼 "
  - ✓What is it about air travel during stormy weather that attracts you? 當暴風雨天氣空中旅行有什麼吸引你?
- **Subconscious-level information: 潛意識級的資訊:**
  - ✓Seeking insights by probing 通過探索尋求見解
  - ✓Projective techniques? Fit the requirement by they are difficult to interpret 投射技術? 符合要求, 它們是難以解釋
  - ✓Would you say, then, that the comment you just made indicates you would or would not be likely to shop at Galaxy Stores? 你會否說, 你剛才提出的意見表明, 你會不會有可能在銀河百貨購物嗎?

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Phase 2 : Constructing and Refining Questions 第二階段: 構建和完善問題

➢Aims 目的

- Encourage participant to provide: 鼓勵參與者提供:
  - ✓Accurate responses 準確的答
  - ✓An adequate amount of information 適量的資訊
- Discourage participant from 勸阻參與者
  - ✓Refusing to answer specific questions 拒絕回答特定題目
  - ✓Early discontinuation of participation 提前終止參與
- Leave the participant with a positive attitude 讓參與者留下一個正面的態度

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Phase 2 : Constructing and Refining Questions 第二階段：構建和完善問題

➢Question Categories and Structure 問題的分類和結構

- Administrative Questions 行政問題
  - ✓Interviewer 訪問員
  - ✓Code no. 編碼號數
- Classification Questions 分類問題
  - ✓Sociological-demographic variables e.g. age, gender, income 社會學人口變量如年齡, 性別, 收入

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Phase 2 : Constructing and Refining Questions
第 二 階 段 : 構 建 和 善 問 題

➢**Target questions 目標問題**

- Investigative questions 調查問題
- Structured (closed questions) 結構化 (封閉問題)
- Unstructured (open-ended questions) 非結構化 (開放式問題)
- Affected by type of interview 受訪問類型影響

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Phase 2: Constructing and Refining Questions
第 二 階 段 : 構 建 和 完 善 問 題

➢**Three Key Issues 3個關鍵議題**

- Question Content 問題內容
- Question Wording 問題用詞
- Response Strategy 回應策略

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(1) Question Content 問 題 內 容

- **Should this question be asked? 這條問題應該問嗎?**
  - Issue 1 : Purposeful vs Interesting 有針對性與有趣
- **Is the question of proper scope and coverage? 問題是否在適合的範圍及覆蓋?**
  - Issue 2 : Incomplete or unfocused 不完整或沒有焦點
  - Issue 3 : Multiple questions (e.g. double-barreled question?) 多個問題 (如雙管的問題?)
  - Issue 4 : precision 精密

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(2) Question Content 問 題 內 容

- **Can the participant adequately answer this question as asked? 參與者可以充分回答這個問題問嗎?**
  - Issue 5 : Time for thought 思考時間
  - Issue 6 : Participation at the expense of accuracy - filtering? 在犧牲精度的參與 - 過濾?
  - Issue 7 : Presumed knowledge 假定知識
  - Issue 8 : Recall and memory decay 回想及記憶衰退
  - Issue 9 : Balance (General vs Specific) 平衡 (一般與特定)
  - Issue 10 : Objectivity 客觀性

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(3) Question Content 問題內容

- **Will the participant willingly answer this question as asked?**
  參與者會否希望答這條問題?
  - Issue 11 : Sensitive information 敏感資料

(1)Question Wording 問題用詞

- **Issue 12 : Shared Vocabulary? 共享詞彙?**
  - Simple vs Complex words 簡單與複雜的字詞
  - Interviewer with content knowledge 訪問員對內容有知識
  - Commonly known, ambiguous words 眾所周知, 模棱兩可的話
  - Precise words 確切的字詞
- **Issue 13 : Unsupported Assumptions 不支持假設**

(2) Question Wording 問題用詞

- **Issue 14: Frame Of Reference 參照基準**
  - To learn frame of reference used by the participant 要了解參與者的參照基準
  - To specify the frame of reference 特定的參照基準
- **Issue 15: Biased Wordings? 偏見的字詞**
  - Adjectives 形容詞
  - use famous names? 使用著名的名字?

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(3) Question Wording 問題用詞

- **Issue 16 : Personalization vs. Projection? 個性化與投影?**
  - Use " you" in question? 使用"你"的問題?
  - Be consistent 一致的
- **Issue 17 : Adequate Alternatives 適合的替代**

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Phase 3 : Drafting and Refining the Instrument
第 三 階 段 : 起 草 和 完 工 具

➢**Introduction 簡 介**

- E.g. Good evening. May I please speak with you? …
  例子: 晚上好. 請讓我跟你說話可以嗎?

➢**Participant Screening 參與者篩選**

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Phase 3 : Drafting and Re fining the Instrument
第 三 階 段 : 起 草 和 完 善 工 具

➢**Measurement Question Sequencing 測量問題排序**

- Awaken interest and Motivation 喚醒興趣和動機
- Sensitive and Ego-involving information 敏感和自我參與的信息
- Simple to Complex 簡單到複雜
- General to Specific 一般到特定
- Question groups and Transition問題組與轉型
- E.g. The next set of questions will ask about your …
- 例如: 下一組的問題會問你 …

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Phase 3 : Drafting and Refining the Instrument.
第 三 階 段 : 起 草 完 善 工 具

➢**Instructions 說明**

- Be simple and polite 簡單及禮貌的
- Topics include: 主題包括
- Termination of an unqualified participant 終止不合格的參與者
- Termination of a discontinued interview 終止已終止的參與者
- Skip directions 跳轉導航
- Disposition instructions 配置說明

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Overcoming Instrument Problems
克 服 工 具 問 題

- Build rapport with the participant 建立與參與者的關係
- Redesign the questioning process 重新設計詢問過程
- Explore alternative response strategies
  探索替代的應對策略
- Use methods Other than surveying to secure the data 使用問卷以外的方法確保數據
- Pretest all the survey elements 預測所有在問卷中的元素

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Response Strategy 應 對 策 略 -

➢**Major Options 主要選擇**

- ✓Open-ended Questions 開放式問題
- ✓Close Questions 封閉式問題
- ✓Dichotomous selection 二元選擇
- ✓Multiple choice 選擇題
- ✓Checklist 清單
- ✓Rating 評分
- ✓Ranking 排序

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Writing Question

- **Open-ended or closed-ended.**

Q: Why did you purchase Apple Daily? _____.

Q: Why did you purchase Apple Daily?

A. More entertaining. B. More colorful.

C. Better paper quality. D. Others. Please specify ____.

- **Response categories should be mutually exclusive and collectively exhaustive.**

Q: which of the following categories best describes your total household income?

1. $10,000- $15,000 2. $15,000 - $25,000
3. $25,000 or higher

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Writing Questions

- **Do respondents have the <u>necessary information</u>?**

  You could easily get the service you needed in the IVRS.

  a) Strongly Dissatisfied; b) Dissatisfied; c) Neutral; d) Satisfied;

  e) Strongly Satisfied

- **Will respondents give true answers? (**Sensitive or embarrassing questions.)

  - Other people approach.

    1. Did you cheat in Business Statistics final exam?
    2. Do you think <u>students</u> cheated in Business Statistics final exam?

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Writing Questions

- **Use simple words, avoid vague or ambiguous含糊或者不确定的 words.**

  How often do you read newspaper?

  A. More often than not多半　　B. Sometimes

  C. Occasionally偶然　　D. Never

- **Avoid complex questions.**

  What are the total number of minutes you spent Canteens last week? _____.

- **Avoid questions with multiple purposes.**

Q1: Are you satisfied with <u>price</u> and <u>convenience</u> of 5 floor canteen of CityU?

