

報告內容：

一、延攬學者姓名簡歷：

Professor, WILLIAM LAN

ACADEMIC QUALIFICATIONS

Ph.D.	Educational Psychology, 1990 University of Iowa Iowa City, Iowa
M.A.	Educational Psychology, 1988 University of Iowa Iowa City, Iowa
B.E.	Educational Psychology, 1982 Shanghai Teachers' University Shanghai, China

PROFESSIONAL EXPERIENCE

2008-present: **Chair and Professor**, Department of Educational Psychology, College of Education, Texas Tech University, Lubbock, Texas.

Responsibilities of the Department Chair include: administration of the department and the supervision of approximately 40 faculty and staff.

Specific duties include

- Serving as chief executive officer of the department; reporting to the Dean of the College of Education;
- Providing strong leadership in developing high quality undergraduate and graduate degree and certification programs;
- Creating an environment that fosters high academic standards; Promoting research and scholarship among faculty;
- Working with coordinators of six academic programs to schedule and staff all classes offered by the department;
- Preparing timely reports and statistical information for the department, including the annual assessment report on the strategic plan;
- Evaluating faculty's performance in teaching, research, and service

annually to facilitate faculty's professional growth;

- Recommending to the Dean all appointments, tenure, promotions, dismissals, leaves, salaries, salary adjustments, and all other personnel actions relating to the academic and non-academic staff in the department;
- Considering academic appeals by students as described in the University academic appeals procedure;
- Establishing and maintaining a long-range department strategic plan;
- Promoting excellence in teaching, research/scholarship and service;
- Performing other duties as assigned by the Dean

Responsibilities of the Professorship include: teaching courses in educational psychology, statistics, and research methodology, serving for graduate students' thesis/dissertation committees, pursuing an active and well-rounded research agenda, and providing leadership and service in various college and university activities as well as in a broad range of national and international professional organizations.

2004-2007: **Professor of Educational Psychology and Director of Assessment**, College of Education, Texas Tech University, Lubbock, Texas.

Responsibilities of the Professorship include: teaching courses in educational psychology, statistics, and research methodology, serving for graduate students' thesis/dissertation committees, pursuing an active and well-rounded research agenda, and providing leadership and service in various college and university activities as well as in a broad range of national and international professional organizations.

Responsibilities of the Director of the Assessment include: serving as a member of the COE Leadership Council and Assessment Team, creating database, analyzing and disseminating assessment information for program improvement, preparing various reports (NCATE, HOLMES, and Assessment Report of the Strategic Plan of the College of Education) for accreditation and assessment purposes.

二、計畫簡述：

邀請德州理工大學教育心理學系藍雲教授於 102 學年上學期，在教育研究所開設一個學分之專題討論課程，課程名稱為：「**Writing Empirical Research Reports**」之課程。上課期間為 10/2-10/16，共分六次上課，每次上課 3 小時，共 18 小時。

三、計畫執行過程：

執行的內容與過程如下：

Course Syllabus
Writing Empirical Research Reports
October, 2013
Tunghai University

Course Title: Writing Empirical Research Reports
Semester: TBA (To Be Announced)
Credit: 1 Credit hours
Course Level: Master's Course in the Master Program of Education
Instructors: William Lan, Ph.D. Texas Tech University
Office hours: 5:00-8:00 PM M-W-F
Textbook: F. P. Pyrczak and R. R. Bruce (2011). Writing empirical research reports (7th edition), Glendale, California

COURSE DESCRIPTION

The course is designed to develop graduate students' ability to write empirical research reports for publications in professional journals.

INSTRUCTIONAL UNITS

1. An introduction the importance of research
2. A brief review of major types of research conducted in fields of social sciences
3. An introduction to the structure of research reports, including major components contained in typical research reports and how they are organized.
4. A discussion on the importance of literature review and theoretical framework to research

5. Writing research hypotheses, research questions, and research objectives.
6. Writing Introduction and Literature Review
7. Writing Method Sections
8. Writing Analysis and Results Sections
9. Writing Discussion Sections
10. Writing Abstracts

Student Learning Outcomes and Assessment of Outcomes:

Class Schedule (8-day plan)	Class Schedule (6-day plan)	Unit	At the conclusion of the course, students will:	Reading	Assessments:
Day 1	Day 1	Unit 1	Understand the role research plays in knowledge construction and discipline development		Unit quiz 1
		Unit 2	Know types of research utilized in disciplines of social sciences		Unit quiz 2
Day 2	Day 1	Unit 3	Understand the structure of a research reports and how the components are related	Chapter 1	Unit quiz 3
Day 3	Day 2	Unit 4	Identify research topics based on literature review and express research topics as research questions, objectives and hypotheses	Chapter 2, 3, and 4	Unit quiz 4; Group proposal: identifying a research question
Day 4	Day 3	Unit 5	Know how to organize information gained from literature to write the literature review	Chapter 5 and 6	Unit quiz 5; Group proposal: a brief literature review
Day 5	Day 4	Unit 6	Know what information to be included and	Chapter 9 and 10	Unit quiz 6; Group proposal:

			organized to write a method section for qualitative and quantitative research		Section on Method
Day 6	Day 5	Unit 7	Know what information to be included and organized to write a result section for qualitative and quantitative research	Chapter 11	Unit quiz 7; Group proposal: Section of Data Analysis
Day 7	Day 6	Unit 8	Know how to discuss findings of a research study in terms of theoretical contribution and practical applications	Chapter 12	Unit quiz 8; Group proposal: Discussion with hypothetical findings
Day 8	Day 6	Unit 9	Know how to write an abstract and organize a reference list and Sum-up	Chapter 13 and 15	Unit quiz 9; Group proposal: Abstract and Reference List

四、具體成效：

(一) 上課的課程內容



The slide has a blue header with a wavy pattern. Below the header, the title 'Table of Contents' is centered. A table with three columns (Unit, Topic, Slides) is presented below the title. The table has a blue header and light blue rows.

Unit	Topic	Slides
1	Role of Research in Knowledge Construction and Discipline Development	3-7
2	Types of Research Utilized in Disciplines of Social Sciences	8-24
3	Structure of Research Reports	25-30
4	Identifying Research Topics Based on Literature Reviews	31-56
5	How to Write Introductions and Literature Reviews	57-69
6	How to Write Method Sections	70-85
7	How to Write Analysis and Results Sections	86-99
8	How to Write Discussion Sections	100-107
9	How to Write Abstracts and Organize Reference Lists	108-113

（二）學生的回饋：

學生一：

G02570022

鐘岸真 2013/11/2

前言：

「能夠聽到藍老師的課實在是太幸運了！」「大師風範！」這是同學們一致的感覺。雖然我當時腦袋裡沒甚麼理論架構，也不懂研究方法，藍老師深入淺出的授課方式，讓我好像搭了一趟「如何撰寫論文」的直升機，對整件事有了整體的 overview。

1. 研究的重要性
2. 社會科學研究的類型
3. 研究報告架構
4. 文獻探討和理論框架的重要性
5. 研究假設，研究問題和研究目標。
6. 前言和文獻探討
7. 研究方法
8. 結果分析
9. 結論
10. 摘要

一、化繁為簡，架構清晰

藍老師在第一堂課的時候就把這門課的架構清楚說明，我印象很深刻的是，老師先把前言、文獻探討、研究方法、結果分析先說明完，然後最後再把摘要、結論加在前後，讓我對論文的結構有新的認識-----原來是頭尾是最後加上去的！

在上藍老師的課之前，我對學術研究結果的實際應用存疑，認為有許多研究是為學術而學術，對實際的教學現場沒甚麼實質幫助，對自己能寫出甚麼東西也頗為懷疑。然而，藍老師開宗明義就先提到研究的重要性，說明學習理論重大演變對教育的影響，乃至於對個人學習上的應用。讓我看到了學術的價值，也看到了大師在學術面前的謙虛。他說我們的研究或許沒法做到學術上重大變革的，但哪怕是在學術上只有一點點的貢獻，也是我們要追求的。

二、實驗案例，信手拈來

上教研所以來，我最怕閱讀的就是以概念解釋概念的書或文章，不是越看迷糊，就是越看越想睡。藍老師的課讓我覺得，做學問好像可以很有趣！雖然我一直很怕數

字，對量化的東西有先天的抗拒，但藍老師的解釋是可以懂的、有意義的、有邏輯的，雖然有許多量化的詞彙我並不懂，奇怪的是我竟然可以跳過那些詞，聽懂老師舉的那些實證研究的例子。老師舉的那些例子都和我們的生活那麼相關，比如 QPQ 策略運用在閱讀測驗；還舉了指導教授和博士生之間關係的研究為例子，說明研究方法除了定性、定量外、還可以定性定量混合運用；也同樣以這個例子說明，本來用來研究親子關係的理論架構，也可以用來研究指到教授與博士生之間的關係；另外，也以不景氣的美國經驗，警惕我們不能在象牙塔裡作研究，學問是要有實用價值的，不然也有被淘汰(失業)的可能性。

