


Research Methodologies



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Overview of Presentation

- ◆ Overview of Quantitative/Qualitative Methodologies
- ◆ Focus on Qualitative Research
 - Questions, Characteristics, Methods, Data Analysis, Credibility
- ◆ Research Methodologies / Methods & GILD
- ◆ Discussion

Overview of Research Methodologies

- ◆ Qualitative Research
 - Ethnography, Case Study, Grounded Theory, Autobiography, Participatory Action Research, Phenomenology (each grounded in a specific discipline and philosophical assumptions)
- ◆ Quantitative Research
 - Survey methods, Experiments
- ◆ Mixed Methods
 - Draw from qualitative and quantitative methods

Quantitative

- ♦ A quantitative approach is one in which the investigator primarily uses post-positivist claims for developing knowledge (i.e. cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation, and the test of theories). (Creswell, 2003, p.19)

Qualitative - Definition

- ♦ ... qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomenon in terms of the meanings people bring to them. (Denzin & Lincoln, 2000, p.3).

Qualitative - Definition

- A qualitative approach is one in which the inquirer often makes knowledge claims based primarily on constructivist perspectives (i.e. the multiple meanings of individual experiences, meanings socially and historically constructed, with an intent of developing a theory or pattern) or advocacy/participatory perspectives (i.e. political, issue-oriented, collaborative or change oriented) or both. (Creswell, 2003, p.18)

Research Questions

- ◆ Qualitative
 - In qualitative study inquirers state research questions, not objectives (i.e. specific goals for the research) or hypotheses (i.e. predictions that involve variables and statistical tests). (C., 2003, p.105)
 - Example: How do students use program development tools?

Characteristics of Qualitative Research

- ◆ Takes place in the natural setting
- ◆ Uses multiple methods that are interpretive
- ◆ Is emergent rather than tightly prefigured
- ◆ Fundamentally interpretive (role of researcher as interpreter)
- ◆ Researcher views social phenomena holistically
- ◆ Researcher systematically reflects on who he or she is in the inquiry and is sensitive to his or her personal biography and how it shapes the study
- ◆ Researcher uses complex reasoning that is multifaceted, iterative, and simultaneous
- ◆ Researcher adopts and uses one or more strategies of inquiry

Research Methods

- ◆ Interviews
- ◆ Focusgroups
- ◆ Participant observation (field notes)
- ◆ Video
- ◆ Text and Image analysis (documents, media data)

Data Analysis (C., p.191)

- ♦ Organize and prepare the data for analysis
- ♦ Read all data, get a sense of the whole
- ♦ Begin detailed analysis with coding process
- ♦ Generate a description of the setting/people as well as categories or themes for analysis
- ♦ Represent themes (writing, visual, etc.)
- ♦ Interpret and make meaning out of data
- ♦ *iterative, non-linear process

Credibility

- ♦ Use of Triangulation
- ♦ Use of Member Checking
- ♦ Use of rich, thick Description
- ♦ Clarification of Bias
- ♦ Use of Negative or discrepant information
- ♦ Prolonged field time
- ♦ Peer Debriefing
- (C., 2003, p.196)

Research Methodologies & GILD

- ♦ Ethnography
 - An ethnography is a description and interpretation of a cultural or social group or system. The research examines the group's observable and learned patterns of behaviour, customs, and ways of life. (C., 1998,p.58)
 - Rapid Ethnography

**Research Methodologies
& GILD**

- ◆ Case Study
 - ... a case study is an exploration of a 'bounded system' ... over time through detailed, in-depth data collection involving multiple sources of information rich in context. This bounded system is bounded by time and place, and it is the case being studied – a program, an event, an activity, or individuals. (C., 1999, p.61)

Useful Methods

- ◆ Participant observation
 - Gains insight into understanding cultural patterns to determine what's necessary and needed in tool development (complementary to interviews)
- ◆ Interviews/Focusgroups with stakeholders
 - Explores how tools are used and could be used in a novice programming course
 - Gains insight into the meaning of tools for students for learning to program

Useful Methods

- ◆ Data analysis
 - Themes arising from data would provide insight into current "learning to program" issues and see what is important to students / teachers / administrators
- ◆ Survey
 - Useful for verifying results on a larger scale
- ◆ User Testing
 - Useful for triangulating results

Choice of Methodology & Methods

- ◆ Depends on
 - Research Questions
 - Research Goals
 - Researcher Beliefs and Values
 - Researcher Skills
 - Time and Funds

Discussion

- ◆ (How) Can tool improvement, collaboration, ed-tech questions and learning outcomes be addressed in the same study?
- ◆ What GILD research questions match which research methodologies?

References

- ◆ Creswell, J.W. (1998). *Qualitative inquiry and research design. Choosing among five traditions*. Thousand Oaks, CA: Sage.
- ◆ Creswell, J.W. (2003). *Research design. Qualitative, quantitative and mixed methods approaches*. Thousand Oaks, CA: Sage.
- ◆ Denzin, N.K. & Lincoln, Y. (2000). Introduction: The discipline and practice of qualitative research. In N.K. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp.1-17). Thousand Oaks, CA: Sage.
