Using Images to Understand Students’ Approaches to the Research Process

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Overview

• Introduction to this project
• Overview of the use of images in research
• Project methods, findings, and implications
• Techniques for using images in assessment
• How do students understand the process of writing papers that require research?
Background

- 2 university librarians
- Collaborated with our Writing Center
- Focus on students’ perceptions and behaviors of writing and research
- Goal: Find ways to improve our services
Librarians can use images in research and assessment in different ways.

- Use pre-existing images
- Produce their own images
- Have participants produce images

Source: Holm, 2010
Why Use Images?

• Participants can express ideas or feelings that might not have emerged through words alone.
  o Reflect on experiences
  o Consider issues in a different light
  o Engage in more abstract types of thinking

Sources: Rose, 2012; Weber 2008
“Images can be used to capture the ineffable, the hard-to-put-into-words… Images can be used to communicate more holistically, incorporating multiple layers, and evoking stories or questions.”

Using Images

• Images can be used in different ways.
  o Standalone items of analysis
  o Tools to facilitate researcher interaction
    o Photo or visual elicitation
    o Photovoice or video diaries
    o Drawing diagrams, timelines, or self-portraits
    o Creating collages from a mix of visual materials
    o Creating products that combine image and text (e.g., memory books, graphic novels, or diary-photographs)
  o Items of empowerment

Image Analysis

- **Quantitative analysis**
  - Identify and count elements, categories
  - Make comparisons between frequencies
  - Identify correlations between elements

- **Qualitative analysis**
  - Exploring meanings
  - Use in combination with text

- **Must consider context of creation**

- **Challenges**

Sources: Bell, 2001; Holm, 2010; Rose, 2012; Weber, 2008
“Images are open to interrogation and interpretation, and there are so many questions to consider. . . . What constitutes a valid interpretation of images? Is there such a thing? What is the role of social and cultural context to interpretation? . . . What kinds of stories can images tell? . . . What relationships are possible between images and word?”

- Weber, 2008, p. 50
Images are most commonly used as elicitation techniques in interviews in library studies.
  - e.g., Photo diary study at MIT in which students took photos and screenshots of their information seeking activities

Source: Gabridge, Gaskell, & Stout, 2008
Image Use in Library Studies

• Ethnographic and work practice studies in libraries have commonly used images.
  o University of Rochester’s studies of students that used photo surveys, mapping diaries, student designs of library spaces, and retrospective interviews
  o Images used as both items of analysis and elicitation objects

Source: Foster & Gibbons, 2007; George & Foster, 2013
Method

• 222 students drew the steps in the process that they went through when executing a recent writing assignment that required research.
  o Authentic way for students to conceptualize and interpret their experiences; evoke concerns that might not arise through words alone
  o Any type of representation: images, symbols, words, numbers

• 2 open-ended written questions
  o Which step in the process was the most challenging? (n = 105)
  o What would have made the process easier? (n = 123)

• 9 student interviews
  o Drawings used for elicitation
Participants

- 222 undergraduate students from 9 different classes across the disciplines that had a substantial research/writing component
  - Seniors: 60%
  - Juniors 18%
  - Sophomores and Freshmen: 18%
  - Undeclared: 5%
<table>
<thead>
<tr>
<th>Name</th>
<th>Major</th>
<th>Class Standing</th>
<th>Age Group</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeremy</td>
<td>Psychology</td>
<td>Freshman</td>
<td>21–22</td>
<td>Male</td>
</tr>
<tr>
<td>Teresa</td>
<td>Biology</td>
<td>Sophomore</td>
<td>18–20</td>
<td>Female</td>
</tr>
<tr>
<td>Craig</td>
<td>Neuroscience</td>
<td>Sophomore</td>
<td>21–22</td>
<td>Male</td>
</tr>
<tr>
<td>Amy</td>
<td>Anthropology</td>
<td>Junior</td>
<td>18–20</td>
<td>Female</td>
</tr>
<tr>
<td>Samantha</td>
<td>Public Health</td>
<td>Senior</td>
<td>21–22</td>
<td>Female</td>
</tr>
<tr>
<td>Ben</td>
<td>History</td>
<td>Senior</td>
<td>25 or older</td>
<td>Male</td>
</tr>
<tr>
<td>Andrew</td>
<td>General Studies</td>
<td>Senior</td>
<td>Undeclared</td>
<td>Male</td>
</tr>
<tr>
<td>Jodie</td>
<td>Anthropology/Biology</td>
<td>Senior</td>
<td>18–20</td>
<td>Female</td>
</tr>
<tr>
<td>Peter</td>
<td>Marketing</td>
<td>Senior</td>
<td>25 or older</td>
<td>Male</td>
</tr>
</tbody>
</table>
Coding and Analysis

