

USABILITY ENGINEERING

CS/ISE 5714 - SPRING 14

PROJECT 2: CONTEXTUAL INQUIRY AND CONTEXTUAL ANALYSIS

Inkhorn: a scheduling and feedback system enhance tailored coaching services to patrons

TEAM 1:

T.C. JONES tjones21@vt.edu
Rebecca ZEITZ razeitz@vt.edu
Chris FRISINA special@vt.edu

Client:

The Writing Center
Jennifer LAWRENCE jlwrnc@vt.edu

Project Content Navigation ([clickable](#))

| | |
|---|----|
| 1 System Concept Statement | 1 |
| 2 Tailor The Scope | 1 |
| 3 Preparation for Interview | 2 |
| 4 Who Was Interviewed | 2 |
| 5 Interview Questions | 3 |
| 6 Meeting Description | 5 |
| 7 Data Collection | 5 |
| 8 Artifacts | 5 |
| 9 Photos | 10 |
| 10 Sketches | 11 |
| 11 Task Data | 11 |
| 12 Raw Data and Work Activity Notes | 11 |
| 13 Building the WAAD | 29 |
| 14 Team Photos | 30 |
| 15 WAAD Photos | 32 |
| 16 Work Roles | 33 |
| 17 Flow Model Diagram | 34 |
| 18 Work and Machine Role Nodes | 35 |
| 19 Information and Work Flow Arcs | 35 |
| 20 Outside Information Flow | 36 |
| 21 Effect of Proposed System | 36 |

1 System Concept Statement

Inkhorn will serve the Writing Center by providing a common ground tool for use among coaches and other staff. It will allow users, the Writing Center staff, to match coaches with patrons requesting a session by providing a more systematic, but still personalized, scheduling process. As a feedback system, Inkhorn will allow for patron privacy not currently available. Furthermore, Inkhorn will serve as a tool for coaches to suggest resources and methods that will coincide with the needs and goals of the patrons. Inkhorn will help tailor writing enhancing coaching services to specific patrons needs, such as with conference or course papers, technical documents, personal statements, or other interpersonal communications. Playing off the informal but professional atmosphere of the Writing Center, Inkhorn will be a space for users to converse and share thoughts and ideas. In essence, Inkhorn will act as a bridge between the coaches, administrative staff, and patrons.

The Virginia New River Valley community members often seek support services surrounding improving their communication skills and understanding of the English language. The Virginia Tech Writing Center (WC) provides varying personal coaching services for locals in addition to VT affiliates. To maintain the personal touch the WC exemplifies, we propose Inkhorn, an automated scheduling and feedback system, will help tailor coaching services to patrons to develop their skills to enhance their writing, such as conference or class papers, personal statements, and interpersonal communications. To increase a positive milieu between coach and patron, Inkhorn will help manage recommendations from the coach that coincide with the needs of the patron, as well as streamline and retain coach feedback from the patron. Inkhorn will also help promote services offered by WC, manage session scheduling with compatible coaches, automate reporting, provide a continual coach feedback system, manage forms, and suggest appropriate tools for patrons' goals.

2 Tailor The Scope

Among our initial ideas for clients and problems, we focused on writing. Our initial problem was in the realm of collaborative writing techniques for technical, novel, and story telling writers. Given client scheduling problems, we had to abandon this idea. Our next client in the writing domain we chose was the Virginia Tech Writing Center (WC), and the Assistant Director Jennifer Lawrence. She has served in this role for 7 years, and her extensive knowledge alongside positional status makes her the ideal candidate within the WC to initially contact and get organizational

information, as well as follow communication for project details.

3 Preparation for Interview

Preparation for interviews and observation of the Writing Center (WC) included background research on the Writing Center. We scoped out the WC web pages, taking note of the goals, processes, and other information that was present. Doing this, and gathering initial, informal accounts of patrons who have used the WC, enabled the team to get a feel for the presence the WC holds within the VT community. The websites and initial perspectives from previous patrons of the writing center helped us gather initial insight into the culture of the work domain and the surrounding impact of the WC. The initial impression of the WC we formulated was that the WC services a wide range of subjects or academic fields, all tied to the process of writing. Furthermore, we gathered that the writing center uses a phone call scheduling system for creating appointments and accepts walk-ins. This told us that the WC uses a person-based, as well as a mix of formal and informal scheduling system.

The writing commonality, being fore fronted, was further specified through our initial findings that the WC helps with papers, essays, resumes, cover letters, and personal writings. From the websites, we also got an initial feel for the population of WC patrons, those being not only VT affiliates, but the Blacksburg community as well. This was noted by the WC additional location at the Montgomery-Floyd Regional Library. In terms of the WC staff population, we could tell from the websites that the upper level management team consists of VT English department faculty and the coaches hired can be VT students from any majors who have meet the application process requirements.

One of our team members contacted the WC to inquire about the WC staff and determine who would be a fitting interviewee. Once we did our background investigation, we decided to interview the assistant director, Jennifer Lawrence, and one of the WC coaches. We drafted and revised interview questions based on their work roles and other aspects of the WC and the writing domain.

4 Who Was Interviewed

Excluding our previous client, we interviewed two people, encompassing three distinct roles (one person has two roles). Our initial phone conversation with the WC hinted that the Assistant Director Jennifer Lawrence was the best initial contact person for the majority of the assignment concerns. Reviewing the website also

helped ascertain the majority of the services provided by the WC. She also works as a coach, which was known from the initial email that she replied to about meeting for an interview. A brainstorming session with group members allowed us to iterate over questions that would provide information to complete the assignment, as well as provide a structured interview style that would also serve as a positive first introduction. We noticed that some questions were best addressed to specific roles, so we separated the questions accordingly for Jennifer, and used the 'Coach' questions for Nneoma Enyi Nwankwo, another coach whose schedule aligned and agreed to interview in person with a recording. We plan to continue to interview other coaches who have different skills, in addition to the remaining people who are involved in the information flow related to the services provided by the WC.

5 Interview Questions

Assistant Director

1. How long have you served as a writing director?
2. Who is your supervisor?
3. Are there any requirements you have to do as a VT affiliated service?
4. How would you describe the atmosphere of the Writing Center?
5. What services does the writing center provide?
6. What policies exist?
7. Are there any current initiatives being offered or planned at TWC
8. How long does a coach typically work at TWC
9. What compensation do coaches receive?
10. What types of questions and writings do writers bring in? (see website for what student can bring in)
11. In a session, how are the WC coaches expected to get their thoughts and comments across to the writer? on paper, orally, etc.
12. Is there any record keeping?
13. Is there a feedback, rating system, or complaint system?
14. What contingency plans are there (for example, what if a coach doesn't show? what if a writer doesn't show?)
15. Does coach seniority gain any benefits, tangible or otherwise?
16. What auxiliary management tools do you use?

Coach(es)

1. What year are you in school?
2. What is your major or majors? Any minors?
3. Why did you decide to become a Writing Center coach?
4. How long have you been working at the Writing Center?
5. How long do you plan on working at the Writing Center?
6. As a coach, how would you describe the atmosphere of a session?
7. Describe the overall process when a writer comes into the WC?
8. Are there any other tools you use?
9. Are there assigned seating arrangements for the coaches?
10. Do writers make multiple appointments to discuss the same work?
11. How do you keep track of a writers drafts?
12. How do you utilize a writers past drafts?
13. Do you ever have multiple writers come in for help on the same document?
14. How does the user take notes?
15. Are there any policies that you follow?
16. What policies are outdated?
17. In a session, how do you get your thoughts and comments across to the writer?
on paper, orally, etc.
18. How do you give your ideas and comments (verbally, on paper, etc.)?
19. What are some of the harder things to help writers with?
20. How/where/who do you get your feedback from?
21. Do you feel you get enough feedback? Is it constructive?
22. What things do you enjoy about your work here?
23. What do you feel your strengths are as a coach?
24. Do you know the other coaches?
25. Are you happy with your compensation?
26. How does working with ESL writers differ from native speakers?
27. Do you help with LaTeX?
28. Do you write frequently outside of work? If so, what types of works or genres
do you write?

6 Meeting Description

7 Data Collection

8 Artifacts

New Client Info Sheet

Virginia Tech Writing Center

| | | |
|---|--------------|--|
| About You | | |
| Name: _____ | Email: _____ | |
| Date: _____ | Time: _____ | |
| Your First Language: _____ | | |
| Select Your Tech Status: <input type="checkbox"/> Freshman <input type="checkbox"/> Junior <input type="checkbox"/> Graduate Student <input type="checkbox"/> Sophomore <input type="checkbox"/> Senior <input type="checkbox"/> Faculty/Staff | | |
| Select Your College: <input type="checkbox"/> Agriculture & Life Sciences <input type="checkbox"/> Engineering <input type="checkbox"/> Science <input type="checkbox"/> Architecture & Urban Studies <input type="checkbox"/> Liberal Arts & Human Sciences <input type="checkbox"/> Veterinary Medicine <input type="checkbox"/> Pamplin College of Business <input type="checkbox"/> Natural Resources & Environment <input type="checkbox"/> University Studies | | |
| About Your Paper | | |
| Is this assignment for a class? _____ Which class? _____ | | |
| What is your assignment? What is its central point or focus? _____ | | |
| What concerns do you have about your writing for this particular assignment? <input type="checkbox"/> Focus <input type="checkbox"/> Organization <input type="checkbox"/> Development <input type="checkbox"/> Clarity <input type="checkbox"/> Other: _____ | | |
| About Your Session <i>Fill this section out after your session</i> | | |
| For you to fill out: Tell us how it went – Use this space for notes for your next session: <hr/> <hr/> <hr/> | | |
| For coach to fill out: Coach's Name: _____ Session Length: <input type="checkbox"/> 30 minutes <input type="checkbox"/> 1 hour <input type="checkbox"/> Other: _____ | | |

Figure 1: New patron form. Patrons fill this out when they visit the Writing Center for the first time.

