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Research Design - Phenomenography

Una Beagon

Technological University Dublin, una.beagon@tudublin.ie

Brian Bowe

Technological University Dublin, Brian.Bowe@TUDublin.ie

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Research Design – Phenomenography

Una Beagon
February 2018



Outline



Context to PhD Study

Research Questions

Research Design

 Theoretical Perspective

 Conceptual Framework

 Research Methodology

 Phenomenography

 Data Collection and Analysis Methods

Schedule

Literature Review

Feedback



Working Title:



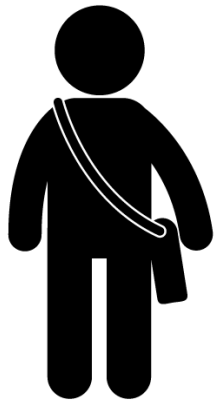
Teaching Professional skills in Engineering Programmes: The Academic Perspective

Using phenomenography to explore academic conceptions of their role in developing professional skills in engineering students.

Why?

To improve the engineering educational experience to enhance their professional skills to meet industry and future societal needs.

Context – Lecturer in DIT



The ideal engineering graduate



Professional Skills

Critical thinker

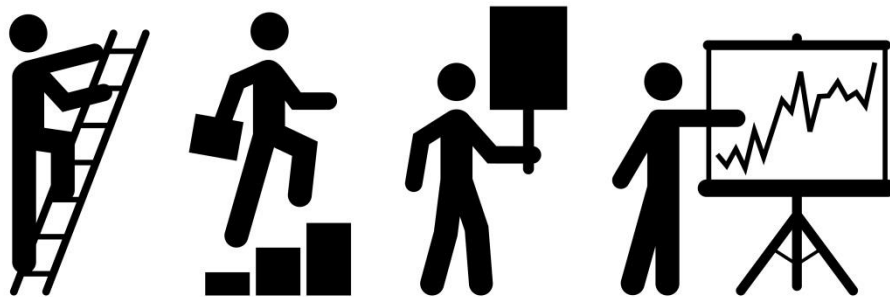
Team player

Good communicator

Self directed learning

Negotiation skills

Leadership



Technical Skills

Influences on curriculum design



Engineers Ireland

Programme Reviews (QA)

HEA compact

DIT strategy

Industry views



Engineering
Academics



Research Questions

- What are the qualitatively different ways that academics conceptualise and experience the development of professional skills in engineering programmes in Ireland?
 - How do academics understand the term ‘professional skills’ in engineering?
 - How do academics manifest their conceptions of teaching professional skills through their actions in teaching and curriculum design ?
 - What is the relationship (if any) between Approaches to Teaching and academics’ background in academia, industry or both?



Theoretical Perspective

“....**ontological assumptions** (assumptions about the nature of reality and the nature of things)

give rise to **epistemological assumptions** (ways of researching and enquiring into the nature of reality and the nature of things);

these, in turn, give rise to **methodological considerations**;

and these, in turn, give rise to issues of instrumentation and **data collection**”

(Cohen, Manion & Morrison, 2011, p .3).



Ontological Assumptions



“....**ontological assumptions** (assumptions about the nature of reality and the nature of things)

- Our interaction with the world affects our experience of it. Non dualist.
- We make our **own meaning of things**, that reality (our individual reality) is constructed by interaction with the world.
- Individuals experience all social phenomena in **different ways**. It is contextual; it depends on our mood at that time, our previous experience of the matter and with what attitude we approach the issue.
- People learn to do things in **different ways**, some better, some worse.
- Learning comes from an **increased awareness of the different ways** of doing something.