三、 問答討論，思辨訓練

對於學術入門的新手來說，常常覺得學問是莫測高深的，藍老師以問答的方式，引導我們思考，找出影響問題的變項，哪些可控，哪些不可控，或是要怎麼控制，讓我感覺做研究是有根有據、來自生活、可以描述、可以解釋、是真實可應用的。藍老師也會舉某些缺乏信效度的研究和我們討論，讓我們思考問題出在哪兒，這樣的思辨訓練是非常難能可貴的學習經驗。

四、 開放胸襟，大師風範

還有一件讓我印象深刻的是，正在唸博士班的學姊彩雲老師（她是我讀小六女兒的老師）問了藍老師一個問題，問題本身我已經不太記得，但她提到近年來台灣做的研究有許多是定性的研究……對此似乎有些疑慮。藍老師的回應，一開始就先澄清「定性研究不一定是不好」，藍老師是做定量研究的學者，這樣的澄清讓我見識到了藍老師在學術方面包容及胸襟。

五、 親切和藹，如沐春風

最後一堂課的時候，婉儀問了藍老師一個問題——老師心目中印象最深刻的老師是誰，老師的回答時流露的真摯感情令人動容。一個生命受了另一個生命的影響，進而影響更多人，這不就是身為老師最大的價值。啟超老師傳承了藍老師，將這價值傳遞下去，我們十分有幸，也在這傳承的脈絡中。藍老師在下課休息時間還即興地彈奏了鋼琴曲，能夠讓被這樣集理性與感性於一身的老師教到，真正感受到甚麼叫「如沐春風」。

結論：

上完藍老師的課，我覺得自己在寫論文方面，或許無法在基礎理論上有甚麼新的建樹；但可以嘗試運用老師教的，套用現有的理論架構，換個研究對象，練習寫寫看，新手上路，請多包涵。

學生二心得：

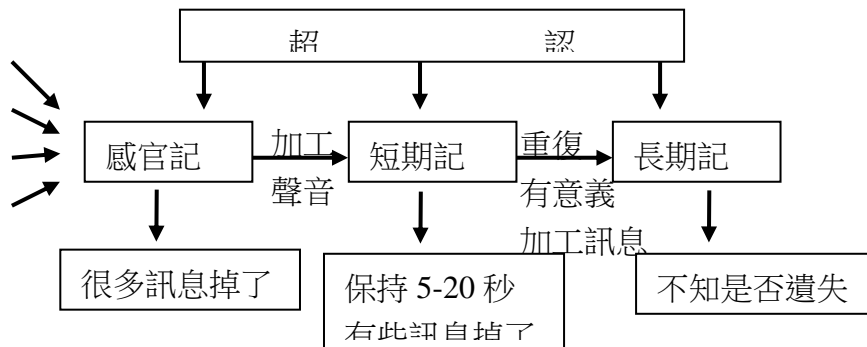
姓名:陳宥蓁	學號:G02570003
演講日期:2013年10月	演講題目: Writing Empirical Research Reports
演講人: William Lan, Ph.D. Texas Tech University	

心得報告：

*前言:非常感謝啟超老師用心的邀請藍老師來演講，幸運的我們很難得當藍老師的學生，從老師的實證分享可知老師是大師級人物，除系統整理授課ppt外，更可貴的是會找相關主題的測驗題，再讓我們更理解及加深印象，學習如何寫一篇有價值的論文；並在提問中快速破題指點迷津，當仁不讓我也利用下課及最後一天提問請教老師，我覺得請教老師是一個快速解惑的好方法，提問後收獲良多。接著是從聽講中，把我所學習的心得整理如下：

*教育理論與實踐研究的貢獻中，藍老師提到行為主義認為思想不能直接看到，但後來認知革命就設計實驗(圖一)STM保持5-20秒，改變行為主義的看法。讓我深刻了解實證是重要的有實證才可發言。

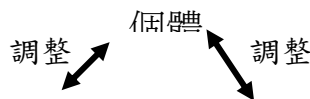
(圖一)



*教育理論與實踐研究的貢獻:1.教育模式的重大轉變 2.豐富我們的理解或教育問題
3.提高個人教育實踐你的研究會改變你的學習方法。

例如:1.班度拉的交互論三因素：環境、行為、個體(情感.策略.班度拉加入此因素)互相影響。

2.學習可以調整你的行為，為自己的行為找到充分的解釋，就可以調整行為。



3.讓學生有系統、定時、隨時的檢查對學習內容的了解，則學習的表現會比較好。

*研究的作用:1.描述感興趣的現象(描述研究)2.預測我們感興趣的變量(相關研究)

3.控制我們感興趣的變量(控制研究)。

* 好的研究問題的特性：1.有理論基礎(很重要可框架我們的研究)、

- 2.對理論或實際有貢獻的
- 3.可以重複研究的
- 4.很有趣
- 5.符合倫理
- 6.考量研究者能力.資源和時間是許可。

*研究問題確定後，研究有五程序：

- 第1階段：探索的問題（定性研究）
- 第2階段：確定工具測量變量（儀器的發展）
- 第3階段：檢查變量之間的關係（相關性研究）
- 第4階段：研究表明變量之間的因果關係（實驗研究）
- 第5階段：設計方案，以提高問題（評估研究）

*目前最新最好的研究方法是：1.以定量為主，輔以定性 2.以定性為主，輔以定量
3.定性定量各佔一半。

*定量研究方法之間的比較

*定量研究方法 → 1.描述性研究 2.相關性和因果關係的比較研究 3.實驗和準實驗研究

*老師特別強調相關性研究不可得因果的結果。

1. 先 X 再 Y
2. 要相關才考慮因果關係
3. 除了 X 沒有其他跟 Y 有

五步驟: 1. 探討問題
2. 設計問卷. 測量工作
3. 檢查變量間的關係
4. 實驗研究因果律關係

1. 先 X 再 Y
2. 要相關才考慮因果關係
3. 除了 X 沒有其他跟 Y 有

*研究報告的架構：1.標題 2.摘要 3.文獻探討 4.方法 5.結果 6.討論 7.參考文獻名單。

注意 1. 表明你所關注
2. 指出人群
3. 不可太長，要

*Comparisons bet. QUAN. and QUAL. Research

定量研究(時間快)	定性研究(時間久)
描述和解釋為導向	探索和理解為導向
辯護研究問題，並指定用於需要的研究	為研究問題證明是正確的
隨機； 參加者越多越好	有目的的選； 參與者的經驗； 小團體和網站小組和場所
測量工具已知； 數值的數據； 可測量，看得見	新興的協議； 正文或者圖象數據；

統計分析； 描述趨勢，比較組，並且檢查關係	原文分析； 描述，分析，主題的發展並且發現的意思
報告標準化； 客觀和無偏見	報告自由無固定； 反向和有偏見

- * 如何寫文獻探討:**
- 1 基於理論：好書可提供好的理論框架。
 - 2 與研究問題相關：隨時記住你的研究問題，分辨重要和次要，只要抓有幫助的理論可不用全面讀文獻
 - 3 符合邏輯：邏輯性的把材料組合
 - 4 最新的研究成果：
 - 5 自己總結評估：寫好總結的方法
 - (1) 表格卡片:不錯的資料要用表格有系統紀錄保存下來，
對未來寫論文很有好處。
 - (2) 常去圖書館：至少每週一次。
 - (3) 常重寫。
 - (4) 摘要
 - (5) 找一本好的書可提供好的理論框架參考。
- * 要建立內部效度(隨機分配)和外部效度(隨機取樣)**
1. 內部效性：讓人相信我的研究結果是可信性
 2. 外部效性：普遍性研究讓其他人可以重複的實驗
- * 方法部分包括：**
1. 研究設計：(1)定性或定量(2)實驗性或相關性(3)發展測量工具
 2. 參與者
 3. 測量方法：別人的量表要使用時，要先考慮信度及效度(因較難所以現在有的研究沒考慮)的根據。得分的解釋用平均比總合好。
 4. 過程：(1)實驗研究：自變量如何控制？應變量如何測量？
 - (2) 定性研究：如何有目的的選擇參加實驗的人。數據怎麼分析。
如何整理看到主題，背後有何理論支持。
例：2人不斷編碼一直到都同意才停。
- * 怎樣寫分析和結果部分：**
1. 定量研究的結果：簡短的介紹，讀者重新整理記憶的學習和研究提問的目的。
 2. 心理測量特性計量器具
 3. 整理研究問題或假設結果的數據分析。
 4. 選擇合適的統計方法，研究問題解決了。
 5. 先報描述性統計再報推斷統計之結果。
 6. 不要重複文本中的信息表或反之亦然。
 7. 遵循APA格式。
- * 同一變量用10-15個問題就可測量構念。**

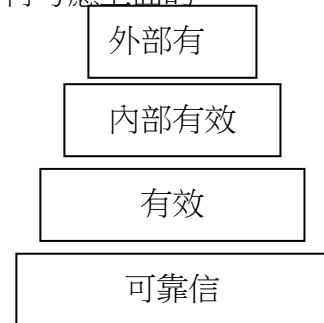
*測量(可靠性)的特性：信度134都要做2(實驗研究才做)

