



Newcastle
University



'DOCTORAL STUDY OF ICT IN EDUCATIONAL SETTINGS: MAKING A DIFFERENCE TO PRACTICE?'

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FOR EVERY COMPLEX PROBLEM THERE
IS A SOLUTION THAT IS SIMPLE,
NEAT...

and WRONG!

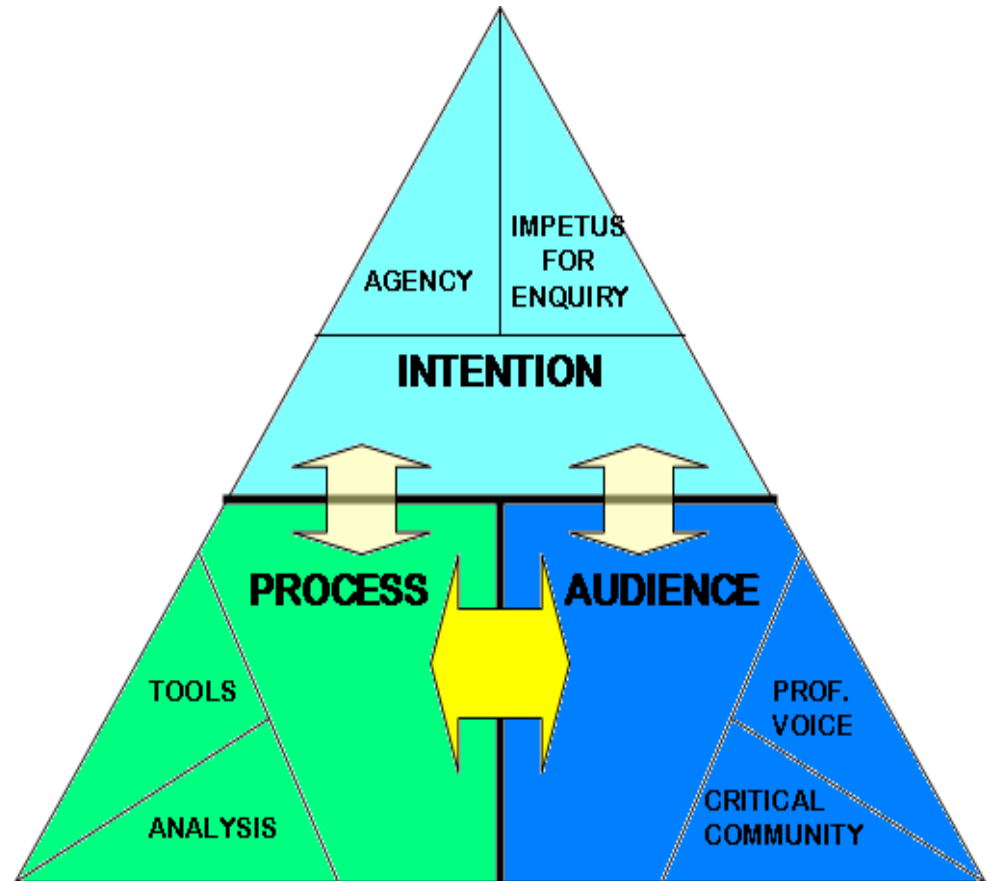
H.L. Mencken 1880-1956

Newcastle Doctoral Routes

- Newcastle doctorates:
- iPhd (Integrated) – mainly full time international students, 2 years taught and 1-2 years thesis;
- EdD – mainly home part-time ‘practitioner’ students, 200 taught credits (usually 3 years), then thesis (often 3 years);
- Traditional PhD, part-time or full-time;
- Staff PhD by publication (6 plus commentary)

Intention, audience and process

- 3 important questions:
 - What is your intention for your research?
 - Who are you doing the research for/ who is your audience?
 - To what extent are you going to privilege research process?