_____ Yes　_____ No　_____ Not Sure

Q2: Do you think that McDonalds has <u>fast</u> and <u>well-mannered</u> service?

_____ Yes　_____ No　_____ Not Sure

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Choosing Response Strategies
選 擇 應 對 策 略

- **Issue 18 : Objectives Of the Study 研究目的**
  - To classify the participant? 將參與者分類?
  - To discover opinion and degrees of knowledge 發現選項及知識的程度
- **Issue 19 : Level of Information 資訊水平**
- **Issue 20 : Thoroughness of Prior Thought 比之前思想的徹底**
- **Issue 21 : Communication Skill 溝通技巧**
- **Issue 22 : Participant Motivation 參與動機**

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Value of pretesting
預 先 測 試 的 價 值

- Participant interest 參與者的興趣
- Meaning 意義
- Question transformation 問題轉化
- Continuity and flow 連續性和流程
- Question sequence 問題順序
- Skip instructions 跳過指示
- Variability 變異性
- Length and timing 長度及時間

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Procedia Economics and Finance

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FIFTH INTERNATIONAL CONFERENCE ON MARKETING AND RETAILING (5TH INCOMaR) 2015

Factors Influencing Purchasing Intention of Smartphone among University Students

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Abstract

Mobile communication has made an impact towards interaction between people while conducting business either locally or internationally. The expansion of mobile communication technology e.g. wireless internet, mobile phone and Global Positioning System (GPS) are constantly evolving and upgrading as a result of consumers' changing needs and preferences. Therefore, this paper examines about factors influencing purchasing intention of smartphone among university students. The result shows that three variables that are product features, brand name and social influence have significant relationship except one variable, product sacrifice that has no significant relationship with purchasing intention.

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Peer-review under responsibility of Faculty of Business Management, Universiti Teknologi MARA

Keywords: Purchasing Intention; Product Features; Brand Name; Social Influence ; Product Sacrifice

1. Introduction

A mobile communication device is basically designed to convey traditional voice between two individuals, sending text messaging and executing basic functions, nevertheless cell phone had undergone numerous transformations, making its functionalities increasing tremendously against time resulted from the changing needs of cell phone subscribers (Kushchu, 2007; Hakoama and Hakoyama, 2011).

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Peer-review under responsibility of Faculty of Business Management, Universiti Teknologi MARA
doi:10.1016/S2212-5671(16)30121-6

Research from Strategy Analytics revealed 1 billion of smartphones are being used worldwide, a penetration of 1 in 7 while in Malaysia, the penetration for comparison stand at 1 in 4 and the highest percentage, 17.3 percent of smartphone user's age is between 20-24 years old. In current situation, consumers no longer view smartphones just as devices for calling and texting, instead as multi-use devices for gaming, socializing, and downloading applications which results in a radical shift in behaviour patterns. A survey done by Ericsson, 2014 reported that smartphones adoption is predicted to increase dramatically during the coming years with smartphone subscriptions growing by almost five times between 2013 and 2019 which will resulted in an excess of 700 million smartphone subscriptions in the South East Asia and Oceania.

1.1. Problem Statement

Mohd Azam Osman *et al* (2012), agreed that smartphone technology is changing peoples' behaviours especially young adults however surveys that have been carried out are still insufficient. There are lacks of understandings on the behavior and consumers' preferences towards the smartphone usage especially for young adults. According to Ericsson Consumer Lab (2013), 57 percent of university students use smartphone, 60 percent feel addicted to their phone, while 75 percent of them sleep next to their phones, 88 percent texted in class, 97 percent use them for social networking, and 40 percent utilized smartphone to study before test. In addition, the industry of mobile phone always showed drastic and tremendous changes or development in the telecommunication market. New models of smartphone are launched to the market from time to time in order to gain the competitive advantage in the market. The evolution of smartphone market has affected the users especially the young generation in term of motives and choice underlying the smartphone buying decision process.

1.2. Research Objectives

The main objective of this research is to determine the significant influence of product features, brand name, social influence and product sacrifice on the demand for smartphones among Malaysian students particularly among university students.

1.3 Research Questions

Is there any significant relationship influence of product features, brand name, social influence and product sacrifice on the purchasing intention of smartphones?

1.4 Research Hypotheses

H_1: There is a significant relationship between product features and purchasing intention of smartphones
H_2: There is a significant relationship between brand name and purchasing intention of smartphones
H_3: There is a significant relationship between social influence and purchasing intention of smartphones
H_4: There is a significant relationship between product sacrifice and purchasing intention of smartphones

2. LITERATURE REVIEW

The first cellular network in Malaysia is being introduced by Telekom Malaysia in 1985 and the country successfully distinguished itself by becoming one of the first countries in the Asia-Pacific region to introduce mobile telephony. Afterwards, in 1989 Celcom the second cellular operator started introducing Automatic Radio Telecommunication 900. Followed by adopted 2G network system in the middle of 1990 and by 2004, the company had launched 3G high speed cellular services (Avaxx Mobile Technologies, 2011). In 2000, Celcom introduced Wireless Data services and in March 2003, two 3G licences were issued with the first service beginning in May 2005 in certain densely populated parts in Malaysia (M2M Evolution, 2009). Recently, Malaysian Communication and Multimedia Commission (2012) have reported that 86.3 percent Malaysian citizen own cell phone and among

handphone users, Malays form the predominant ethnic group accounting for 66.1 percentage among all users.

2.1 Purchasing Intention

Purchase intention is planning in advance to buy certain goods or services in the future, not necessarily to implement the purchase intention due to it is depends on individual's ability to perform (Warshaw & Davis, 1985 in Qun *et al.*, 2012). According to Blackwell *et al.* (2001), what is cross in the customers' mind signifies intention to purchase by them. The similar researchers state that consumers will go through the process of recognized the product to purchase, then they will find the information about the product, evaluate, purchase and feedback. Therefore, they will purchase a product after making research in advance so that they will purchase right product that meet with their needs and wants.

There are many choices brands of smartphones in the market in order to satisfy the customers' needs and wants. Therefore, different consumers will have different tastes and preferences. Thus, the behaviour of consumers to purchase are depending to their characteristics such as brand name, price, quality, recreation and innovation awareness, mixed up with other choices as well as impulsiveness (Leo *et al.*, 2005). Thus, it is important to examine factors that lead to the consumer's decision to purchase a smartphone. This study is to examine variables such as product features, brand name, social influence and product sacrifice towards purchasing intention among consumers of smartphone.

2.2 Product Features

Nowadays, there are many high technology features of smartphones in the market. Thus, different people will choose different features of smartphones that can meet with their needs and desires. According to Oulasvirta *et al*. (2011), smartphones nowadays are being featured with wireless connectivity, a built-in web browser, application installation, full programmability, a file management system, multimedia presentation and capture, high-resolution displays, several gigabytes of storage and location as well as movement sensors. Based on previous research, there are five design characteristics of mobile phone being preferred by consumers such as camera, color screen, voice-activated dialing, internet browsing and wireless connectivity (Ling *et al.*, 2006). Based on study done by similar researcher indicates that the respondents that mostly college students more prefer to purchase mobile phone due to its physical appearance, size and menu organization.