Epistemological Assumptions

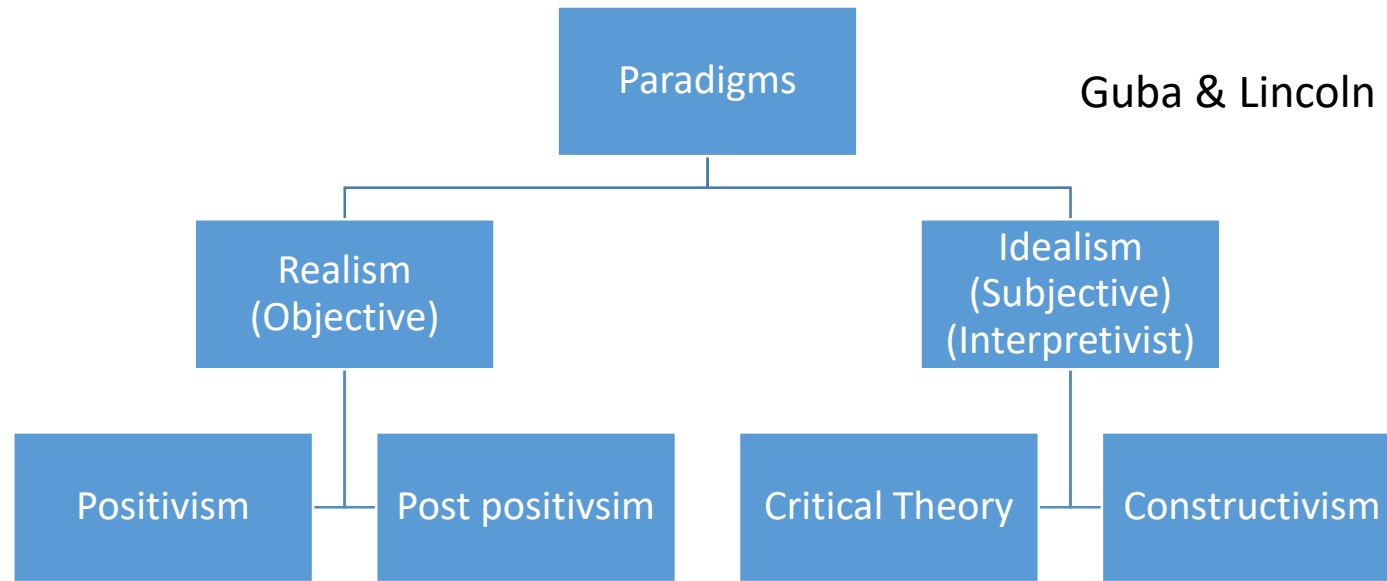


epistemological assumptions (ways of researching and enquiring into the nature of reality and the nature of things);

- I value interpretation
- I want to effect change in a **phenomenon**.
- More important to look at how people **interact with the phenomenon**, rather than a distanced view of what the phenomenon entails.
- People's experience of the situation, how they **handle** it.
- Describe how the person views it, through their eyes, not as an observer on the side, yet still there is **interpretation**.



Conceptual Framework



Constructivism – knowledge is constructed rather than discovered.

Multiple realities, formed in the human mind as a result of experiential and social constructions (Marton & Saljo, 1976).



Constructivism versus Constitutionalism



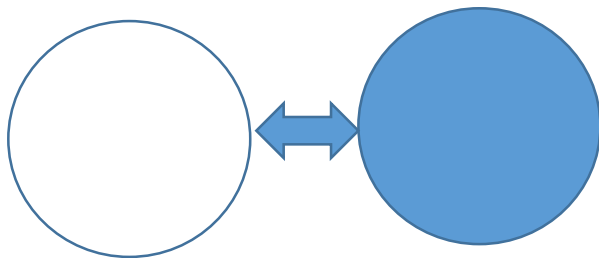
Constructivism

Dualistic Assumption

Two separate entities

Inner subjective world

Outer Subjective Reality

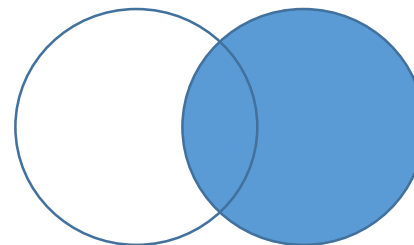


Constitutionalism

Non dualistic

Only one entity

Objects and events exist only as they are experienced



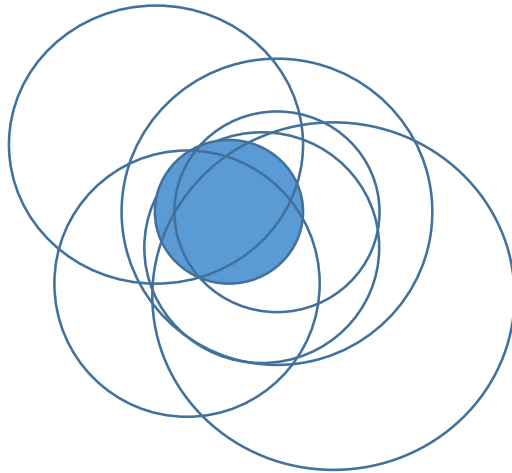


Considering my assumptions, it is with an interpretivist ontological position and a constitutional epistemological perspective that I approach this research study.