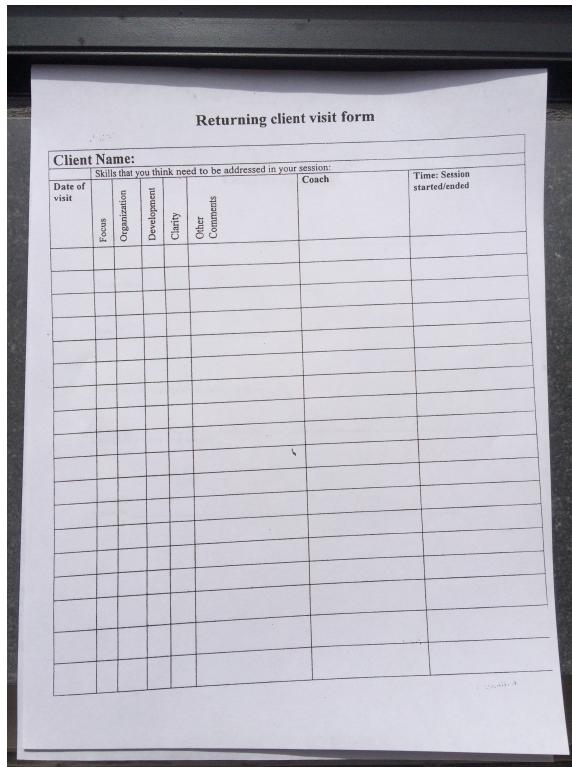


Figure 2: Returning patron form. Patrons fill this out if they visit the Writing Center more than once.

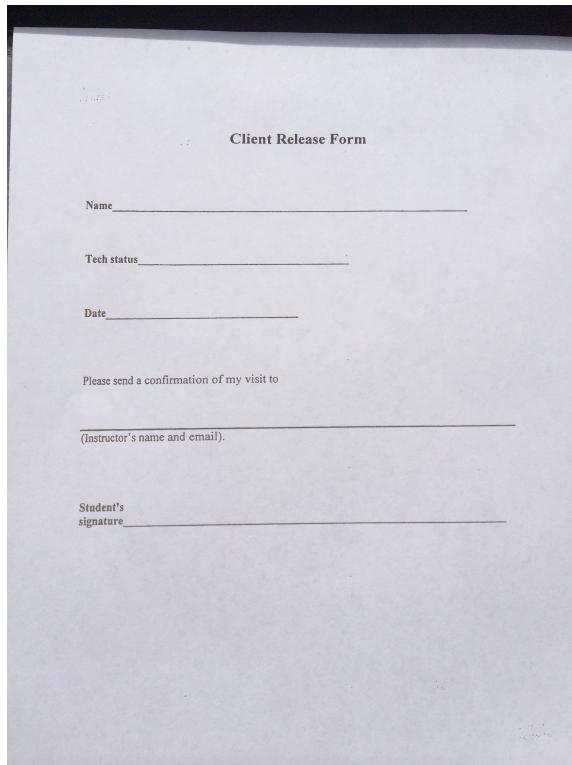


Figure 3: Patron release form.

| | University Studi | Ag & Life Science | Arch. & Urban Stu | Sciences | Engineering | Natural Resourc | Liberal Arts & Hum | |
|------------------------|------------------|-------------------|-------------------|----------|-------------|-----------------|--------------------|--|
| Freshman | 26 | 8 | 9 | 41 | 72 | 3 | | |
| Sophmores | 2 | 1 | 2 | 12 | 15 | | | |
| Juniors | 8 | 3 | 16 | 24 | | 1 | | |
| Seniors | 8 | 7 | 16 | 23 | | | | |
| Grad | 4 | 9 | 8 | 30 | | 1 | | |
| Staff | | | | | | | | |
| Faculty | | | 1 | | 2 | | | |
| Other | | 1 | | | 3 | | | |
| English 1105 | | 2 | | | | | | |
| English 1106 | | 168 | | | | | | |
| International Students | 164 | | | | | | | |

Figure 4: Short Term (Semester Long) Statistics

To: Dean Sue Ott-Rowlands, Dean of the College of Liberal Arts & Human Sciences
Cc: Joseph Eska, English Dept. Chair; Tyler Walters, Dean of University Libraries; Brian Matthews, Associate Dean, University Libraries; Jennifer Lawrence, Assistant Director, Writing Center; Katharine Torrey, Graduate Assistant to the Writing Center Director

From: Diana George, Director of the Virginia Tech Writing Center

Subject: Writing Center Growth

Date: November 12, 2013

Sue, this brief memo is to update you on the growth the Writing Center has experienced since 2005-2006 when I began directing the Center and Jennifer Lawrence was appointed Assistant Director and to thank you for the part you have played in that growth. As you can see, our efforts to professionalize the program and continue to reach out to students and programs across the campus have resulted in an increase in student use. However, by far, the most important changes to the Center came in January 2012 when we moved from Shanks to our current space in Newman Library and, that same year, when we were granted a budget with funding for more undergraduate writing coaches plus four Graduate Teaching Assistants whose time is designated for the Center.

Of course, this progress has also been made possible by the fine support of the Provost's Office, the Department of English, and University Libraries, but we do believe that without the key support and guidance you have given in your position as Dean of CLAHS, we would not be where we are today.

On behalf of the Writing Center staff and all of the students we serve, we would like to thank you for the support you have shown us. I honestly don't believe we could have made these moves without that support – certainly not without the funding your office has helped us procure.

We wish you all the best in your new position at Northern Kentucky University.

Figure 5: Long Term (Several Years) Statistics

9 Photos



(a)



(b)



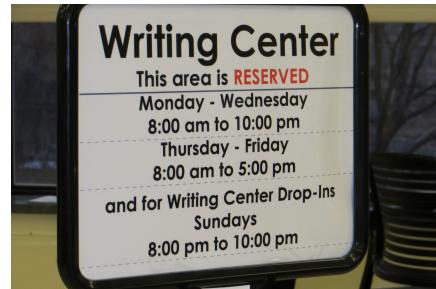
(c)



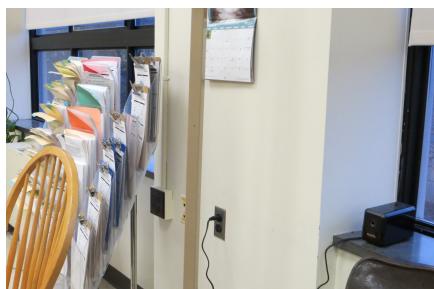
(d)



(e)



(f)



(g)



(h)

10 Sketches

11 Task Data

Documents handled by people in the WC are noted as pink squares in the work flow figure of 22.

12 Raw Data and Work Activity Notes

Audio Interview Notes

[Audio Folder](#)
[Assistant Director 1](#)
[Coach 1](#)

