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ANZIL Symposium 7<sup>th</sup> July 2003  
 PhD Research Completion Due August 2005

Research  
 Methods

Information  
 Retrieval

Assessment  
 for  
 Learning



# Using Phenomenography to Construct the Students Experience of Learning

This presentation will **report the findings** and the **method** from a **study to determine the variation** in the ways IT students approach **information searching**.

The intention of the study is to **recommend teaching and learning strategies for curriculum design** that are based on managing the student's experiences.

## Inspiration

Background to the study: *Where did idea come from?*

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Information  
 Retrieval

Assessment  
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- **Teaching in an IT Unit - Information Resources (ITB322/ITN322)**
  - **Student's learn about a variety of information resources and their uses, independent of the format**
    - Information retrieval techniques for all of them
    - how to find and keep current on information resources in future career
    - try to improve information searching skills so that students learn to retrieve a lower recall of resources more relevant to their needs.
  - **Their information explosion awareness increases**
    - Over 600 library/dialog databases
- **Noticed that students often display little understanding of the tools they are using, and seem to show little evidence of reflection upon how to improve their results**
  - Higher Ed sector focussing attention on graduate attributes
  - Efforts to understand what students are thinking and experiencing when searching would be an advantage in Curriculum Design

**To date the Brief Findings are ...**

**The Outcome Space**

**FOR MORE INFO...**

**The Experience of Information Searching**  
The Outcome Space: updated  
Sylvia L. Edwards  
September 2002

**Assessment design needs to also focus here and teaching session reflective exercises be used to Bridge this Gap**

**Category 1**  
Information searching is looking for a needle in a haystack

**Category 2**  
Information searching is as finding a way through a maze  
(It's the Process or Planning)

**Category 3**  
Information searching is using the tools as a filter

**Category 4**  
Information searching is panning for Gold  
(It's using the tools as a filter to limit results to high quality information)

**? Category 5**  
Not Yet Identified

**? Category A**  
Not Yet Identified

**? Category B**  
Not Yet Identified

Edwards, S.L. & Bruce, C.S. (2002) *Needles, haystacks, filters and me: the IT confidence dilemma*. Refereed Conference Paper presented at *Lifelong Learning Conference 2nd: Yeppoon, Central Queensland, Australia, 16-19 June 2002*. [Lifelong Learning Conference: refereed papers from the 2nd International Lifelong Learning Conference, Yeppoon, Qld.] pp. 165-171. ISBN: 187 6780 19 3

## Second Interview inspirations ....

The ongoing research: *Where to from here*

**Students' views of how they learned ...**

- **The research method used two interviews**
  - 2<sup>nd</sup> Interview students' were asked to reflect upon reasons for any changes in their information searching behaviour.
- **All students believed they were searching differently**
- **Students' identified the following reasons for change:**
  - assignments designed to encourage reflection
  - the ability of the teaching staff

**FOR MORE INFORMATION...**

1. Edwards, S.L. (2000) *You Have Provided Me With A New Set Of Tools And Taught Me How To Use Them: Embedding Generic Skills within the IT Curriculum*. Refereed Conference Paper presented at *Lifelong Learning Conference: Inaugural International Lifelong Learning Conference, Yeppoon, Australia, 17-19 July 2000*. pp. 95-101. ISBN: 187 6674 06 7
2. Edwards, S.L. & Bruce, C.S. (2002) *The assignment that triggered ...change: Assessment and the relational learning model for generic capabilities*. Conference Paper to be presented at *EARL/SIG Learning communities and assessment cultures: connecting research with practice*, 28-30 August 2002. Northumbria, UK. [Available: *EducatiOnline*]

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4

# How was this done?

All Research begins with the background ...

## ***What has previous research focused on?***

### **The characteristics and metrics of searching to claim**

- the majority of searchers use two terms in a query,
- little or no Boolean operators,
- typically view no more than the first ten results displayed, and
- stay online for 10-15 minutes maximum when performing a search.