- Separate coding schemes were used for each dataset.
  - Drawing example:
    - Category: brainstorm ideas, plan ahead, contemplate
    - Examples: clocks, time management, calendars, light bulbs, thinking bubbles
    - Category: get frustrated
    - Examples: expressions of panic or stress, frustrated symbols similar to profanity symbols, X eyes, exclamation points over clocks or heads
    - Classified by time before and after drafting
## Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>% of Drawings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing</td>
<td>213</td>
<td>96%</td>
</tr>
<tr>
<td>Researching/using the library</td>
<td>198</td>
<td>89%</td>
</tr>
<tr>
<td>Editing</td>
<td>157</td>
<td>71%</td>
</tr>
<tr>
<td>Brainstorming ideas/planning ahead/contemplating</td>
<td>146</td>
<td>66%</td>
</tr>
<tr>
<td>Outlining/taking notes</td>
<td>91</td>
<td>41%</td>
</tr>
<tr>
<td>Choosing or narrowing a topic</td>
<td>84</td>
<td>38%</td>
</tr>
<tr>
<td>Getting help</td>
<td>80</td>
<td>36%</td>
</tr>
<tr>
<td>Reading/evaluating sources</td>
<td>44</td>
<td>20%</td>
</tr>
<tr>
<td>Taking breaks</td>
<td>43</td>
<td>19%</td>
</tr>
<tr>
<td>Getting frustrated/panicked/stressed</td>
<td>32</td>
<td>14%</td>
</tr>
<tr>
<td>Citing sources</td>
<td>32</td>
<td>14%</td>
</tr>
<tr>
<td>Procrastinating</td>
<td>29</td>
<td>13%</td>
</tr>
</tbody>
</table>
## 1. Research

<table>
<thead>
<tr>
<th>Depiction</th>
<th>Number</th>
<th>% of Overall Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any type of research</td>
<td>198</td>
<td>89%</td>
</tr>
<tr>
<td>General research (books, computers, search representations)</td>
<td>142</td>
<td>64%</td>
</tr>
<tr>
<td>Preliminary research (before finalizing topic for paper)</td>
<td>83</td>
<td>37%</td>
</tr>
<tr>
<td>Google</td>
<td>50</td>
<td>23%</td>
</tr>
<tr>
<td>Physical library (books or physical spaces)</td>
<td>49</td>
<td>22%</td>
</tr>
<tr>
<td>Articles or journals</td>
<td>32</td>
<td>14%</td>
</tr>
<tr>
<td>Library website</td>
<td>25</td>
<td>11%</td>
</tr>
<tr>
<td>Specific library databases</td>
<td>20</td>
<td>9%</td>
</tr>
</tbody>
</table>

The specificity of depictions of research indicated some deeper understanding of these resources.
Depiction of the physical library
Process of iterative elements

receive assignment

think about assignment

freak out about assignment

Choose topic

research topic

refine topic

Speak to professor

more research (finding sources)

avoid time

Start writing

Become annoyed with writing

Stop writing

Continue writing

Realize deadline approaching

quickly finish

minimal editing

turn in
“I find my hardest thing is to just find a topic… For anything. I feel like when a teacher gives you a specific topic, it’s very easy. But the broad topics, my mind goes blank.”