- 1.平行內容困難度都一樣測兩次就可互相檢驗(相等可靠性)
- 2.重複測(經一段時間再測)
- 3.內部一致性可靠
- 4.打分表之間的一致信

*效度：有效度才可以在信度基礎上來看。

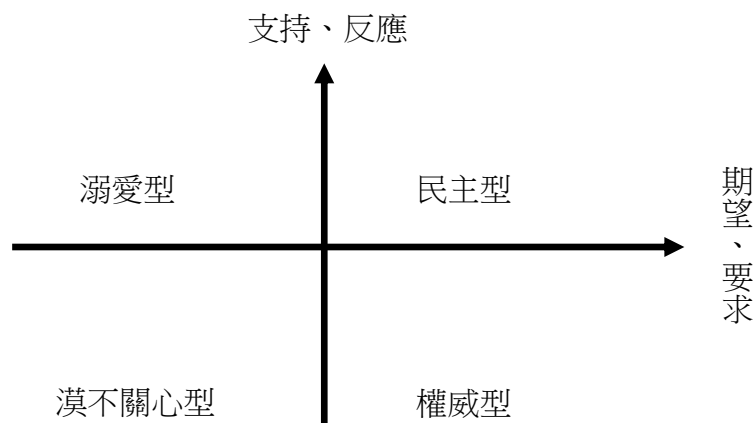
- 1內容效度：不只專家，以理論出發。
- 2有關標準的有效
- 3可預測效度：量表結果跟將來行為有關
- 4構念效度：有理論在背後支持

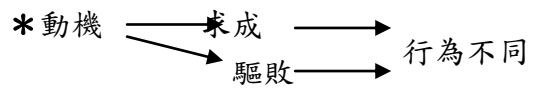
下面先做好再考慮上面的



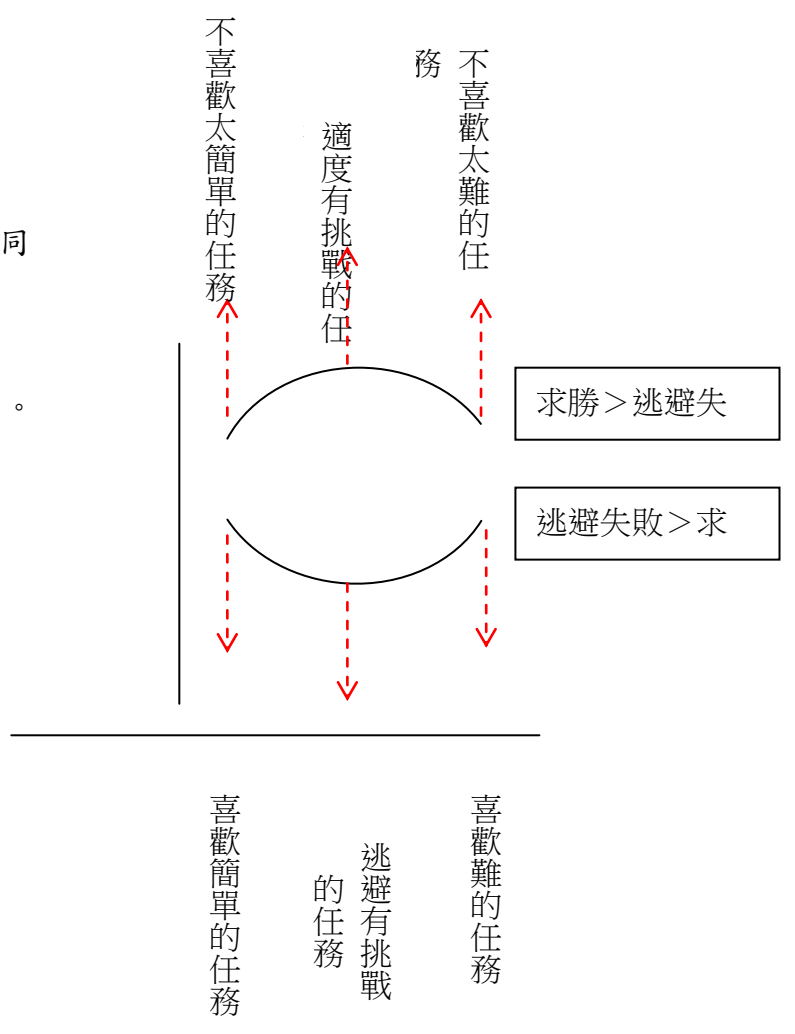
為定量研究的測量的堅固性的重要

*原先是 used 在家長身上，老師把他運用在大學教授上，讓我也反省自問自己屬於何型，隨時提醒自己要成為民主型的好老師。





自我檢視，很開心我符合上面的。



學生三心得：

專題研究 課程心得 2013.11.1

上課期間：2013.10.2～15

教研一 鄭婉儀 G02570030

「必也正名乎」藍老師先開宗明義地說明許多**做研究的動機**，為走在研究這條路上的我們增加**堅持下去的理由**。

Q：為什麼要做研究？只為了拿到學位？

A：要找到「動機」才有動力！名正則言順，言順則事成。

Contributions of research to education theory and practice.

研究對於教育理論與實務的貢獻

1. Major **shifts** of educational paradigms 教育模式的重大**轉變**

2. Enrich our understanding of educational issues

豐富吾人對教育議題的理解

3. Improving personal education practice 提高個人的教育實踐

藍老師的**研究經驗**豐富，信手捻來都是例子，真是精彩，許多在教育研究方法課本中沒有說清楚的觀念，就這麼被一一點撥明白了！雖然學生沒有教育本科系的背景知識，對心理學方面諸多慣用語不甚瞭解，而且英文程度也正在加強中，然而藍老師在課堂中所舉實驗研究的例子，說來就像是講故事一般，饒富趣味，聽得真是有趣。

子曰：「知之者不如好之者，好之者不如樂之者。」誠如藍老師所言：「教書是我的樂趣」，所以馬不停蹄地奔波各地講學，對他而言一點都不累，正因為藍老師是樂在其中，才能帶領我們悠遊於其內。

藍老師還傳授了【6年80篇論文】的秘訣——利用國家**大型資料庫**中的數據做研究，台灣有教育長期追蹤資料庫 (Taiwan Education Panel Survey, 簡稱 TEPS)，建議我們可以多多利用。

藍老師五年才出遊一次，雖然比不上哈雷彗星 75年才來一次，但是下次再來東海教研所授課，我們應該都畢業了！（如果還沒畢業……那就……財力太雄厚了！）因此，學生格外珍惜這次課程的機會，所以全力以赴（就是把**全部的時間**都投入在這門課……

其他三門課在那兩週.....便都放假了.....)

藍老師還與大家分享了他年輕時候求學階段的艱困、此生他最感念的恩師、及她們的做為，真情流露令人感動。的確，我們不只有站在前人肩膀上的優勢、更有許多好的典範在前，如果有心成為一為好的老師（重要第三人），相信一定能夠達成！

最後，要感謝啟超老師，為我們安排了藍老師不遠萬里而來幫大家上課。這期間變更日常作息而為之接待，絕不亞於我們披星戴月趕著上課的勞累（以學生的年齡，對這種狀況最能體會）。啟超老師，謝謝您！

此課程的隨堂心得隨附於後

Unit 1 : Role of Research in Knowledge Construction and Discipline Development.

研究 在 知識建構 與 學科發展 中的角色 (p.3~8)

Unit Objectives 單元目標

◎ Contributions of research to education theory and practice.

研究對於教育理論與實務的貢獻

4. Major **shifts** of educational paradigms 教育模式的重大轉變
5. Enrich our understanding of educational issues 豐富吾人對教育議題的理解
6. Improving personal education practice 提高個人的教育實踐

◎ Functionality of research to researchers. 研究對於研究人員的功能

How Does Research Help Researchers and Practitioners

研究如何幫助研究人員和從業人員

1. **Describe** phenomena of interest 描述 感興趣的現象
2. **Predict** or **explain** phenomena of interest 預測或解釋 感興趣的現象
3. **Control** behaviors (promote desirable and reduce or eliminate undesirable behaviors)
控制行為（促進可取的，並減少或消除不良行為）

Unit 2 : Types of Research Utilized in Disciplines of Social Sciences

社會科學 的 學術研究 類別 (p.9~26)

Unit Objectives 單元目標

1. Research methods utilized by social science researchers.
社會科學研究人員使用的研究方法。
Quantitative, Mixed, Qualitative. (p.10)
2. Comparison between qualitative and quantitative research method.
定性和定量研究方法之比較。(p.12)
3. Brief introduction to qualitative research methods. 定性研究方法簡介
Case Study 個案研究 Ethnographic 人種誌 Narrative 敘事. (p.14~20)
4. Brief introduction to quantitative research methods. 定量研究方法簡介 Correlational 相關性、Descriptive 描述性、Experimental 實驗。(p.22)

