Seeing the Big Picture:

Using Images to Understand Students' Approaches to the Research Process

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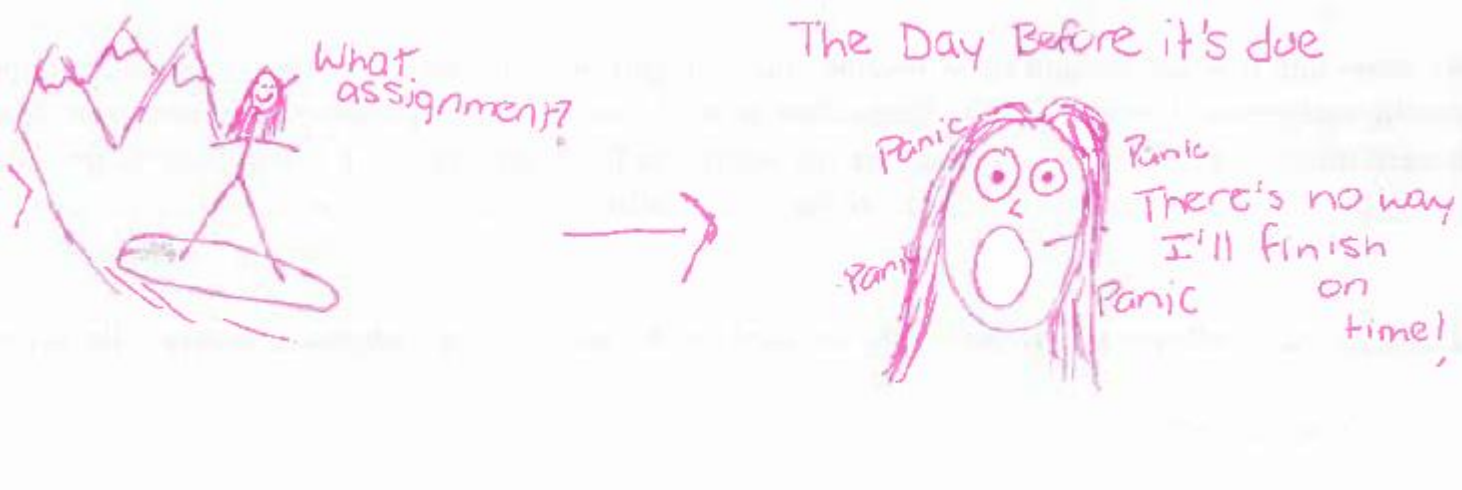
Overview

- Student research project
  - Method
  - Findings
  - Implications
- Using images in research and assessment
  - Rationale
  - Strategies
  - Examples of different types of image use
  - Guidelines for success

Research Question

- 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

Method

- 222 students drew the steps in the process that they went through when executing a recent writing assignment that required research.
  - Authentic way for students to conceptualize and interpret their experiences; evoke concerns that might not arise through words alone
  - Any type of representation: images, symbols, words, numbers
- 2 open-ended written questions
  - Which step in the process was the most challenging? (n = 105)
  - What would have made the process easier? (n = 123)
- 9 student interviews
  - Drawings used for elicitation

Assignment

Worksheet students were given

Mapping Instructions: Please take a moment to think about a paper that you recently completed that required research (preferably within the last year). In the box below, please draw the step-by-step process that you went through when completing the assignment. What did you do when you were first given the assignment? What did you do next? And next?

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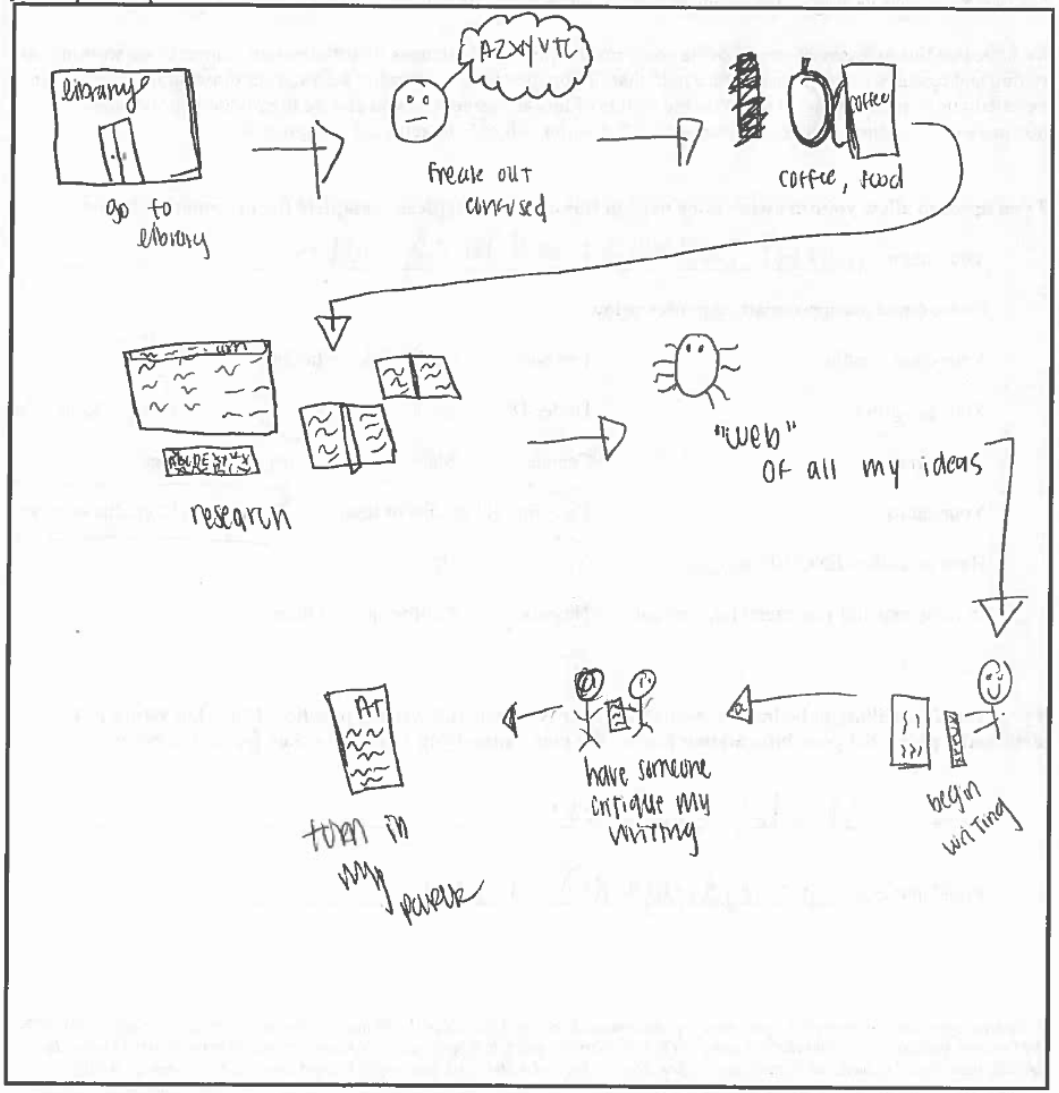
Draw each step that occurred until you turned it in. **Include all steps you went through including (but not limited to) receiving the assignment, researching, writing, editing, and turning it in.** Use numbers and short phrases to help illustrate your steps in the process.