(Baumfield, Hall and Wall, 2008)

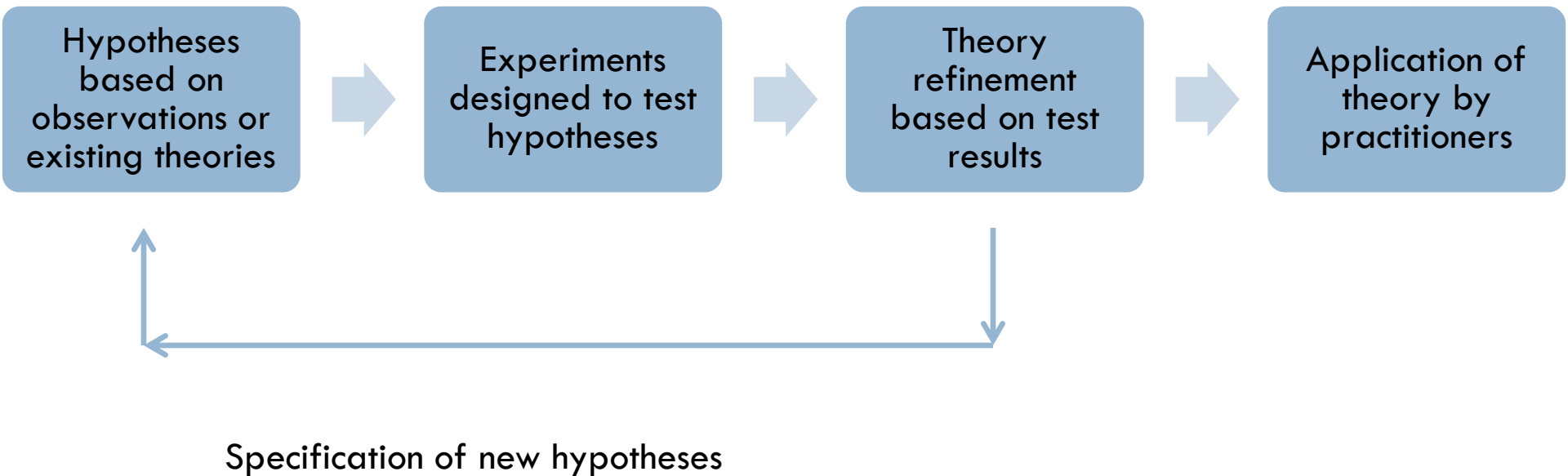
Interest and Intention

- Our background influences our understanding of the world – scientific backgrounds can be very uncomfortable with qualitative research;
- People with an arts or social science background can be uncomfortable with numbers and the concept of objectivity (critical realists);
- Some of us have a desire to master the world, while others wander around – just curious. This is about epistemology and ontology – what we ‘know’ and how we ‘prove’ it.

A flawed process?

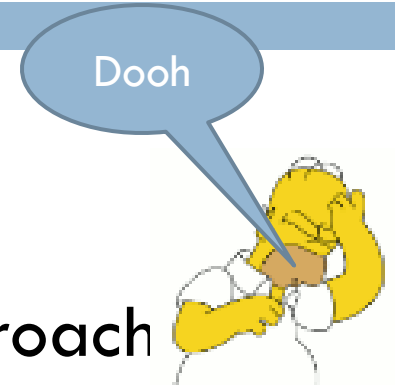
- In the US it is argued that doctoral programmes fail to engage students in research from the start – they spend 2 years taking courses, one year doing literature review and proposals and only one year doing the thesis.

Predictive Research



The most under-rated designs by doctoral students?