Mill's Model of Causal Argument 穆勒的因果論證模型 (p.24~25)

- X is causally related to Y only when
只有在同時滿足下列三條件的情況下，X 因 Y 果的關係才成立：
 - ① X precedes Y in time. X 在 Y 之前。
 - ② X and Y are related. X 和 Y 是相關的。
 - ③ No other variable is related to Y. 沒有其他的變量與 Y 相關。
- The third condition can only be true in experimental research.
第三個條件只有在實驗研究才可能為真。
- **Random assignment** of participants to **treatment conditions** making **the IV** the only **systematic difference** between conditions that is related to the **DV** 處理條件時參與者的隨機分配，使得此自變量在不同條件下成為會影響依變量唯一的系統差異。（藍語錄：隨機分配可以忽略其他的因素）
- Common ways to control **confounding (exterior) variables**
控制混淆（外部）變量的一般方法：
 - ① Keeping constant
利用隨機分配把其他的混淆（外部）變量都變成常數。
 - ② Within-**subject design** (repeated or match-subject design)
自己做自己的對照組（但一定要是可重複的主題設計）
 - ③ Statistical control (measuring confounding variable(s) and using it as **covariate**)

統計控制（測量混淆變量使其成為**共變量**）

- ④ Treating **confounding variable(s)** as independent variable(s)
將**混淆變量**視為自變量。

5. Dr. Lan's **5-step research procedure** to start a new line of research.

以**藍博士的5步驟研究程序**開始一個新的研究。

After a research question is identified: 在確定了一個研究問題之後：(p.26)

- i. Exploring the problem (Qualitative research)
訪問個案發現問題（定性研究）
- ii. Creating tools to measure variables identified (Instrument development) 開發
工具以測量所定義的變量（發展工具**設計問卷**）
- iii. Examining the relationships between variables (Correlational research) 檢查
變量間的關係（相關性研究）**要找很大的樣本**
- iv. Conducting studies to show causality relationship between variables
(Experimental research) 進行研究以顯示變量間之因果關係（實驗研究）用
隨機的方式實驗
- v. Designing programs to improve the problem (Evaluating research) 設計程序以
改進問題（評估研究）**推廣好的研究發現**

Unit 3 : Structure of Research Reports 研究報告的結構 (p.27~32)

Unit Objectives 單元目標

1. Major components of a research report 一份研究報告中的主要組成部分 (p.28)

- A title 標題
- An abstract 摘要
- Introduction/Literature Review 引言、文獻回顧
- Method 研究方法
- Result 研究結果
- Discussion 問題與討論
- Reference list 參考文獻

2. How to write a title (other components will be discussed in following units)

如何撰寫標題（其他部分將在其他單元討論）

Writing Titles 撰寫標題 (p.30)

A title should indicate 標題應該註明

- Variable or variables investigated 變量或所調查的變量
- Relationship or differences investigated 不同調查間的關係
- The population involved 所涉及的母群體

Writing Titles: Examples (p.32)

- Acculturation, internet use, and psychological well-being among Chinese international students 中國留學生的文化衝擊、網路使用、與心理幸福感
- Demandingness and responsiveness of **advisors** as determinants of doctoral students' experience 博士生經驗的決定因素--**指導教授**的要求和回應
- The effects of **self-monitoring** on college students' course performance, use of learning strategies, attitudes, self-judgment ability, and knowledge representation. **自我監控**對大學生的：課業表現、採用之學習策略、態度、自我評斷之能力、以及知識表現，各方面的影響。
- How to teach online: Suggestions based on research findings 如何實施線上教學：根據研究結果的建議。
- How PowerPoint destroys your lecture: Effect of information organization and intensity on college student understanding of statistics 「PowerPoint 如何摧毀你的授課演說：信息的組織化與信息的強度對於大學生理解統計課之影響」

Unit 4 : Identifying Research Topics Based on Literature Reviews

依據 文獻回顧 確定研究題目 (p.33~58)

Unit Objectives 單元目標 (p.33)

- Importance of research topics 研究題目的重要性
- Characteristics of good research topics 好的研究題目所具備的特性
- Sources of research topics 研究題目的來源
- Formats of stating research topics 陳述研究題目的格式
 - Purpose statement (Research objective) 目的聲明 (研究目標)
 - Research question 研究問題
 - Research hypothesis 研究假設
- Hypothesis testing 假設檢驗

Why Are Research Topics Important? 為什麼研究題目是重要的? (p.34)

- Selecting and defining a research topic is the first step in applying the scientific method 選擇和確定研究題目，是運用科學方法的第一步。

- The research topic provides focus and structure.
研究題目提供了焦點和結構。
- The research topic is the driving force of a research project, which determines other aspects of the research study (e.g., sampling, assessment, analysis, etc.) 研究題目是使研究朝目標前進的驅動力，決定了研究的其他面向（例如：採樣、分析、評估等）

Characteristics of Good Research Topic 好的研究題目所具備的特性 (p.35)

1. The topic is theoretically based. 有理論基礎。
2. The topic has theoretical or practical importance. 在理論或實務上有其重要性。
3. The topic is researchable. 是可研究的。
4. The topic is interesting. 是自己有興趣的。
5. The topic is ethical. 是合乎道德的。
6. The topic is manageable for the researcher given skills, resources, and time available.
研究者的技術、資源、和可用時間足以研究此一題目。

Sources of Research Topics (p.36)

- Theories 理論
- Studies that can be **replicated** with issues to be clarified (e.g., population, assessment, analysis, etc.) 對於有待澄清的問題可**重複研究**（如人口、評估、分析等）
- Studies with **inconclusive findings**（在文獻探討時）有**不一致發現**的研究
- Studies with conflicting findings 結果矛盾的研究
- Personal experiences (need to be illustrated by theories)
個人經驗（需要藉由理論來說明）

Research Topics Stated as Purpose Statements

1. Quantitative research topics stated in **purpose statements** 定量研究的**目的陳述** A purpose statement describes the **variables of interest**, relations among those variables, and aspects of the sample. **目的陳述**描述感興趣的變量，這些變量之間的關係，以及抽樣的詳細內容。(p.39)
 - e.g., “The purpose of the study is to investigate the psychometric properties of a new measure of **spatial ability** for middle school children.” 例如：研究的目的 是探討中學生**空間能力**心理屬性的一個新測量方法。
 - e.g., “The topic to be investigated in this study is parents’ beliefs about homework for primary grade children.” 例如：在這項研究中要調查的主題是：小學一年級孩童家長對家庭作業的看法。
2. Qualitative research topics are often stated in more general language **at the outset of a**

study because the focus of the study will likely **emerge** after time in the field. (p.40)

定性研究的主題通常在一開始研究時便以更一般性的語言方式加以陳述，因為在此研究領域此研究的焦點往後可能還會出現。

- e.g., “The purpose of this study is to describe the experiences of elementary students who have previously been retained.” 例如：這項研究的目的是描述小學生先前已保有的經驗。
- e.g., “This qualitative study explores the feelings of new teachers in large urban districts.” 例如：定性研究探討大型城區新教師的情感。

Research Topics Stated as **Research Questions** 表述為**研究問題**的研究課題 (p.42)

Developing research questions “breathes life” into the research topic statements by adding another level of **specificity** to the **research plan**, 藉由對此**研究計劃**增加另一層**特異性**來發展研究問題為「生命的氣息」研究課題的陳述，such as 例如：

1. To validate that you have a workable way to proceed with your research.
驗證你有一個可行的方式來進行你的研究。
2. To directly tied to the data collection strategies used.
直接關係到收集數據的策略。
3. To lead to a plan for measurement instrumentation.
導引出測量工具的計劃。
4. To specify the analysis methods. 指出分析的方法。

Difference between **Topic Statement** and **Research Questions**

主題陳述 與 **研究問題** 之間的差異

例一 (p.43)

- Topic Statement: The topic to be investigated in this study is **secondary teachers’ attitudes toward required after-school activities.**
在這項研究中被調查的主題是**中學教師**要求課後活動的態度。
- Research Questions:
 1. What are secondary teachers’ attitudes toward varsity athletics programs? **中學教師**對於競賽型體育活動課程的態度是什麼？
 2. What **instrumental strategies** do secondary teachers use to accommodate student-athletes?
中學教師使用什麼**工具策略**以適應學生運動員？
 3. How do these **instructional strategies** affect student achievement?
這些**教學策略**如何影響學生的成績？

例二 (p.44)

- Topic Statement 主題聲明：

The topic to be investigated in this study is factors and strategies related to life quality of **senior citizens**. 在這項研究中被調查的主題是與**資深公民**生活品質相關的因素及策略。
- Research Questions 研究的問題：
 1. What social, emotional, financial, and physical barriers do **senior citizens** experience in Thailand?

泰國的**資深公民**有哪些社會、情感、金融、身理方面的障礙？
 2. What strategies do senior citizens in Thailand employ to cope the barriers? 泰國的**資深公民**採取哪些策略以應付這些障礙？
 3. Is there a relationship between **frequencies of using the coping strategies** and **life quality of senior citizens** in Thailand?