1. Which step in the process was the most challenging? researching

2. What would have made the process easier? knowing exactly what to look for and pull the correct information out of the book/article/journal

Participants

- 222 undergraduate students from 8 different classes across the disciplines that had a substantial research/writing component
  - Seniors: 60%
  - Juniors 18%
  - Sophomores and Freshmen: 18%
  - Undeclared: 5%

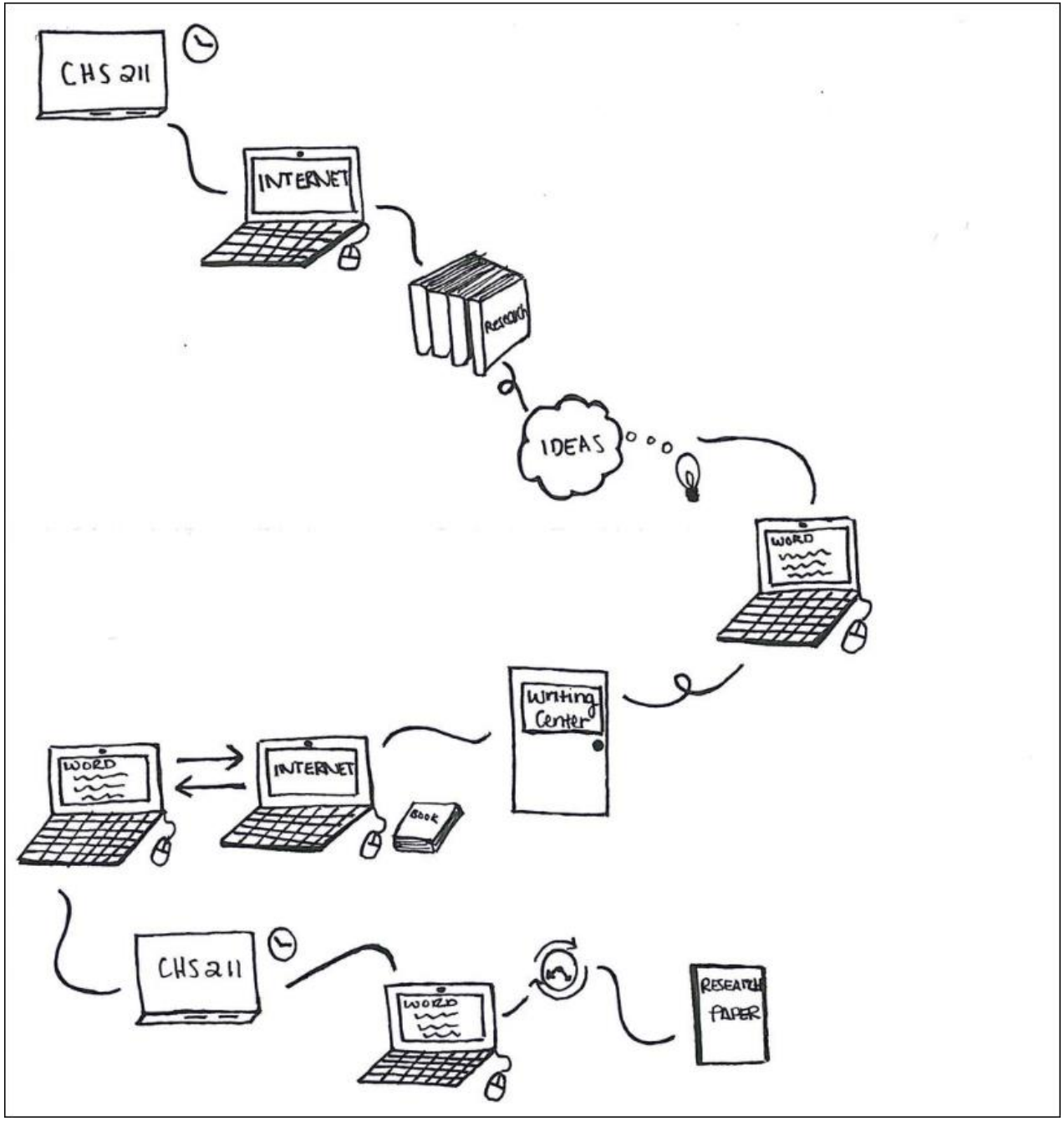
Interviewees

Name	Major	Class Standing	Age Group	Gender	Status
Student 1	Psychology	Freshman	21–22	Male	Part time
Student 2	Biology	Sophomore	18–20	Female	Full time
Student 3	Neuroscience	Sophomore	21–22	Male	Full time
Student 4	Anthropology	Junior	18–20	Female	Full time
Student 5	Public Health	Senior	21–22	Female	Full time
Student 6	History	Senior	25 or older	Male	Part time
Student 7	General Studies	Senior	Undeclared	Male	Undeclared
Student 8	Anthropology/Biology	Senior	18–20	Female	Full time
Student 9	Marketing	Senior	25 or older	Male	Full time

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

Coding


CHS 211
INTERNET
IDEAS
WORD
Writing Center
WORD
INTERNET
Book
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WORD
RESEARCH PAPER