Raw Data Notes

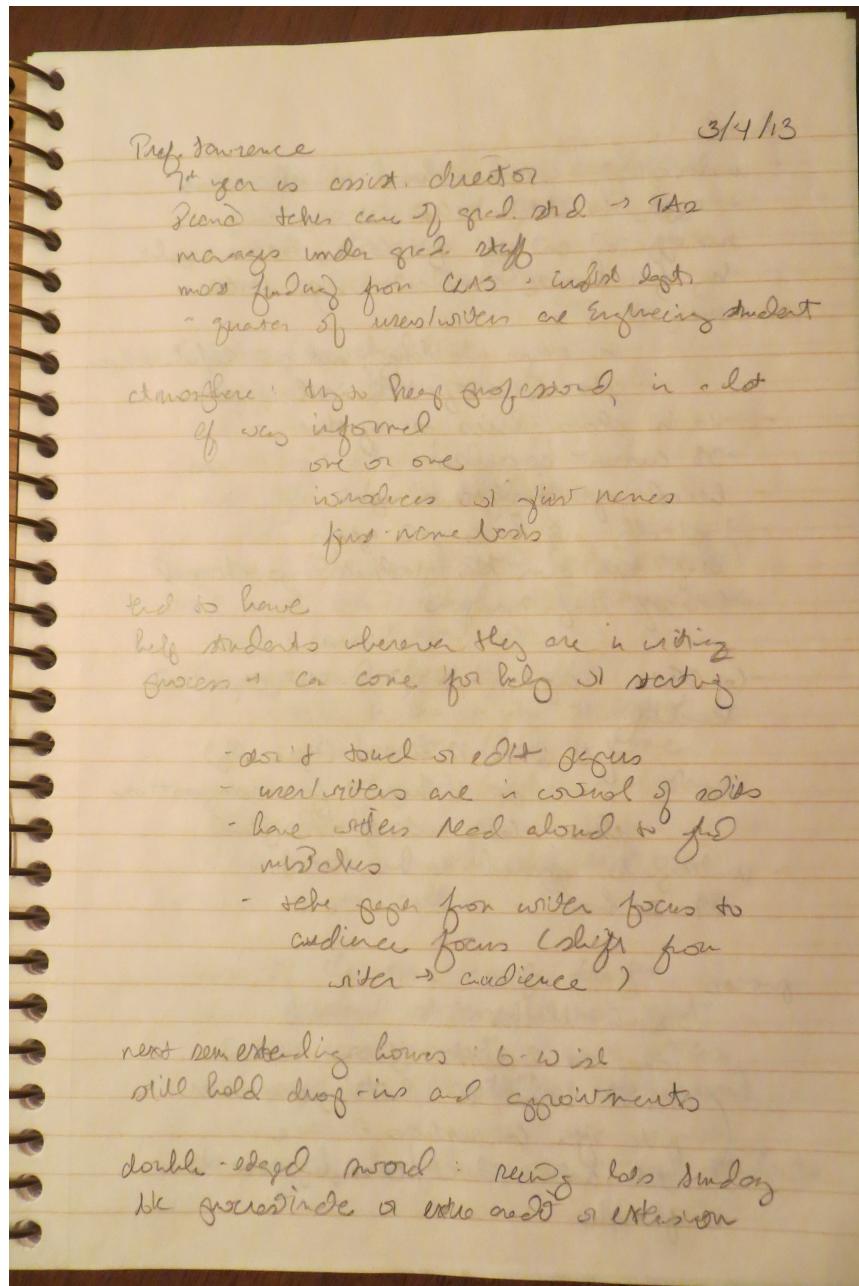


Figure 7

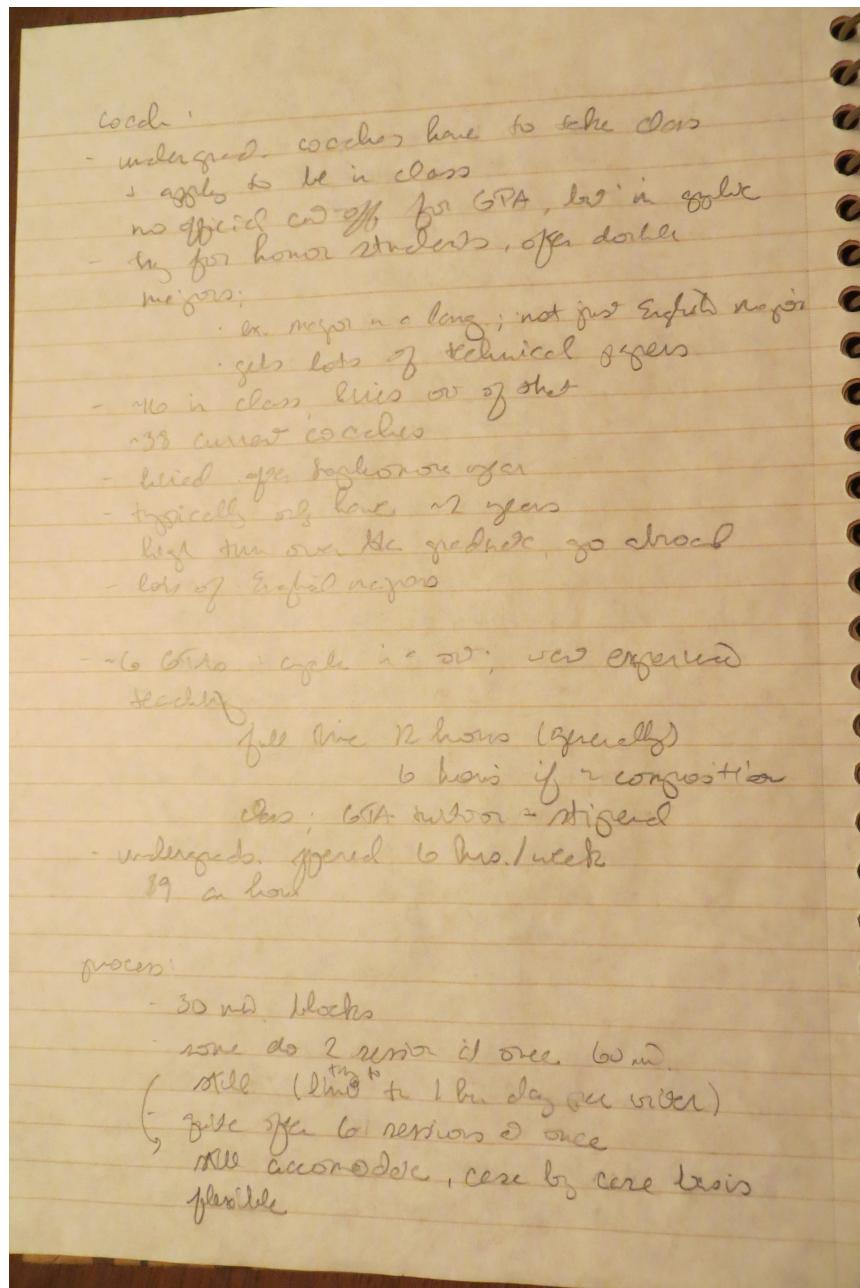


Figure 8

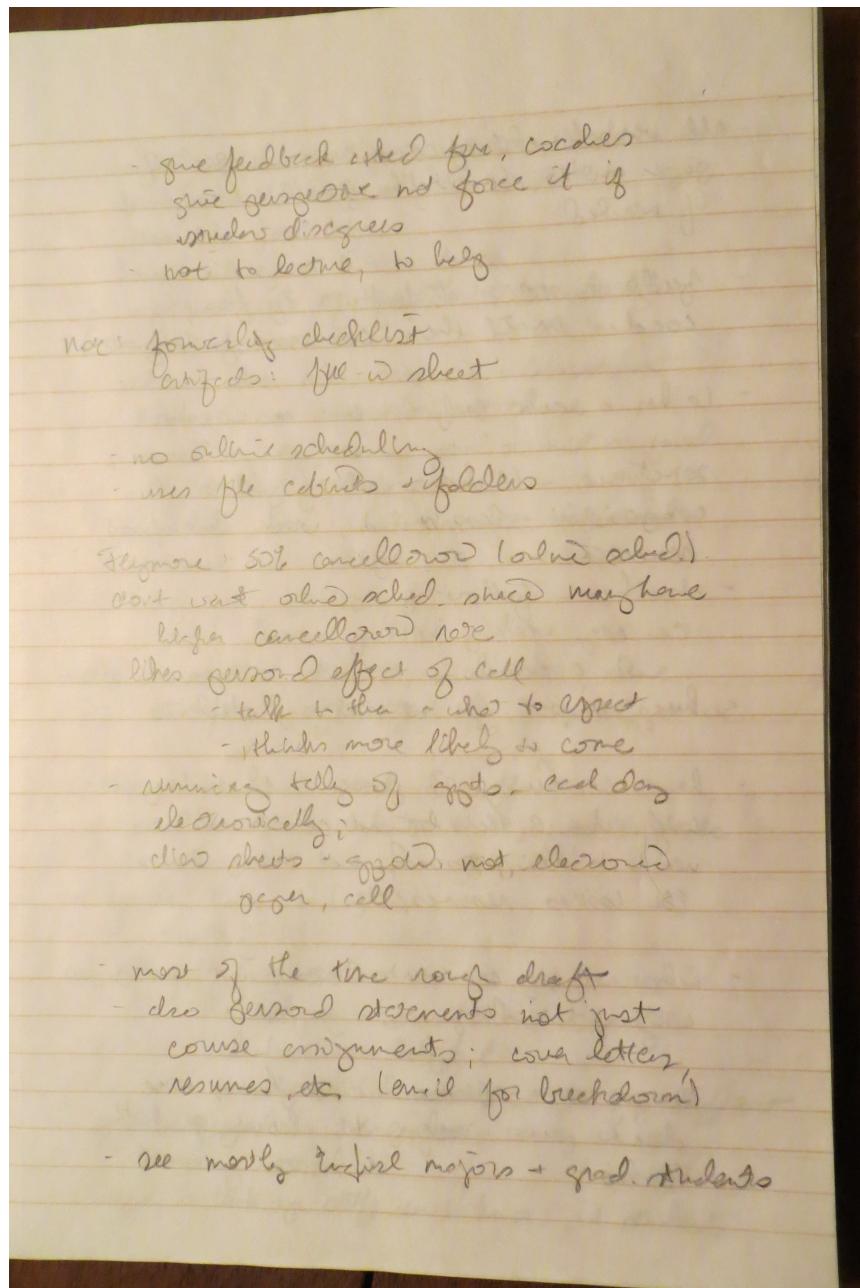


Figure 9

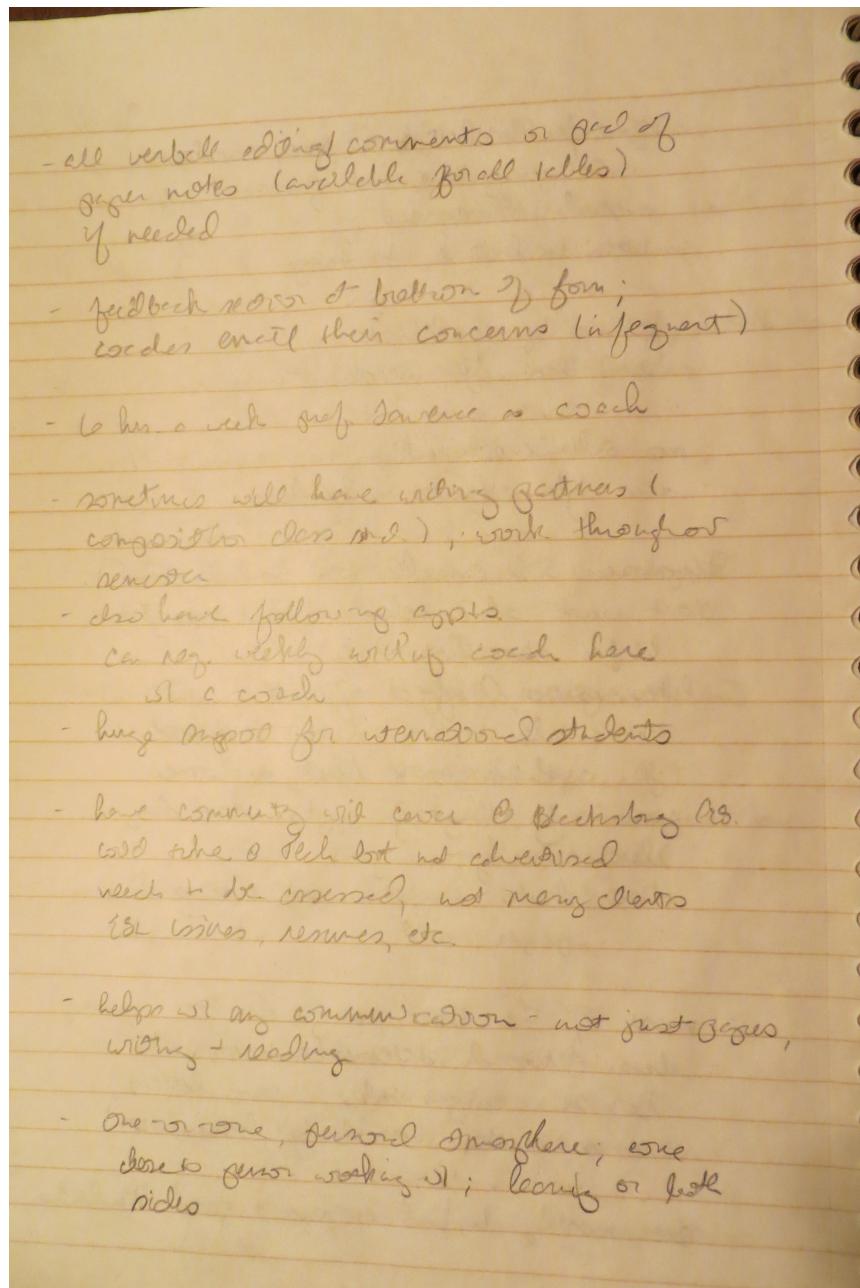


Figure 10

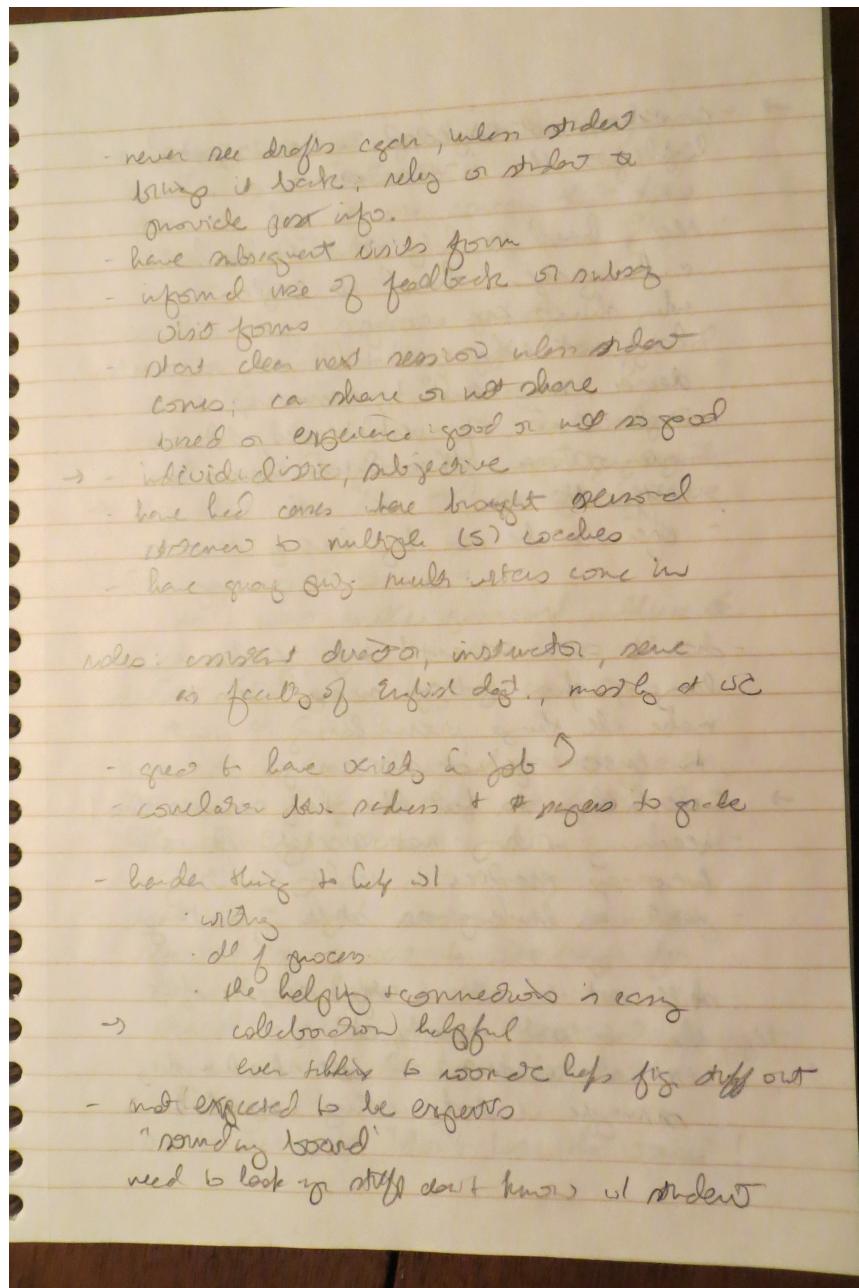