應對策略的使用頻率與**資深公民的生活品質**之間是否存在某種關係？

Types of Hypotheses Studied in Quantitative Research (p.45~46)

定量研究中的假設類型

- Association Hypothesis 關聯假設：

about **relationships** between **continuous variables**
關於**連續變量**之間的**關係**

Examples : Students' IQ scores are **positively correlated** to their achievement scores in a standardized test in **verbal ability**.
在**口語表達能力**的標準化考試中，學生的智商與成績呈**正相關**，
- Difference Hypothesis 差異假設：

about **differences** between categories. At least one **categorical variable**
類別之間的**差異**。至少有一個**類別變量**。

Examples : There is **gender difference** in verbal ability measured by a standardized test.
在**口語表達能力**的標準化考試中有**性別差異**。

(p. 48) Two Formats of Hypothesis 兩種假設的型式

1. Null Hypothesis 虛無假設
2. Alternative Hypothesis 交換假設
 - Directional Alternative Hypothesis 有方向的交換假設

- Non-directional alternative Hypothesis 無方向的交換假設

(p. 49) Research Topics Stated as **Hypotheses: Null Hypothesis**

以假設陳述研究題目：零假設（虛無假設）

Examples :

- “There is **no relationship** between verbal ability and academic achievement.”
(association hypothesis)
在口語表達能力與學業成就之間**沒有關係**。(關聯假設)
- “There is **no difference** between male and female students in verbal ability.”
(difference hypothesis) 男、女學生的口語表達能力**沒有區別**。(差異假設)

(p. 50) Research Topics Stated as **Hypotheses: Alternative Hypothesis**

以假設陳述的研究題目：替代假說

Examples :

1. **Directional** Alternative Hypothesis **定向** 替代假說
 - There is a **positive relationship** between verbal ability and academic achievement.” 口語表達能力與學業成就間有**正向關係**。
 - Female students have **superior** verbal ability to male students.” 女學生的口語表達能力**優於**男學生。
2. **Non-Directional** Alternative Hypothesis **非定向** 替代假說
 - “There **are differences** between male and female students in verbal ability.” 男、女學生的口語表達能力**有差異**。
 - “**There is a relationship** between verbal ability and academic achievement.” 口語表達能力與學業成績之間**有關係**。

(p. 53) Research Topics Stated as Hypotheses 以假設陳述的研究題目

- Model for hypotheses: 假設的模型
P = The participants 參與者
X = The **treatment variable (IV)** or one of the two variables in a relationship
處理變量（自變量）或有關係的兩個變量中的一個
Y = The **outcome variable (DV)** or another variable in a relationship.
結果變量（依變量）或關係中的其他變量

(p. 54~55) Practice Examples: 實際的例子

Identify the P, X, & Y for the hypothesis below 為下面的假設定義的 P, X, 和 Y :

Is this an **association** or a **different Hypothesis**? 是關聯假設、還是差異假設?

1. Attendance at a Saturday **tutoring program** increases ninth grade students' academic achievement. 出席週六的**輔導課程**提高了九年級學生的學業成就。

- P=Ninth grade students 九年級學生
- X=Saturday program attendance or nonattendance
 - 出席、或不出席，星期六的**課程**
- Y=Achievement 成就

(我的答案：This Is a **different Hypothesis**.這是**差異假設**。)

2. There is a relationship between proficiency of ninth grade students' native language and foreign language. 九年級學生母語與外語熟練程度間之關係。

- P = Ninth grade students 九年級學生
- X = Proficiency of the native language 母語的熟練程度
- Y = Proficiency of a foreign language 外語的熟練程度

(我的答案：This Is an **association Hypothesis**.是**關聯假設**。)

(p. 56) Why State Research Topics as Hypotheses?

為什麼要以**假設**陳述研究的題目?

- Hypotheses convert **research questions** to **testable format**.
假設將**研究的問題**轉換成**可測試的格式**。
- An (**alternative**) **hypothesis** is a prediction of the researchers' expected findings. **替代假說**是研究者**期望獲得之調查結果**的預測。
- Hypotheses **are derived from** theory or knowledge gained through **literature review**.
假設**源自於**透過**文獻回顧**獲得的理論或知識。
- **Hypotheses** in quantitative studies **are formulated before** conducting the study. 在定量研究中是**先制定假設**，然後才進行研究。

(p. 57~58)

Hypothesis Testing For **Quantitative Research** **定量研究**的假說檢驗

- The **hypothesis** is used to guide the research study.
假說被用來指引研究。
- The researcher conducts the study and then analyzes the data to determine if the hypothesis is supported.
研究者進行研究，接著對數據進行分析，以確定是否支持此一假說。
- Hypotheses are not proven—they are supported or not supported.

假說無法被證明，只能說「實驗的結果支持、或不支持」此一假說。

- Valuable contributions to **the literature** can still be made if a hypothesis is not supported.

即便實驗結果不支持此一假說，**此研究的文獻**仍可以做出有價值的貢獻。

- Hypothesis testing contributes by expanding, refining, and revising the literature base. 假說的檢驗有助於擴大、精煉、和修訂文獻的基礎。

Hypothesis Testing for **Qualitative Research** 定性研究的假說檢驗

- The qualitative researcher **does not state formal hypotheses** before conducting studies. 定性研究人員在進行研究之前並沒有正式的假設。
- Qualitative researchers may develop **guiding hypotheses** for the proposed research. 定性研究人員可以為研究開發**指導假說**。
- Qualitative researchers often generate new hypotheses during the course of their study. 定性研究人員經常在研究過程中產生新的假設。
- Qualitative researchers may generate research questions from their guiding hypotheses. 定性研究人員可能會從指導假設中產生研究問題。

Unit 5 : How to Write Introductions and Literature Reviews

如何撰寫 **引言** 及 **文獻回顧** (p.59~71)

Unit Objectives 單元目標

- Characteristics of a Good Literature Review
一個好的文獻回顧的特點 (p.60~65)
- Practical Strategies in Writing Literature Review
撰寫文獻回顧的實踐策略
- Examples of **useful tools** used to summarize or organize a **literature review** 總結或組織**文獻回顧**之**工具**的例子。

Characteristics of a Good Literature Review (p.60)

- Theoretically based 以理論為基礎 (p.61)
- Relevant to the research question(s) to be investigated
貼近要進行調查的研究問題 (p.62)
- Logically organized to lead readers to the research question(s) to be investigated
邏輯性地組織帶領讀者進入所要調查的研究問題 (p.63)
- Updated **to reflect the current knowledge** on the issue to be investigated

修訂正在進行調查的議題以反映當前的知識 (p.64)

- Information reviewed being synthesized and evaluated
資料的審閱以便總結與評論 (p.65)

Theoretically Based (p.61)

- Provide a **theoretical “framework”** to organize and present your literature review. 提供一個**理論的框架**來組織和呈現自己的文獻回顧。
 - e.g., Summarize learning outcomes by “domains”
例如：以「域」總結學習成果。
 - e.g., Summarize factors in a learning process by Bandura’s “reciprocal causation”
例如：以班杜拉的「互為因果」總結學習歷程中的各個因素。
- Sometimes, multiple theoretical perspectives are involved in a study.
有時候一項研究涉及多個理論觀點。
 1. **Information processing theory** for **cognitive aspect** of the learning process 在學習過程中**認知方面的信息處理理論**
 2. **Piaget’s Child Development theory** for the **developmental aspect** of the learning process 在學習過程中**發展方面的皮亞傑的兒童發展理論**

Relevant to the research question(s) to be investigated (p.62)

貼近要進行調查的研究問題

- Always **keep** your research questions **in mind** when reviewing literature.
在做**文獻回顧**時要將自己的研究問題**謹記於心**。
- Fight against the temptation to conduct a “comprehensive” literature review.
要抵抗進行「全面的」**文獻回顧**之誘惑。
- Do not be distracted by “interesting” studies unless they are relevant to your research questions. 不要在「有趣」的研究上分心，除非與自己的研究問題有關。
 - ◆ “Interesting” measurements 「有趣」的測量方式
 - ◆ “Interesting” ways of data collection 「有趣」的數據收集方式

Logically organized to lead readers to the research question(s) to be investigated

邏輯性地組織帶領讀者進入所調查的研究問題 (p.63)

- Present your **research idea** to your **peers** to convince them of the value of your study. 與**同儕**討論自己的**研究理路**，說服他們「你的研究是有價值的」。
- Ask your audience if they follow the logic that leads them to your research questions. 詢

問你的觀眾，如果他們跟得上引領他們至你研究問題的邏輯。

- Using **topic sentence** and **transition paragraph** to show connections between ideas. 使用**主題句**和**過渡段**展現想法之間的連接。

Updated **to reflect the current knowledge** on the issue to be investigated

修訂正在進行調查的議題**以反映當前的知識** (p.64)

- Being knowledgeable of frontier of the discipline. 對本科的知識要博學。
- If the literature on your research topic is scarce, find from related fields.
如果研究題目的文獻稀缺，那麼就從相關領域尋找。
- If a historical review is needed, keep it brief. 當需要歷史回顧時，要簡短。