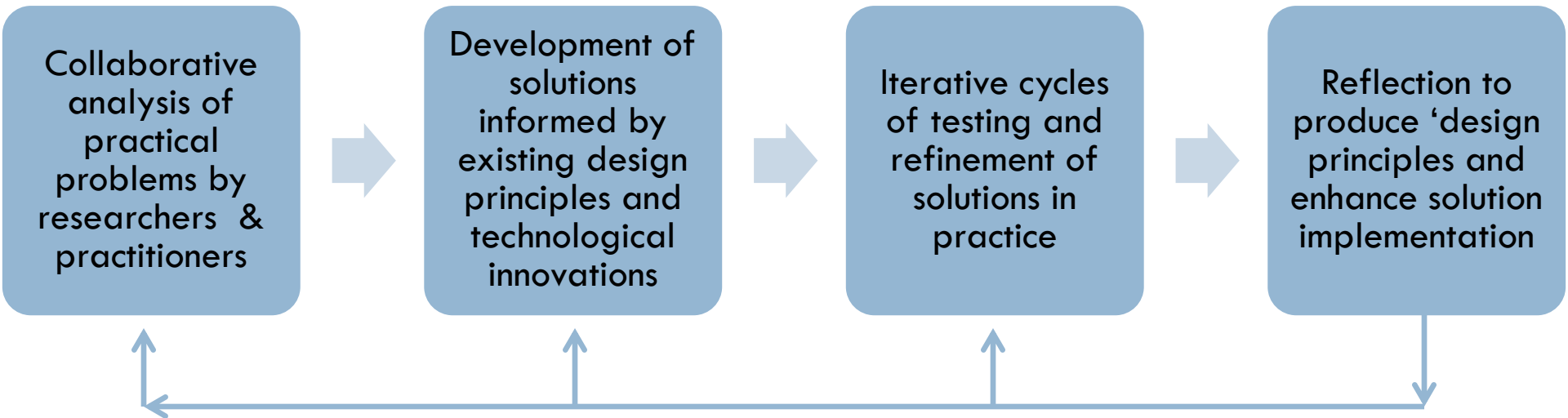
- ... Case Study – where a phenomenon is embedded in its context;
- Design-based research: ‘a series of approach with the intent of producing new theories, artifacts and practices that account for and potentially impact learning and teaching in naturalistic settings’ ... also called design experiments, development research and formative research



Proponents of design based research

- Accuse educational technology of being ‘pseudoscientific and ‘socially irresponsible’ by adopting designs that show a learning gain for technologically-facilitated learning compared to normal methods;
- DBR involves long term collaboration between researchers and practitioners and focuses on solving problems and improving programmes or innovations.