Figure 11

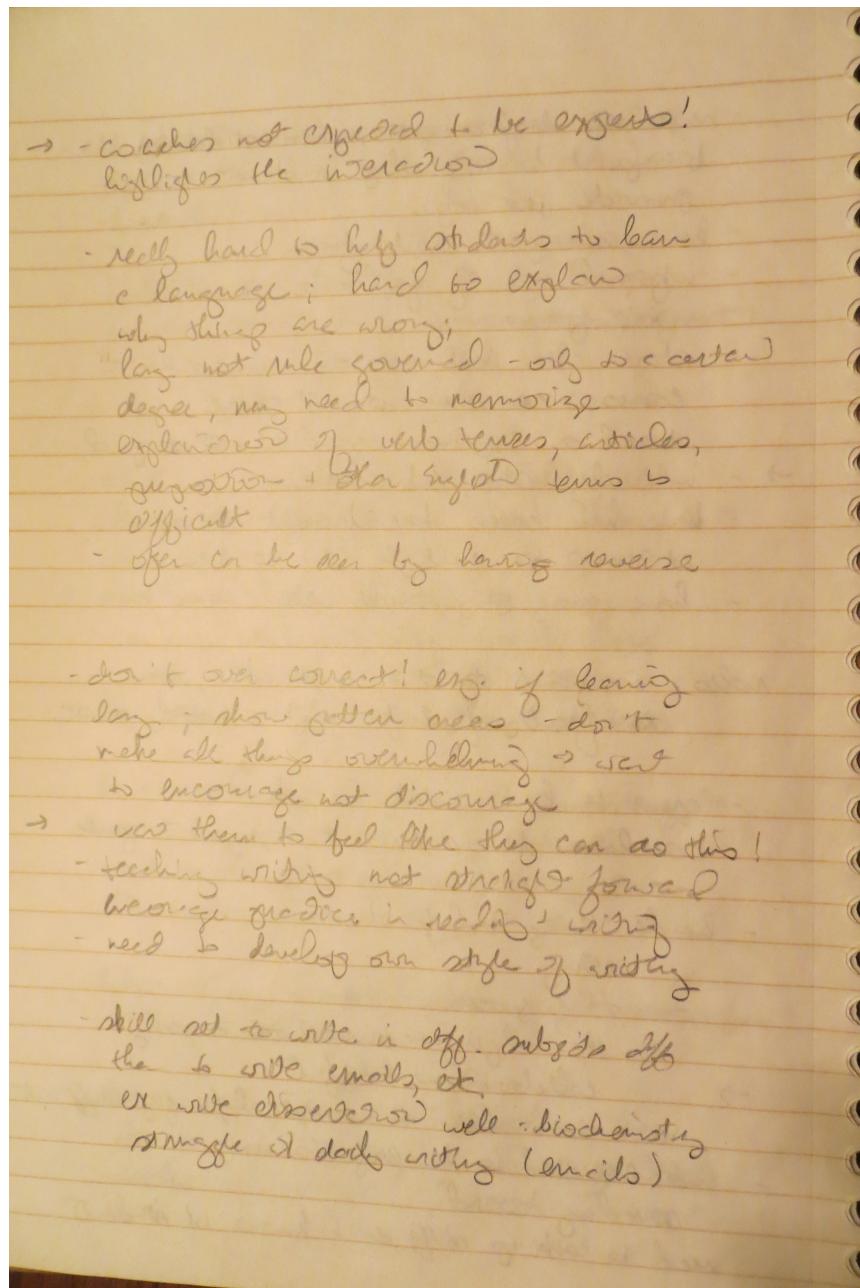


Figure 12

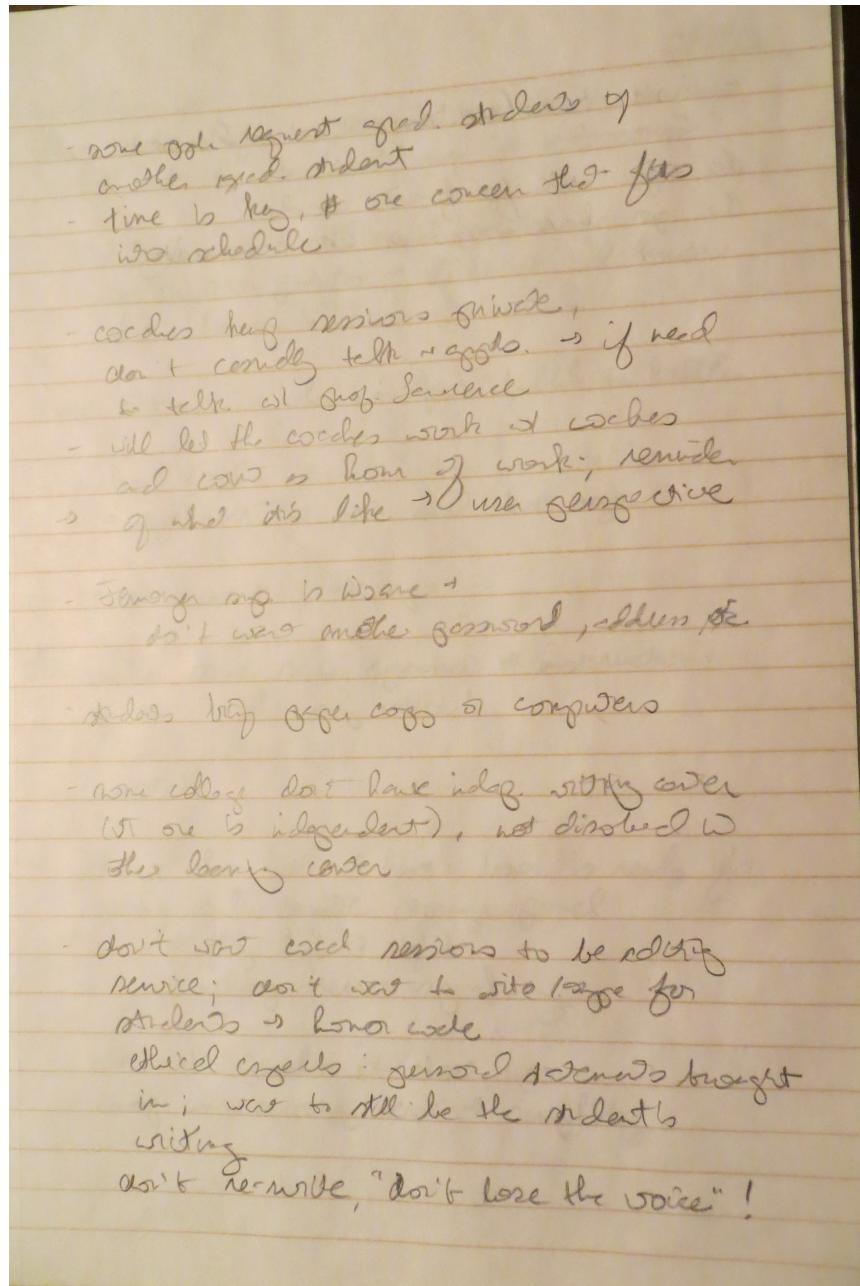


Figure 13

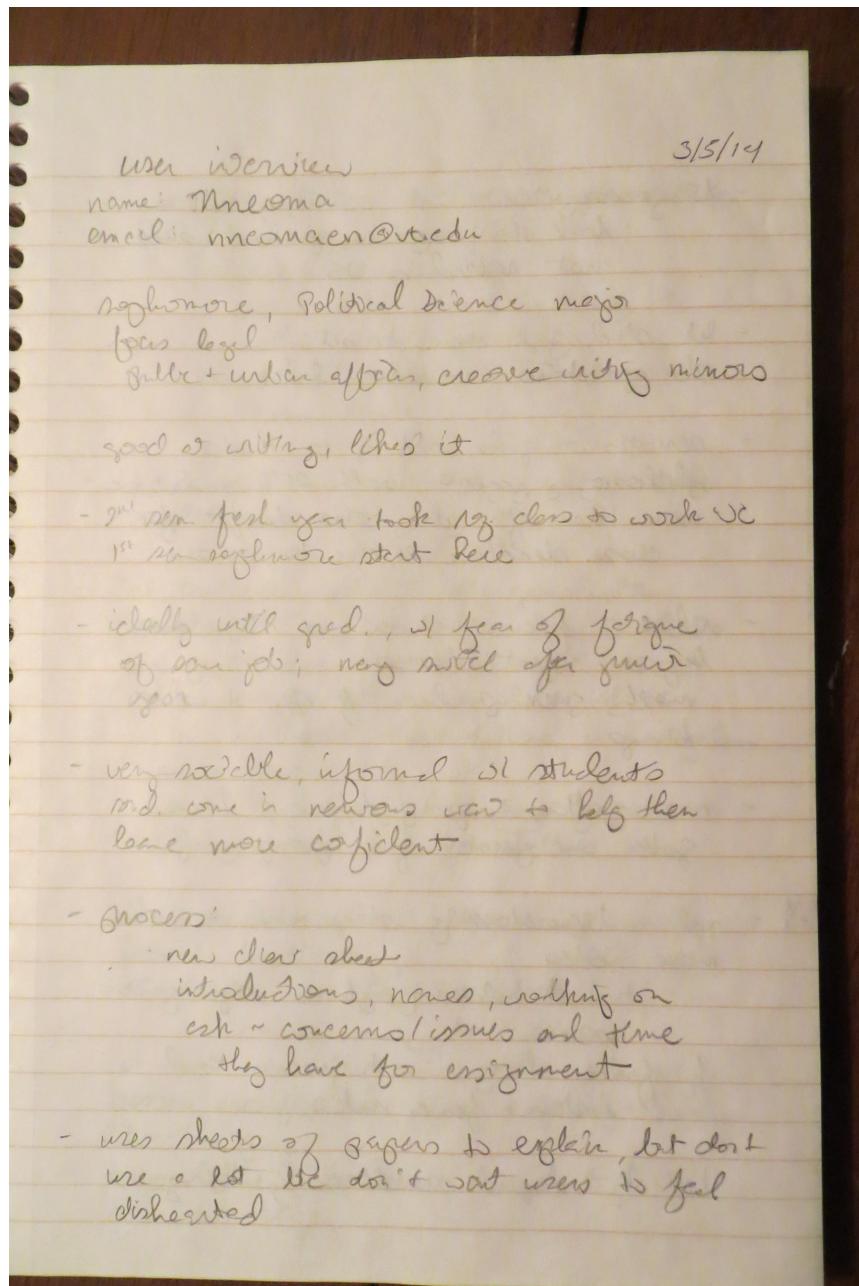


Figure 14

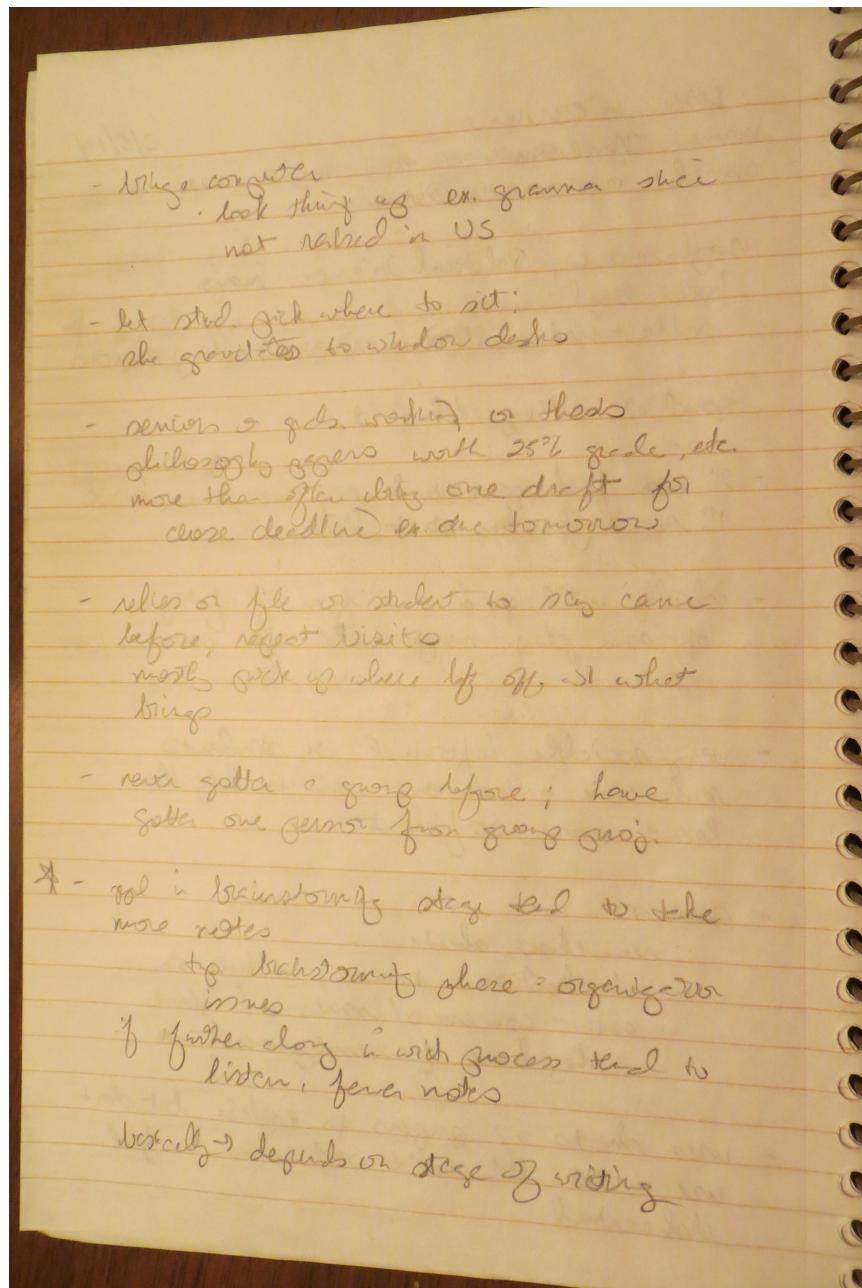


Figure 15