Information reviewed being synthesized and evaluated 審閱資料總結與評論 (p.65)

- Compare and contrast **constructs developed or used by researchers** and indicate similarities and differences
比較和對比**研究人員開發或使用的構念**，並註明異同
- Compare and contrast **measurements used by researchers** and indicate strengths and weaknesses 比較和對比**研究人員所使用的測量方法或工具**，並指出其優缺點。
- Compare and contrast **populations involved** and indicate different characteristics of the populations 比較和對比**參與的母群體**，並指出不同母群體的特徵。
- Compare and contrast **findings of studies on the same topics** and indicate **gaps** and propose possible explanations 比較和對比**同一主題的研究結果**，指出其中的**差距**，並提出可能的解釋。

Practical Strategies in Writing Literature Review 撰寫**文獻回顧**的實踐策略 (p.69)

- Create ways to summarize outcomes of the **lit review** (e.g., tables, index cards, etc.)
發展方法以總結**文獻回顧**的點亮（如表格、索引、卡片等）
- Visit libraries regularly and frequently to keep up your knowledge in the field 定期去圖書館以便跟上自己專業領域的新知。
- Develop a multi-level outline with headings and sub-headings for the **literature review**. 為**文獻回顧**開發多層次的題綱，有標題和小標題。
- “There is no good writing, only good rewriting.”
沒有良好的寫作，只有良好的重寫。
- Start with a “good” **research-oriented textbook** to get a few key references. 從一本「好的」**以研究為導向的教科書**開始，從中得到關鍵字。

Example :

An Outline for the Literature Review on **Self-regulation** in an Online Environment 在網路環境下 **自我調節** 的文獻回顧大綱 (p.71)

- Rapid development of online instruction 快速發展的線上教學
- Importance of **Self-regulation (SR)** in online learning 線上學習 **自我調節 (SR)** 的重要性
- Current research on SR in online environment 線上環境 SR 的研究現狀
 - ◆ Scarcity of research on online SR 稀缺線上 SR 的研究
 - ◆ **Findings of online SR research** conflicting with findings on SR in regular classrooms **線上 SR 的研究結果與正規課堂 SR 的研究結果衝突**
 - ◆ Possible explanation 可能的解釋：**Instruments measuring SR in regular classrooms** used to measure SR in online environment
將用來測量正規課堂 SR 的研究工具直接用在 **線上 SR 的研究**
- Purpose of the current study 目前的研究目的：
To develop an instrument measuring SR in the online environment
建立在網路環境下測量 SR 的工具。

Unit 6 : How to Write Method Sections 如何撰寫 **研究方法** 章節 (p.72~87)

Unit Objectives 單元目標

- **Purpose** of the method section 方法章節中的 **目的**
- Information Included in the Method Section 方法章節中包括的內容
 - ◆ Research Design 研究設計
 - ◆ Participants 參與者
 - ◆ Measurement 測量方法
 - ◆ Procedure 程序

What purpose does the **method section** serve in a research report

在一份研究報告中為什麼要有 **方法章節**？其目的為何？ (p.73)

1. To establish **internal validity** and **external validity** 建立 **內部效度** 和 **外部效度**

Internal validity : the trustworthiness of the research findings

研究結果的可信性 (**隨機分配** 可提高 **內部效度**)

External validity : the **generalizability** of the research findings beyond the sample

studied 研究結果超出研究樣本的**普遍性**
(**隨機取樣**可提高 **外部效度**)

2. To provide **sufficient information** for others to **replicate the study**
為欲**複製此研究**的人提供**足夠的信息**

Research Design 研究設計 (p.77)

Describe the type of the study conducted 描述進行的研究的類型

(e.g., quantitative or qualitative? experimental or correlational? instrument development or program evaluation?)

(例如，定量或定性的？試驗性或相關性？工具開發或計劃評估？)

Research Design for Research Examining **Difference Hypotheses** (p.78)

檢驗**差異假說**的研究設計

- Identify independent variable(s) 定義自變量
- Identify dependent variable(s) 定義依變量
- Describe how **confounding variable(s)** are controlled (for internal validity)
詳細說明如何控制**混淆變量** (內部有效性)

Example : (p.79)

In this experimental study, two independent variables, 在這個實驗中兩個獨立的變量，
information **organization** and information intensity, 信息的**組織化程度**與強度，
were manipulated to examine their effects on the dependent variable of graduate students'
understanding of the **content taught** in an introductory level of statistics. 被操作以檢驗其對
依變量——研究生對初級統計**教學內容**的了解程度。

Student **prior knowledge** measured by their GRE quantitative test score was controlled as a
covariate. 測量學生的 GRE 考試成績作為**先驗知識**此即視為**共變量**。

Research Design for Research Examining Association Hypotheses

檢驗**關聯假設**的研究設計 (p.80)

- Identify variables of interest. 定義感興趣的變量。
- Indicate **criterion variable** and predictors. 說明**標準變量**和預測值。
- Indicate the relationship to be studied. 指出要研究的關係。

Example : (p.81)

In this correlation study, 在這個相關性研究中，the relationships between **Chinese international students' acculturation, ethnic identity, English proficiency** and **their attitude** toward seeking professional counseling service were examined. 對中國留學生的文化適應、民族認同、英語能力和他們尋求專業諮詢服務的**態度**，之間的關係進行了研究。

The variables of **acculturation, ethnic identity, and English proficiency** were used as **predictors** to predict the **criterion variable of attitude** toward seeking professional counseling service. **文化適應、民族認同、英語能力**等變量被視為**預測值**，預測出**態度的標準變量**朝向尋求專業的諮詢服務。

Participants (p.83)

- How was the sample selected? (i.e., How were participants recruited?)
如何選擇樣本？（即參與者是如何被招募的？）
- **Consent procedure in recruitment** and confidentiality of data collected
收集數據的**招募同意程序**與保密
- Description of the sample to establish the **external validity**
說明樣本所建立的**外部效度**
- Response rate 問卷回覆率
- Demographics of the respondents 受訪者的人口統計學
- Characteristics of non-respondents compared with respondents 與受訪者相較，非受訪者有哪些特性？用以說明**回覆者與未回覆者**沒有不同→樣本具代表性。

Measurement: Source of the measurement (p.84)

- Using existing instruments 利用現有的工具
 - Source of the measurement instruments 測量工具的來源
 - **Reliability and validity evidence** on the instruments provided by other researchers 由其他研究人員所提供測量工具其**信度及效度的證據**
- Developing new measurement instruments 開發新的測量工具
 - Development of the test items pool 受測項目母群體的開發
 - Pilot study on **psychometric characteristics** of the measurement **心理特徵**的前測實驗測量
 - Revision and re-pilot (if need) 修訂和重測（如果需要）

Measurement (p.85)

- Provide sample items for **each construct** measured
為**每一個構念**提供受測的樣本
- Explain the scoring system of the instrument 說明工具的評分系統
 - Response scale used in the instrument 使用工具的回覆率
 - What scores are generated from the measurement?
測量產生什麼樣的數據？
 - How is the score defined 如何定義數據(e.g., sum of the item responses, mean of the item responses.例如：回覆項目的總和、回覆項目的平均值)
 - Range of the score 數據的範圍
 - Interpretation of the scores 數據的說明

Measurement : A sample of the scoring system (p.86)

測量：評分系統範例

This instrument **generated a score** of self-regulation in online learning environment, 這個工具對線上學習之自我調節評分，defined as the **mean** of the 15 items designed to measure online self-regulation, 依據為線上自我調節所設計的 15 項測量問題所得的**平均值**來定義，ranging from 1 to 5, 範圍從 1 到 5，with lower scores signifying lower self-regulation and higher scores signifying higher self-regulation in online learning environments. 在線上學習環境中，低分意味著較低的自我調節、高分意味著較高的自我調節。

Procedure (p.87)

- Present the step-by-step procedure vividly so other researchers could follow
生動地、一步一步地呈現程序，以便其他的研究人員可以模仿。
- Research environment (e.g., field or lab, school or family, etc.)
研究環境（例如：現場或實驗室、學校或家庭等）
- For experimental research: 對於實驗研究：
 - How was the **independent variable** manipulated? 如何操作**自變量**？
 - How was the **dependent variable** measured? 如何操作**依變量**？
- Extremely important for **qualitative research**. 對**定性研究**特別重要。
 - Data sources (how participants were purposely selected?)
數據來源（如何刻意選擇參與者？）
 - Data analysis (how qualitative data were analyzed?)