Design-Based Research



Refinement of problems, solutions, methods and design principles

Problems with DBR

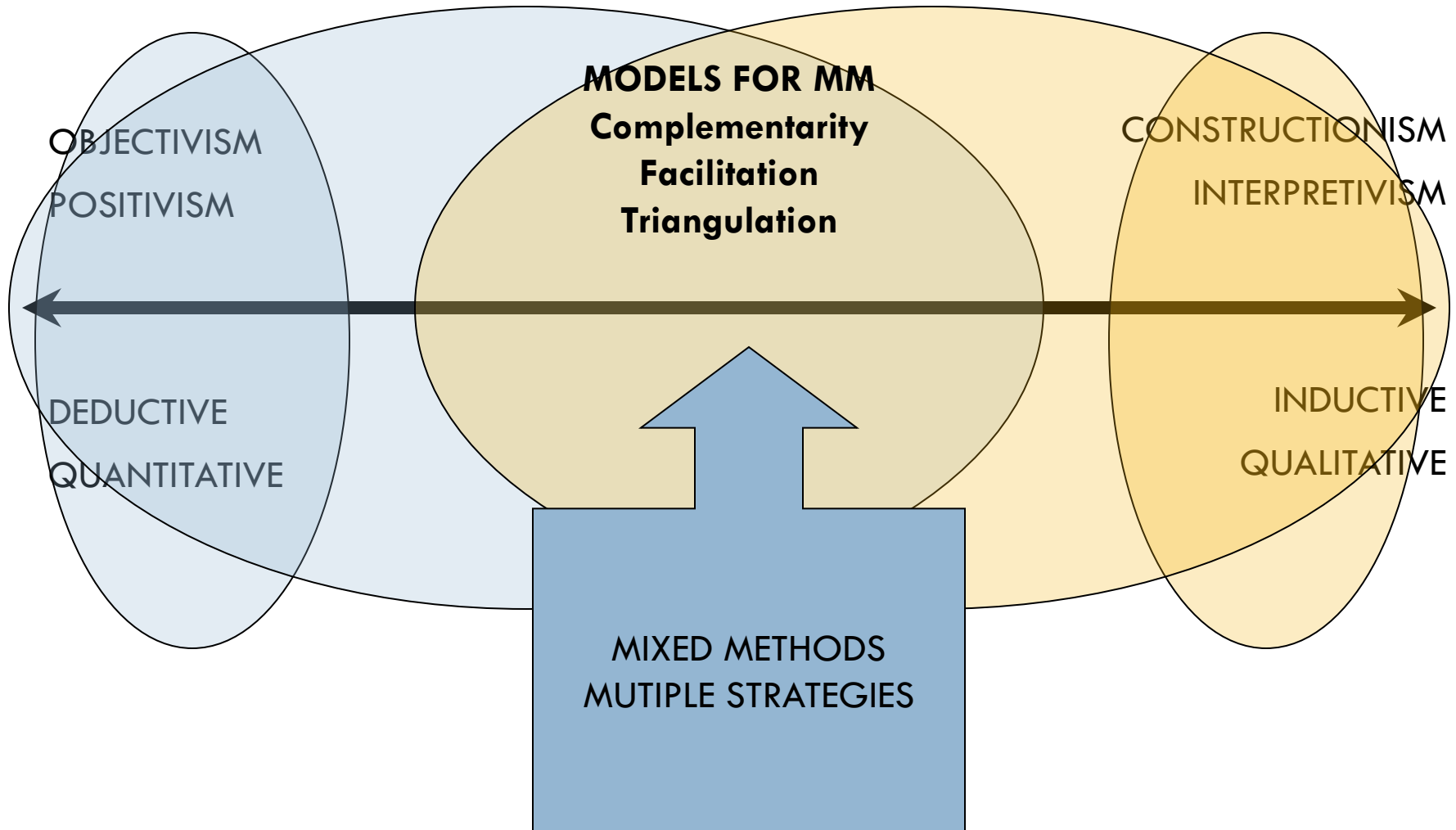
- As a researcher can you find practitioners who want to 'play' and have the same values, intention and commitment? How do they get ownership? Having good relationships and communication with practitioners is part of the answer.

Classification: quantitative Vs qualitative

Quantitative	Qualitative
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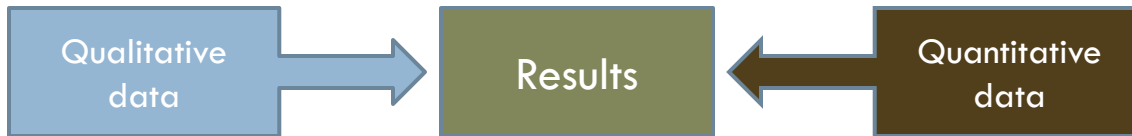
Numbers	Words
Points of view of researcher	Point of view of participant
Researcher distant	Researcher close
Theory testing	Theory emergent
Static	Dynamic
Structured	Unstructured
Generalisation	Analytic generalisation
Hard, reliable data	Rich, deep data
Macro	Micro
Prediction	Meaning
Artificial/controlled settings	Natural settings

Education research as dichotomy or spectrum?

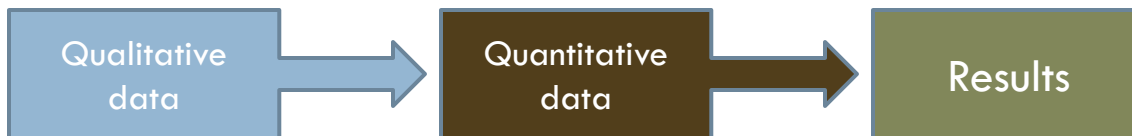


Models for mixed methods (2)

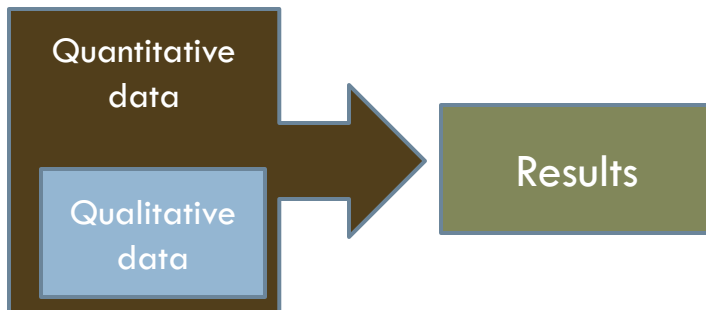
Merge the data



Connect the data



Embed the data



(Cresswell and Plano Clark 2007)

