Michigan Medicine:
Health and Information Technology Services

Interview Report

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Table of Contents

0. Executive Summary

Our client is Health Information Technology & Services (HITS) under the Michigan Medicine. Our project goal is to create website guidelines for them to distribute across departments at University of Michigan Medical School (UMMS) so different programs have consistent and user friendly information structure.

In this study, we interviewed 4 current PhD students with open-ended questions to get their perspectives on what they considered important when they applied as well as frustrations they faced. From analyzing these interviews using an Affinity Wall, we found:
1) Key criteria for program selection
2) Expectations for program websites
3) Importance of updated information
4) Major sources of information
5) International students issues
6) Funding issues

Based on these findings, we are recommending for the department websites to:
1) Ensure the availability of information
2) Ascertain information relevance
3) Make sure information is updated
4) Websites should contain resources for students to get their questions answered
5) Address international student needs
6) Make funding information more easily accessible and understand

Future studies will build on our research questions around what we found learned and obtain specific information relevant to the guidelines we are creating.

1. Introduction

Our client is Health Information Technology & Services (HITS) under the Michigan Medicine. Their primary objective is to provide support for public-facing web presences for various departments including clinical and basic science branches within UMMS. This web presence is primarily intended for prospective students, faculty, researchers, collaborators, and patients ("About HITS," n.d., para. 1) Currently, the platform is being backed by a custom DRUPAL framework for different departments to build their own websites.

The problem our client faces is each department is responsible for their own content and currently have freedom in regards to how information is presented, and which information they choose to include or exclude on their websites. This resulted in huge structural inconsistencies across department websites. Thus, our project is to contribute towards creating a guideline for what content should be present on their web pages and how they should organize their webpages. This guideline should yield the following benefits: optimizing user experience for target audiences, and creating consistent information structures across departments.

Since program details and career outlooks for basic science and clinical fields are disparate, we could only focus on one for this project's scope. We chose basic science departments. To learn more about our target population, we interviewed several current or past PhD candidates to investigate their: 1) Criteria used for evaluating programs, 2) Ways they obtained information for those criteria, 3) Important information that should be available in retrospection, and 4) frustrations during applications. These points are important to extract because they are directly related to how the web interface and its information structure could be improved.

The interviews enable us to make high level recommendations based on how participants' feedbacks overlap, and locate points of interest that could be studied and verified by later tests. In addition, we would create personas and scenarios using data from the interviews to solidify our target audience and empathize what they go through when applying for PhD programs.

2. Methods

To learn what information prospective students look for and need when applying to a University PhD program, we conducted 5 total interviews. Four interviews were conducted with users and one was with our stakeholders.

2.1 Target Population

The target population for this project is prospective PhD students in the medical field.

Our client indicated this user group was the key demographic that use their websites.

2.2 Recruitment Methods

To recruit participants, our client (HITS) presented us a list of pre-filtered students that are currently attending PhD medical programs. We sent emails to each participant confirming their academic status and set up times to conduct the interview.

2.3 Participant Demographic Details

To obtain unique perspectives on our client's request, we chose participants with different demographics. These include international vs. domestic students, male and female students, current university, and program of study (See Table 1).

	Class standing	PHD Program	Gender	Current University	Citizenship
P1	Graduate - PhD	Cell and Developmental Biology	Female	University of Michigan	International
P2	Graduate - PhD	Cell and Developmental Biology	Female	University of Michigan	Domestic
P3	Graduate - PhD	Bioengineering	Female	Georgia Tech	International
P4	Graduate - PhD	BioChemistry	Male	Arizona State	International

Table 1

2.4 Interview

After our initial client meeting to establish project scope and goals, we created an interview protocol (Appendix 7.2.2a and 7.2.2b) with open-ended questions. The protocol began with general questions such as professional history to create a casual atmosphere, but eventually shifted into themed topics with questions about previous experiences, thoughts and feelings surrounding interviewee's application process.

For each interview, we first began with an introduction that outlined the purpose of this interview, confirmed participant's consent for being recorded, affirmed that he/she will remain anonymous, and that there are no right or wrong answers. Afterwards, we generally followed our protocol but would ask improvised follow-up questions when

participants bring up a novel topic. The interviews would end with a brief conclusion thanking the interviewees for their participation, recapped parts of the introduction, and informed them about potential follow-ups in emails.

Due to location or time constraints, only one participant was interviewed face-to-face, the rest were interviewed over phone calls.

2.5 Analysis

To analyze our interviews, we created transcriptions of each interview from audio recordings (Appendix 7.2.3a, 7.2.3b, 7.2.3c, 7.2.3d), then collected key facts and statements each interviewee made, and grouped content together by similar themes (Affinity Wall, derived from KJ Method, Scupin, R., 1997) which helped us categorize key findings.

3. Findings and Recommendations

Our interview results reason information on program websites should be relevant, updated, accessible, findable and easy to understand. Additionally, lab and department websites should be aware of and create content aimed at targeting certain groups, for example, International students, who generally have more obstacles than domestic applicants. Also, websites cannot answer all questions prospective students have; there should be a channel through which students can get their questions answered.

Finding 1: Key criteria for program selection
We found the following criteria were factors during program selection (See Table 2).

Criteria	Number of students that used it to make a decision about which program to attend
Research Focus of labs & department	4
Daily Student Life	3
Overall campus atmosphere	3
University Ranking	2
Finding a lab	2
Funding Information	2
1st year lab rotations	2

Table 2

The largest takeaway was all interviewees agreed research focus of the lab and department was important. Secondly, most applicants expressed concern about daily routines and overall campus atmosphere. In particular, one interviewee said, "I like the culture of the program in general so that's why I decided to become part of it specifically." Thirdly, rankings of program or funding availability is important information which influence enrollment decisions.

Recommendation 1: Ensure availability of information
Program materials used for recruiting prospective students should include information which aligns with criteria listed above. Additionally, those information should emphasize the important criteria our participants spoke about, such as current available research programs. Additionally, information regarding daily life and atmosphere should be added to program websites which are not present on several department and lab web sites.

Finding 2: Expectations for program websites
We found students care about website contents and formatting. Among all interviewee's comments, students have significant needs for research areas (4/4 mentioned it) because students want to know whether there are faculty whose research areas align with their interests, which serves as a criteria for choosing PhD programs. Additionally, they look for other information in terms of program differences, cohort information and student life.

Aside from content, interviewees implied programs should pay attention to how content is delivered and overall visual design of websites. For example, information relevant to prospect students' applications, such as admission requirements and application process, should be summarized and organized where possible under the "Prospective Students" section.