Phenomenology versus Phenomenography

Phenomenography

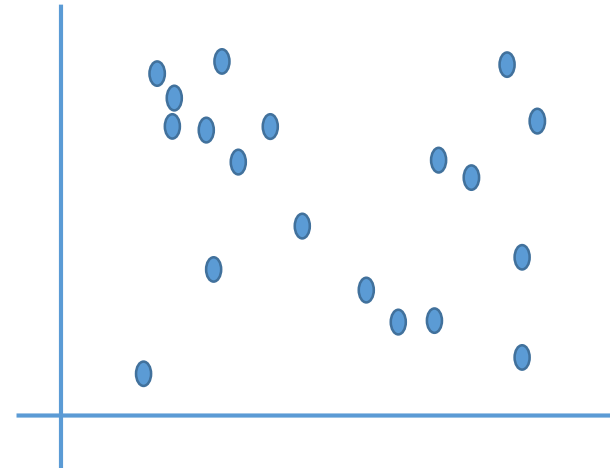
Phenomenology



Similarities

v's

Phenomenography



v's

Differences



Phenomenography

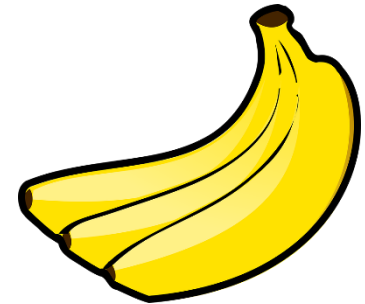


First proposed by Marton (1981)

“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)

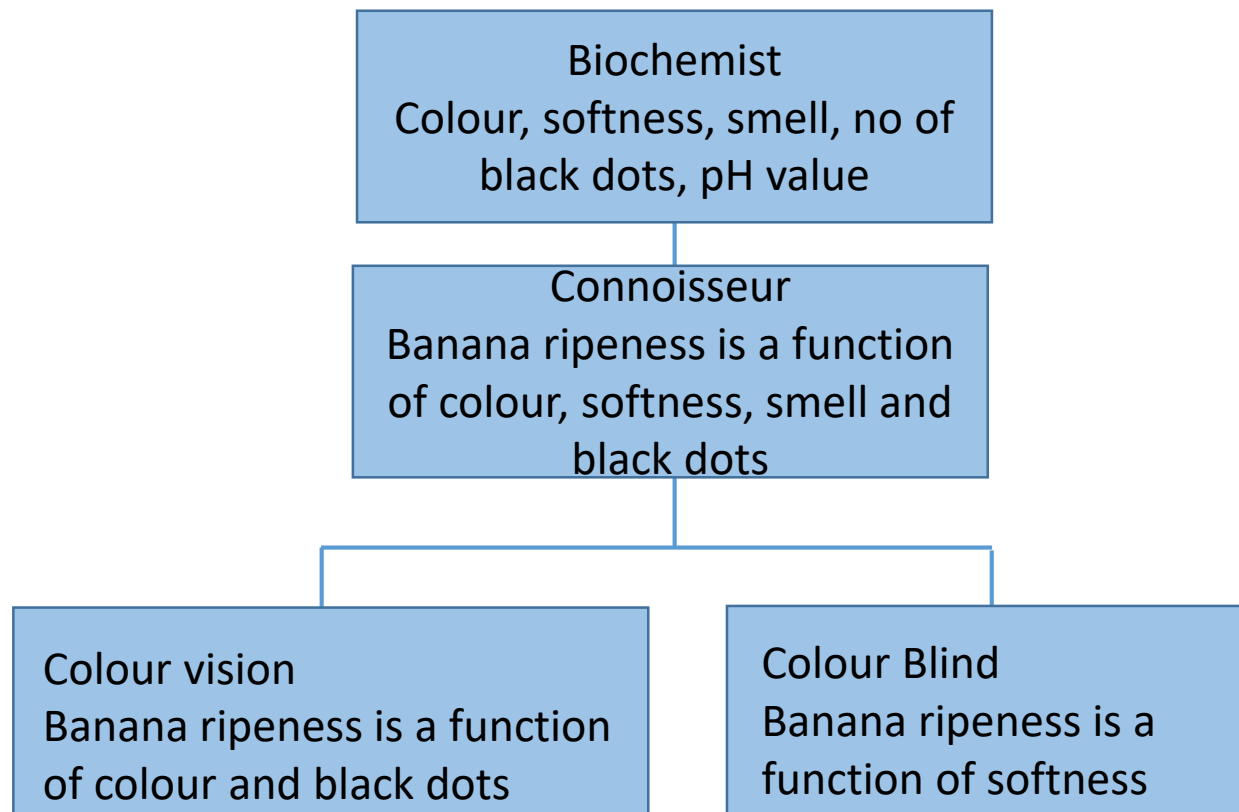
Examples :

- Surface and deep learning (Marton & Säljö, 1976)
- Approaches to Teaching Inventory (Trigwell et al, 2005)
- Academics Conceptions of Lecturing (Daniel, 2015)



Bananas

What do you conceptualise to be a ripe banana?