Talking point

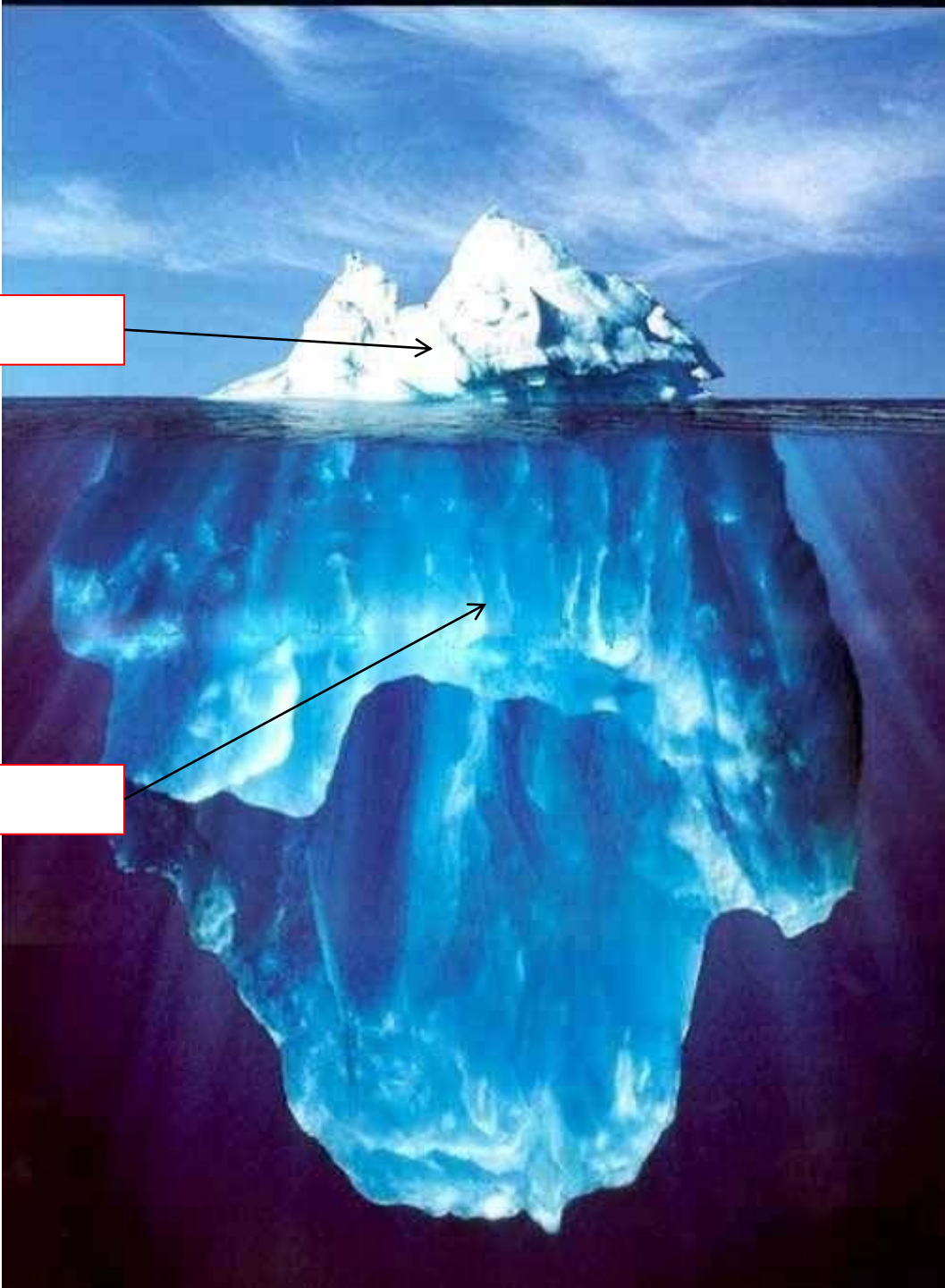
**CAN DATA EVER TRULY
BE QUALITATIVE OR
QUANTITATIVE?**

