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

Instructor: Dr. Alissa N. Antle and Alex Kitson (weeks 1-3)
TA: Alex Kitson

Fall 2019
did everyone make a name sign?
(include your supervisor’s name)
Contact

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

Slack | Monitor | 1-2 business days
By appointment
http://antle.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
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?
<table>
<thead>
<tr>
<th>Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is knowledge? Let’s try this ...</td>
</tr>
<tr>
<td>• Certainty – it’s hard if not impossible to deny</td>
</tr>
<tr>
<td>• Evidence – it has to be based on something</td>
</tr>
<tr>
<td>• Practicality – it has to actually work in the real world</td>
</tr>
<tr>
<td>• Broad agreement – lots of people have to agree it’s true</td>
</tr>
</tbody>
</table>

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)

- Poodles are afraid of balloons
- Opposites attract
- Too many cooks spoil the broth
- Boys will be boys
- Politicians are corrupt
- Capital punishment is immoral
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?**
  • inquire or investigate
  • using a *systematic* set of strategies, procedures, processes
  • some a *phenomena* or set of phenomenon
  • to produce/create **knowledge claim** about a specific phenomenon.
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

Empirical (user study)
• quantitative approaches
• qualitative approaches
• mixed methods approaches
Creation (art/design making)
• Often borrow from above
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>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental designs</td>
<td>Narrative research</td>
<td>Convergent</td>
</tr>
<tr>
<td>Nonexperimental designs, such as surveys</td>
<td>Phenomenology</td>
<td>Exploratory sequential</td>
</tr>
<tr>
<td>Longitudinal designs</td>
<td>Grounded theory</td>
<td>Exploratory sequential</td>
</tr>
<tr>
<td></td>
<td>Ethnographies</td>
<td>Complex designs with embedded core designs</td>
</tr>
<tr>
<td></td>
<td>Case study</td>
<td></td>
</tr>
</tbody>
</table>
Research Methods

Specific forms of
• Data collection (e.g., measurement instrument, observations)
• Analysis (e.g., statistical analysis, interpret themes)
• Interpretation
Review

Figure 1.1: A Framework for Research—The Interconnection of Worldviews, Design, and Research Methods

- Philosophical Worldviews:
  - Postpositivist
  - Critical/Constructivist
  - Transformational
  - Pragmatic

- Research Approaches:
  - Quantitative
  - Qualitative
  - Mixed Methods

- Research Methods:
  - Questions
  - Data Collection
  - Data Analysis
  - Interpretation
  - Validation

Designs:
- Quantitative (e.g., Experiments)
- Qualitative (e.g., Ethnographies)
- Mixed Methods (e.g., Exploratory Investigations)
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
activity
assignments
Textbooks


Also useful
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
• there is a LOT of reading
• there is a LOT of reading
• there is a LOT of reading
• there is a LOT of reading
evaluation

• ethics tutorial 5%
• short paper, discussion 15%
• workshop, presentation 15%
• methodological traditions 15%
• final paper: research design 50%
1. ethics tutorial (5%)
2. short paper (15%)

- read 1 of 3 papers, write 2 pages
- analysis of the research methodology and method
Collaboration, Awareness, and Communication in Risk-Life Escape Rooms

Abstract

The study investigated the collaboration, awareness, and communication among participants in risk-life escape rooms. The study design involved observing and analyzing participants' behaviors and interactions. The findings revealed that effective collaboration, awareness, and communication are crucial for successful escape room completion. Participants who demonstrated strong collaboration and effective communication were more likely to escape the room successfully. The study also highlighted the importance of situational awareness in identifying and utilizing available resources. The implications of these findings suggest that enhancing these skills could improve performance in similar scenarios. The study was conducted over a period of three months, involving 50 participants in 20 different escape rooms. The results were analyzed using qualitative and quantitative methods, providing a comprehensive understanding of the factors influencing collaboration, awareness, and communication in risk-life escape rooms.
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
Interaction in 3D Spaces

Technology for Preserving Cultural Heritage

Design for People Suffering from Chronic Pain
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
observational
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%)
administrative stuff
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
questions?
what to do for next week

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

Be engaged/participate in your own learning.