Results

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

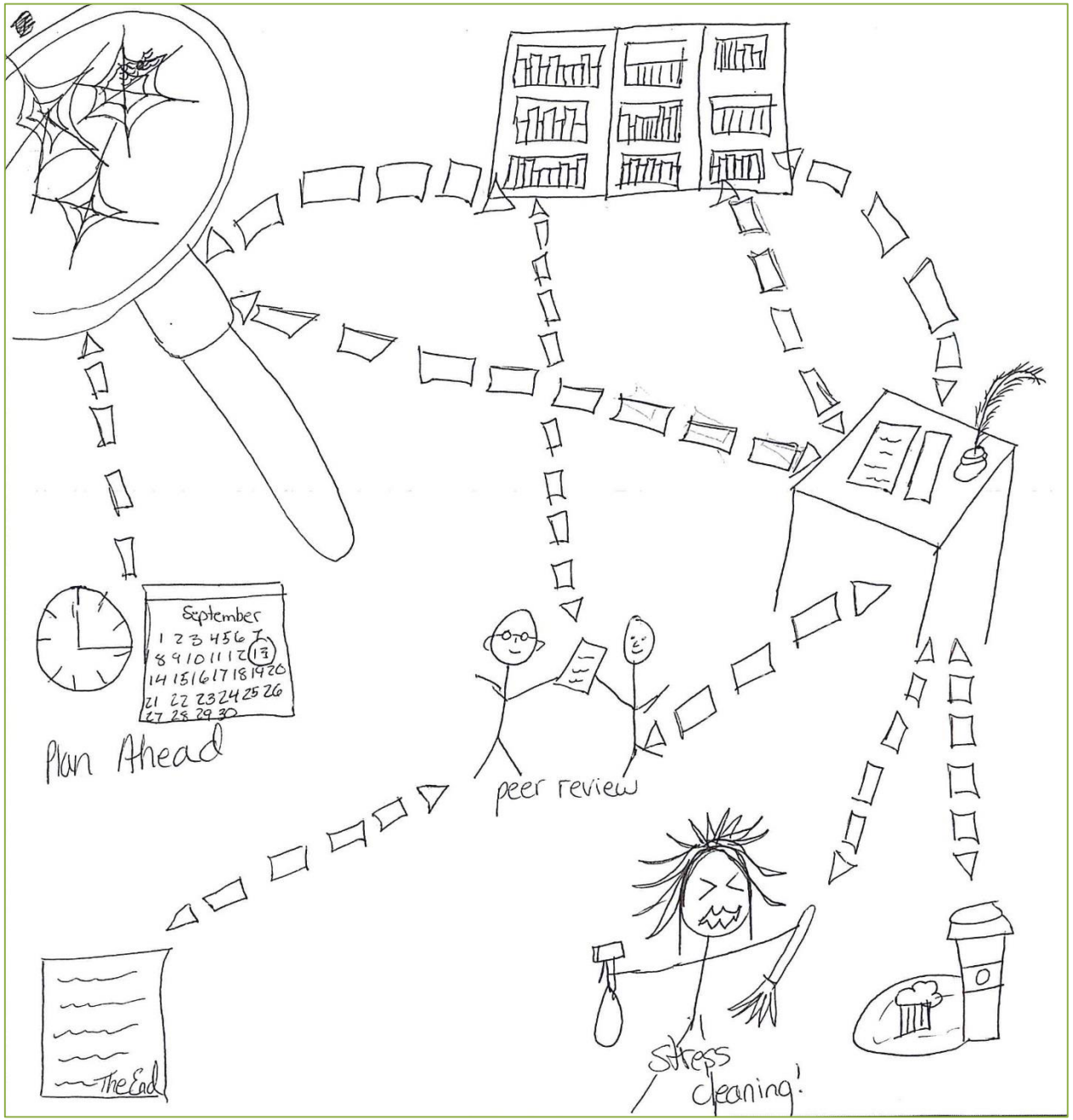
1. Research

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

The specificity of depictions of research indicated some deeper understanding of these resources.