Recommendation 2: Ascertain information relevance
Based on knowledge we learned about types of information current PhD students found helpful when applying to their programs, websites should do their best to reflect the most important information prospective students need in order to make a decision about which programs to apply to. Alternatively, one participant mentioned a well structured and compiled document (e.g., a PDF doc.) with all relevant information a prospective student needs would be helpful. The implications of these findings, including how information should be ranked hierarchically, can be verified in our future studies.

Finding 3: Importance of updated information
All four participants commented either lab or department websites don't contain up-to-date information. Two participants indicated outdated lab and department websites cause students to be misinformed about learning and research objectives which causes frustration. One participant told us, "The website of our lab is not updated, which makes the school's website not possible to reflect the real information."

Additionally, one participant felt it was difficult to contact faculty associated with a lab when information is not updated.

Recommendation 3: Make sure information is updated
Given outdated information may attract students interested in previous research objectives, and labs want to attract students aligned with current research objectives; all websites related to a specific program should find ways to update material so future candidates can locate information easily. This includes providing up-to-date information regarding current research being conducted as well as published materials on both department and lab websites.

Finding 4: Major sources of information
Speaking to personal contacts, networking with faculty and current students, and online information including department/lab websites and online forums, are three ways prospective students gather information about their target programs and help them make final decision. All participants mentioned they hear others' opinions about programs, and one said they, "increased my confidence when choosing schools". However, there are two obstacles. First, contact information about program insiders are sometimes difficult to find on program or lab websites. Second, email inquiries do not always yield a response.

Recommendation 4: Websites should contain resources for students to get their questions answered
It is apparent our interviewees have a lot of questions regarding information, research opportunities, lab rotations, etc.; to get answers they need to send emails to contacts on websites. Sometimes these contacts are not available, other times they do not reply to student inquiries. To remedy this situation, we recommend finding a way to guarantee availability of contact info on department websites. Additionally, to make sure common questions about general information are addressed, we recommend creating a Frequently Asked Question (FAQ) section for each department (which is currently not available everywhere); the FAQ should include an email guideline as well.

Finding 5: International students issues
Due to the geographical location, different educational background, etc., international students feel they are not receiving sufficient information when applying for graduate programs. For example, one of the participant said she knew someone from her lab who would, "fly to their target schools and talk to advisors," in order to learn about faculty they are interested in. Additionally, scholarship opportunities and funding information are limited compared to domestic students.

Recommendation 5: Address international students needs
While speaking to International students we learned they face unique challenges when gathering information and applying for PhD programs. In order to address these

challenges, department websites should be aware of and create content aimed at helping International students learn required information needed about programs or research lab's (e.g., could be an 'International Students' subsection within the department FAQ in recommendation 4).

Finding 6: Funding issues
Three in four students experienced frustration at some point while going through the process to obtain or learn about fellowships/grants. Two participants informed us they were unaware of funding opportunities before joining their programs. Two participants were unaware current funding levels for lab's can be a constraint for employment. One participant told us, "I had no idea about it [lab's financial constraints] and thought that advisors must be rich" Lastly, two students informed us grants and fellowships require specific activities to receive funding, such as teaching or lab work.

Recommendation 6: Make funding information more easily accessible and understand
Department and labs need to make sure students are aware of funding opportunities and information when applying to programs and labs. To accomplish this, website could include funding sections which provide useful information. Funding information could also be given to students as they go through the application process to make sure everyone is aware of funding mechanisms and the importance of funding. Since it was mentioned in Finding 5 that international students have fewer funding/scholarship opportunities, a section containing recommendations for how they can go about obtaining those could also decrease the number of frustrations.

4. Discussion

While we have acquired a large body of findings, there are limitations to our study we would like to address. First, we only had 4 participants for this report, it is possible their views do not generalize to general PhD student population. Second, we only had access to interviewees who are current students which infringed our ability to gather data on current prospective students. Third, international and domestic students are not equally represented in our pool of participants (3 international), therefore certain feedbacks may be limited to international student population. Lastly, after our first interview, we made minor revisions to our interview protocol due to opportunities we saw to better facilitate the conversation.

The biggest question we did not address is how different criteria brought up in our interviews compare to each other in terms of importance. For example, even though all 4 interviewees thought research focus was crucial and fewer regarded school ranking as a factor, we cannot conclude prospective students would rank research focus as more important than school ranking. However, we plan to investigate this question along

with many others in the upcoming survey study.

5. Conclusion

In this study, we found: 1) key criteria for program selection, 2) expectations for program websites, 3) importance of updated information, 4) major sources of information, 5) international students issues, and 6) funding issues.

Based on these findings, we recommend department websites should,
a) ensure availability of information, b) ascertain the relevance of those information, c) make sure information is updated, d) Websites should contain resources for students to get their questions answered, e) Address international students needs, and f) Make funding information more accessible and easier to understand. For future studies, we will build our research questions around what we found here and try to obtain more specific information relevant to the guideline we are creating project.

6. References

About HITS. (n.d.). In *Health Information Technology & Services*' website. Retrieved March 11, 2018, from https://hits.medicine.umich.edu/about-hits

Scupin, R. (1997). The KJ method: A technique for analyzing data derived from Japanese ethnology. Human organization, 56(2),233-237.

7. Appendices

7.1 Personas/Scenarios

International Student

Picture credit:
https://ak4.picdn.net/shutterstock/videos/13339544/thumb/1.jpg?i10c=img.resize(height:160)

Age: 22
Gender: Female
Year: Senior
Major: Biology
Location: Beijing, China

Xinyi Zhu

"I feel that applying for PhD program is way more difficult as an international student."

Bio

Xinyi is a senior student at Peking University in China. She studies Biology and is now applying for PhD programs at U.S. universities with the same research direction.

Needs

1. Collect information about target programs as much as possible.
2. Know more about life in U.S. and target university.
3. Search for funding information.

Frustrations

1. Not able to attend academic conferences in US or do campus visit.
2. Scholarship opportunities and sources of funding information are limited comparing to domestic students.
3. Professors she reaches out to sometimes don't reply her emails.

International Student

Picture credit:
https://ak4.picdn.net/shutterstock/videos/13339544/thumb/1.jpg?i10c=img.resize(height:160)

Age: 22
Gender: Female
Year: Senior
Major: Biology
Location: Beijing, China

Xinyi Zhu

"I feel that applying for PhD program is way more difficult as an international student."

Scenario

Xinyi spends a large amount of time writing emails to professors in her interested research fields these days. She got only one response from one of them. In this email, the professor kindly explained that she didn't have enough fundings to support more PhD students, and suggested Xinyi to apply for scholarship for financial compensation. However, after search she found that most of them were only available for domestic students.