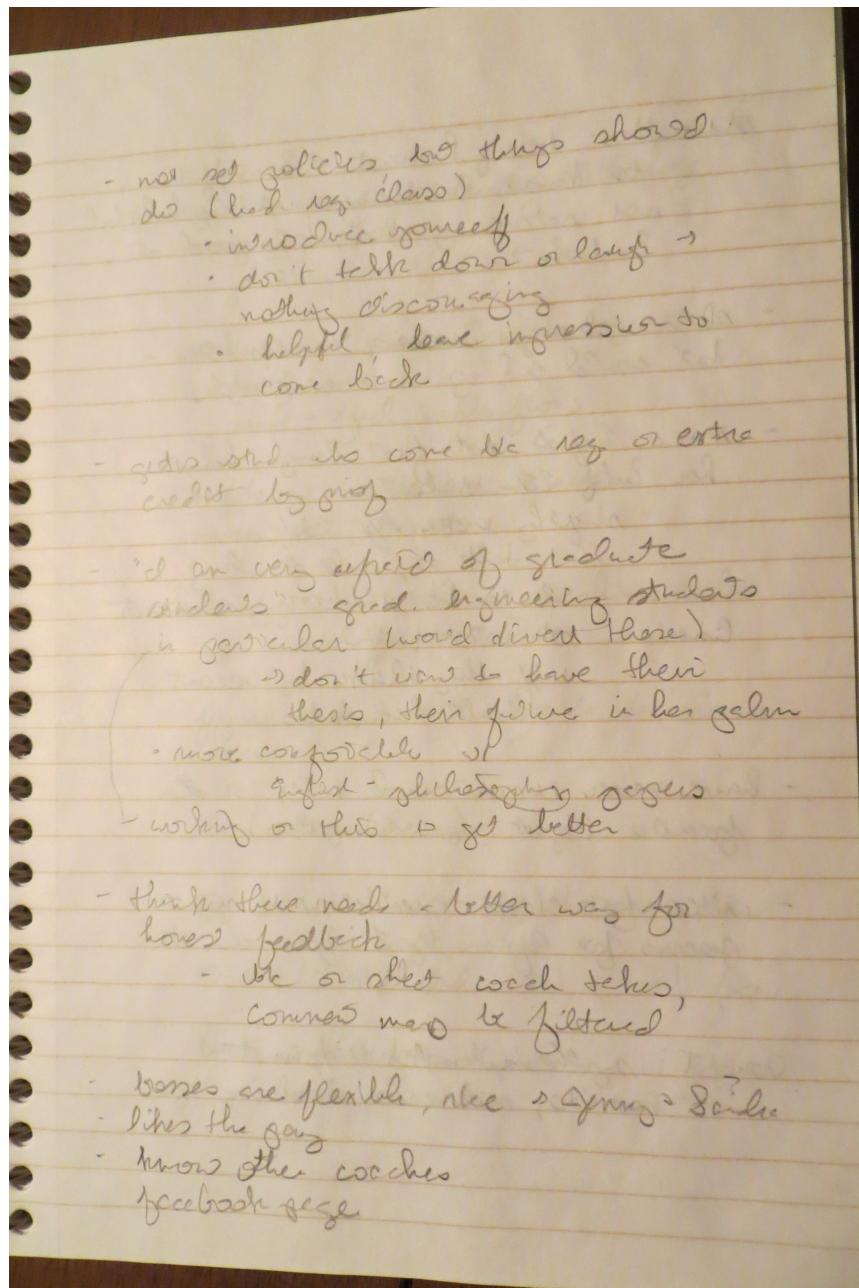


Figure 16

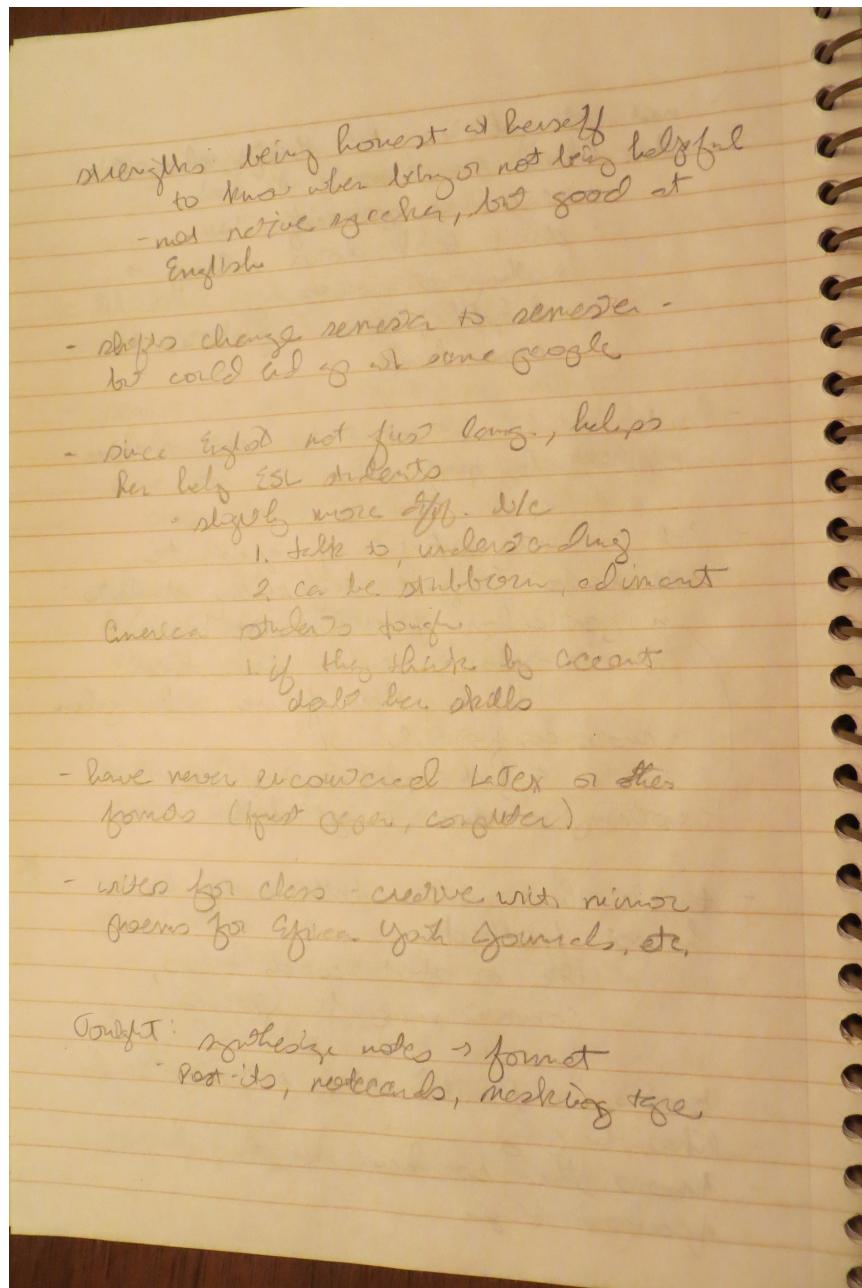


Figure 17

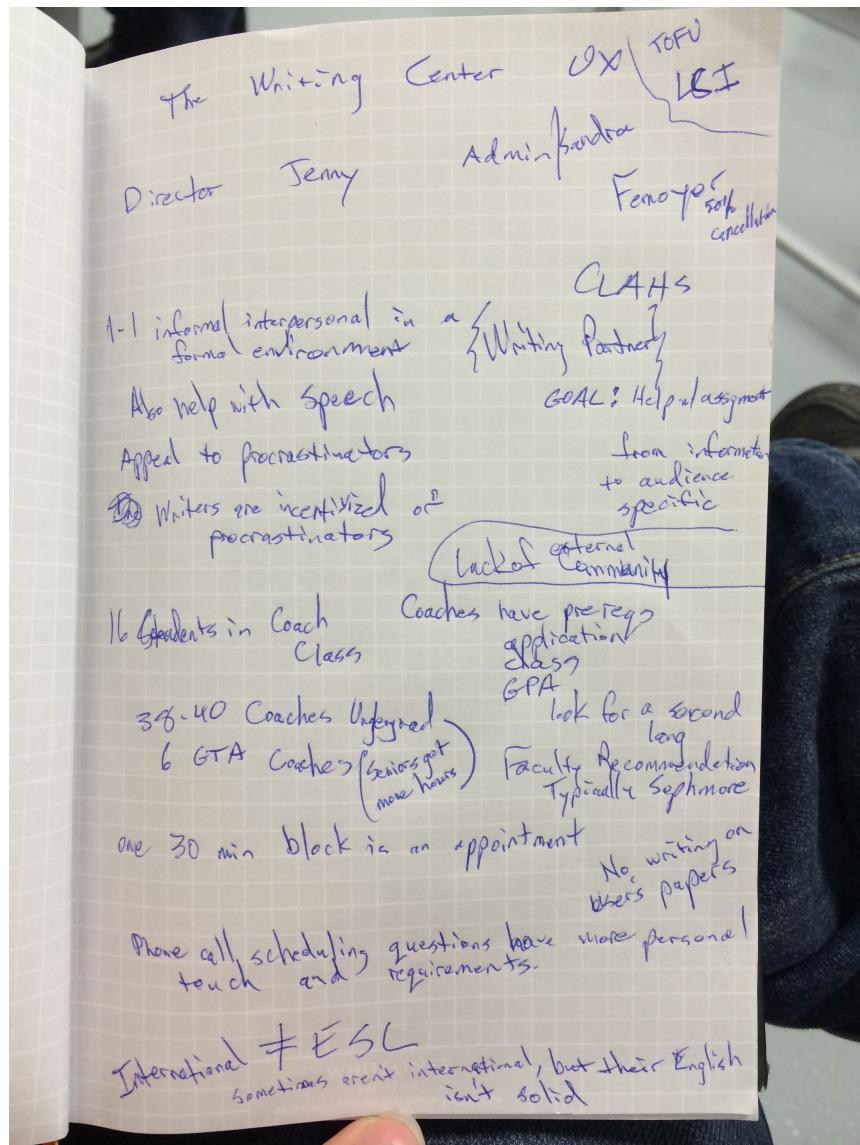


Figure 18

Work Activity Notes

Interviewee: Professor Jennifer Lawrence Email: jlwrnc@vt.edu Work Roles: Assistant Director of the Writing Center (WC) at Virginia Tech, Coach ID: ADIR

- Management of the WC staff is divided; The Director of the WC manages the

graduate coaches (TAs), while the Assistant Director of the WC manages the undergraduate coaches.

