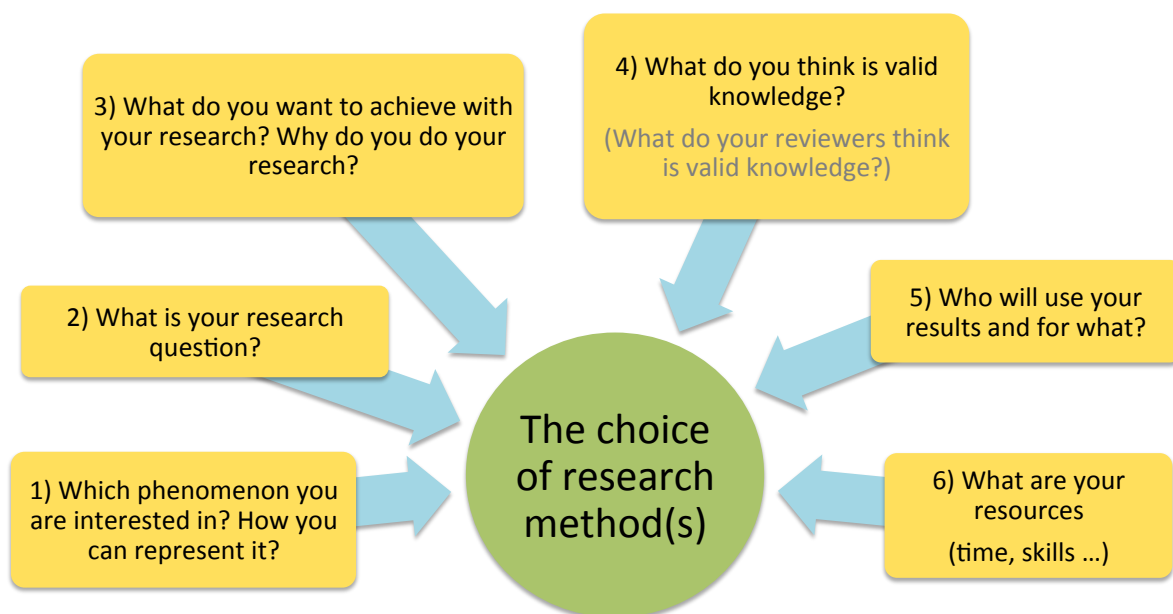


Research methods and designs in computing education research

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How to choose appropriate research method?



L. Malmi, J. Sheard, Simon, R. Bednarik, J. Helminen, A. Korhonen, N. Myller, J. Sorva, A. Taherkhani, Characterizing research in computing education: a preliminary analysis of the literature. *Proceedings of the Sixth International Workshop on Computing Education Research (ICER '10)*. 2010. ACM, New York, NY, USA. 3-12.

Research Purpose

- **Descriptive**
 - Description of a tool, technology or system. This may involve detailed explanation of features, functionality and rationale for development.
- **Evaluative**
 - Assessment of a tool, method or situation, typically through a systematic process involving data gathering, analysis and reporting. This may involve hypothesis testing and may be exploratory or investigative in nature.
- **Formulative**
 - Development and/or refinement of a theory, model, standard, or process, or proposition of a new concept.

Data Source

- **Naturally occurring data**
 - Data pertaining to human subjects that would be available regardless of whether the research was carried out. E.g, examination results, course grades, task submissions, student/teacher emails, course documentation, and published literature. Research specific data
- **Research specific data**
 - Data collection pertaining to human subjects tailored specifically for the needs of the research. This includes interviews, questionnaires, observation data and any other data collected from assignments or tasks designed specifically for the target research.
- **Reflection**
 - The researchers' own reflections and experiences of a phenomenon serve as data. These reflections are what the paper deals with (they are analyzed and/or described); e.g. phenomenological research.
- **Software**
 - Data collected about a software system. The data primarily describes the software rather than the humans using it or their activities; e.g. performance benchmarking, software metrics

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Some data collection methods

- Questionnaires
- Interview
- Observation
- Questionnaire (open ended questions)
- Documents
 - Documents that exist anyway (e.g., exam answers, essays, email discussions, study guides, text books, journal ...)
 - Documents that exist because of your study (e.g., essay, learning diary, portfolio, ...)
- Photos, drawings
- Video, audio recordings
- Artefacts ...

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Your turn!

Pick one or more data collection methods you have used/are planning to use in your own study:

- Why did you choose this/these methods?
- Did you have other data collection methods in your mind – why you didn't choose them?
- What are strengths and limitations of your data collection methods?
- Are there any ethical issues you need(ed) to consider when using your data collection method?

References & additional reading

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- <http://www.socialresearchmethods.net/kb/intrview.php>
- <http://srmo.sagepub.com/> - search for ethnography/observation
- <http://srmo.sagepub.com/view/qualitative-marketing-research-carson/n9.xml?rskey=GIQfd&row=3>
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