數據分析（如何進行定性的數據分析？）

- **Length of time** for **participants** to complete the study
參與者完成研究的**時間長度**

Unit 7 : How to Write Analysis and Results Sections

如何撰寫 **分析** 和 **結論** 章節 (p.88~101)

Unit Objectives 單元目標

- The results section for quantitative analysis 定量分析的結果部分
 - Information included 包含的信息
 - Selecting **appropriate analysis methods** for **various types of quantitative studies**
對**不同類型的定量研究**要選擇**適合的分析方法**
- The results section for qualitative analysis 定性分析的結果部分

Results Sections for **Quantitative** Studies **定量**研究的結果部分 (p.89)

- Include a brief introduction to refresh readers' memory of the purposes of the study and the research questions.
包含一個簡短的介紹，以喚起讀者對研究目的和研究問題的記憶。
- Psychometric characteristics of the measuring instruments
測量工具的心理測驗特性
- Organize **the results of the data analysis** by research questions or hypotheses. 根據研究問題或假設來組織**數據分析的結果**。
- Choose appropriate analysis method that addresses the research question. (See next two slides.) 選擇合適的分析方法解決研究問題。(見下兩張投影片)
- Always present **descriptive statistics** prior to **inferential statistics**.
要先呈現**描述性統計**再呈現**推斷統計**
- Do not repeat the information **in text** that is presented in tables or vice versa. 不要**在本文中**重複表格已經呈現的信息，反之亦然。
- Follow the APA format to provide information required.
按照 APA 格式提供所需的信息。

Psychometric characteristics of the measuring Instruments (Reliability) (p.90)

測量工具的心理特徵（信度）（**藍語錄：只用一個變量無法報告信度**）

1. Test-retest reliability 重測信度

(Consistency of performance **across time** by the same group of participants)

(同一組參與者在**不同的時間**有一致性的表現)

2. Equivalence reliability 等價信度 (**藍語錄**：只有在做學習效能時才要此信度)

(Consistency of performance **across different forms** by the same group of participants)

(同一組參與者在**不同的形式**有一致性的表現)

3. Internal consistency reliability 內部一致性信度

(Consistency of performance across items within a measurement measured by Cronback's alpha) (由 Cronback 的 alpha 測量各項目結果的一致性)

(**藍語錄**：這是信度的最低要求)

4. Inter-rater reliability 評價者間信度

(Consistency between raters on the same performance)

(在對同一研究結果做評估的評估者之間的一致性)

Psychometric characteristics of the measuring Instruments (Validity)

測量工具的心理特性 (效度) (p.92~4)

- Content validity 內容效度
- Criterion-related validity 效標關聯效度
 - ◆ Concurrent validity 同時效度
 - ◆ Predictive validity 預測效度
- Construct validity 構念效度

To prepare a **comprehensive examination** for her Master's students, Dr. Smith carefully listed all courses her students took during the Master's program to make sure that every course was covered proportionally in the comprehensive exam. 史密斯博士要為她的碩士生準備一個全面性的考試，她仔細地列出了學生在碩士學程的所有學科，以確保**綜合考試**依比例涵蓋了所有的學科。Dr. Smith's effort is to assure 史密斯博士的努力是為了保證

- a. Content validity. 內容效度
- b. Concurrent validity. 同時效度
- c. Predictive validity. 預測效度
- d. Construct validity. 構念效度

(我的答案是：a. Content validity 內容效度)

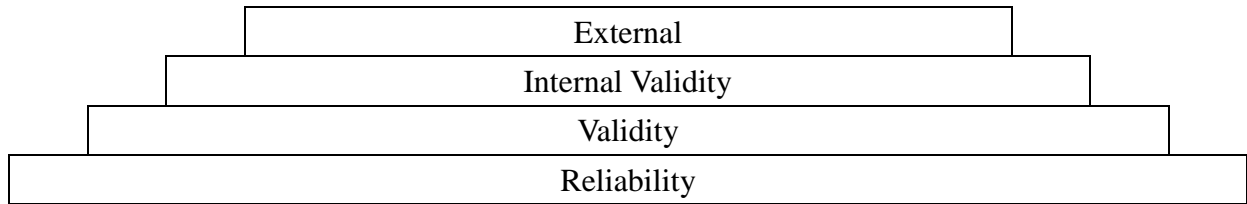
Importance of Soundness of Measurement for Quantitative Research (p.95)

藍語錄：Reliability：是基礎

Reliability + Validity : 有了這 2 部分 → 測量 OK

Internal Validity : 設計部分 OK

External Validity : 可推廣至本實驗之外



p.6 隨堂測驗題 Pop Quiz Question-1 : Ans→2

Which one of the following is an example of “shifting paradigm of a discipline”?

下列哪一個是“一門學科範式轉移”的例子？

1. Whereas Piaget believed children’s limited language ability during early childhood shows they are ego-centric. Vygotsky believed it shows children are gradually internalizing language to guide their thinking. 有鑑於皮亞傑認為：在幼兒期兒童的語言能力有限，顯示他們以自我為中心。維果茨基則認為：這顯示了孩子們逐漸將語言內化來指導自己的思考。
2. Chomsky’s research convinced researchers that the reinforcement theory based on behaviorism was not adequate to explain children’s language development. Chomsky’s scholarly work intrigued the cognitive revolution in psychology and linguistics. 喬姆斯基的研究使研究人員確信：基於行為主義強化理論不足以解釋兒童語言發展。喬姆斯基的學術著作引發了心理學和語言學的認知革命。
3. Dr. Lan found from his studies that introducing self-monitoring in the learning process improves student learning outcome so he developed a protocol that helps students systematically evaluate their understanding in his statistics class. 蘭博士從他的研究中發現，在學習過程中的自我監控，提高了學生的學習成果。所以蘭博士提出了一個協定，幫助學生們在他的統計課中有系統地評估自己的理解程度。
4. Cumulating teaching experience year after year, senior teachers tend to

know what works and what does not work in classrooms. 年復一年累積教學經驗，資深教師往往知道在教室裡什麼行得通、什麼行不通的。

p.8 隨堂測驗題 Pop Quiz Question-2 : Ans→3

Which one of the following is an example of researchers “controlling a phenomenon of interest”? 下列哪一個例子是研究者“**控制感興趣的現象**”？

1. Apple investigated the relationship between student academic ranking in the higher school and their average academic performance as freshmen so she could anticipate who would experience difficulties when starting college education. **蘋果調查**：學生在較高學校的學業排名與他們大一時的平均學業成績之間的關係，因此她可以**預測**：誰在開始大學教育時會遇到困難。
2. Bob sat in Ms. Smith’s classroom for weeks and he can tell the strategies that she used to deal with student disciplinary problems. **鮑勃**坐在史密斯女士的教室中數週，他可以**描述**史密斯女士用來處理學生紀律問題的策略。
3. Comparing weight changes of people in different treatment conditions, Dr. Cain concluded that diet plus exercise is the most efficient way to lose weight. 比較在不同處理條件下人的體重變化，Cain 博士得出的結論是：飲食加運動是最有效的減肥方法。
4. Donna made an “educated guess” that next summer would be hot. 唐娜作出了一個**受過教育的猜測**：明年夏天將會熱。

p.11 隨堂測驗題 Pop Quiz Question-3 : Ans→c

Of the following, which is an example of **qualitative research**?

- a. Correlational 相關
- b. Causal-comparative 因果比較
- c. Ethnographic 人種誌
- d. Experimental 實驗

p.13 隨堂測驗題 Pop Quiz Question-4 : Ans→ d

Which of the following statement is **true** regarding qualitative and quantitative research?

- Quantitative researchers develop deep relationships with their participants. 定量的研究人員與參與者發展了深厚的關係。
- Qualitative researchers rely on objective analysis of the data. 定性研究人員依靠客觀的數據分析。
- Qualitative researchers manipulate the research context. 定性研究人員操控研究的內容。
- Quantitative researchers state hypothesis prior to beginning the study. 定量的研究人員在開始研究之前**陳述假說**

p.21 隨堂測驗題 **Pop Quiz Question-5** : **Ans→a**

Jeremy, a researcher at a local university, is interested in the nature of playground bullying 霸凌. He obtains permission for his research and goes to a local middle school to observe playground behaviors. He spends several months watching and taking notes. As he begins to understand the context of the playground, he interviews some students and teachers. He incorporates these interviews into his notes. He systematically identifies themes and categorizes his findings. At the end of his study he describes his findings and how these findings relate to other studies that have been conducted on playground behaviors. Of the following, which best describes Jeremy's research?

- Narrative 敘事 p.26
- Experimental 實驗 p.26
- Survey 調查 p.25, p.189
- Ethnographic 人種誌 p.26

p.23 隨堂測驗題 **Pop Quiz Question-6** : **Ans→d**

Experimental research differs from causal-comparative research in that 與**因果關係比較研究** association 事後回溯不同，**實驗研究** causality 是

- causal-comparative research is interested in statistical relationships between variables and experimental research is not. **因果關係比較研究**感興趣的是變量之間的統計關係，而**實驗研究**則不然。**×相反**
- experimental research relies on data collection from multiple pools of participants while causal comparative research relies on participants from a single pool. **實驗研究**收集數據的參與者是從多個群體而來；**因果關係比較研究**的參與者是從單一的群體而來。**×相反**

- experimental research controls the **dependent variable** in the study and causal-comparative controls the **independent variable**. 實驗研究控制依變量；因果關係比較研究控制自變量。×實驗研究控制自變量；因果關係比較研究不控制
- experimental research controls the selection of participants from a single pool and randomly divides them into groups while causal-comparative research does not. 實驗研究從單一群體控制選擇參與者，並且隨機地將他們分組；因果關係比較研究則不然。

p.29 隨堂測驗題 Pop Quiz Question-7 : Ans→d

Of the following, which is **not** a common component of a research report?