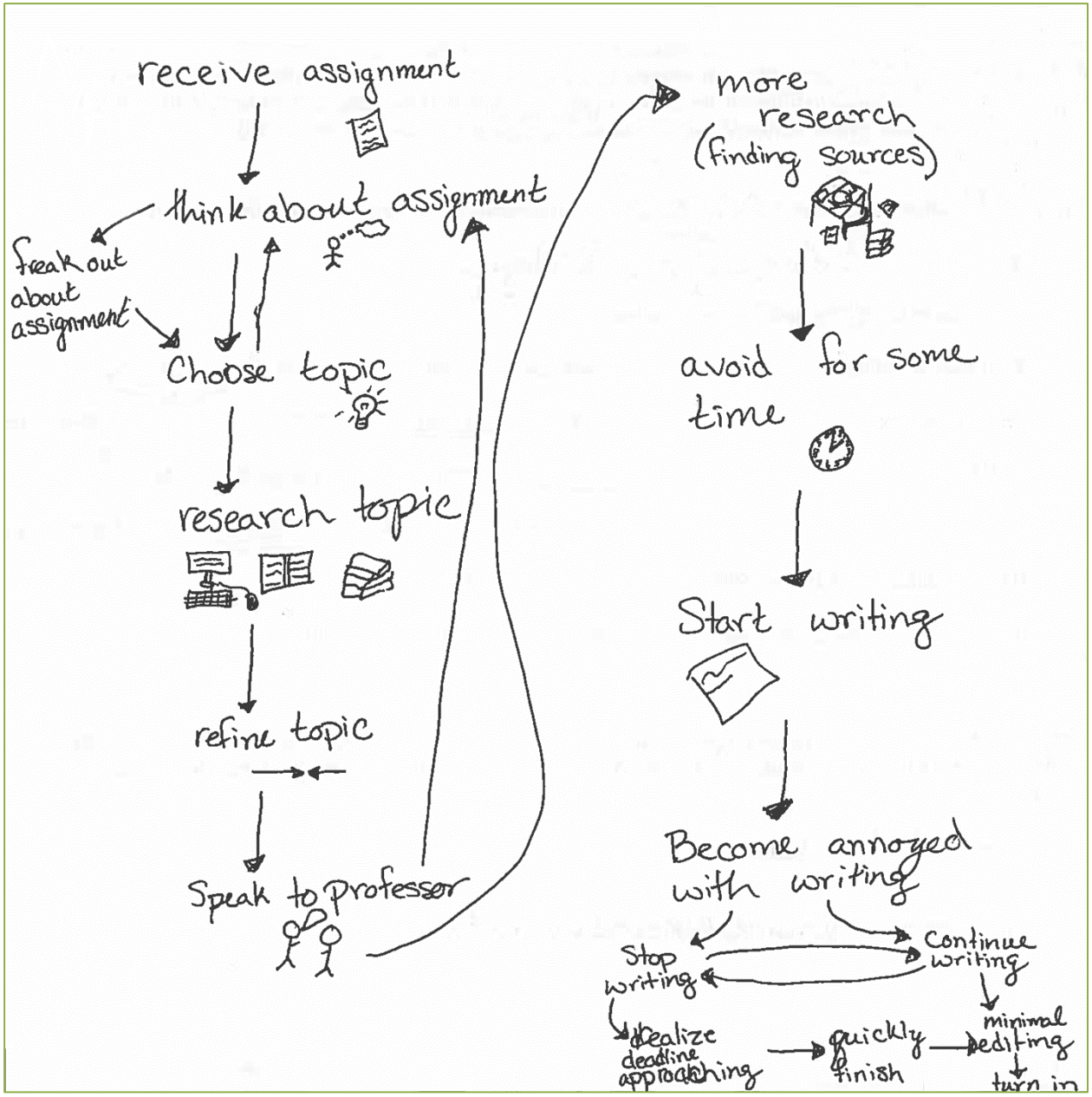
Research

Depiction of the physical library



Process

Depiction of iterative elements



Finding a Topic

"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."

- Student 4

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?

Source	Number	% of Those Representing Help
Peers or family	47	59%
Unspecified	23	29%
Writing center	19	24%
Instructor	18	23%
Library	2	3%

Note. Some students represented getting help from multiple sources.

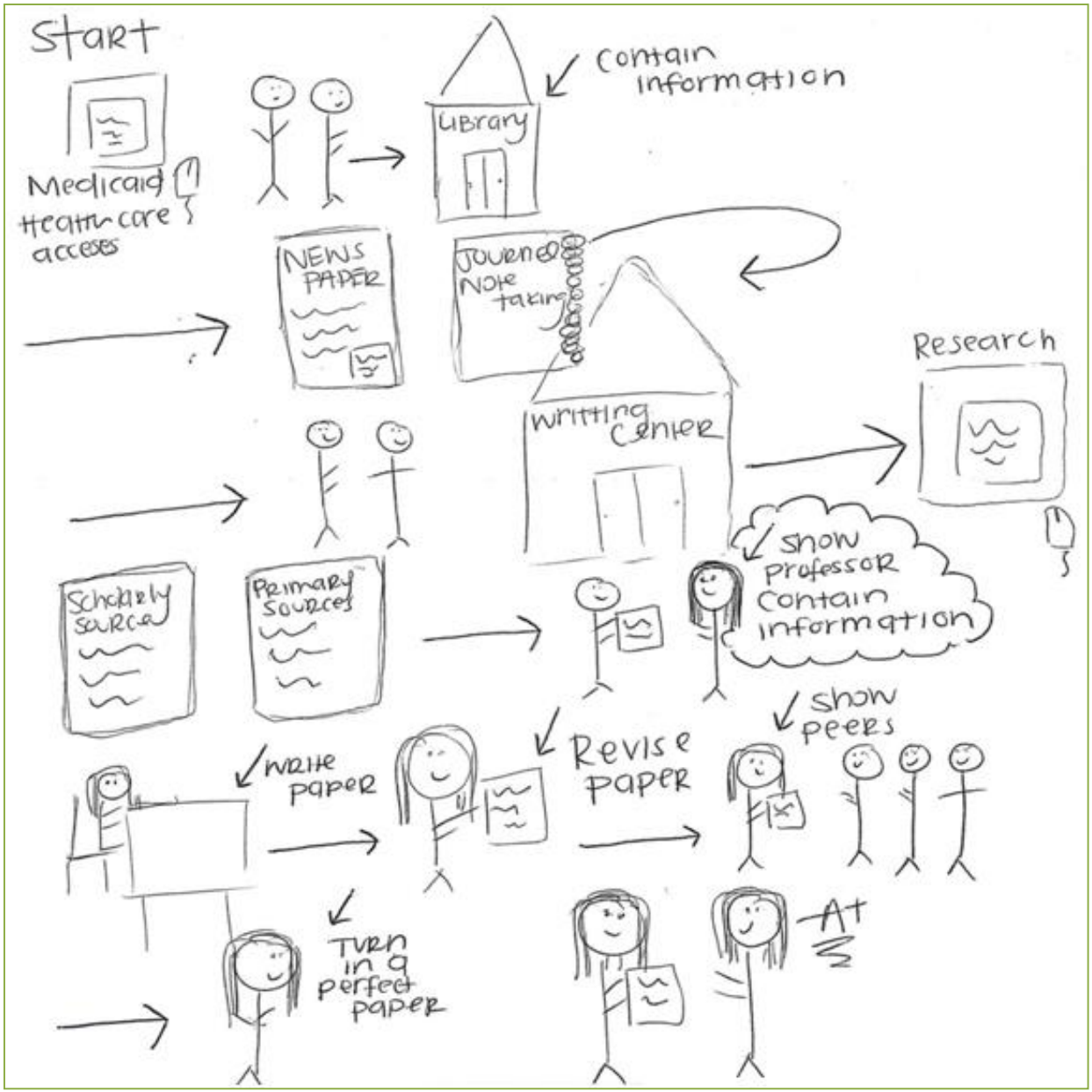
Help from Librarians

"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."