- Amy
“In English 101, we had to do a research project and they took us to the library and … one of the librarians taught us what to use to look up things, like to use quotation marks, use plus signs to do that stuff.”

- Teresa
2. Help Seeking

- 36% of students (n = 80) drew help seeking as a step in their processes.
- 100% of interviewees described getting some kind of help.
## Help from Whom?

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
<th>% of Those Representing Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peers or family</td>
<td>47</td>
<td>59%</td>
</tr>
<tr>
<td>Unspecified</td>
<td>23</td>
<td>29%</td>
</tr>
<tr>
<td>Writing center</td>
<td>19</td>
<td>24%</td>
</tr>
<tr>
<td>Instructor</td>
<td>18</td>
<td>23%</td>
</tr>
<tr>
<td>Library</td>
<td>2</td>
<td>3%</td>
</tr>
</tbody>
</table>

*Note.* Some students represented getting help from multiple sources.
Depiction of getting help from multiple sources
Depiction of unspecified help
Timing of Help Seeking

• Drawings: 14% before drafting papers, 30% after
• Interviewees got more help for revising and editing rather than topic formulation, research, or writing.
  o “You’re blind to your own errors.” - Peter
“For editing, I go to my boyfriend actually. He’s a really good writer. And he is very good at catching grammar mistakes for me, but that’s usually about it. But after getting my last paper from my anthropology class, I’m probably going to go to a person trained to do this because he said it was good, I thought it was good, and I still got B, and I thought it was an A paper.”

- Amy
Correlations

• Students who got help had better research and study habits.
  o Those who depicted getting help from any source were more likely to show better research and writing habits.
  o Those who did not depict getting help were more than 4 times as likely to show procrastination.

• These help seeking implications are further discussed in Medaille & Beisler (2016), *Journal of Academic Librarianship*. 
3. Emotional Engagement

- The drawing process may have enabled students to better express these non-task related elements.
  - 32 students (14%) drew frustration, panic, or stress as a distinct step in their process.
  - 29 students (13%) drew procrastination.
  - 43 students (19%) drew taking breaks.
- These assignments are very emotionally taxing.
Depiction of panic and procrastination
5 interviewees discussed strong emotions.
- Amy: “mini panic attack”
- Jodie: “about two weeks before, I start really freaking out about [my assignment]. I have anxiety problems, so it gets fun.”
- Difficulties with managing time and stress
- Lacking confidence or feeling overwhelmed
- Described how they do not enjoy these types of assignments
Discussion and Implications

• Need for more focus on metacognitive skills.
• Need for more focus on study habits, stress reduction, and time management.
• Need for more attention to topic formation.
• Don’t give up on the one-shot just yet.
Discussion and Implications

- Students are getting help! But not from us.
- Importance of personalization of help services.
  - How do we make help services safe, approachable, & friendly?
- Importance of marketing.
  - Are students aware of the types of help available?

Photo by Winter Carrera
Importance of instructors.
- They can encourage students to use academic support services.

Utilize peer helpers.
- Collaborate with different support services.
- Make help more convenient through online services.
Using Images in Assessment

• Carefully construct and test image prompts and instructions.
  o Avoid leading
  o Be consistent
• Consider re-use when designing consent forms.
• Establish guidelines for maintaining privacy.
Using Images in Assessment

• Create a coding scheme.
  o Consider conceptual variations.
  o Ensure that different researchers consistently apply the scheme.
• Consider how images and text will be analyzed: Together? Separately?
• Be aware of the limitations of image interpretation.
• Design method of using images for elicitation: Whole image? Parts? Multiple images?
  o Pay attention to recording.
References on Image Use


Other References


Thank you!

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