Learning

“Learning in terms of changes in or widening of our ways of seeing the world can be understood in terms of discernment, simultaneity and variation” (Bowden and Marton , 1998).

Variation of views



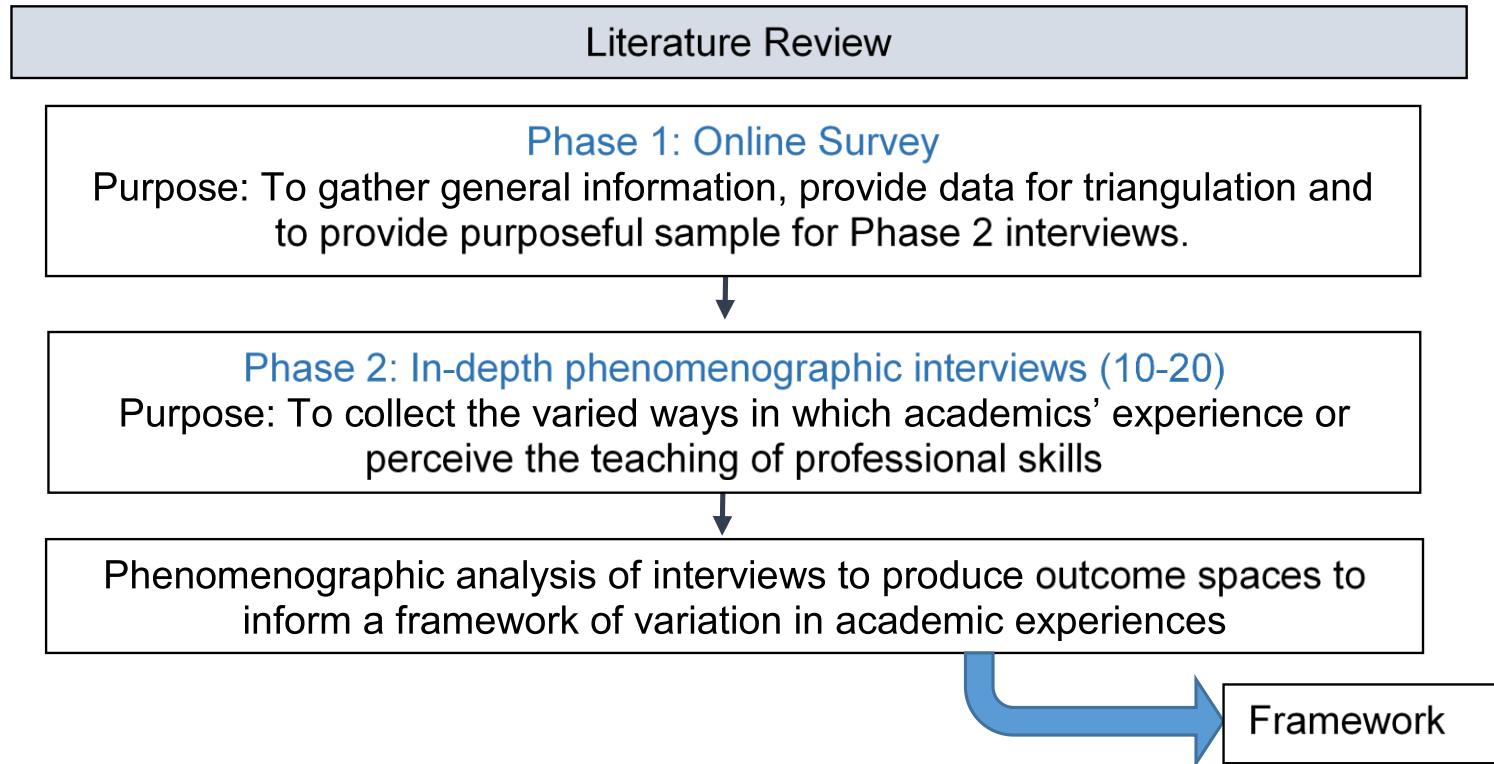
Variation in people



Phase 1 Survey



Research Design and Methodology





Phase 1 Survey

Academics teaching on engineering programmes in Ireland



- Gender and Age
- Qualifications (academic & professional)
- Background Career (engineer or other)
- Industrial Experience
- Academic Experience
- EI Accreditation
- Ranking of skills required to make a good graduate
- Approaches to Teaching Inventory