Xinyi also tried to find contact information about current students in her interested labs because she believed they were more approachable than professors. However, she found that many program websites or lab websites linked to them had no related information on current lab members. She began to wish she could fly to her dream schools, and talk to people there and have a campus visit. But it costs too much for her to do that as an international student.

Native Student

Picture credit:
http://static.nautil.us/8715_60bb8062ea8e0c7ff17bb2e484cd223a.jpg

Age: 23
Gender: Female
Year: Senior
Major: Biochemical Engineering
Location: Enid, Oklahoma

Emily Durant

"I want to find out a faculty whose research area aligns my interest."

Bio

Emily studies biochemical engineering at University of Oklahoma and she has been doing research in this area throughout her undergrad career. She has confirmed she wants to pursue a PhD degree in the field of biomaterial for cancer treatment.

Needs

1. Find professors who work on her interested research area.
2. Contact professors and lab members to know about labs' atmosphere, productivity and their working styles.

Frustrations

1. Not sure whether the information about faculties' research areas are updated or not.

Native Student

Picture credit:
http://static.nautil.us/8715_60bb8062ea8e0c7ff17bb2e484cd223a.jpg

Age: 23
Gender: Female
Year: Senior
Major: Biochemical Engineering
Location: Enid, Oklahoma

Emily Durant

"I want to find out a faculty whose research area aligns my interest."

Scenario

Emily is preparing her application for PhD programs now and she has to do a lot of online research to find out professors working in her interested areas on program websites.

But she recently finds this process struggling because of the outdated information. One day she happened to encounter a paper she was very interested in. When she searched the author on his school's website, she found that what the website said about this professor's research area did not align to what she read from that paper. The website information was that professor's previous research focus but not the latest one. This made her realize that the information of faculties' research areas on program websites can be unreliable generally.

This can cause two kinds of problems. First she may miss the opportunities to contact the professors who are actually doing the research she is interested in. Second, she needs to take extra time to reach out to professors to confirm whether their actual research areas are correctly reflected by the websites, but sometimes they don't reply to her emails.

Native Student

Picture credit:
https://ak7.picdn.net/shutterstock/videos/17699947/thumb/1.jpg

Age: 21
Gender: Male
Year: Senior
Major: Chemistry
Location: Old Main, PA

Jay Cheng

"I want to explore my options of programs."

Bio

Jay is a Chemistry student at Pennsylvania State University. He is now applying for Cell Developmental and other PhD programs. He only has limited research experience in Cell Developmental and Biology area, which makes his application process more difficult than he thought.

Needs

1. Able to explore different research directions after enrolled
2. Understand exact differences between similar programs
3. Obtain a degree at a well-respected institution

Frustrations

1. The differences between similar programs are not explained clearly on program website.
2. Can't find detailed program requirements on school website.
3. Some websites have really bad visual design.

Native Student

Picture credit:
https://ak7.picdn.net/shutterstock/videos/17699947/thumb/1.jpg

Age: 21
Gender: Male
Year: Senior
Major: Chemistry
Location: Old Main, PA

Jay Cheng

"I want to explore my options of programs."

Scenario

Jay has got a sense of doing research in the area of cell and developmental biology through his undergrad experience, but he still wants to explore more in this field and other related fields, before jumping into a very specific one. That is why he was so excited when he found the Program in Biomedical Sciences (PIBS) of University of Michigan, which offers students maximum flexibility during the first year of graduate studies, before they choose from one of the 14 graduate programs.

Three of those programs are related to cell biology but the website doesn't clearly tell the differences between them. Jay wants to know not only how those programs are different in terms of academic focus, but also administrative policies, such as whether graduate students need to take a teaching role or other program requirements.

Jay also has a bad time when he has to search for application relevant information from different sections of the websites. One website has a brochure summarizing the information that prospective students may concern about all together, which makes his life much easier. He also hates websites that have poor visual design. He gave up applying for one program because the website's crowded layout made it so difficult to locate information. But he didn't feel it was a big loss now that it was not a highly ranked program.

7.2 Interview Protocol & Interview Transcriptions

7.2.1a Stakeholder Interview Protocol

INTRODUCTION

- Tell us a little about yourselves.
    - Job roles, how long you've worked there, and what your personal interest is in the product.
    - Are there other people in the organization we may need to interview?

PROJECT GOALS

- What specific best practices are you looking for?
    - Should there be a standard across all departments or can each department have their own standards?
- Are there any known issues with the current design that you can tell us about?
    - If there are any, have plans been made to address these issues?

PRODUCT

- What exactly is the scope of what you want us to test?
- Are you currently analyzing how effective the product is?
    - If not, are there plans to analyze in the future?
- When is the larger platform release expected to launch?

USERS

- The intended users are students.
    - Do you have methods of analyzing who is using the resources?

OTHERS

- Schedule regular meetings (Preference only)
    - Do you prefer to have a fixed weekly meeting time or keep it flexible?

7.2.1b Stakeholder Interview Transcription

Notation:

Clients:
[redacted] (K), [redacted] (J), [redacted] (S)

Team Members:
Yifan Zhao (Y), Chen Li (C), Pokuan Ho (P), Tim Declonie-Maclennan (T), Nicole Sype (N)

Transcription:

T: Before we started, is that okay we record the audio.

K,J,S: Yeah, absolutely.

Y,C,P,T,N: Thank you.

K: So, we are Michigan Multimedia. We are the web team named HITS, which is the IT of Michigan Medicine and Health System. Basically we develop websites for departments within the health system, medical school, and some kind of things. Whatever comes to us. Our mission is (00:54). We develop primarily in Drupal, which is a Content Management System, really scoping up the project through the design and development. [redacted], do you want to add something?

S: Let's see. What question do you have for us, just off that.

Y: So why not we just introduce ourselves to you guys?

S: Sure, absolutely.

T: And we also want to hear more about your team. So, I'm Tim Declonie-Maclennan, I don't expect you guys to remember my name, it's really long. So I just like everyone in this group, first year master student majoring Human Computer Interaction, focusing on UX Design and Research. I did my undergrad at Michigan States. Hopefully you guys throw me out of here .

N: Oh I'm the only fan of it?

P: Hello everyone, my name is Paul. I'm also a first year UMSI student study UX and Research. I did my undergrad at University of Washington with a degree of Psychology.

N: I'm Nicole, I'm a first year as well. I'm on the group of Library Science. I got my undergrad at Eastern Michigan.

Y: I'm Yifan. I'm also a first year master student at UMSI. I study UX design and research as well. And I did my undergrad here at Michigan from LSA, economics.