### **Research into Internet use/searching to determine**

- search engine sizes, surveys of particular search engine end-users, ability to multilingual search, web user loyalties, and traditional IR on the Net.
- tend to include general web-user characteristics and focus on the searchers characteristic searching behaviour.
- Primary methods used include transaction log analysis (or variation), field observation, surveys/questionnaires, and interviews

### **Research into end user behaviour**

- Summary is complex ... as you will know, most interesting - Kuhlthau, who describes information literacy in terms of a "way of learning" (Kuhlthau, 1993).

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# Explaining *Phenomenography*

## **The Selected Method:**

Phenomenography is a research method adapted for mapping the qualitatively different ways in which people experience, conceptualise, perceive, and understand various aspects of, and phenomena in, the world around them  
*(Marton, 1986 p. 31)*

Phenomenography is an interpretive research approach that looks at the different ways people experience or conceive a range of phenomenon  
*(Bruce, 1997; Marton, 1988)*

**NB:** Method provides a way to map the variation in the student's experiences and their searching behaviour, which is a primary aim of this research.

### **FOR MORE INFORMATION...**

1. Bruce, C. (1997). *The Seven faces of information literacy*. Adelaide: Auslib Press.
2. Marton, F. (1986). Phenomenography - a research approach to investigating different understandings of reality. *Journal of Thought*, 21(3), 28-49.
3. Marton, F. (1988). Phenomenography: exploring different conceptions of reality. In D. Fetterman (Ed.), *Qualitative approaches to evaluation in Education: the silent revolution* (pp. 176-205). New York: Praeger.

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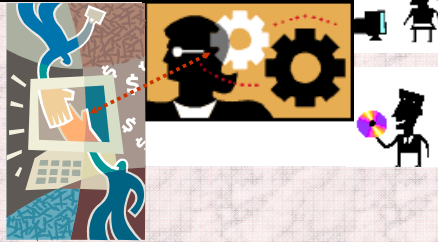
# Phenomenography ... ?



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*Please Refer to Notes Pages on this slide for definitions and further information*

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7

## Good Idea – but how ...

The Journey begins: **Pilot Study** and findings

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### ■ Pre-pilot testing

- 1999 - Five students volunteered to help test questions - via email
- Reflective questions included in diary assessment Sem. 2/2000.

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### ■ Pilot Interview Instrument

- a brief information literacy assessment, questions requiring a pictorial or written response, asking the respondents to explain their responses, asking for further explanation, and a small exercise requiring the respondents to frame a research question and explain how they would search for information for their question.

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### ■ Pilot study/findings analysed →changes where required

- Students "Talked the Talk:" but didn't "Walk the Walk" later in class.
- **Decision:** Interview should include the ability to draw, write, talk and actually perform an information-searching task. It was decided that each student would be filmed while the task is happening, while also being carefully observed.

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8

# Perspiration: The Study

## Final Interviews and Data Analysis

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- **35 Interviews to date**
- **Different cultures, ages and genders represented**
  - **1<sup>st</sup> Round of Interviews**
    - ITB322/ITN322 students and a few 1<sup>st</sup> year Volunteers
      - 1<sup>st</sup> Interviews conducted Wk 3-6 of semesters
      - Dual audio taped and video recorded. (Transcripts of both)
      - Weekly diary entries also analysed weekly looking for any changes in the way the respondents appear to be reflecting upon the process.
  - **2<sup>nd</sup> Round of Interviews**
    - Previous students Interviewed
      - 2<sup>nd</sup> interviews conducted at the end of the Teaching period
      - Audio Taped (Transcripts)
      - Key Questions
        - Has information searching experience changed
        - How, why, reasons for the change?
        - Information searching is ...

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9

# More Perspiration:

## Phenomenographic Data Analysis

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- **Transcript analysis undertaken to reveal the variations in the student experiences**
  - Iterative process of seeking meaning and structure to develop a set of categories describing the student experiences
- **These categories are our interpretation of the variation in an individual, or a groups, account of the way they experience information searching**
  - The purpose is to clearly define both the meaning and the focus of each group's way of looking at the world
- **Finally the analysis of the data gathered provided an outcomes space to identify the differences in the student experiences**
  - This is, basically, a map showing what critically different categories have been found by the research and the relation between them

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10

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**Thanks for listening**

**Research Methods**

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**Questions anyone?**

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12