Product features can be defined as the attributes of a product that can satisfy consumers' preferences through having the product, using and applying the product (Kotler & Armstrong, 2007). According to Lay-Yee *et al* (2013), hardware is the surface of device that can be physically touched such as body of the smartphone, size, weight, color as well design. Meanwhile, software includes computer programs, procedure and documentation. In addition, operating platform, storage or application also can be categorized as software. There are several types of operating software such as iOS, Android, Windows, RIM Blackberry, Symbian, Bada and maemo.Hardware and software can be categorized as product features. Based on previous research conducted by Russell (2012), consumers in Malaysia mostly prefer Android consists of 41%, followed by IOS with 18%, RIM Blackberry and Windows recorded the same with 6%. The users in the other countries such as Singapore, Australia, New Zealand, Thailand and Vietnam mostly use Android operating system. Based on previous done by Lay-Yee *et al* (2013), 31% of users prefer software compare to hardware only 17.6%. This indicates consumers will look more on software rather than hardware in purchase the smartphone.

2.3 Brand Name

Organizations will always find ways to differentiate them from the others especially in smartphone industry that keep always changing the technology. The organizations have to find new technology that not available in the market and meet demand the customers. Brand name can be an identity and exclusivity that represent the organization. Brand name can be as name, term, symbol and design to differentiate the organization from the competitors. According to Cornelis (2010), most of organizations emphasize about brand name that can be as an invaluable assets to their products and services. This can be the competitive advantage to the organization.

Nowadays, customers prefer smartphones that have unique features such as could quickly display information with minimal aggravation and clear graphical interface for touch screen interactions (Norazah, 2013). For example, brand of Samsung, BlackBerry, Apple HTC, Nokia, and LG are smartphones mostly purchased by the customers. According research done by ChangeWave Research (2010), smartphones brand of Apple has high number of customers that loyal to the brand due to it differentiate different types of customers by selling different versions with different amounts of storage space and different colors at different price points. Based on previous research, it was found that product's brand name influence customers' evaluation and affect to their buying decision (Khasawneh, 2010). This also can be supported by the other research done by Norazah (2013), brand name was found to have a significant effect on the demand for smartphones among Malaysian students'.

2.4 Social Influence

According to Rashotte (2007), social influence is about changing of feelings, attitude, thoughts and behavior, intentionally or unintentionally influenced by the other person. It is due to the interaction with other people that know each other such as parents and peers. Consumers would be influenced by media, parents and peers in order to purchase the smartphones (Nelson & McLeod, 2005). Nowadays, people can develop their social network online through social media such as Facebook, Twitter, Instagram and so on. They can find not only the information regarding smartphones but they can also get comments and product reviews from the other users that currently or previously used the smartphones.

According to Kotler and Armstrong (2007), consumers' action is being influenced by people surrounding them. They would seek for suggestion, advice as well as experiences of people that already purchase and use the smartphones. They might tend to get it from different type of people especially for those that close to them such as friends, peers, family members and spouse. Based on previous research conducted in Malaysia by Mohd Azam Osman *et al.* (2012), 35.6% of the respondents prefer to purchase the smartphones according to the trend in the community. This can be supported by research done by Suki and Suki (2013), young generation especially students depend highly over people surrounding them in order to purchase the smartphones. Consumers tend to get advice and opinions from their friends and families based on features of smartphones and will purchase the similar smartphones that their friends and families use.

2.5 Product Sacrifice

Consumers might find information regarding a product that they want to purchase based on their tastes and preferences. The consumers also will make comparison between different types of the products so that they can purchase their products within their budget suit with their needs and wants. Other than that, they also make comparison in term of quality, benefits as well as price of the product. They also need to sacrifice to purchase other things in order to get their preferable products. Product sacrifice can be said as giving up something important or valuable to consumers in order to purchase smartphones.

Consumers can sacrifice to buy other things in term of monetary and non-monetary cost (Zeithmal, 1996 in Sok, 2005). Monetary cost can be in term of purchase price, acquisition cost, transportation, installation, order handling, repairs and maintenance risk of failure or poor performance. Meanwhile, non-monetary costs can be in term of time cost, search cost and psychic cost when it comes to make decision whether to purchase or re-purchase smartphone. Therefore, consumers will sacrifice not only in term of monetary but also non-monetary costs such as time, effort and energy in finding the information about different brand name of smartphone in advance before making decision to purchase smartphones. This can be supported by previous research done by Sok (2005), there was positive significant relationship between product sacrifice and purchasing intention among consumers.

2.6 Theoretical Framework

According to Sekaran & Bougie (2009), theoretical framework is the foundation on which it is a logically developed, described and elaborated network of associations among the variables deemed relevant to the problem situation and identified through such processes as interviews, observations and literature review.

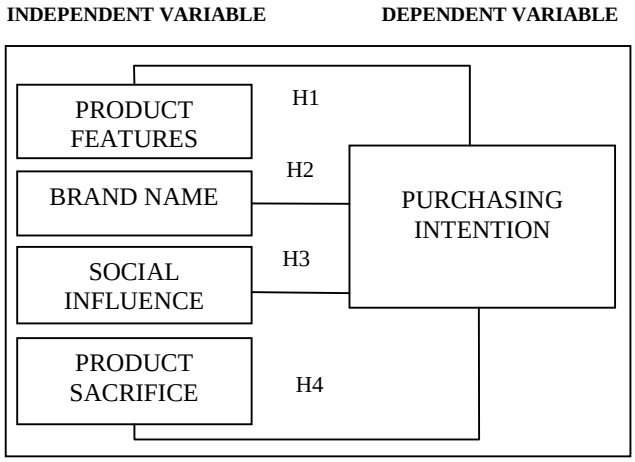

Fig. 1 Adapted from: (Chow M. M., Chen L. H. & Wong P. W. (2012), Conceptual Paper: Factors Affecting the Demand of Smartphone among Young Adult, 2012)

3. RESEARCH METHODOLOGY

3.1 Samples

This study uses both types of data collection method which are primary and secondary data. This study used survey questionnaire as the primary data source by using questionnaire, while in the secondary data collection is from journal, articles, internet, text book, media publications, electronic library database and article. According to Krejcie and Morgan (1970), if the population is around 7,000, the respondents needed are 364. Therefore, in this research, 367 sets of questionnaire were distributed to diploma students who study in Universiti Teknologi MARA, Kedah. The target population is the collection of the elements or objects that possess the information the researcher is seeking for (Malhotra and Peterson, 2006). This research selects diploma student of Universiti Teknologi MARA, Kedah as a main population to draw conclusion about the entire population which approximately of 6,993 students that gathered from 7 faculties.

4. DATA ANALYSIS

According to Sekaran (2003), the objectives of data analysis are getting a feel for the data (descriptive analysis), testing the goodness of the data (scale measurement) and testing the hypotheses develop for the research (inferential analysis). Statistical Package for Social Science (SPSS) technique computer software version 20.0 is used to conducted data analysis in this research. The results are then analyzed.

4.1 FINDINGS

The demographic characteristics of respondents are depicted in Table 1. Based on gender background, 20.2% of the respondents are male, whereas the percentage of female respondents is 79.8%. The majority of the respondents fall in the age group from 18-19 years old which recorded at 54.5%, followed by 42.5% for the age level from 20 to 21 and only 3% of respondents with the age above 21.

