IAT 804
Foundations of Research Design for Human-Centred Design of Interactive Technologies

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TA: Alex Kitson
Fall 2018

did everyone make a name sign? (include your supervisor’s name)

Image

Design | Embodied, tangible and brain computer interaction
Children | Canada and Nepal
Ethics | research with vulnerable populations

Image

CBC Radio and CBC Television (New Media Consultant)
Brainium/MultiActive Technologies (Senior designer/Development Lead)
University of British Columbia (PhD)
University of Waterloo (Bachelors: Systems Design Engineering & Liberal Arts)

Contact

aantle@sfu.ca Subject: IAT 804 XXX
alexandra_kitson@sfu.ca Response: 1-2 business days

Slack | Monitor | 1-2 business days
By appointment
http://ante.iat.sfu.ca/teaching/iat804timeline

class introductions

Masters or PhD who is your supervisor? research interest? why SIAT? something you feel proud of?
the course

http://antle.iat.sfu.ca/teaching/iat804timeline/

Slack Channel

topics

how to conduct research?

there’s a new technology...
what’s my research question?
do I study it in a natural setting?
do I study it in a controlled setting?
how do I collect and analyze the data?
what commitments do I have to the production of knowledge? science? social science? practice-based?

Knowledge
What is knowledge? Let’s try this …
• Certainty
• Evidence
• Practicality
• Broad agreement

Problems w/ each
Knowledge Round II

The Standard Definition in Philosophy

• The person believes the statement to be true
• The statement is in fact true
• The person is justified in believing the statement to be true.

• Belief ...

Types of Belief (so far)

When is a belief = fact in academic context?

• I believe it because it can be logically derived → Rationalism
• I believe it because I experience it → Observation + Logic → Empiricism.

• Empiricism!

How does SIAT create new knowledge?

• Empirical Research!
• What then is Research?

Creswell Chapter 1

• Research Approach
• Research Design
• Research Methods

• Research Problem

• Note: Research Methodologies/Strategies of Inquiry

3 part Framework for Research

Research approach =
• worldview
• research design
• research methods
Types of Research Designs

- quantitative approaches
- qualitative approaches
- mixed methods approaches

Worldviews

- Postpositivist world view / postpositivism (Science)
- Social constructivist worldview
- Advocacy/participatory worldview
- Pragmatic worldview

Strategies of Inquiry used in Research Designs

<table>
<thead>
<tr>
<th>Quantitative</th>
<th>Qualitative</th>
<th>Mixed Methods</th>
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<tbody>
<tr>
<td>Experimental designs</td>
<td>- Narrative research</td>
<td>- Convergent</td>
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<tr>
<td>Nonexperimental designs, such as surveys</td>
<td>- Phenomenology</td>
<td>- Exploratory sequential</td>
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<tr>
<td>Longitudinal designs</td>
<td>- Grounded theory</td>
<td>- Exploratory sequential</td>
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<td></td>
<td>- Ethnographies</td>
<td>- Complex designs with embedded core designs</td>
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<td>- Case study</td>
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Research Methods

Specific forms of

- Data collection (e.g., measurement instrument, observations)
- Analysis (e.g., statistical analysis, interpret themes)
- Interpretation

Review

How to pick a Research Approach

1) Nature of research problem
2) Personal experience/interest
3) Scholarly training
4) Audience for knowledge
IAT 804: Three Main Lenses

• **Effective**: experiments
• **Experience**: observation
• **Creation**: art/artifact/design

assignments

Textbooks


Terms Document

• Key terms: paradigm (worldview), epistemology, ontology, axiology, rhetoric, methodology, research design, and measuring humans, concepts, factors, constructs and variables (independent, dependent, random, controlled) etc…

• there is a LOT of reading
- there is a LOT of reading
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### Evaluation

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Ethics tutorial</td>
<td>5%</td>
</tr>
<tr>
<td>Short paper, discussion</td>
<td>15%</td>
</tr>
<tr>
<td>Workshop, presentation</td>
<td>15%</td>
</tr>
<tr>
<td>Methodological traditions</td>
<td>15%</td>
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<tr>
<td>Final paper: Research design</td>
<td>50%</td>
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</table>

### 1. Ethics tutorial (5%)

- [Image of ethics tutorial]

### 2. Short paper (15%)

- Read 1 of 3 papers, write 2 pages
- Analysis of the research methodology and method

- [Image of short paper example]
3. workshop critique / presentation (15%)

- select 1 of 3 research topics
  - Interaction in 3D Spaces
  - Technology for Preserving Cultural Heritage
  - Design for People Suffering from Chronic Pain
- create a 10 minute presentation
- workshop the presentation with other students
- create a group presentation and present it

4. methodological traditions (15%)

- a. experimental approaches (5%)
- b. observational approaches (5%)
- c. creation approaches (5%)

- perform part of a research project
- submit a write-up and/or video
final paper (50%)

• create a plan for a research design in a single methodological tradition

• 1. write a research paper (max 4 pages)
• 2. perform peer review (5%)
• 3. revise your paper (5%)
• 4. submit a final version (40%)

academic misconduct

• follow university guidelines
• plagiarism: using another person’s ideas or creative work without giving credit
• classroom sharing of ideas is encouraged

late assignments

• 10% off per day
class attendance

• you are expected to come and be on time
  • zero tolerance for re-explaining material discussed in lecture
e.g., deadlines, assignments details, lecture contents
• missing presentations is unacceptable

what to do for next week

Readings
Research topic: have one
Research question: think one
Ethics: Do tutorial after seminar
Slack: Post your questions/comments

Be engaged/participate in your own learning.

questions?