- Student 2

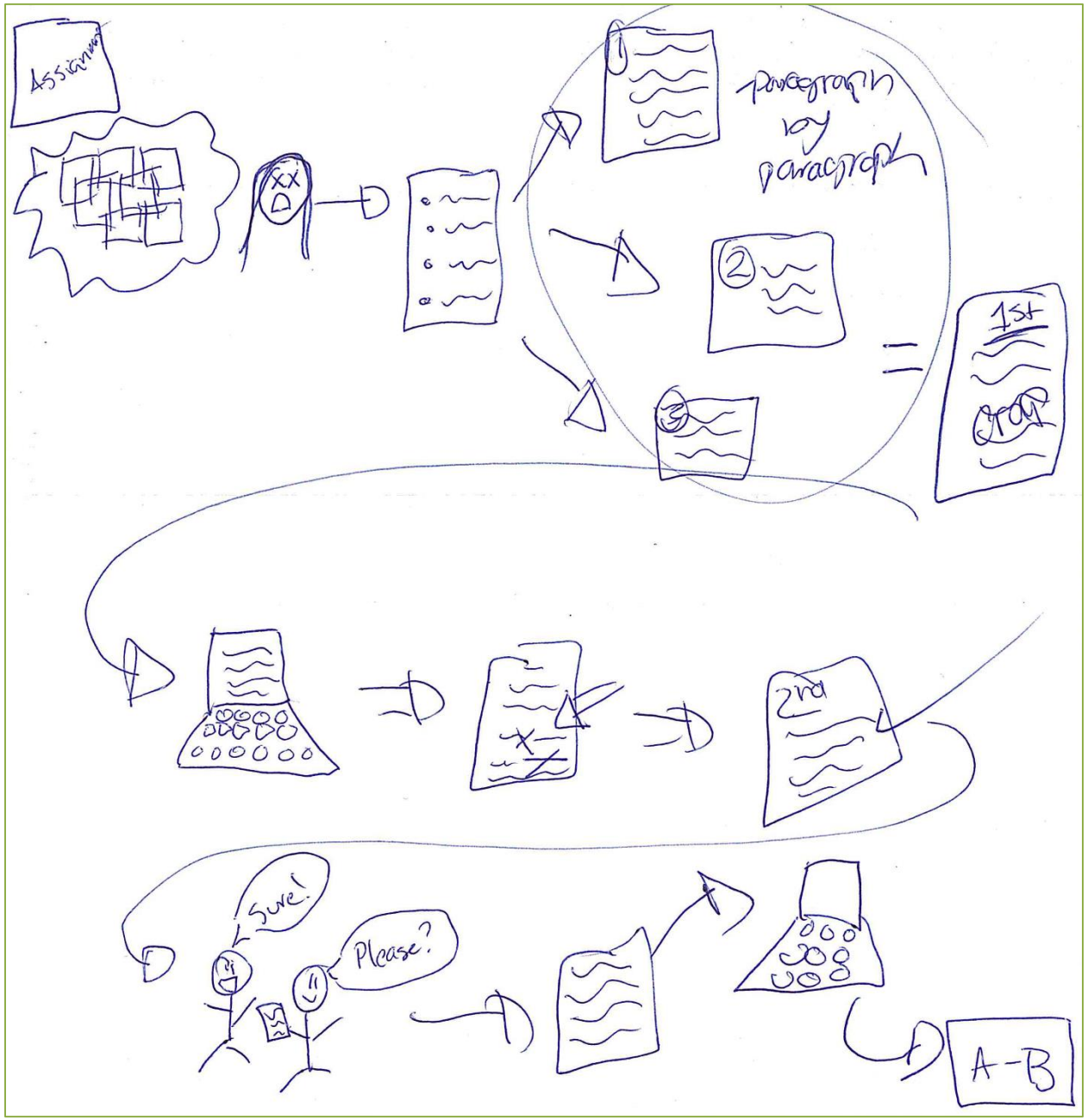
Help Seeking

Depiction of getting help from multiple sources



Depicting Help

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.
  - “You’re blind to your own errors.” – Student 9

Informal Sources

"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."

- Student 4

Correlations

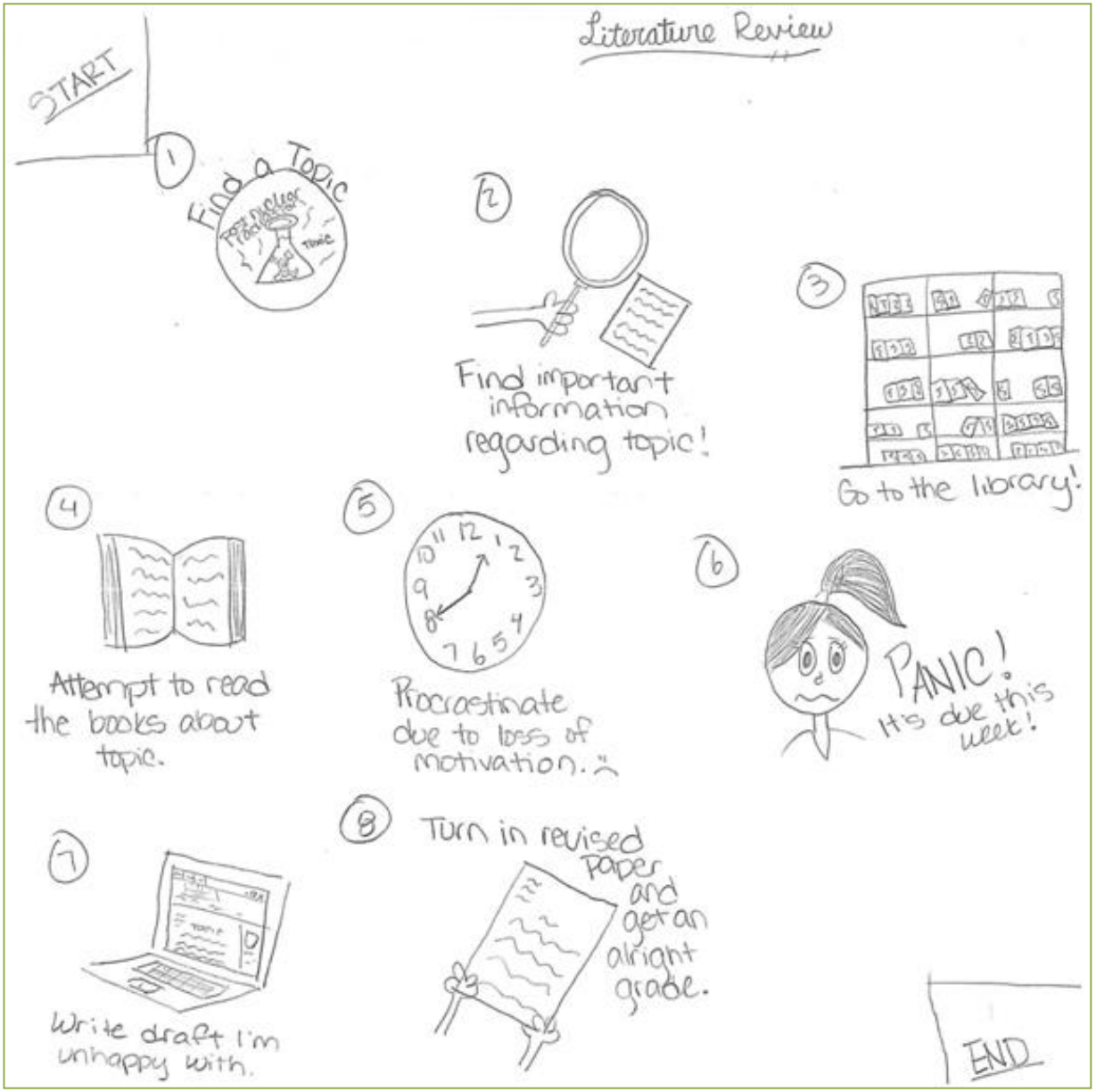
- Students who got help had better research and study habits.
  - Those who depicted getting help from any source were more likely to show better research and writing habits.
  - Those who did not depict getting help were more than 4 times as likely to show procrastination.
- These help seeking implications are further discussed in Medaille and 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.