C: So I'm Chen, I'm also a first year master student here as everyone else. And my specialization is either UX research and design. I did my undergrad in China. I was also an economics student and transfer my area to UX.

S: I'm [redacted], let's see, undergrad from Michigan, degree Psychology. You can do something with it, end up here. I'm the director of this team of Web at HITS. We are responsible for the medical school website, the University of Michigan website to be specific. And all the basic science and clinical departments here, and supporting the underlying platforms those sites run on. We provide as much support as we can to the units here, in terms of hand holding around, getting them fair best practices. We lock them down a little bit in terms of looking field, but in terms of what they can do, we hand them the key to the car, so to speak in a lot of cases. Certain property, certain web properties like medical school site are more tightly controlled. Others are not so tightly controlled. You will get to see some that as you kind like explore your way around here. So big place, it's a 4.5 billion dollar enterprise on the Michigan medicine side, that doesn't factor in campus. So in terms of how you're dealing with the elephant in the room when you're dealing with Michigan medicine. It's a big place, you may say why does it work in this way. It's just the way this place works. We would love to change it, but we can't. So this will be something you encounter, right? As you explore, sort of the bestness of the health system.

J: So the health system does give us a little bit background includes the clinical, the research and education missions. So it's we talk about as (the tripod: 04:52) transmissions. So that's why we built websites for the medical schools. That's why different department websites have educational materials on that recruiting students, that's why they highlighting research material on it. The types of research the clinicians are doing. That's also there is patient care information involved on there. So our departments really manage all three things kind of simultaneously, and they don't tend to see them divided up as much as my big sense to come outside. So I'm [redacted] Ho, I did my undergraduate at UC Davis. I'm a California Girl originally. I came up here for my master degree. I graduated from SI with the master of HCI but I started off with IRS. So it's a good spot… I've been working for Michigan Multimedia for almost three years now.

K: I'm [redacted]. I'm former journalist so I did my undergrad degree at Missouri School of Journalism. I come from Missouri worked as a journalist for a newspaper for several years and then went back to school at UMSI from 2011 to 2013 to do the master degree in Information Science, actually specializing in IRS. I worked at Grad Library for 2 years

of school, managed some HCI and Drupal course work. Then I ended up working at here right after my graduation. I've been here for 5 years.

Y: So probably we're gonna dig deeper in the product. Is that Okay?

Clients: Cool.

Y: So first question would be what exactly the scope of the problem you want us to test for?

K: Sure. I can give you a little bit background. I think this is probably in the project description, but one of the platforms this team is responsible for is what we call our Drupal department form. This is an instance of Drupal that has been segmented out that you can build individual department websites under the same (vecant: 6:55). And through permissions we can manage who can edit each individual department's website. So these are the list of basic science, which basically just means you (bench: 7:06) science and other types of biomedical research and the clinical departments. These are all the departments that make up the medical school. I think there's 29 of them, something like that?

J/S: Yeah.

K: So as [redacted] mentioned, these websites tend to focus more on the academic side of the tripod type mission, research and education. Because the faculty within the department are also the doctors working in the hospital and see patients. But there's the different websites that patients generally go to to schedule an appointment and find conditions and treatments information. So for the scope of this project, because one, there's a lot of different departments. Two, there's a lot of different users that would come to these sites. We want to focus in probably the strongest sort of the external audience which would be prospective trainees. So a trainee could be in those groups that I mentioned by email. It could be someone who wants to do the residency or fellowship at U of M. Or someone who wants to a master or PhD in the sciences. And just to give you a little bit detail about residency and fellowship, cuz when I start here I didn't know anything about the medical education path. Essentially if you want to become a doctor, you will do your undergrad degree, then you go to a medical school for 4 years. And that terminal degree is MD. But from that point, you are a doctor but you can't really practice yet, because you have to go new further training and specialization. So at that point you would choose I want to go to family medicine, or I want to go to surgery, or I want to go to pediotric. Then you apply for residency and go for the match process, which is where you interview at the school where you want to do your additional training, they interview you, you rank each other and then national system goes through and matches people up. So on the match day the medical student will graduating find out where they actually spend next 4 or 8 years of their life, could be anywhere in the country. So U of M would be one of those places, and we actually do have match a lot of our own U of M medical student into residency programs at U of M.

But there's still a little bit shopping involved. You have to decide sort of where you want to do your residency. Even though you may not get your first choice, and vice versa at school side. So prospective fellows would be the next kind of group down the line not all the residents go on to do a fellowship, somewhere practicing positions after that. But some medical specialties require additional training. Maybe you want to be a hand surgeon, just even like an extra sub-specialty so you would do a general surgeon residency then probably a plastic surgeon training, and then you might going to do a fellowship hand surgeon. So that would be another type of trainee. Sometimes those people are like junior faculty at that point. They are pretty independent. Anyway that's what generally a fellow means. Then there are people who might want to be scientist. And they don't want to work on the clinical side to see patients, but they still want to work and do biomedical research where work for industry after graduation or they could work in an institution like this that does research. So they might choose to get a master or PhD and one of the sciences such as Cell & Developmental Biology, biochemistry or any of the ones supposed to hear microbiology and immunology. And some of the folks might be doing an MD/PhD combo, some might be just doing a PhD. Some people just got an master degree and go to do something else completely different after that. I don't how come that part is. So those are generally groups of people we are interested in because those are the groups of people that might be less familiar with U of M. And they might be outside of the university already, they might be living outside of the country would be looking at this site or these different sites, to find information about the educational program we offer. So we found that would be a user group that a little more focused and has a value for the department. Because that is a group that they are able to communicate with. Now as [redacted] mentioned, the departments who use this platform essentially are responsible for their own content and their own site architecture. And they do vary in degrees of good jobs on them. So what we thought we would do in terms of making that this easier to scope was choose a couple of basic science departments on the biomedical science side and a couple clinical departments as ones for you to take closer look at, cuz we don't want you to have a look all 30 websites. And we don't think it's probably in scope for the class either. Now I think there probably be some bit of creativity to decide how you guys want to apply some of the deliverables you do for the class to what would be more than one website. Cuz I know traditionally this class would be focusing on just one site or product, but what we hoping for the outcome of this to be we can go back to the departments with some best practices that extrapolated from more than one departments website, so some of that comparative aspects are gonna be important for the outcome if that make sense. But please give us feedback on whether you think what plan fits within you are be asked for this class.