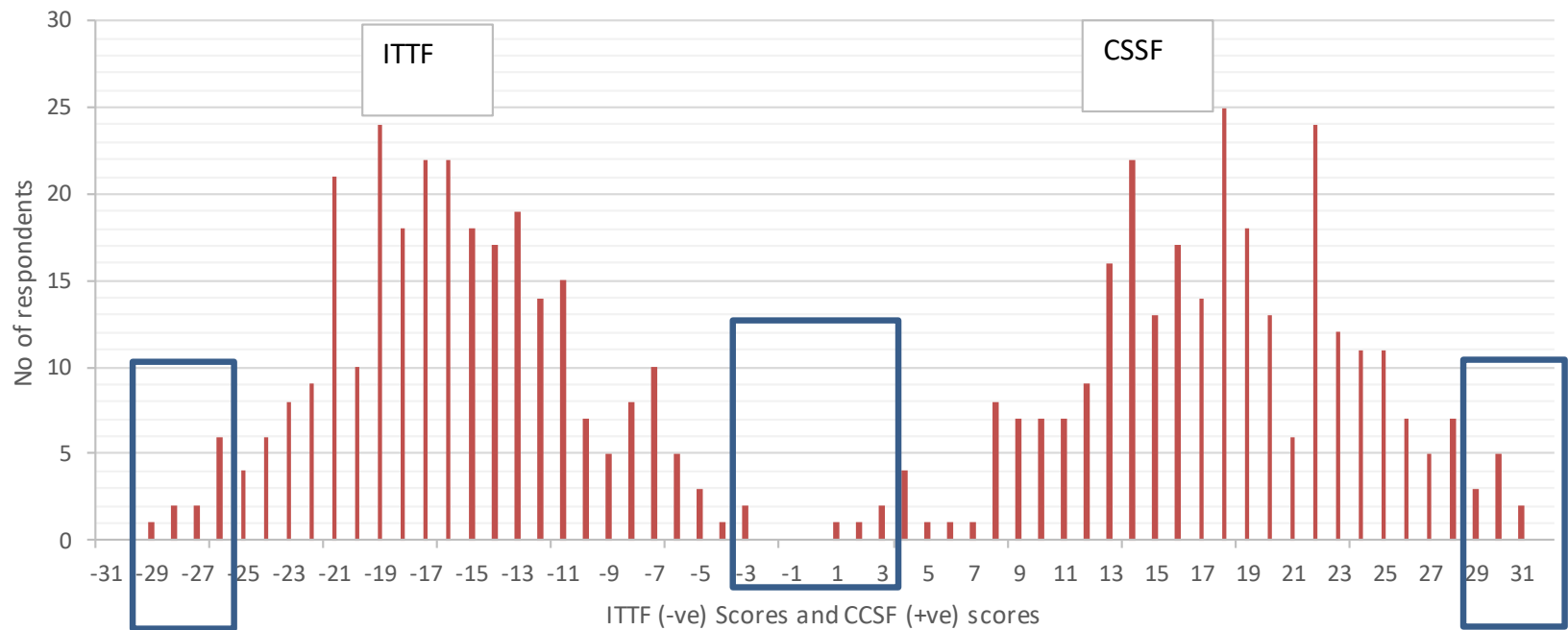
Phase 1 Survey Outcomes



- 273 respondents - 22% female
- 23% undertaken an educational qualification
- 4 out of 5 people have worked in industry
- No evidence to show Industry experience enhances CCSF (Student Focused) score on ATI
- No evidence to suggest that an educational qualification enhances CCSF Score
- Females were more likely to score professionals skills as more important than males.



Phase 1 Survey Outcomes





Phase 2

Phenomenographic Interviews

(15-20)

Methodology & analysis

Trigwell (2000) A phenomenographic interview on phenomenography.

Walsh (2000) Phenomenographic analysis of interview transcripts.

Ashworth & Lucas (2000) Achieving empathy and engagement: a practical approach to the design, conduct and reporting of phenomenographic research.



Phase 2

Phenomenographic Interviews

Methodology & analysis

NVivo for file management

Bazeley (2009) Analyzing Qualitative Data: More than Identifying themes

Braun & Clarke (2006) Using thematic analysis in psychology

Gibbs (You tube videos)

Literature Review topics

- History of Engineering Education (Apprenticeship/Technical/Rebalance)
- Current situation
 - Influencing factors on curriculum design, Accreditation, National Policies, Institutional policies
- The Skills Gap
 - Industry viewpoint
 - Graduate viewpoint
 - Academic viewpoint
- Looking to the future
 - Global Grand Challenges, new skills requirements
 - Which skills ? (100 journal paper review)
- The Problem with Academics
 - Inability to teach, overcrowded curriculum, teaching pedagogies
- Approaches to Teaching Inventory



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Research Design Proposal

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