Table 1. Demographic Characteristics

Items	n	%
Gender		
• Male	74	20.2
• Female	293	79.8
Age (years)		
• 18 – 19	200	54.5
• 20 – 21	156	42.5
• Above 21	11	3.0
Budget range		
• Below RM 300	56	15.3
• RM 301 – RM 600	128	34.9
• RM 601 – RM 900	98	26.7
• RM 901 – RM 1,200	41	11.2
• Above RM 1,200	44	12.0
Number of hand phone		
• 1 hand phone	211	57.5
• 2 hand phones	140	38.1
• More than 2 hand phones	16	4.4

Meanwhile, for the price or budget range to purchase a smartphone among students, 15.3% of respondents is below than RM 300, 34.9% for budget between RM 301 – RM 600, and 26.7% of respondents are willing to spend RM 601 – RM 900 for purchasing a smartphone. On the other hand, for the high budget category of smartphone, there is only 11.2% of respondents are allocating expenditure between RM 901 to RM 1,200 and only 12.0% of students are willing to spend more than RM 1,200 for purchasing a smartphone. Next, survey on number of hand phone owned by respondents showed that most of the students (57.5%) have 1 hand phone. Only 38.1% of respondents are reported that possessed 2 hand phones while 4.4% of respondents have more than 2 hand phones.

Table 2. Reliability Analysis Test for Dependent and Independent Variables

Variables	No of Items	Alpha
ALL	18	0.778
Purchasing Intention (PI)	4	0.760
Product Features (PF)	4	0.699
Brand Name (BN)	3	0.611
Social Influence (SI)	3	0.612
Product Sacrifice (PS)	4	0.729

Cronbach's alpha coefficient is the most frequently used to test the internal reliability of the items used in the study. Cronbach's alpha reliability coefficient normally ranges between 0 and 1. If the value of cronbach's alpha coefficient closer to 1.0, it means that the greater the internal consistency of the items in the scale. All 18 items used in this study obtained Cronbach's alpha value with 0.778 which greater than 0.6. This indicates that all questions for the independent and dependent variables are standardized and can be accepted as refer to the rules of thumb about cronbach'a alpha coefficient (Nunnally & Bernstein, 1994). The cronbach's alpha of 4 items measuring purchasing intention (PI) is 0.760 which is highest as compared to other variables used in the study. The second highest value of cronbach's alpha is 0.729 which used to measure product sacrifice (PS) with 4 items. Next, the 4 items measuring product features (PF) recorded at 0.699 for cronbach's alpha. Meanwhile, the cronbach's alpha value for the social influence (SI) is 0.612. The lowest value of cronbach's alpha is 0.611 which obtained by brand name (BN) with total 3 items.

The main focus in this study is to examine the relationship between dependent variable and dependent variables.

The result of Person Correlation Analysis is showed at Table 3.

Table 3. Pearson's Correlations Coefficient

Variables	PI	PF	BN	SI	PS
PI					
PF	.359**				
BN	.280**	.494**			
SI	.307**	.280**	.284**		
PS	.061	.083	.163**	-.045	

Notes: **p<0.01

Hypothesis 1: There is a significant relationship between product features (PF) and purchasing intention (PI).
The results showed that a significant positive correlation coefficients between PF and PI (r = .359, p<.01). Rules of thumb have been suggested to characterize the strength of the association between variables (Hair *et al*., 2007). The result demonstrated that the strength of association between PF and PI was weak.

Hypothesis 2: There is a significant relationship between brand name (BN) and purchasing intention (PI)
A significant positive correlation coefficients showed between BN and PI with the value of .280 (p<.01). The strength of relationship between BN and PI was weak.

Hypothesis 3: There is a significant relationship between social influence (SI) and purchasing intention (PI).
The final findings indicated that there is a significant positive correlation coefficients between SI and PI (r = .307, p<.01). The correlation coefficient gained shows a weak relationship.

Hypothesis 4: There is a significant relationship between product sacrifice (PS) and purchasing intention (PI)
The results showed that there is no significant relationship between PS and PI.

Thus, H1, H2 and H3 are accepted and H4 is rejected. In summary, this results shows that there is a significant relationship between PF, BN and SI towards purchasing intention of smartphone among university students in UiTM Kedah.

5. CONCLUSION AND RECOMMENDATION

The purpose of this study was to investigate the factors influencing purchase intention of smartphone among university students in Malaysia. Specifically, this study examined the relationship between product features, brand name, social influence, product sacrifice and purchase intention of smartphone. Data was gathered from 367 diploma students from UiM Kedah and analyzed. Four hypotheses were presented to test the relationship between the independent variables; product features, brand name, social influence, product sacrifice and purchase intention of smartphone. The finding indicated that three hypotheses were supported.

This study confirmed that product features was significantly and positively related to purchase intention of smartphone. Thus, the first hypothesis (H1) is supported. The result was consistent with the findings of the previous studies. It was found that product features was positively related to purchase intention of smartphone (Ling *et al*., 2006; Lay-Yee, Kok-Siew, & Yin-Fah, 2013). The finding showed that there was a significant and positive relationship between brand name and purchase intention at p=0.01 level. However the strength of the relationship was weak. Hypothesis 2 is also supported. This result is consistent with the findings in previous studies which had suggested a positive relationship between brand name and purchase intention. Lay-Yee *et al*. (2013) has conducted a study among Malaysian generation Y in Klang Valley, Malaysia. The study indicated that smartphone purchase decision of Generation Y is influenced by brand name. Smartphone manufactures could emphasize on brand name when promoting smartphones to students. Besides, brand managers may draw a good loyalty program for their existing customers in order to retain them.

This study also found that there was a significant and positive relationship between social influence and purchase intention of smartphone. Thus, Hypothesis 3 is also supported. Similar findings were reported in the study of social influence and purchase intention (Mohd Azam, 2012; Suki & Suki, 2013; Lay-Yee *et al*., 2013). According to Ibrahim *et al*. (2013), social influence was found to be positively related to purchase intention of smartphone and the strength is moderate at 0.463. The study was conducted among adolescents aged 19 to 26 years in Perlis. Ting *et al.* (2011) also found that university students' dependency on smartphones is influenced by social influence and dependency is positively related with purchase behavior. Ting *et al*. (2011) recommended that marketer could possibly stimulate positive word-of-mouth among friends and family to encourage more university students in using smartphones. Social influence may be a key role in the use of smart phone since the decision to use the smartphones is beyond individuals' independent decision-making (Park *et al*., 2013)

However, we found that product sacrifice did not have a significant relationship with purchase intention, as we hypothesized. The result in this study contradicted the findings of Sok (2005). This contradictory finding could be attributed to the sample use in this study. Smartphone has become parts of the daily usage among university students and they will not sacrifice something important in order to purchase smartphones.

The findings of this study have several implications for the smartphone producers. This study resulted in information that will provide smartphone producers on factors that influence purchase intention of smartphone. This study concludes that product features, brand name, social influence are positively related to purchase intention. The present study was not without its limitation. First, given the cross-sectional research design of the study, no causal relation between the variable could be inferred. To obtain further support for potential causal links between these variables, future studies should be based on longitudinal design. The second limitation was the sample was limited to the UiTM's students. As such, the findings might not be applicable to the students in other universities in Malaysia. Consequently, research is needed on different samples across university students in order to improve the generalizability of the findings.

In conclusion, the present research helps us to understand the importance of product features, brand name, and social influence on purchase intention of smartphone among University students. Contrary to expectation, product sacrifice did not have a significant relationship with purchase intention. Future studies need to be carried out to investigate other factors which may influence purchase intention of smartphone. In sum, the results of this study suggested that it is very importance for the smartphone manufacturers to understand what determinants influencing University students' purchase intention towards smartphone because they represented the future main uses of smartphone. Moreover, it is the key to increase their own market share within the respective market segment.

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【Hong Kong Federation of Women's Centre ERB Course Student's Satisfaction and Student Loyalty Research 】

I am an MBA student of University of Wales and designed the following questionnaire for the purpose of my master works .Thank you for taking the time to assist in this research. This is an academic research questionnaire on the satisfaction and loyalty of the Hong Kong Women 's Center Association 's employment training courses. I hope to study Hong Kong through your experience in employment training courses at the Hong Kong Women 's Center Association The training courses of the Women's Center Association, the impact of the service quality, brand image, and gender of the training center on the relationship between student expectations, student satisfaction, and loyalty.
Your answers to this survey will remain anonymous, and your identity will not be linked to you.