Process

Depiction of panic and procrastin-ation



Emotional Engagement

- 5 interviewees discussed strong emotions.
  - “Mini panic attack”
  - “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

Implications

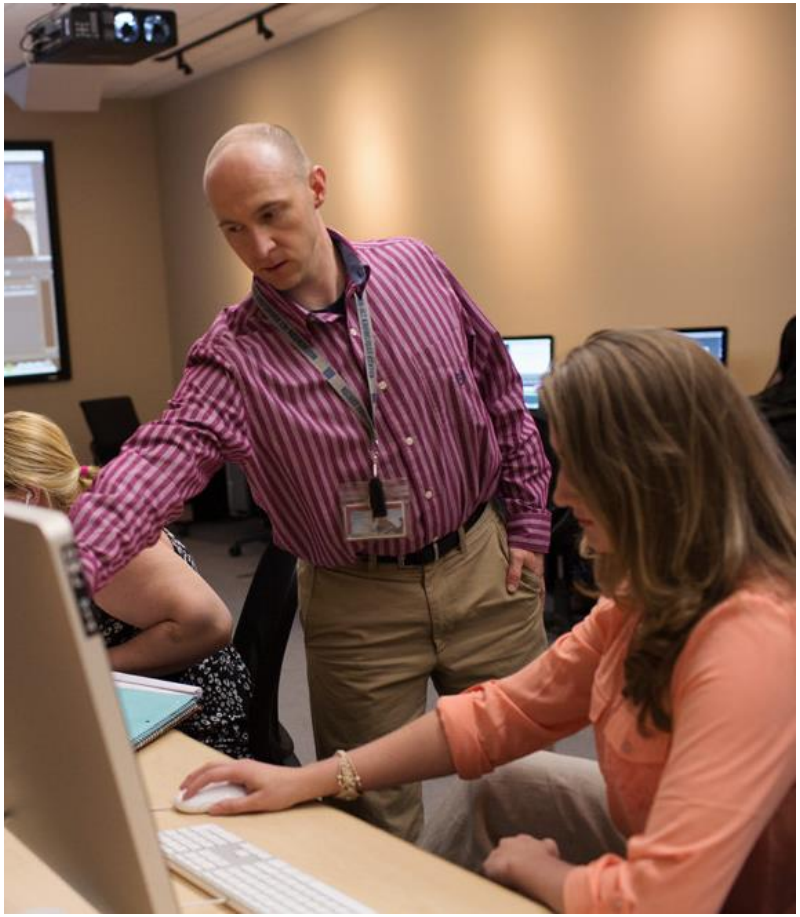


Photo by Winter Carrera

Instruction

- Metacognitive skills
- Study habits, stress reduction, and time management
- Topic formation
- One-shots

Implications

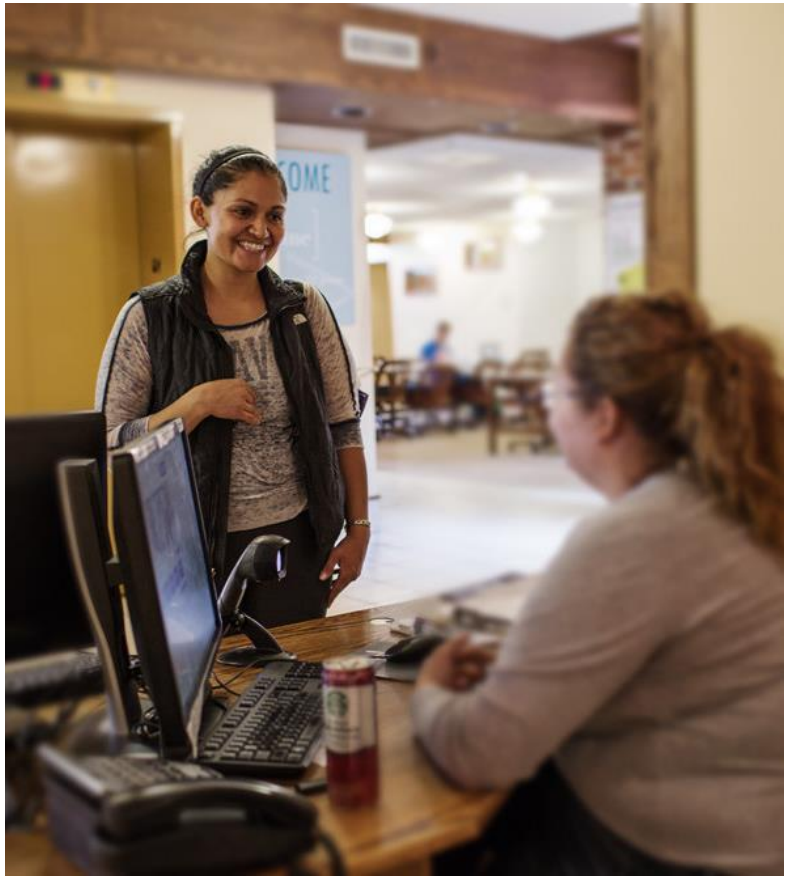


Photo by Winter Carrera

Help Seeking

- Students are getting help! But not from us.
- Preference for peer help
- Preference for instructor help
- Faculty referrals
- Personalization
- Marketing of help services

Implications

Photo by Nick Crowl

Changes

- Peer research helpers
- Online help services
- More e-learning materials (e.g., tutorials, DIY pages)
- Marketing & Communications Specialist
- Collaboration with different campus support services

Ways to Use Images

- Librarians can use images in research and assessment in different ways.
  - Use pre-existing images
  - Produce images
  - Have participants produce images

Why Use Images?