- A title 標題
- An Abstract 摘要
- An introduction or a literature review 前言或文獻回顧
- An acknowledgement 感謝

p.31 隨堂測驗題 Pop Quiz Question-8 : Ans→b

For the title of “How PowerPoint destroys your lecture: **Effect of information organization and intensity on student understanding of statistics**”. 在題目為「PowerPoint 如何摧毀你演講：信息的組織化與信息的強度對於學生理解統計時的影響」。What part of the title does “information organization” represent? 標題的哪一部分代表「信息組織」？

- Type of study
- Independent variable 自變項 **information organization**
- Dependent variable 依變項 **understanding of statistics**
- Population 母群體 **student**

p.37 隨堂測驗題 Pop Quiz Question-9 : Ans→a

Paola is a ninth grade mathematics teacher. She is interested in the role of assimilation and accommodation in learning geometry as proposed by Piaget. She designs a study to examine the **Piagetian concepts** in practice. 她設計了一個研究，在實踐中驗證皮亞傑的概念。The purpose of her study is best described as to 她研究的目的，最好的形容是：

- test a theory. 測試理論。
- replicate a study. 複製研究。

- c. developed through library search.
- d. verify personal experiences. 驗證的個人經驗

p.41 隨堂測驗題 Pop Quiz Question-10 : **Ans→b**

Of the following, which is more likely to be studied as a **qualitative research** topic? 以下哪一個更可能被作為**定性研究**的題目？

- The purpose of this study is to examine **relationships** between **future career goals** and **enrollment in advanced mathematics courses**. 這項研究的目的是檢驗**未來的職業目標與高等數學課程招生**之間的關係
- The purpose of the study is to explore the **experiences** of students who seek help from faculty during office hours. 這項研究的目的是探索學生在辦公時間尋求的教師協助的**經驗**。
- The purpose of this study is to **compare** grades of students who go to office hours and those who do not. 這項研究的目的是**比較**在辦公時間去與不去尋求教師協助的學生的成績。
- The purpose of this study is to examine the **relationship** between the number of office hours held by faculty and student performance in courses.

p.47 隨堂測驗題 Pop Quiz Question-11 : **Ans→b**

Which of the following is more likely to be an **association hypothesis**?

下列哪一項更可能是**關聯假設**？

- There are **differences** in **social skills** between **children from single-child families** and **multiple-siblings families**.
社交技能在來自**獨生子女家庭的孩子**與來自**多手足子女家庭的孩子**之間是有**差異**的。有**類別變量**
- There is a **relationship** between **the time parents reading books to their children** and **the children's performance** on standardized reading and comprehension tests.
 兩個都是**連續變量**
- **Advising style**, defined as authoritative, authoritarian, permissive, and uninvolved, is **related** to **graduate student cognitive development**.
 被定義為：威權、專制、放任、和漠不關心的**諮詢風格**與**研究生的認知發展**有關。有**類別變量**

- Students who learn sciences under problem-centered instruction **outperform** students who learn sciences under subject-centered instruction in **creativity tests**.

在創造力測試中，以問題中心教學方式學習科學的學生勝過以學科中心教學方式學習科學的學生。有類別變量

p.51 隨堂測驗題 Pop Quiz Question-12 : Ans→b

Which of the following is a **null hypothesis** for the research topic “Are there differences in final class grades between students who learn psychology with lectures or self-paced”? 下列何者是研究題目「學習心理學的學生，其中在學與自學者之間，期末成績是否有差異？」的零假說？

1. There is a difference in final class grade between students who learn psychology with lectures versus self-paced. **非定向**替代假說
2. There is **no difference** in final class grade between students who learn psychology with lectures versus self-paced.
3. Students learn psychology with lectures earn higher class grades than those learn psychology with self-paced instruction. **定向**替代假說
4. Students learn psychology via self-paced instruction earn higher class grades than those in lecture classes. **定向**替代假說

p.52 隨堂測驗題 Pop Quiz Question-13 : Ans→b

Which of the following is a **non-directional alternative hypothesis**?

1. There are **no differences** in motivation between students enrolled in free- or reduced-price lunch programs at school and those who are not enrolled in the programs. **零假說**
2. **There are differences** in motivation between students enrolled in free- or reduced-price lunch programs at school and those who are not enrolled in the programs. **非定向**替代假說
3. Students enrolled in free- or reduced-price lunch programs show **higher** motivation in school than those who are not enrolled in the programs. **定向**替代假說
4. Students enrolled in free- or reduced-price lunch programs show **lower** motivation in school than those who are not enrolled in the programs.

p.67 隨堂測驗題 Pop Quiz Question-14 : Ans→b

Glenda is concerned about her sources of literature. Although the studies come from **peer-reviewed journals**, none of them have **methodology sections** and it appears they include **prominent researchers' opinions**. 格倫達關心她的參考文獻的來源。儘管這些研究來自同行審閱的期刊，它們都沒有方法章節，而且其中似乎有傑出研究人員的意見。

What is likely Glenda's concern? 格倫達關注的可能是什麼？

- Her sources are too **outdated**. 她的資料來源是太**落伍**了。
- Her sources are **secondary references**. 她的資料來源是**次要的參考**。
- Her sources are popular not **scholarly**.
她的資料來源是流行的不是**學術的**。
- Her sources are **subjective**. 她的資料來源是**主觀的**。

p.68 隨堂測驗題 Pop Quiz Question-15 : Ans→d

John carefully prohibits his own opinion from "**contaminating**" the information when loyally presenting the information of studies published in research journals in recent years. 近年來約翰忠實地呈現研究期刊發表的研究信息，嚴格禁止自己的意見「**污染**」信息。If you were his advisor, 如果你是他的指導教授，which of the following would be your major concern of the **outcome** of the review?下列何者將是您對文件回顧**結果**主要的關注？

- The outcome of the review is **not academically oriented**. 文獻回顧的結果是**不是學術導向**。
- The outcome of the review is not **logically organized**. 文獻回顧的結果是沒有**邏輯性組織**。
- The outcome of the review is **out-of-dated**. 文獻回顧的結果是**過時**。

- The outcome of the review does not reflect the researcher's synthesis and evaluation 文獻回顧的結果，並不反映研究者的總結與評論。

p.74 隨堂測驗題 Pop Quiz Question-16 : Ans→a

A researcher's efforts to remove **influence of extraneous variables** is referred to as 一位研究人員努力消除無關變量的影響被稱為

- experimental control. 實驗控制。
- sample assignment. 樣本分配。
- sorting independent variables. 排序自變量。
- determining dependent variables. 確定依變量

p.75 隨堂測驗題 Pop Quiz Question-17 : Ans→b

The type of **validity** concerned with whether findings **can be generalized to** other groups or other settings is referred to as 對於：結果是否可以被推廣至其他不同的群組或設定的效度被稱為：

- internal validity. 內部效度。
- external validity. 外部效度。
- content validity. 內容效度。
- construct validity. 結構效度

p.82 隨堂測驗題 Pop Quiz Question-18 : Ans→d

Mary, a **university admission officer** who was interested in choosing **the most powerful predictors** of **student academic performance as freshmen**. 大學錄取人員瑪麗感興趣的是：找出大一新生學習成績最準確的預測值。She collected students' GPA's in high schools, high school teachers' ratings of the students, SAT scores, and ratings of student **aspiration** expressed in their personal statements. 她收集了：學生高中的 GPA、高中教師對學生的評等、SAT 成績、以及學生自己陳述的志向和評等。 She also collected students' GPA by the end of the freshman year. 她還收集了期末大一新生的 GPA。

Of the following, which one is a predictor/independent variable in Mary's research? 下列何者在瑪麗的研究中是 預測/獨立變量？

- a. Freshmen
- b. Freshman GPA
- c. College the students attending
- d. High school GPA

p.91 隨堂測驗題 Pop Quiz Question-19 : Ans→b

Kari's research study measured the effects of **cooperative learning** on learners' ability to solve complex problems. Kari 的研究是測量**合作學習**對學習者解決複雜問題之能力的影響。

After scoring the problems and entering the data 在對各項問題計分並輸入數據後，her advisor told her she must have another researcher score the problems. 她的指導教授告訴她，她必須再找另一位研究人員對各項問題計分。Interestingly, the scores she gave the participants did not match the scores that the other researcher gave.有趣的是：她給參與者的分數其他研究人員給的分數不一致。Kari's scoring problem is indicative of a problem with：Kari 的計分問題指出的狀況是

- a. internal consistency reliability. 內部一致性信度
- b. inter-rater reliability. 評價者間信度
- c. content validity. 內容效度
- d. consequential validity.