Please "Tick" or "Circle" one number that best describes your opinion.

A. Information

1. Gender □ M □ F
2. Type of Training Course: _____

Age □18-30 □31-40 □41-50 □51-60 □ Over 60

B. Service Quality

（The Level of agreement is marked with 1 to 5 points, point 5 is strongly agree and point 1 is strongly disagree. Please circle/ tick the appropriate number.）

1.	The tutors of HKFWC have provided a reliable professional training during the course.	5	4	3	2	1
2.	I think the staffs of HKFWC is polite and willing to solve the difficulties during the course.	5	4	3	2	1
3.	I think the staffs of HKFWC can solve my difficulties during the course.	5	4	3	2	1
4.	I think HKFWC can respond to the needs of students and take action to implement.	5	4	3	2	1

C. **Brand Image**

5.	The ERB Course of HKFWC have high levels of brand awareness.	5	4	3	2	1
6.	I got a strong sense of identity from the ERB Course of HKFWC.	5	4	3	2	1
7.	I got a strong sense of innovation and diversity from the ERB Course of HKFWC.	5	4	3	2	1
8.	I got a good memory from the ERB course of HKWFC.	5	4	3	2	1

D. Student's Expectation

9. The publicity information is the same as my expected after my enrollment of the ERB Course in HKFWC.	5	4	3	2	1
10. I expect the ERB course of HKFWC can fulfill my personal needs.	5	4	3	2	1
11. I have obtained under my expectations after completed the ERB Course in HKFWC.	5	4	3	2	1

E. Student satisfaction

12. After the completion of ERB Course, I think it is a right choice to study in HKFWC.	5	4	3	2	1
13. I am satisfied with the ERB Course which provided by HKWFC.	5	4	3	2	1
14. I am satisfied with the service quality of ERB Course which provided by HKWFC. .	5	4	3	2	1

F. Student loyalty

15. I will attend the ERB Course of HKFWC in the future again.	5	4	3	2	1
16. I would like to introduce the ERB Course of HKFWC to my friends and relatives.	5	4	3	2	1
17. When other organizations provide the same ERB Course as HKFWC, I still prefer to choose HKFWC.	5	4	3	2	1

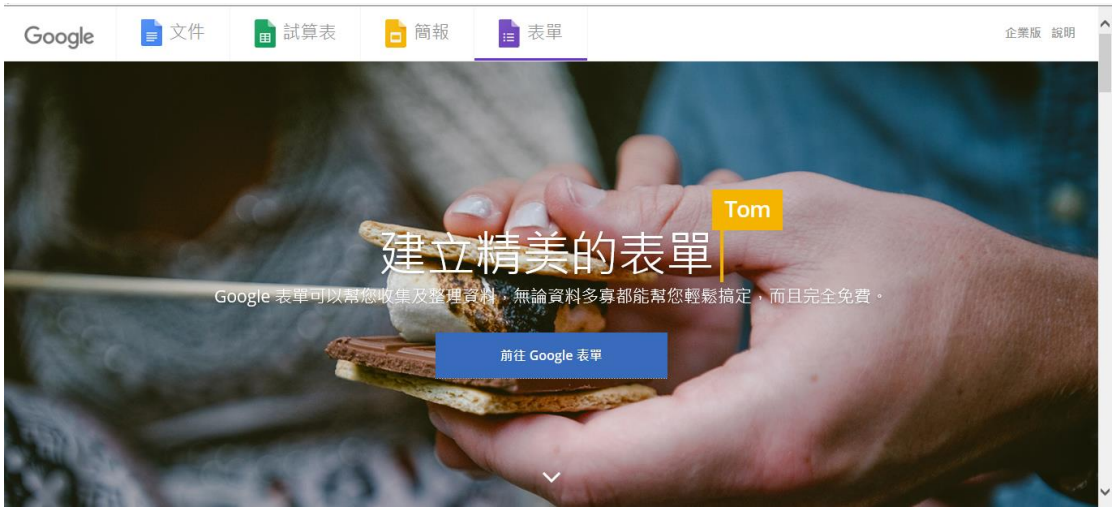
19. How many ERB Courses have you take in the HKFWC?

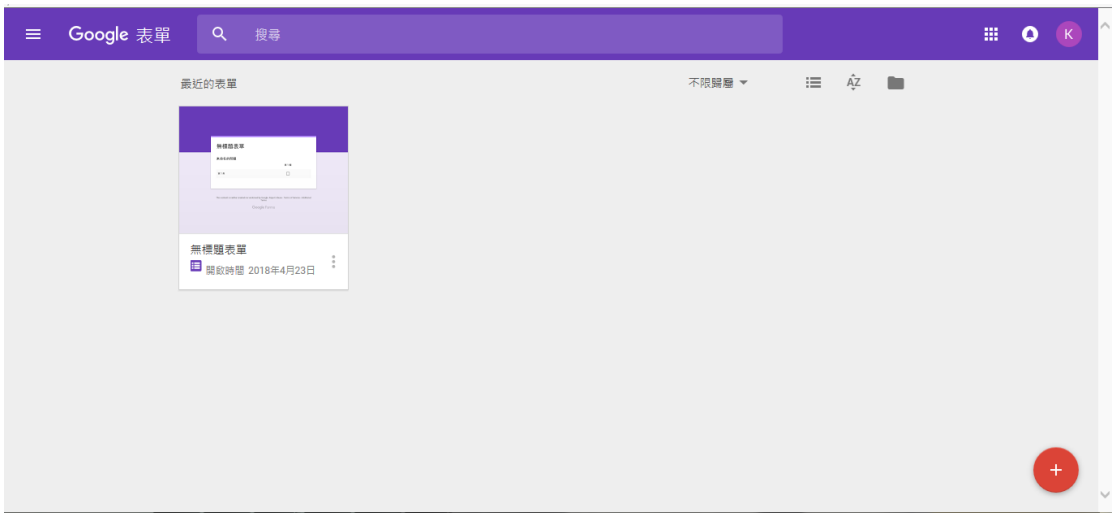
1 □ 2 □ 3□ over 3□

END

Example for creating questions of Survey from Google Form

https://www.google.com/forms/about/





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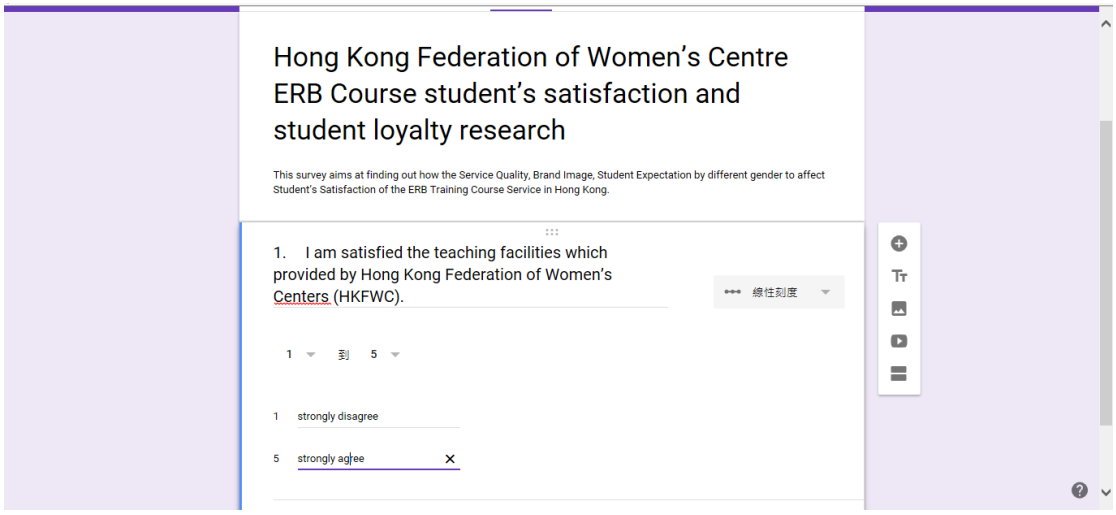