Y: So actually Tim mentioned one method…

T: Yeah. So we were talking about, I was thinking about this before this I used to work on the accessibility consultant and when we did stuff like that, we typically had client that had multiple websites, we never looked at multiple websites. We would pick one website, find all the things that we could do with that and that come up like a template that they could apply to another websites. Cuz it sounds like inclusive, correct me if I'm

wrong, there's no standard for how they have to make their websites, but it's totally up to…

K: So that it depends by what you mean by standard.

S: You might wanna show some examples. Just so you can…

K: Yeah, they are all using the same underlying code and all the same templates. So they all have the same in Drupal speak, content types, theme...It's really just the content and how they might style content in a page that they have control over. And sort like which widget they might want to apply on some page.

S: You can see some different flavors here.

K: But you also gonna see some better like... Oh what are they meant for. So here's biological chemistry. Here's when where they have chose to put people in the menu of good (julian: 14:02) things in the menu. Some of them have (all cabs: 14:07) for particular reason. And they are using a lot available widgets. You might see this doesn't look very good and you would be right. Some developmental biologies will a little bit more disciplined but again you'll see the sort of standard are forced by technology, but in terms of what content they published, how they organized the content, and how much content they put on any particular pages is totally up to them. Anesthesiology, again much more simpler looking site. So the variability isn't the content and maybe a few graphical elements they have access to customize some of the looking field. But it's otherwise pretty locked down. Because content so integral I think to those audience being able to see how different departments are organizing content for their programs. Is findable, is it the right information. That's why we want you do multiply ones. But if it's out of the scope of the class, that's fine we can just trying to do one.

T: The only reason it might be the concern is for this class, our goal is to have 5 interviews as well as 5 usability tests. I'm not sure how much information we can get out of...Let's say we have 3 websites, so maybe we have 2 participants per website to test. I don't know how good the data would be with so few research on each website. Obviously our goal is to get you the best feedback possible that we can. It might be something we can discuss with the professor to figure out what might be the best. Maybe 3 maybe 2 maybe better or just 1. But I don't know how significant any finding would be if we just take one person and say let's get this website and to say OK here's everything they found was problem, you know just go fix them based on this 1 user.

K: Yeah, we are talking about this too in terms of the usability test obviously...it is 5 tests, we are not ask you to test multiple sites. So maybe there's someway you can talk to professor on how to scope it. Maybe there's a way to do a little bit broader look and some of the heuristic analysis and some of the survey work that you guys will be doing than just user testing one of the sites. And now actually easier to recruit population for anyway because by the time you are going into a specialty which at least be a third year

medical students and I have an access to lister to try to recruit some them for you. We might then if we just saying test the medicine's website we were trying recruit who are applying emergency residency, and then it's going to be more one-to-one because their mental model tends to pretty narrowed at that point that I'm going to be a surgeon so I don't know what emergency medicine people care about. So it might be easier to get the exact population at that point. So yeah, get some feedback on what your professor thinks would be a good approach and we will work with you.

T: We'll do that. I don't mean to scare you guys away.

J/K/S: No, not at all. It's good to know. It's a good feedback.

T: I just want to make sure that …

K: We both have taken this class and we know how much work it is so…

T: I just want to mention that whatever we do, give you guys have some sort of actual meaning to it rather than us just take a little bit data and trying to fresh on something are a lot bigger.

J/K/S: Yes.

J: I think that [redacted] mentioned that we were discussing it yesterday. Of course we would like let you guys do all the websites, but it's not a year. That will be much easier to go.

T: Well I mean since all of us are looking for intern… (laugh)

K: But for potentially the first one which I know was an exercise like mapping out something continary that you might choose, we may give you a selection of maybe 5-6 websites to look at. You might choose to do three of those, to map out to do the comparison, that will I think be really useful tool to see that we have all these departments. They are all trying to recruit students to be residents there and hire somebody doing that. And some of them do better than others.

J: And the one we've chosen as the subset would be some that we think are doing a better job and some of them doing a worse job. And you guys can decide which is which. And I definitely for the usability test I would like to test both of these.

Y: So I was also wondering are you guys evaluating these websites now? Like how effective they are? Do you have any ways to evaluate them?

K: We've got the analytics on that you can use from Google. But this on other department.

Y: So you use Google Analytics?

K: Yeah we use that.

S: We also use crazy eggs heat mapping tools in selected cases.

K: So the only active project we have for this platform is that we are going to be refilling it so just changing the top layer looking feel. The underlying architectecture will stay the same. So that will just be essentially CSS changes to get a little bit face lift. Then the next major project is we are actually looking at the next major iteration of this platform altogether potentially. Maybe it's in the next version of Drupal.

--------Tim's Section --------

J:Maybe it's in the next version of Drupal , Drupal 7 and Drupal 8 has already been out for a little while so we might be looking at that in the next couple of years

T: That's something else I was kind of wondering about For this project is there anything that you guys think we should know or need to know about Drupal. I think one of us has experienced with it but I don't think the rest of us

K: I don't really think you need to know Anything about it since you mentioned you have an accessibility background I mean, we're very interested in an accessibility feedback on the platform cuz we do at least control the back end and so there are maybe improvements that can be made there, if it's accessibility related to content we have much less control over that then making our recommendations To the people who are actually implementing the information but it's becoming much more of an area of emphasis in Michigan medicine to pay more attention to that so there may be some research you want to do about what's baked into Drupal from accessibility perspective because the community that's developing that platform does pay attention to that and has tried to create some Frameworks around making that and easier to do so you might be interested to read If that's an area that your research Takes you when you might be interested in Reading how does Drupal deal with accessibility from a framework perspective

T: Yeah, thats..

Y: So since you have mentioned like tthis platform the next biggest release of the Drupal platform would be Drupal 7, Drupal 8 I think Drupal 7, Drupal 8 is already used right now so this platform, I know this platform

S,K,J: 7

Y: 7, so you probably want to change or transfer this platform to 8 in the future you just mentioned, or am I wrong?

J: Yeah we might So eventually Drupal 7, so the way the Drupal Community works is once a new version of Drupal is released they will keep the older version in parallel for several years because the community of people who develop code for this platform, it's open source software from a worldwide community of developers and it takes awhile for new modules to be ported to the next version, so usually there's a 5 ish year time. Where the older version will still be out and be used pretty widely. Then there may be some type of upgrade path or the technology for the new version has changed a lot and you have to redevelop your site in the new framework, So eventually will move to Drupal 8, eventually Drupal 9 on down the road, but drupal-7 will be around for several more years.

Y: So actually I think the Drupal itself the platform itself has some limitations on the accessibility and also responsive design and something like that, so I think that if we do the testing of this website we will definitely take those into consideration so that to make sure Not to over require this platform to be, but I don't think it's a big deal

J: Okay

T: That's actually a good question that she brought up, are you guys mainly interested in in the desktop websites or are you interested in the mobile versions as well?

