Advances in Video Based Research
Rogers Hall, Vanderbilt University
Katie Headrick Taylor, University of Washington

Highlighted work from UW PhD students, Adam Bell, Deborah Silvis, and Erin Riesland

1. Why use video for education research?
2. How are new technologies changing video research?
3. What does an analysis of video data look like?
Advances in Video Based Research
Rogers Hall, Vanderbilt University
Katie Headrick Taylor, University of Washington

EDPSY 569A
Learning and the Interaction Order: Using Video Recordings as Data in Studies of Learning and Teaching
3 credits
Katie Headrick Taylor & Visiting Scholar, Rogers Hall, Spring 2018
Thursdays, 4:30PM-6:50PM, OUG 141
kht126@uw.edu; r.hall@vanderbilt.edu
Office hours by appointment, Miller 312c

Course Overview and Objectives

This is a research methods course for graduate students (doctoral or masters) who are using/will use video and/or audio recordings as data in studies of learning and teaching (like in the image shown above). The course should be particularly helpful to students already involved in research where inferences are made about understanding, learning or teaching on the basis of analyzing what people say and do together (i.e., the “interaction order”) in audio and video recordings.

The course will be organized like a workshop in that your participation as a reader, collaborator, researcher, and critic are essential for its success. We will read papers on method and illustrative case studies in the areas of conversation analysis, ethnography, gesture studies, mobility studies, and micro-ethnographies of classroom life. We will work with technologies and procedures for capturing and managing video and audio recordings of human interaction that can serve as data for these kinds of studies, as well as procedures for indexing, transcribing, and conducting comparative analysis. We will practice capturing learning as it happens “in the wild” with video and highlighting important moments of interaction, or “hot spots.”

We will also work on students’ ongoing research projects, including in-class analysis sessions, with the expectation that students will report on a substantive analysis as a major requirement of the course. Students without ongoing empirical projects will be required to develop secondary analyses using pre-existing archival collections of video and audio recordings (e.g., various workplace and classroom collections). This course is open to students from across the college, including students with little prior experience with these methods, by permission of the instructor.
Why use video recordings of talk-in-interaction as data in studies of learning and teaching?
WHERE THE WILD THINGS ARE

(Cognition in the)

(and a few others)

STORY AND PICTURES BY MAURICE SENDAK
Archeological field school (Goodwin)
Architecture (Stevens, Le Baron)
Banking (Noss & Hoyles, Engestrom)
Bartending & fast food (Beach)
Biomedical engineering (Nersessian)
Biostatistics (Hall, Wieckert & Wright)
Botany and Pedology (Latour)
Carpet and tile laying (Masingila)
Cell and Molecular Biology (Dunbar, Becvar)
Civil Engineering (Stevens & Hall, Gainsburg, Suchman & Trigg)
Commercial aviation (Hutchins)
Conservation planning (Goldstein & Hall)
Dairy workers (Scribner)
Dieters in their kitchens (dela Rocha & Lave)
Dinner table conversations (Ochs...)

Entomology (Torralba; Hall, Stevens & Torralba)
Equipment repair (Harper, Orr)
Folk biology (Medin et al.)
Health informatics (Engestrom)
Navigation by US Navy and Micronesian navigators (Hutchins)
Neuroendocrinology (Latour & Woolgar)
Physical therapy (Rose)
Recreational sports teams (Heath, Mahiri, Nasir)
School administration (Spillane)
Solid state physics (Ochs, Jacoby & Gonzales)
Supermarkets and shopping (Murtaugh & Lave, Brenner, Taylor)
Surgical training (Koschmann)
Technology sales (Osterlund)
Waitressing (Rose)

(and a few others)
Video recordings of a statistical consultation (top) and debrief interviews with the client Alberto (bottom left) and the statistical consultant Ted (bottom right). Documents used or produced in the consultation are used, along with video excerpts, to structure the debrief interviews.

Well, we use the capture recapture as the gold standard. [...] We have to bu::y into beLI::ving that the capture recapture gives us the best estimate.
Wearable (Bite-able?) Digital Video and Audio Devices for New (and Multiple) Points of Viewing and Listening
Filming on-the-move

A: Chest mounted camera

Eye gaze

B: Head mounted camera

Eye gaze

C: Smartphone camera

Eye gaze on camera, monitoring what is being filmed

A: Eye gaze completely separate from camera

B: Camera approximates eye gaze, based on head position
Digital Video in Virtual Reality for New (and Multiple) Points of Viewing
Introduction

This website brings together resources from a conference supported by the Spencer Foundation at Arizona State University where an interdisciplinary group of older and younger scholars gathered to document and illustrate the basic patterns of visual and auditory attention that are employed by researchers who use video to study social interaction. The image below shows some of these scholars conducting individual analysis of a 2-minute video of classroom interaction showing the teaching of a key idea in the physics of matter—that matter occupies space—in a bilingual kindergarten-first grade classroom.
Analyzing video in context

<table>
<thead>
<tr>
<th>Remembered place</th>
<th>Mapped place</th>
<th>Leah's words</th>
<th>Map image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shimmer Lake</td>
<td>Lake is frozen</td>
<td>3. This must be winter</td>
<td>![Shimmer Lake Map Image]</td>
</tr>
<tr>
<td>Dead end road sign</td>
<td>Street names, roads</td>
<td>9. I didn’t think they had street names</td>
<td>![Dead end road sign Map Image]</td>
</tr>
<tr>
<td>Kind of a river</td>
<td>River nearby</td>
<td>11. Well here’s a river</td>
<td>![Kind of a river Map Image]</td>
</tr>
<tr>
<td>Has a huge garage</td>
<td>Small garage</td>
<td>18. This is probably it</td>
<td>![Has a huge garage Map Image]</td>
</tr>
</tbody>
</table>

Fig. 3 Leah works to bring coherence to her map

Fig. 4 Natalie and her mom negotiate a cloverleaf highway exit


Hall, R. (2000). Video recording as theory. Handbook of research design in mathematics and science education, 647-664