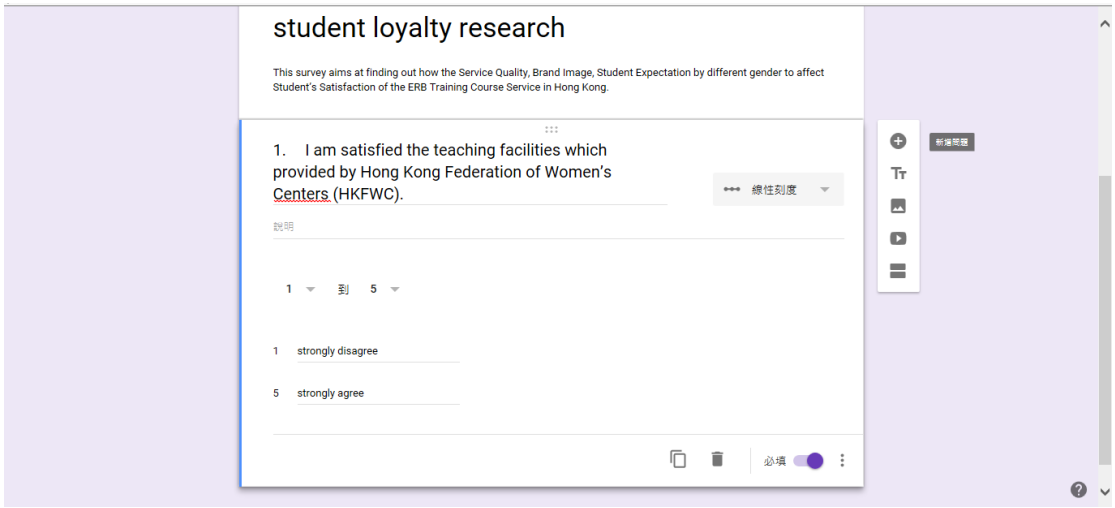

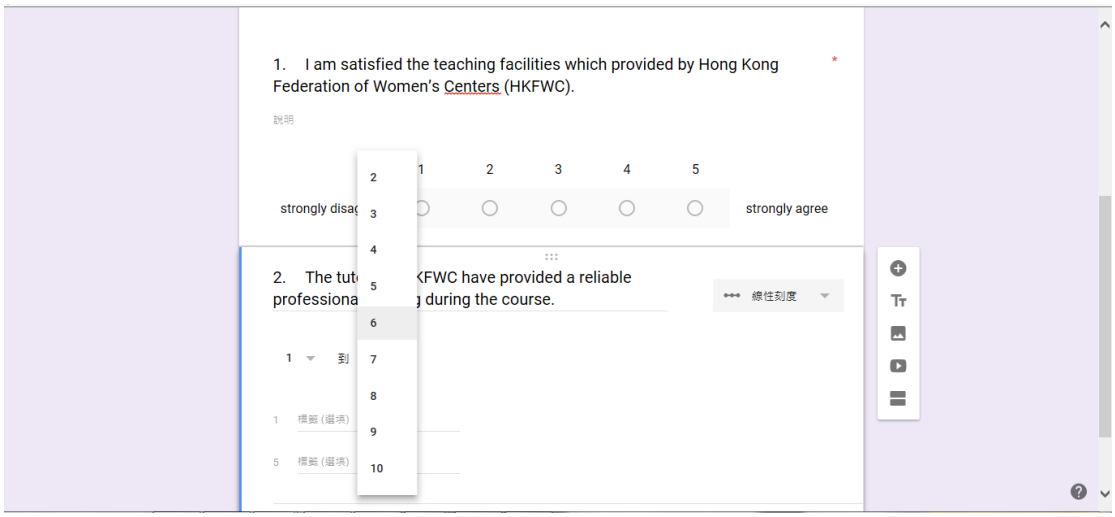

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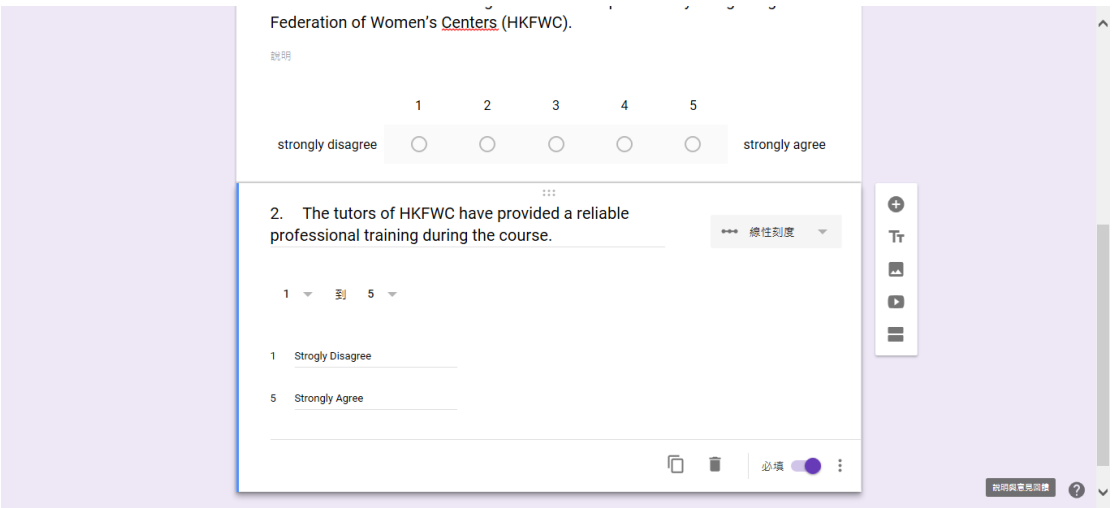