J: I think we're interested In all of it, we know that from analytics because of the environment that our users are in they tend to be desktop users so I think if you were to compare our mobile usage to like School of informations it would be just a fraction of what they're getting, I'm guessing that they're probably getting 30 or 40% Mobile use and were more like 20% for the average department, but um, we are interested in that because that's something that can get bigger as time goes and as our population generally shifts.

C:You also mentioned like you are looking for some best practices to do for this website design, like, could you please explain more on the best practices, what's the term (best practices)?

J: Oh so what does the term mean?Yeah so as I mentioned there's around 30 departments in this school each of them has staff that are making decisions about what content to publish and how to organize it, so we would like to be able to make recommendations to those users in the Departments and say from this usability review and this data Department XY and z are more successful for these reasons, maybe they have organize their content in a particular way or maybe their content contains certain information that is deemed more useful to the users maybe they've made other choices about how they use the templates available to them that were more successful than

other departments, so those are the types of things we'd like to be able to go back to them and say here's what we would recommend that you do differently.

C: So it sounds like It catches up on both the content itself and also the structure of the content.

J,K: Yes

C: And That's what you, you guys expect us to do, to find out the best practice or to test the best practice
J: Um, it wouldn't be I think testing best practice as much as making your recommendations might become a best practice we recommend to them, yeah we might say these three departments all have the same problem, here's how we could fix that problem there for our recommendation is follow this guideline, and you would essentially be making that recommendation

C: Is there any existing Information or resources for Best Practices, especially for websites for medical areas?

J: That's a good question, I don't know about anything that's specific to medical education, but I think you could do some similar research to look at just college and university recruiting websites in general and I think there will be some parallels there as long as you know a little bit about that match process for medical students that I recommended which is not just that you apply and you get to pick where you want to go, there's this Lottery system involved as well so you don't have as much control as you would have an undergrad or in a regular master's degree. There's some previous research that our team has done we actually did a survey last summer with first-year residents at U of M about some of the information that they were looking for when they were looking at residency programs, I'd be happy to share with you.

T,P,C,Y,N: That'd be great

T: Yeah I need documentation that you guys think would be helpful for us feel free to send it to that group email that we made, and if you do that way all of us will get it

J: Sure, sounds good

P: Just one question, you guys have an example of what the interface is like creating this website because you mentioned that they have control over the aesthetic content but I'm not exactly sure which kind of control they have

J: Yeah, I can send you the documentation that they receive, it has all of the functionality that is documented in screenshots and stuff so you can look at that but just in general for your own awareness they have very limited control over the visual display, apart from choosing if I want to have a Carousel, and if so what pictures, do I want to

have a banner image if so what picture, do I want to put a spotlight, which is a content type in the left side bar, do I want to have buttons, do I want to have this type of call out, do I want to have news and events, but then a lot of the other, You know they don't have control over spacing, layout, font, color choices things like that so apart from the content and the content elements that they published they don't have as much control as they might have, if it was a build-it-yourself kind of source based type of platform, but I can also show you just like the backend of the system...

P: Are the users Generally pretty, do they feel pretty good about being this limited when you ask them for more control?
J: Oh, they will always want more control. (laughs) U of M is an interesting place in that it's pretty siloed, a lot of the Departments would prefer that they could use whatever colors they want, that the U of M brand would be optional and that they can just do whatever it is they want, which is what they used to do before this platform was rolled out as a part of the marketing initiative to say we should all look like we belong to the same institution, some people would prefer that they look different because of personal aesthetic preference, so yes, some of them would be happy to look different

S: And then some All of that comes from the notion that many of these groups are their own funding link centers, they make money and they want to do with that money what they want, so and they would secede from the University if they could and basically roll their own, but they're not allowed to, they're stuck here and they have to follow Grant standards, they can't get very far.

They bring up what the backend of drupal looks like

S: So this is the back-end

J: So this is where they would choose what type of content they want to create, these are all the different templates or all the individual page types some of these are used only on a particular part of the layout like the carousel slides, some of them are just use for home page, but then things like events, news You know they can publish different posts, General page just for informational content, they might have bio Pages for individual people and some other things like that from the buttons they can put in the sidebar

Y: So, they are not able to edit Or add more content types.

S: No

J: That’s correct.

S: They get that inverted L architecture and they work within that

J: they aren’t doing any development in terms of engineering

S: We do listen if they want something, if there is a unique request we are open to it, the challenge that we have is that this is a shared code base so a change for one is a change for all so we have to be sensitive to the needs. There are still good ideas out there that come in and weave, this is a very mature platform at this point it's 5 years old so we've been iterating on the requests on the looking feel to meet some of the demands that we get from the Departments, so really I think it's been fewer and far between more recently in terms of requests that are coming in for new feature functionality, it's mostly just general complaining that they feel pigeonholed into a look and feel, they can't believe it's Maize and blue

K: Yeah some people don't actually want their website to be blue and it's like…

S: Yeah, it's like, go work somewhere else (jokingly)

Everyone: (Laughs)

S: Sorry, we're tired of it too, it's all we see, you know we'd love any other color but we don't get to use it

Y: So may I know if you, if there is a unified layout like layout thing for all of the websites, or they can like adjust where they can put like the contents

J: Yeah, so, um, the layout Is predetermined by a theme which we control so for instance we control what each region on the page are and what can go in each region and they cannot change that

S: There is some flexibility so news may appear in the right rail or up here, there are a few pieces that are flexible

K: Murmured something about other templates, but couldn't understand all of it

S: For the centers

J: that's right. So there's also what we call sub-theme which is a slightly different look and feel, So the ones that should be for all departments…(can't understand)...has a little bit different color scheme But the underlying architecture and content types are all the same

Y: So the problem now is, like, I Feel like this problem to me is like if we do the accessibility testing for example one to two or three of the websites, then the problems or the findings we come up with could be applied to all of the website cuz they use the same thing and they use the same layout, which is pretty much underline on the websites so is that possible like to those kind of findings cuz it will like, for you guysIt will like affect the layout of this Drupal websites, the contents you..

J: Yeah, yeah it’s something That really is an issue

S: We’d like to know

J: We would change what the templates or layouts are to make it better

Y: Awesome, great to know that.Thank you

J: So yeah, so what the content managers would see is this work bench area where they could interact with any of their pieces of content, here's where it tells them what kind of contents it is, who last edited it and then they can go in and edit the page. And there's a lot of other settings that they might have on any page, including where it appears on the menu, and any widgets they might want to put on that page.