- Most of the funding for the WC comes from the English department.
- Concerning the atmosphere, the staff of the WC tries to keep it professional, but informal in a lot of ways. The WC sessions are one on one. Introductions are on a first name basis.
- The WC helps students wherever they are in the writing process, from starting and brainstorming to written or more complete drafts.
- Writing Center coaches should not write on or edit the client papers.
- The client is in control of any edits.
- The WC coaches often have clients read their papers or written works aloud to help find mistakes.
- The WC coaches help the client take their papers from a writer focus to an audience focus, shifting the focus from the writer to the audience.
- Next semester, the WC will be extending their hours. The WC will continue to hold drop-in sessions and sessions by appointment.
- Students interested in becoming writing center coaches must fill out an application and be accepted in order to enroll in English 3744, the required course for coaches. About 16 get enrolled in that, and new coaches are hired from that pool.
- There is no official cut-off GPA for students applying to be a WC coach.
- For hiring coaches, WC tries for honors students and double majors.
- WC looks to hire students who are double majoring, with one major being a language or majors that span different areas, ie. Computer Science and English. A lot of the WC coaches are English majors.
- Typically, a coach works for two years at the writing center. The high turnover rate was mostly contributed to students graduating and studying abroad.
- There are about 6 GTA WC coaches. These coaches typically want experience in teaching.
- There are about 38 current coaches.
- WC typically hires coaches after their sophomore year (but there are exceptions).
- Full time work at WC for graduate coaches is 12 hours/week, 6 hours/week if coaches are in composition class. Undergraduate coaches are typically offered 6 hours/week.
- Hours, Sunday hours in particular, are a double edged sword; The WC has lot of Sunday sessions because of client procrastination, extra credit offers by

professors, or assignment extensions offered by professors.

- The WC sessions are scheduled in 30 minute blocks of time, or two 30 minute blocks of time scheduled back to back. The WC tries to limit a single client to 1 hour per day. However, decisions are made on a case by case basis.
- The WC tries to be accommodating and flexible in scheduling sessions.
- Quite often, there are six sessions simultaneously going on.
- WC Coaches are to give the feedback the client requests. Coaches are expected to give their perspective, but no to force it if the client disagrees. Coaches are there to help, not lecture.
- WC does not use online scheduling. WC has reason to believe that clients are more likely to show up when making the appointment over the phone. WC bases this off of the about 50
- WC likes the personal effect of phone call appointment scheduling.
- A running tally of appointments is kept each day in a Microsoft Excel spreadsheet.
- Client visit/visit feedback sheets are paper forms.
- WC helps with other things that are not writing assignments, such as personal statements, resumes, and cover letters.
- Most of the time, clients come in with a rough draft.
- The majority of clients are English majors and graduate students.
- Coach comments are either verbal or on pad of paper for notes, available if needed.
- Clients infrequently email concerns to the WC. Most feedback given on client visit form.
- Coaches are sometimes writing partners, who will help a client throughout a semester.
- Clients can request weekly appointments with a coach.
- WC holds a community WC at Blacksburg library, but not many clients. Community clients could come to Virginia Tech location, but this is not advertised.
- WC helps with any communication, not just written papers. This includes writing and reading.
- The one on one session is intended to create a personal atmosphere with learning on both the coach and client side.
- WC coaches never see client drafts unless the client brings them. Coaches rely on client to bring in any relevant or past information.
- WC has a subsequent visit as well as first time visit form for clients. These are kept in a file cabinet.

- WC has an informal use of the visit/feedback and subsequent visit forms.

ID: C1

- The sessions all start from a clean slate unless the client bring past information. Client can choose what information is shared or not shared, which may be based on if has a good or bad experience in a session.
- WC coach is a sounding board, not expected to be an expert.
- WC coaches are encouraged to look up things they do not know, even in front of the client.
- WC coaches can find it hard to explain why things are wrong when teaching a client to learn English. Languages are only rule governed to a certain degree, which means a learner will need to memorize some things.
- As a WC coach, explaining verb tenses, articles, prepositions, and other English terms is difficult.
- WC coaches should not over correct. They are to show a pattern area of corrections, not overwhelm the client. WC coaches want to encourage not discourage.
- WC coaches want clients to develop their own style of writing.
- Skill sets for writing are different across different subjects and different types of writing (i.e. technical papers vs. emails/everyday communications).
- Graduate student clients tend to request graduate student coaches.
- Time is key; the number one concern when scheduling is if it can fit into the clients schedule.
- Coaches are to keep sessions private, maintain client confidence and trust.
- Coaches can work with other coaches and count this as their WC hours. From this, coaches can gain and be reminded of a client perspective.
- Clients bring in writings on paper or computer.
- WC is not intended to be providing an editing service.

- Want to uphold ethical standards. Want writings brought in to still be the clients writing, not the coachs. WC want the clients to maintain their voice in their writings. Dont lose the voice!

Interviewee: Nneoma Enyi Nwankwo Email: nneomaen@vt.edu Work Role: Writing Center Coach (VT sophomore, Political Science major, public and urban affairs and creative writing minors) ID: C2

- Coach can ideally work at WC until graduate.
- WC coach maintains sociable, informal conversation with client.
- WC coaches want to have clients leave with more confidence than they came in with.
- WC coach has a general process:
 1. Give client new visit form to fill out
 2. Makes introductions, first name basis
 3. Asks what client is working on
 4. Asks what concerns about the work the client has
 5. Ask what the time constraints are (i.e. when the assignment is due)
- Uses sheets of paper to explain, but does not use a lot because doesnt want client to feel disheartened.
- Coach brings computer to look things up if needed.
- Coach lets the clients pick where to sit. Coach prefers to sit at one of the desks by the windows.
- Clients most often bring one draft of assignment and close to deadline.
- Clients are often seniors or graduate students working on thesis papers. Clients are also often philosophy students working on papers worth 25
- Coach has never gotten a group of clients for one session, but has had a single client from a group project team.
- Clients in brainstorming stage tend to take more notes than clients who are further along in the writing process.

- Clients further along in the writing process tend to mostly listen, taking very few notes if any.
- Typically, clients in the brainstorming stage tend to have organization issues.
- Coach help depends on the stage of the writing process the client is at.
- Guidelines coaches follow include introducing themselves, being helpful in general, leaving an impression that makes the client want to come back, and not talking down, laughing, or doing anything that may discourage the client.
- Coach is afraid of graduate students, specifically graduate engineering students. Doesn't want to have their thesis, their future, in the coach's palms. Coach is working to get better at helping these clients.
- Coach is most comfortable with English and Philosophy papers.
- Coach thinks there needs to be a better feedback system. Coach thinks that since the feedback system is on the visit form where the coach can see it, it gets returned to the coach at the end of the session, that the comments may be filtered.
- Coach thinks bosses are flexible and nice.
- Coach knows other coaches, but mostly those who have been working the same hours.
- Coach gives strengths as being honest to self and client, knowing when being or not being helpful to the client.
- Coach shift schedules are changed from semester to semester.
- Coaches can end up with the same coaches from semester to semester.
- Coach's first language is not English, helpful with English as a second language clients, hurtful when clients doubt coach's English experience based on accent and perception.
- Coach has never encountered LaTeX.
- Coach is also a writer, writes poetry for journals.
- Coach is also a student.

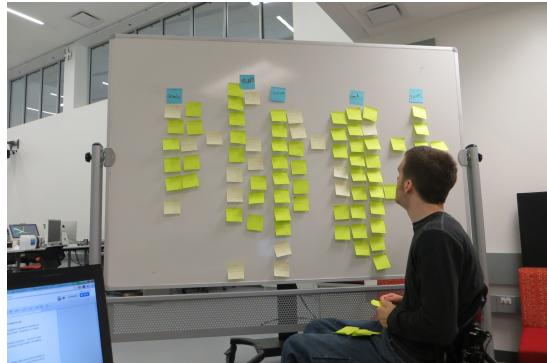
13 Building the WAAD

For building the Work Activity Affinity Diagram (WAAD), the raw data was synthesized into work activity notes, which were written on green and yellow sticky notes so that the colors would blend together. We left the bolder colors for the hierarchical categorization labels for the developed clusters of notes. Each work activity note was given a source ID. The first part of the interview with Jennifer Lawrence concerning the work role of Assistant Director of the Writing Center was denoted by the source ID ADIR. The second part of that interview that concerned her work role as a Writing Center coach was denoted by the source ID C1. For the interview with Nneoma Enyi Nwankwo, a writing center coach, the source ID of C2 was used.

Our team added the sticky notes to a whiteboard, grouping similar activity notes together and rearranging them as new notes were added or new connections or relationships between the activity notes were recognized. Once a category was formulated, top-level cluster labels, the blue sticky notes in the images, were added atop their respective clusters. Some of these top-level cluster labels were representative of work roles. If two notes were recognized as holding the same content, one note was stuck to the bottom of the other, so that they were grouped together. This stage of the process is represented by Figure 20a.

The top-level cluster labels were good for overall categorization, but the clusters from these were too broad. These clusters were further broken down into sub-sections by grouping the activity notes into even more specific clusters, which indicated more specific, sub-level cluster labels, the orange sticky notes in the images. In Figure 20b, this process of sub-clustering also resulted in the creation of a new top-level cluster label, Coach-Patron Interactions which pulled notes out of the Coach and Patron clusters. Figure 20c shows the formalization of three of the top-level and 7 of the sub-level clusters. The sub-level clustering process was repeated for the remaining clusters, as seen in Figure 20d, until the final WAAD evolved, shown in Figure 20e.