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

Why Use Images?

"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."

- Weber, "Visual Images in Research," *Handbook of the Arts in Qualitative Research*, 2008, p. 44-45

Different Uses of Images

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

Sources: Harper, 1986; Holm, 2010; Prosser, 2011; Rose, 2012; Weber, 2008

Image Analysis

- Quantitative analysis
- Qualitative analysis

Category Groupings

- Planning/Preparation
  - Brainstorm, plan ahead, think about topic, contemplate
  - Outline, list points, take notes
  - Choose/narrow topic
- Research
  - Conduct preliminary/background research
  - Conduct research generally
  - Use Google/Internet/social media for research
  - Use library website
  - Use research databases, OneSearch
  - Use articles, journals
  - Use of physical space and resources

Image Analysis

- Quantitative analysis
  - Identify and count elements, categories
  - Make comparisons between frequencies
  - Identify correlations between elements
- Qualitative analysis
  - Explore meanings
  - Use in combination with text
- Combination of quantitative and qualitative
- Must consider in the context of creation

Sources: Bell, 2001; Holm, 2010; Rose, 2012; Weber, 2008

Challenges

"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

Image Use in Library Studies

- 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.
  - Anthropologist Nancy Fried Foster and the University of Rochester's studies of students used photo surveys, mapping diaries, student designs of library spaces, and retrospective interviews.
  - Images were used as both items of analysis and elicitation objects.

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

Figure 4.1a. Student design of ideal library space

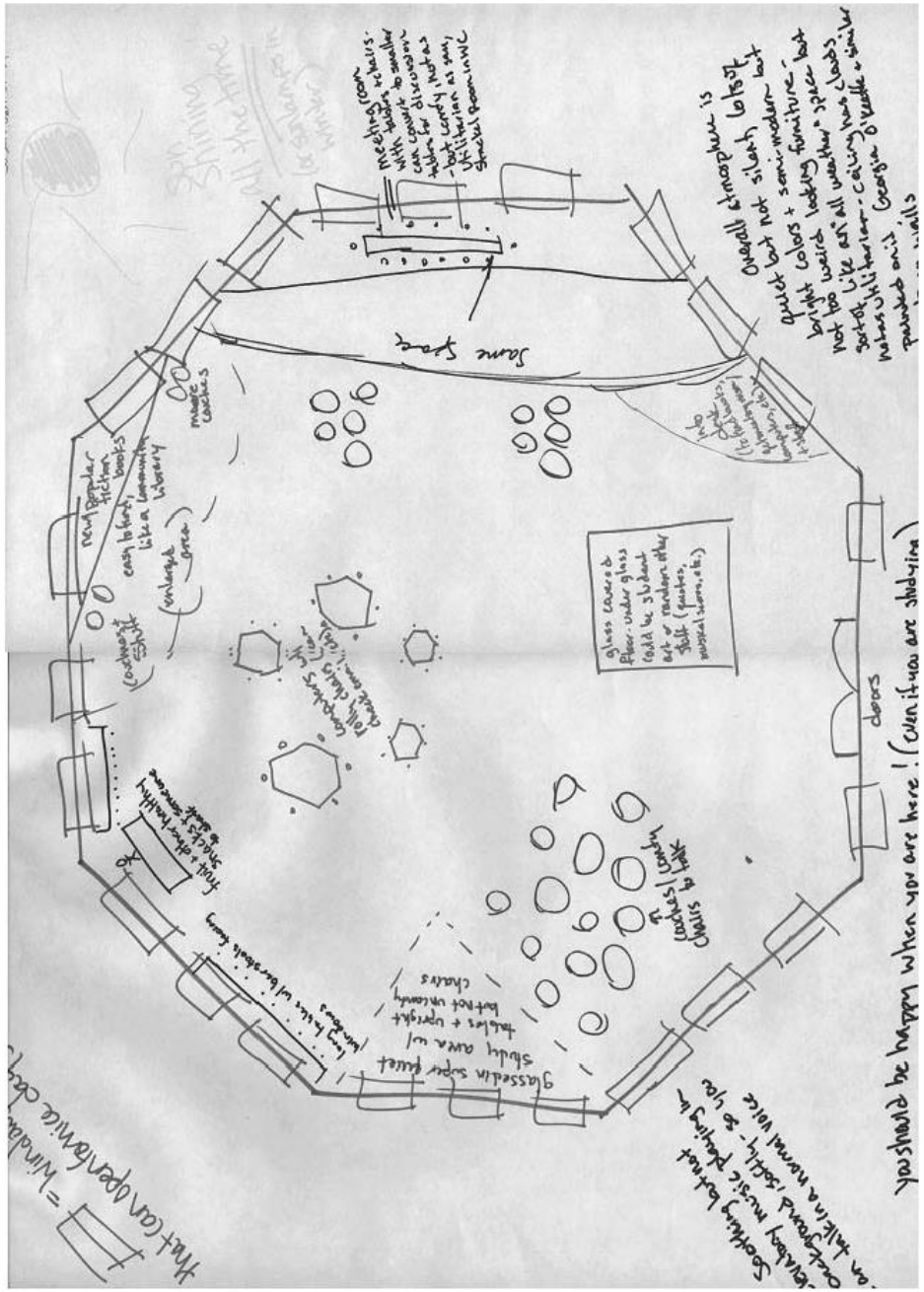
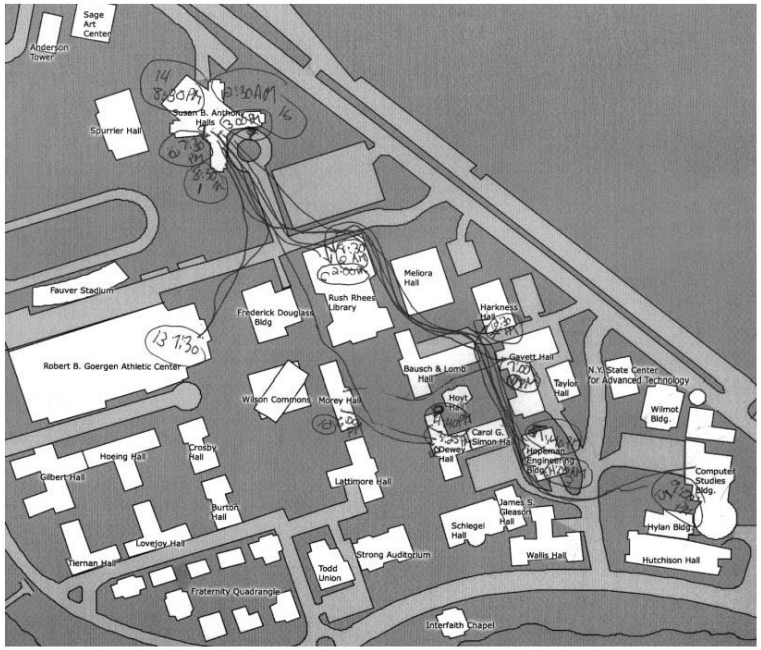