Y: Awesome. Do you want to talk about the users maybe?(This was said to the group)

N: Um, we’ve had a good amount of users, you guys said you had google analytics to track, does that just track how many people are coming or can you see if they find what they're looking for kind of thing like how the platform is being received?

J: No it’s really just usage data so we don't necessarily know if someone got what they wanted from the content or page when they visited it, it just records that it was visited

N: And then there’s no information about who is visiting So if it's a student or Professor, or something?

J: No it wouldn’t be role based I mean so it's the data we would know from Google analytics the data that Google knows about any web user so it could be there location generally speaking like their metro area but that's not going to tell you very much because for a lot of our users then it would say Detroit metro area which, you know, that's a lot of people, it might tell you potentially where they came from, from a previous page If they clicked on a link on a previous website that referred to that page but that's probably, it would tell you if it came to a page via Google which is called organic traffic so a search from Google for some key words and it landed on that page as a result from a search and it might tell you that, so there's some basic things that Google analytics tracks but it wouldn't be on a level of granularity of who the users are. But if you guys are interested in access to Google analytics or any of the sites that you end up reviewing then we can do that.

T: So Have you guys done any sort of ux research for any of these websites at all in the past. Do you have any feedback that people have given you, like prospective students?

K: We’ve done a little bit For individual departments previously but I don't think any of the ones that you would be looking at (I can’t make this part out at all, [redacted] is

talking and it’s extremely quiet) ...it tends to be individual Department based because their population is unique and their Department communication goals might be somewhat unique so we tended to treat the platform as sort of of a product where we are developing functionality to meet a certain number of use cases For a certain number of departments so that it needs kind of the 80 to 90% of what they need, this platform can do and then what they do with that content is up to them, knowing that short of a one-size-fits-all model means we have some technical constraints That we're putting on them where there's only a certain amount of flexibility in the presentation of information we're willing to provide because that's a lot of code to maintain, you have 30 people who all want a different look and we're not going to do that. But yeah, any research we’ve done With users or with stakeholders has been with an individual departments usually when they were building out their website on this platform and figuring out which content To put their a pirate from the survey that I mentioned though which was a little broader view of first-year residence, called house officers, about the process of using website information to research residency programs when they were applying for residency programs, now that's a population that's came to U of M so it's not people who didn't come here, it's a little bit more limited But that's the only population we really have access to.

J: I'm trying to think of any other Our research has tended to be more around really just building out the product functionality based on stakeholder feedback so content managers End Apartments themselves less of the user's because again the way the content is presented organized and what the content actually says is different for each department

S: Yeah, I think we have some general challenges too, When we were living in the wild west where anybody could do anything they wanted so there was this notion of given limited resources let's at least try and wrangle these folks in with a common platform, with a common look and feel, and try and get some standards in place, now the next challenge, which Again we're just dealing with limited resources is having, producing good web contents and so that's going to be a challenge here for a decentralized environment, there just aren't enough people that we can hire or that we're allowed to hire to come and do writing for every single unit that needs to represent themselves online, so it's just, we have to distribute the work.

K: But I think that’s why we’re excited to work with your group, you’re coming in with fresh eyes and hopefully working towards an audience that we know is central to the long term success of these departments we’re not necessarily as intimately familiar with because I'm not working with these prospective students

--------Paul----------

P: Just a quick clarification, based on my understanding, the past UX research data has only been obtained from within the institution?

K: That's right.

P: But for this project, since the users are mainly prospective students or fellows, they'll be likely be coming from outside the institution, how will we get access to those?

K: Well, we won't (chuckles)..

P: So we have to still base our feedback from [people within the institution]

K: Yeah, so there will still be a lot of people who went to U of M for medical school, who stayed here, and go into residency. And so the only access that we have to a user group of prospective residents which would be current medical students, so they're applying for residency in the next few years, are people who are at medical school here. So some of those people, however, will not be planning to go to U of M, they may have looked at many other residency program sites and thinking about where they want to apply, so they'll have at least a wider perspective. They may not be completely biased towards "Michigan is the best and I'm just going to stay here", but a large number of them will have ranked Michigan highly because they do want to train here as resident, so they will potentially be a little biased.

J: But they tend to be pretty analytical. A more robust research with prospective students in previous times, we found that they do a lot of comparisons between different places they are looking at. They have a pretty firm idea about what information they're looking for, how they're comparing things, etc.

K: Yeah, and even the feedback that we got as part of the survey I mentioned for the first year residents who are people who are currently residents at U of M. They don't appear to be overly biased, they tend to be pretty frank about what they thought was good or bad. It's not an ideal case, but it's the only group we have access to. The other thing that you might find interesting, med students and residents participate in a lot of online message boards; and you can go and read some of their comments where they're discussing different programs. That'll give you a sense for what information or 'measuring stick' they're applying to different programs, and the way that they talk about them. So we've used that as a way to get a wider perspective about how Michigan's talked about outside of the institution, as well as other programs. So there's one called 'StudentDoctor.net', and there's also some sub-reddit forums for pre-med... oh you wouldn't want to look at premed for this... there's some for residency, but I can't remember what the actual group name is, maybe you can search on reddit for 'residency' and you can find it.

N: Just curious, do you guys have a top competitor? Like ones you see students go to over U of M?

K: Well, there's top competitor schools. So Harvard would be one of them, but we're not aiming for the web setup of Harvard, because they're 'riding on their brand'. Their

websites don't tend to be very good, but they're Harvard, so they can get away with it (chuckles). So we do have a list of other both medical schools as well as other academic medical centers that we can see as competitors.

J: And another thing. For residency programs, as school might have a strong reputation as an institution, but it might have a less strong residency program in any particular specialty, so then it really depends on the specialty. So Michigan is really well known; it has a nationally ranked, general surgery residency. Johns Hopkins is another one that has a lot of really strong residencies. But you might say between Johns Hopkins and U of M, does Johns Hopkins tend to have a better reputation? Yes. However, U of M might have some residency programs that are still ranked higher than Johns Hopkins' residency programs when you look at the program level.

K: So, (To J and S), what's that residency program ranking site that we rank? Doximity? So you can also look at this site: 'Doximity.com', you might have to search for residency. Yeah 'Residency.Doximity.com'. Some of the information they won't let you see, but this is from peer nomination rating and hand written reviews, make of that what you will. You can at least see individual specialties or individual ranking criteria and location, how some of the program's ranked at the specialty level. And prospective students do look at this site.