Case study: some basics

- A case study focuses on a phenomenon which is embedded in its context and cannot easily be disentangled from it;
- Often associated with a location, such as a community or organisation;
- Focuses on how and why questions and accepts complexity - it is holistic and usually looks back to explain;
- Key features: triangulation, contextualisation (societal and individual factors) and processes.

Key messages

- It is about trying to get a handle on something that has happened (or an example of something that is happening) - when did it start? why? what are causes? what are effects?
- Where you have little control over events;
- Case study is exemplified by very good journalism.



The questions



The propositions



Case study design

- Why are you interested?
- Study questions (who, what, where, **how, why**);
- Propositions (the ice below the water line);
- Units of analysis (strongly influenced by the question);
- Complexity comes in using multiple case designs.

The common missing magic

- In my experience the most common failing of PG case studies generally is that they fail to recognise that they are doing a case study;
- The most common easy failing of fairly good case studies is that they ignore document analysis which help provide context and do unpack the role of the researcher enough;
- The most common failing of excellent case studies is that the analysis does not integrate the data as well as it might.

5 misunderstandings of case study

- Case study is biased towards the prior beliefs of the researcher(s);
- It is often difficult to summarise and develop general propositions and theories on the basis of specific cases.

5 misunderstandings of case study

- Abstract, theoretical, context independent knowledge is more important than concrete, context dependent knowledge;
- One cannot generalise from an individual case;
- Case study is most useful for generating hypotheses (exploratory research) while other methods are more suitable for hypothesis testing and theory building.

Key texts on case study

- Case Study Research – Design and Methods, Robert, K. Yin, 3rd edition (2003), SAGE.
- The art of case study research, Robert E. Stake (1995), SAGE.
- Qualitative Inquiry and Research Design: Choosing among Five Traditions, John Creswell (1998) SAGE.
- 5 Misunderstandings about Case Study – Bent Flyvberg

Newcastle United May 2009

- Relegated from the premier league?
- Question ‘How and why were the fans affected by the relegation?’
- Look at the following slides and in pairs and come up with ideas about that question.

A large crowd of people is gathered in a stadium, many with their hands raised in a gesture of support or celebration. In the center of the crowd, a large sign is held up. The sign has a black background with white vertical stripes and a white rectangular box in the middle containing text. The text reads: "Wa' Doomed You'll Never Bury the Toon Army". The sign is held by several people, and the crowd around it is diverse in age and appearance. Some people are wearing blue shirts, others are in white or light-colored shirts. The atmosphere appears to be one of excitement and anticipation.

**Wa'
Doomed
You'll
Never Bury
the Toon
Army**

The last match



The agony and the ecstasy





Case of Newcastle United

- Triangulation - you would need data from interviews with fans, partners, family and colleagues; observation; medical data
- Contextualisation – documentation on managers, finance, trends in the Premier League
- Societal and individual factors and processes – employment, incomes, identity formation etc.