Figure 7.1. Student mapping diary



Student library design and student mapping diary

Source: Foster, N. F., & Gibbons, S. (Eds.). (2007). *Studying students: The undergraduate research project at the University of Rochester*. Chicago: Association of College & Research Libraries. Used with permission.

Figure 4.2a. Example of a student's furniture layout

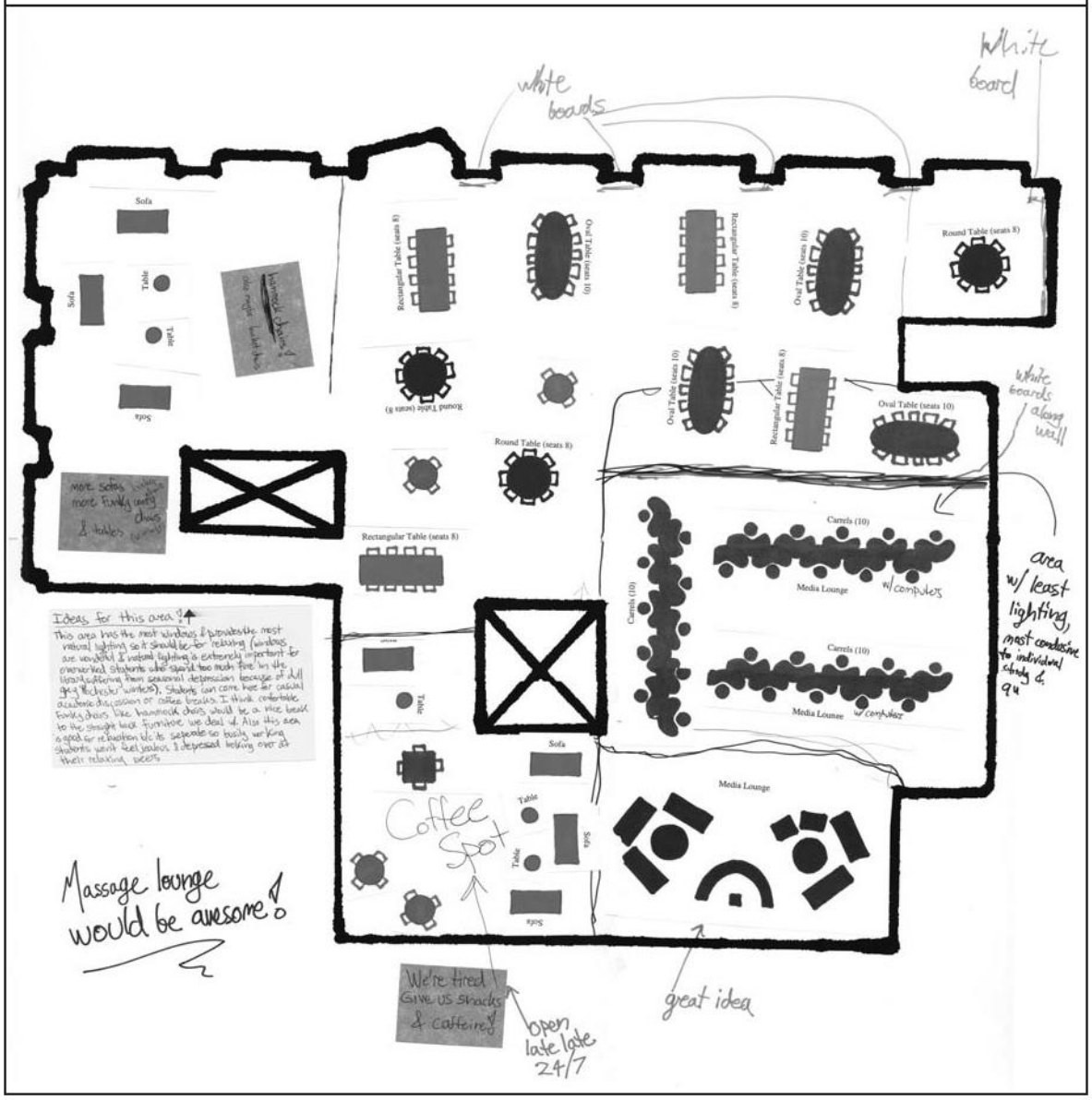


Figure 6.2. Student A's "favorite place to study"

Figure 6.3. Student B's "favorite place to study"

Student library design and student photos

Source: Foster, N. F., & Gibbons, S. (Eds.). (2007). *Studying students: The undergraduate research project at the University of Rochester*. Chicago: Association of College & Research Libraries. Used with permission.

Tips for Using Images in Assessment

- Carefully construct and test image instructions.
  - Avoid leading
  - Be consistent
  - Use a script
- Consider re-use when designing consent forms.
- Establish guidelines for maintaining privacy.

Tips for Using Images in Assessment

- Create a coding scheme.
  - Consider conceptual variations.
  - 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?
  - Pay attention to recording.

References

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Thank you!

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