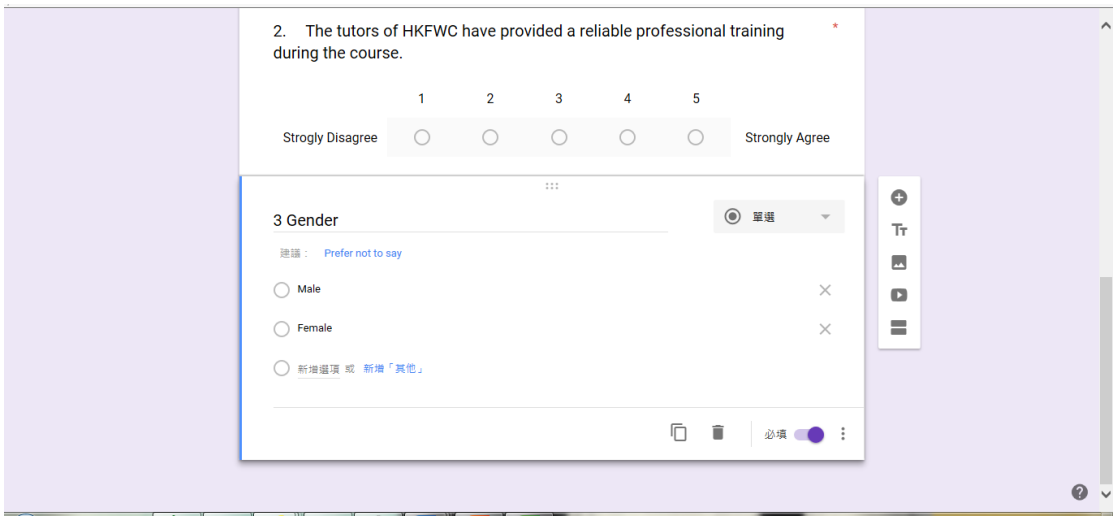

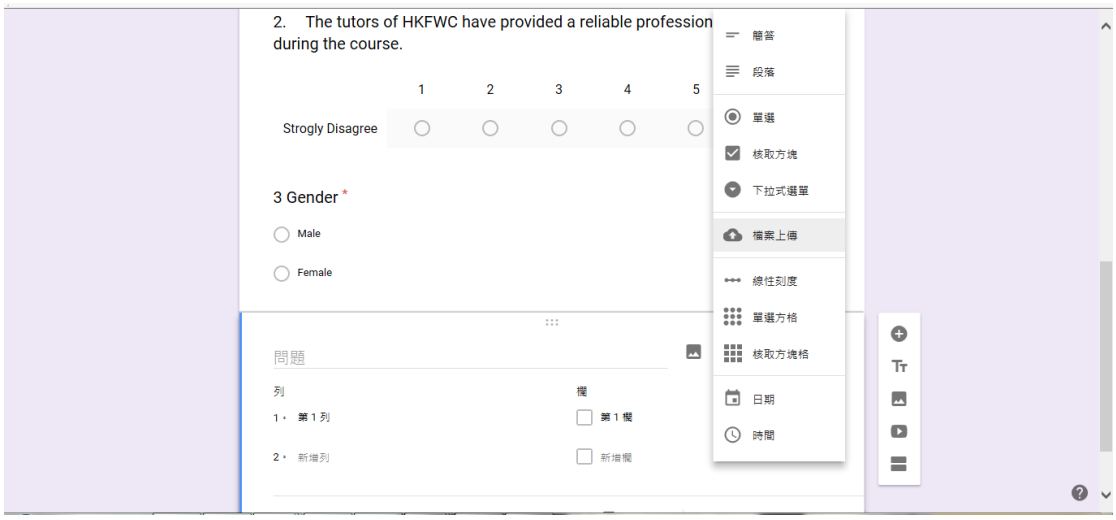

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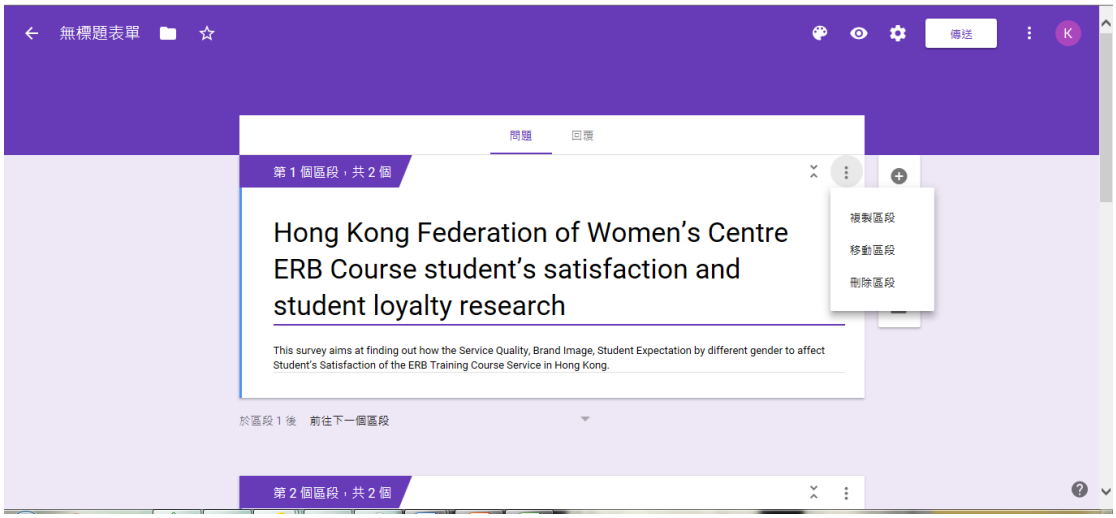