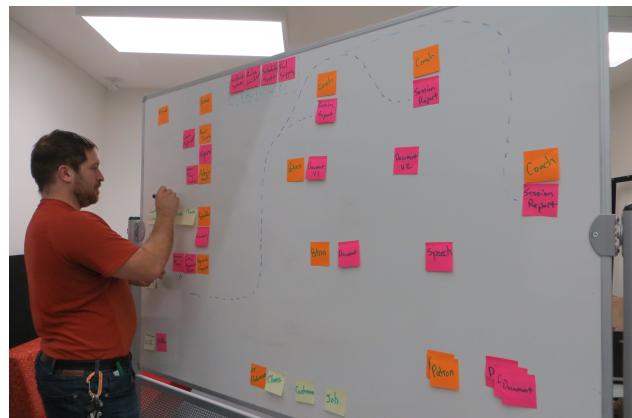
14 Team Photos



(a) T.C. at the WAAD



(b) Rebecca at the WAAD



(c) Chris at the flow model diagram

Figure 19: The team in action

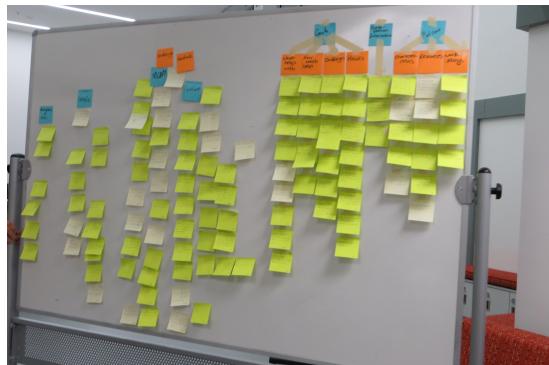
15 WAAD Photos



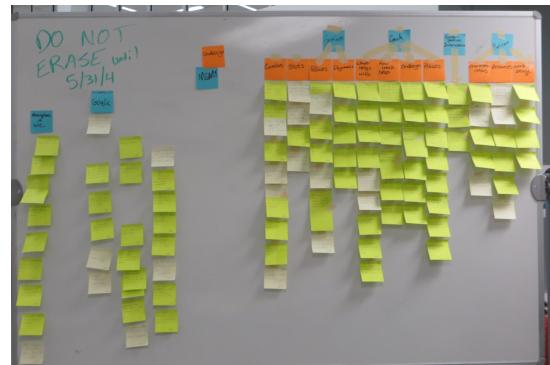
(a) Phase 1



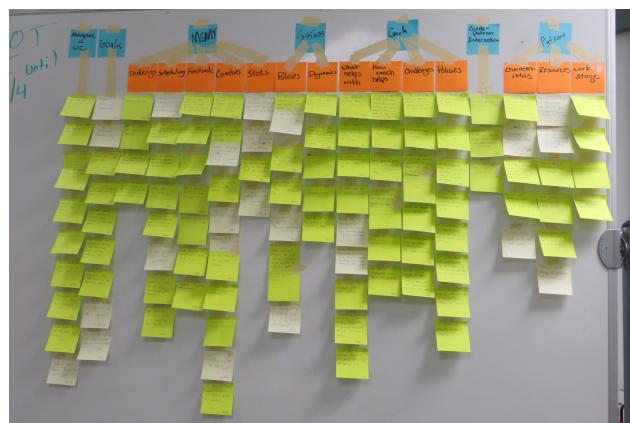
(b) Phase 2



(c) Phase 3



(d) Phase 4



(e) Phase 5

Figure 20: Evolution of the WAAD

16 Work Roles

Work roles are noted as orange squares in the work flow figure of [22](#).

Director Diana George

Assistant Director Jennifer Lawrence (7 years in this position)

The Assistant Director is in charge of hiring all coaches, scheduling coach work allotments, reports, a

Administrative Staff Sandra Ross

This role is in charge of making the consolidated reports and trends that are received from the Scheduler, and providing administrative assistance to the Director and Assistant Director.

Graduate Assistant to the Director Katharine Torrey

This is a coach who in addition to normal coach role duties, also helps with some of the tasks that are oriented towards the coaches, speaking as a representative for the coaches and a supporting voice for the Assistant Director.

Coach

These are undergraduate and graduate students who have a strong skill set in the English language. They are required to have an application, strong GPA, a letter of recommendation from a VT faculty member , and have passed the English 3744 class. Ideally a second language, double major, and/or honor student.

Patron

Any local resident of the New River Valley, with or without VT affiliation, who wants help improving their communication skills (writing, grammar, speech, and culture).

VT Professor

A professor or lecturer at Virginia Tech.

Scheduler

A coach at the WC that is currently not seeing a patron, who makes appointments in the schedule book.

Paperwork Organizer

A coach at the WC that is currently not seeing a patron, who arranges the session paperwork to hand to the Admin person.

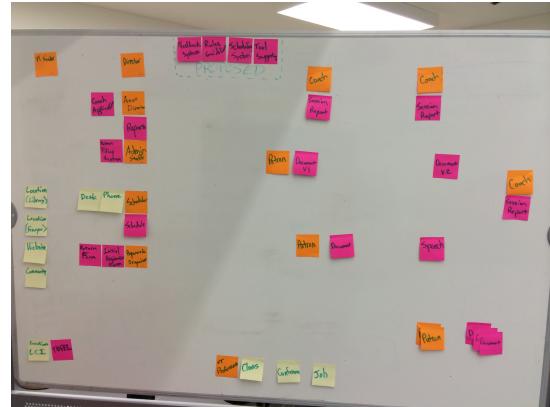
Funding

People or entities, predominately but not always affiliated with VT, that provide monetary funds to the WC for operational costs.

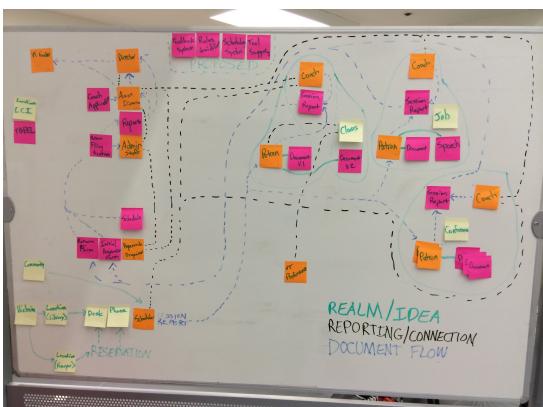
17 Flow Model Diagram



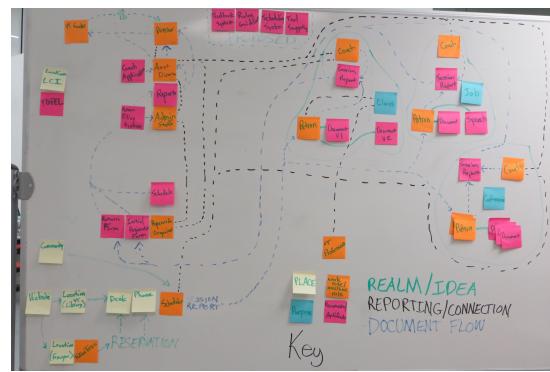
(a) Initial flow chart denoting groupings



(b) Flow chart in a new grouping



(c) Flow chart with arrows



(d) The Final Flowchart with Key

Figure 21: Evolution of the Workflow Diagram

18 Work and Machine Role Nodes

Work/machine roles are noted as orange squares in the work flow figure of 22. Meeting purposes are noted as light blue squares in the same figure. Physical places are marked by beige squares.

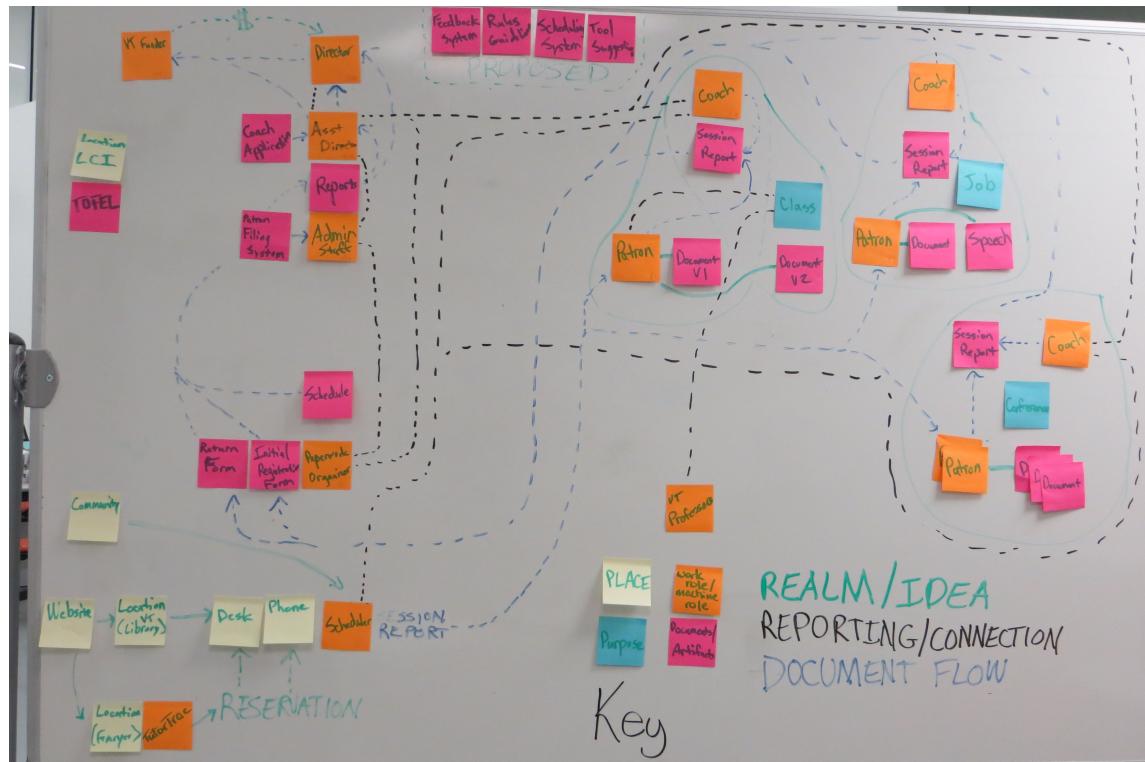


Figure 22: The Final Flowchart with Key

19 Information and Work Flow Arcs

There are several main ideas covered by the lines and arrows in the Work Flow Diagram [22]. The **Solid Green** circles delineate realms for a meeting, and encircle people and artifacts that are used during the process. The **D-A-S-H-E-D Green** lines show the linkage or ownership of certain artifacts to their owner. The **D-A-S-H-E-D Black** lines show who reports to who in the organization. The **D-A-S-H-E-D Blue** lines show the flow of information between people and documents.

20 Outside Information Flow

Outside information flow is noted in the corners of the Workflow diagram, namely communication between the directors and funders, and patrons and the reservation system.

21 Effect of Proposed System

We don't have an after, just the proposed systems. We will continue to incoroparte the proposed ideas into the current workflow diagram and update throughout the project and semester.