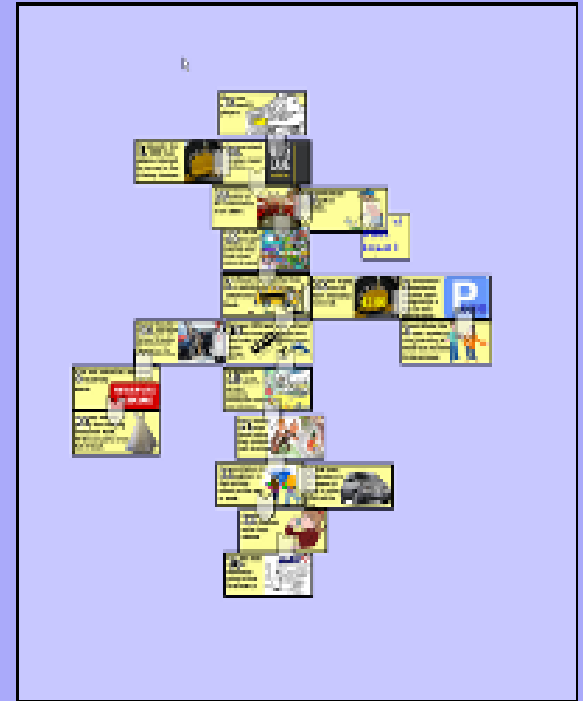
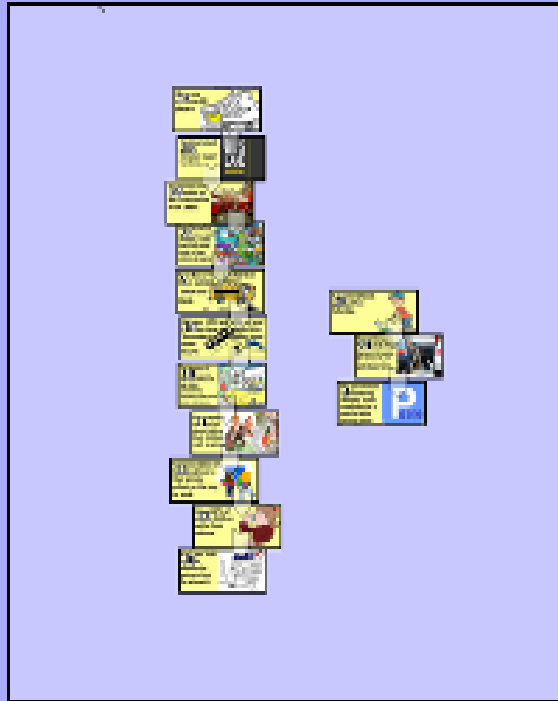
PhD Research – Design Experiment

- Teaching thinking strategy – mysteries;
- Existing tabletop technology;
- Review of literature – design for learning principles;
- Mysteries adapted to tabletop with 3 interactive tools;
- Trialled with university students;
- Refined and trialled over 3 phases, with single table, in school supported by a researcher located in school plus ‘learning support’ staff;
- Attention given to ‘orchestration’ which refers to the real time management by a teacher of multiple learning activities within a multi-constrained environment.

Tabletop computer research



Physical layout of data items reflect quality of talk and thinking



Select the layout that looks similar to yours

OK (ostude...

OK (rstudent)

OK (ystude...

Case Study - Deployment research in another school of 6 tables

- Negotiation with headteacher and teachers in geography and history;
- Researchers and teachers combined to write content and trial with 3 classes over 4 weeks;
- Trials were very disappointing;
- Technology was not first rate – touch response;
- Students had poor disposition and used ‘gaming’ strategies to ‘beat’ the machine;
- Teachers did not understand the potential, adapt their teaching to the context, were out of their comfort zone, and were generally critical;
- Relationship not strong enough.

Halse & Bansel (2012) Paradigms of Supervision

Oxford Review of Education, Vol. 38 (4), pp. 377-392

- Apprenticeship – guidance and direction of an expert;
- Person-centred – guides, protocols, best practice, identity formation;
- Scientific-technical – audits, quality assurance, competences, input/output;
- Socio-cultural – focuses more on total environment and culture;
- Suggest a ‘learning alliance’ – implicit agreement between supervisor, student and university to achieve good outcome and quality doctorate – draws on idea of relational agency

Questions and research design

Research Approach	Focus
Action Research	How to get teenagers (family members) to keep their bedrooms tidy?
Survey	What changes would people most like in their bedrooms? E.g. Cross trainer, dressing table, shower, walk in wardrobe, a view from the window, a cat etc.
Experimental design	The effectiveness of two interventions in improving the bedroom tidiness of teenagers
Ethnography	Family dynamics around the issue of bedroom tidiness.
Case Study	How widowers change their bedrooms after bereavement