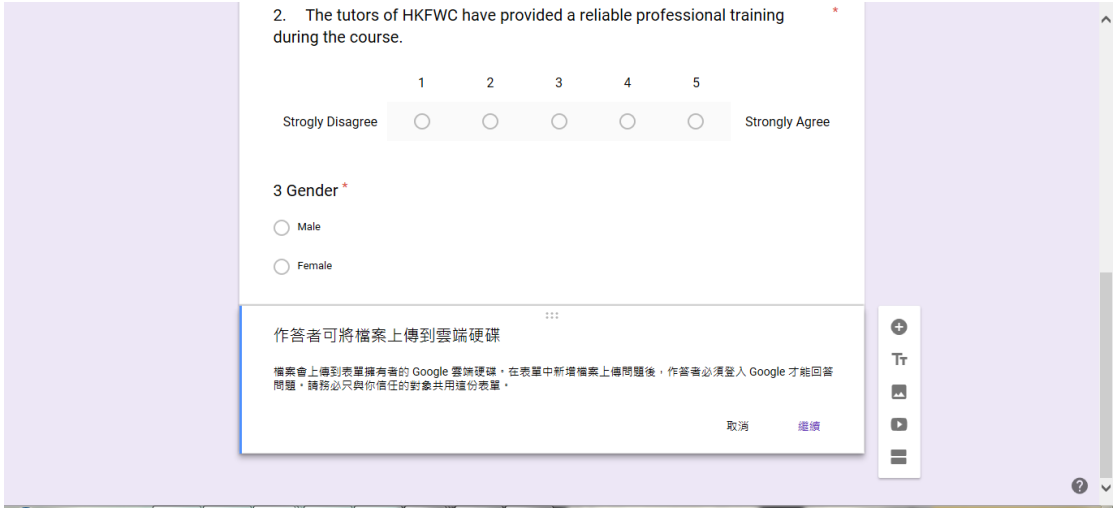

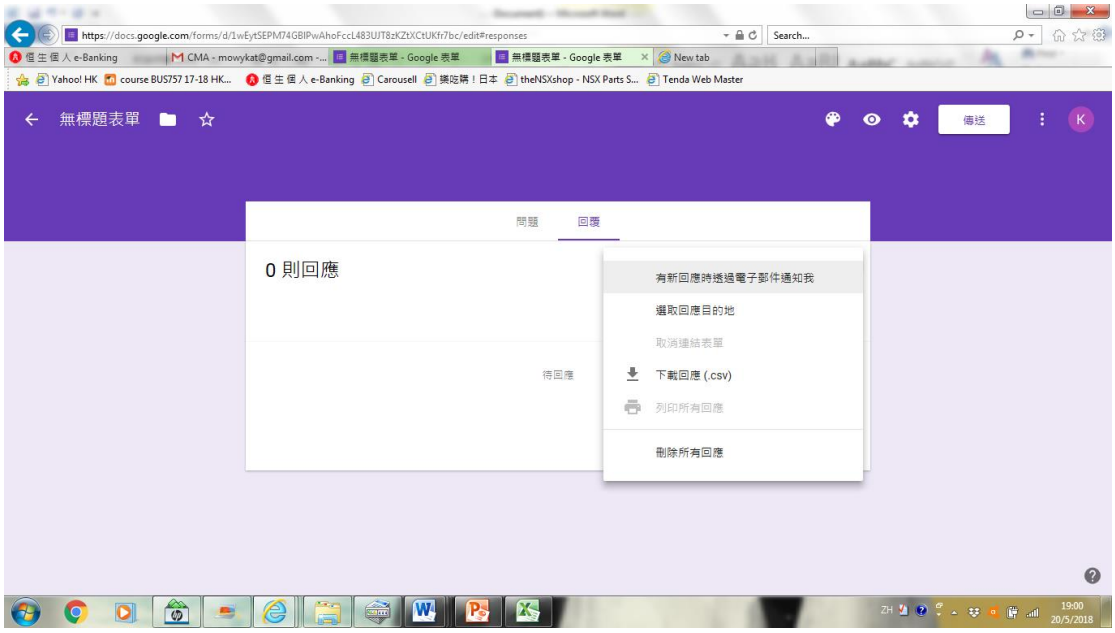

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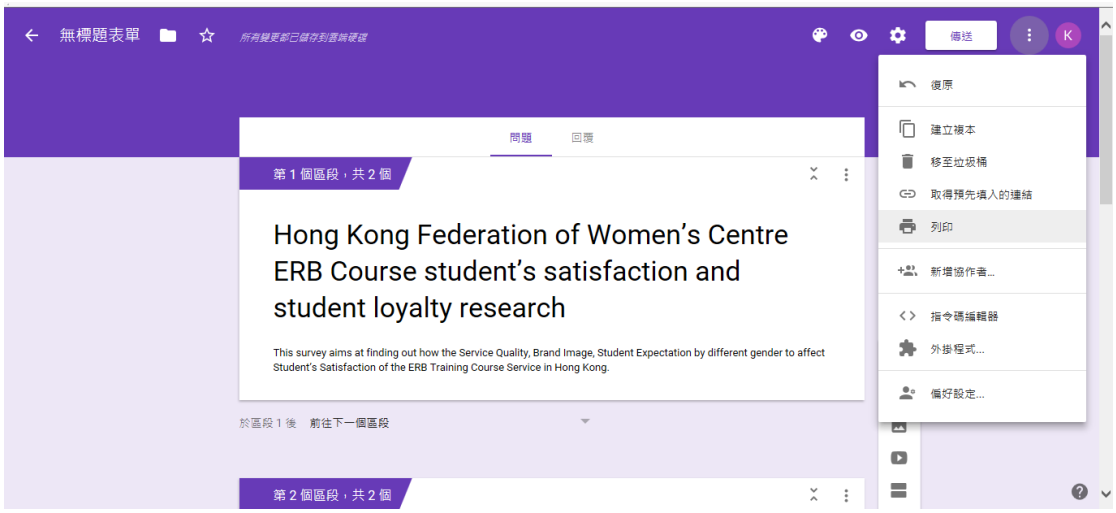
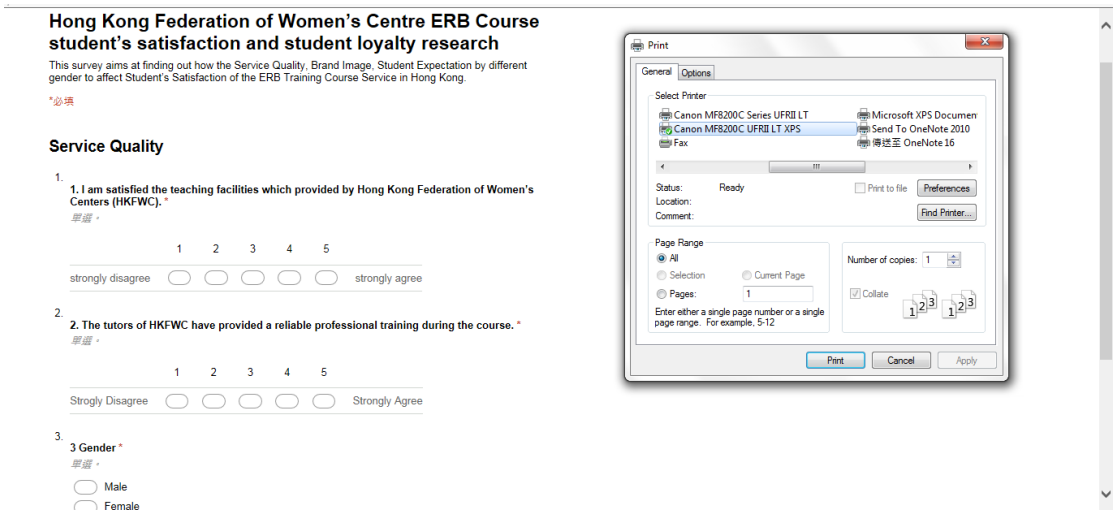
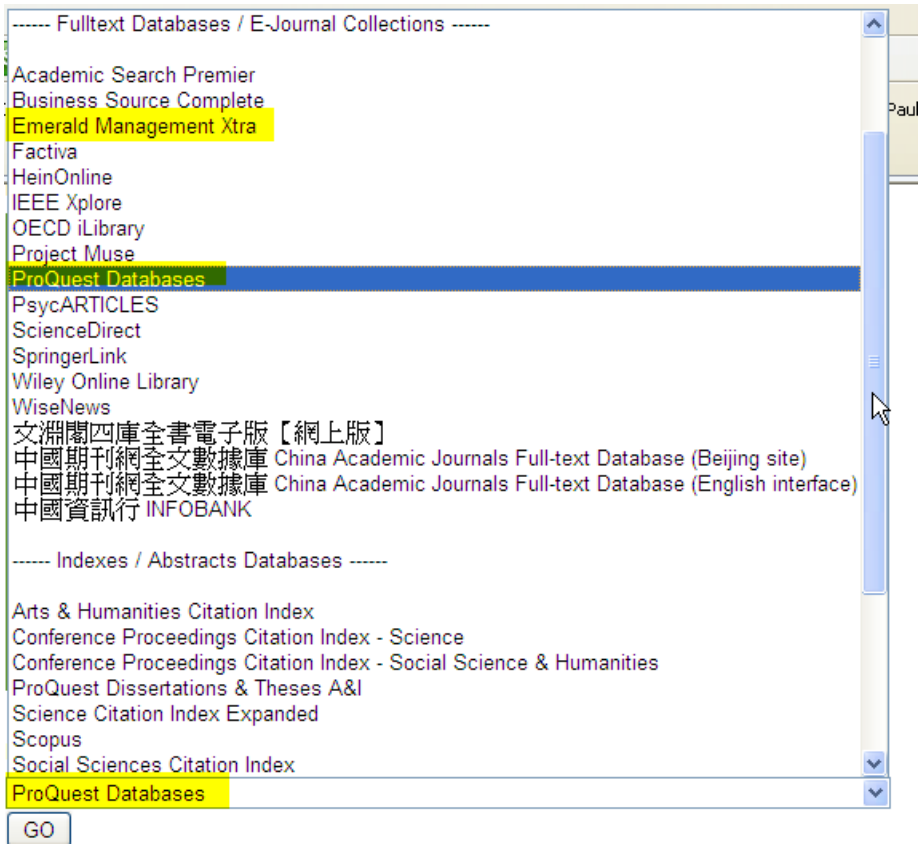




How to search Journals



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- IEEE Explore
- ScienceDirect
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- http://www.academicjournals.org/AJBM
- www.ccsenet.org/ijbm
- www.sjm06.com