T: I kind of want to go back on N's question. Are there any competitors that you guys used when creating your specific DRUPAL layout? Like, did you look at "Oh, Ohio State is doing this, that's a really great idea, maybe we should..." Ohio State is probably the single worst example (chuckles)

S: No, no, no, we don't want to reinvent the wheel. We weren't looking to copy Stanford, for example. We'll look at other sites for specific elements, but there's not a site that we're looking to emulate. In a lot of ways, I very much take the notion of being a leader in the space as opposed to saying, "I love what Stanford is doing, let's just copy it, and we'll change some of the elements and call it ours."

K: Yeah I don't think it would have been as specific as, like, a page layout that we'd look at.

S: I think we were looking probably more at information patterns, especially in the med school. What were other schools doing that we thought might be appealing to the prospective student audience, and we were trying to understand what other folks were doing.

K: Yeah, so for instance we might look at something like how do other schools use video on their sites, how other schools integrate social-media content, how do other schools integrate the voices of current students: are they working with blogs? any students contributing contents? Things like that. So we might look at more on the content strategy side of things. But, when we look at page layout, we actually tend to try

and go with the industry because higher ed is pretty homogenous. A lot of higher ed websites all look the same, ours included (chuckles). So we might look really outside of higher ed for ideas in terms of look and feel.

T: Yeah, that's exactly what I was getting at.

P: Are there any other websites or information patterns from other departments, so non medical [department] that you used as a competitor?

S: We may have looked at Ross a little bit, they did a nice job, [though] I can't tell you what they got up right now is even what we were looking at at the time...

K: We do sometimes look at the other professional schools, so like Ross, school of Social work, school of nursing, public health. Those would be of some of the main ones we might look at. They have some type of 'health overlap', then we'd look at that.

P: But not the UMSI websites... (chuckles)

S: (chuckles) Yeah, we're intimately familiar with that one, we were responsible for some of the design. Just the look, not the function.

Y: So as far as recruiting, you mentioned, for the 3 types of users, do you have any contact information or ways to recruit those 3 types? Especially for the researchers, I find that they could be the hardest to recruit.

K: Right, so earlier this week I emailed my contacts for the content managers in a handful of departments, both the sciences and clinical, to say, Could they reach out to their residents and fellows and see if anyone would volunteer to participate in the project. I haven't heard back from anyone yet, but when I do I will get you that info. And I also have access to a list of 3rd year U of M medical students, so those would be people who could be applying for residency in the near future. If they're not already, I'm not sure where they're at in their time frame. I haven't emailed them yet, I was going to do it today after we've met because I was curious if there's anything in particular that you'd ask them? Do you want 1-on-1 interviews? Do you want to send out a survey, in which case I can send that out; or do you want to maybe recruit from that group to do some user testing, or all of the above? And then I'll just give them some idea what sort of time commitment we're looking for.

T: Yeah, we would need them for all of those things. The first priority for us right now is the user interviews. I'm not sure if you guys know, but this project has started a little bit later than usual.

K: Yeah, it was maybe a month later than normal.

T: Yeah, there were some issues. If possible, could you please get in touch with them as soon as possible? because we need to start setting interviews.

K: Maybe you want to do user interviews with the med students, too? They'd be prospective residents. So it seems like that's kind of the target population for at least the residency program side of things. And for people who are current residents, fellows, masters, or PhD students, those would be the ones the department contacts should be able to get in touch.

Y: Is there any way we can find their contact information so both sides can do the same process as soon as possible?

K: Contacts to the departments?

Y: Contacts to those users.

S: We may want to do the introductory email, copy them in, and have them come in.

K: Do you mean for the med students list specifically?

Y: Just any name list we can contact for, do you think it's a better idea for you guys to contact them first and we can do the follow up?

K: Yeah, I think so; at least for the departments and I have to get permission to be able to contact the student list, so it's not an open list that anyone can just email. But they should be fairly flexible in terms of participation, but for the departments, they won't know who you are, so they won't respond to your email (chuckles). They don't always respond to my emails either (chuckles). But the other thing you might consider if time is of the essence, and we were discussing this a bit yesterday, is is there an analogous group of users that maybe isn't the exact population but would still give you a little bit of information. So you could consider the pros and cons of trying to recruit users from other health professions, or advanced degree programs. It's not ideal, but you have a class to get done as well as other stuff.

C: Sounds to me the users that are the most easily accessible to us are current MD students which are going to be prospective residency students, but at the beginning you also mentioned the prospective students who are seeking masters and PhD degrees.

K: Yeah, so I can also talk to... so for some of the PhD programs in the BioSci, you actually go through a first year gateway program called PIBS (Program in Biomedical Science), that's how you apply, through that program, and then you have some additional courseworks the first year, then you go back through the department and specialize. So I can also talk to the people who do admissions for that program to see if there's any current PhD program that you could also talk to.

P: It looks like there are many options we can choose in terms of user groups, but in the end, if you had to choose, would you rather have us interview maybe 5 users from the same group or have them more spread out?

J: I'd say maybe interviewing the majority, like 3, from the prospective fellow or resident groups, and then maybe 2 of the optional ones: 1 from MD/PhD program, and there would be another one...

K: It wouldn't be MD/PhD, it would be PhD, because they are at the other school, so they're not really in the department, so they won't look much at the department websites... I think the prospective residents are probably the priority and there's far more residency programs than there are PhD programs. There's also financial incentives to pay more attention to them because they're going to become the doctors to "make the money", but that's just how business works.

Y: There's still the prospective fellow... is that just faculty level?

K: That's a smaller group, and they're less of a concern so if you didn't really focus on them, it'd be OK. At that level, the website is probably going to be less important to you, you'd make decisions based on which faculty you want to work with or where the faculties are located, so it might be a much more interpersonal recruiting at that point than researching programs and applying. So I'd be less concerned about the fellows. But if we do get fellow volunteers from the departments then we'll send them over to you.

T: It's been about an hour, I'm not sure how much time you guys have for this meeting, but one thing we should definitely talk about is could you show us the website you want to look at?

[S left meeting]

K: So there's Emergency Medicine, Radiology... So again, this is probably more than you need, but of the clinical departments, the ones we've picked were Emergency Medicine, Radiology, and Internal Medicine. Internal Medicine is, in terms of number of people, the biggest department in the medical school that has the most faculty and it would also have one of the largest residency programs. And then we picked 3 in the Sciences, Molecular and Integrative Physiology.

P: So they have different layouts?

K: Again, it's how they choose to use the layouts, so they have the options, so they can have a carousel or not, the carousel can be big or small, things like that. And if you have questions about "Why does this one look different from that one", feel free to ask and I can tell you what they're using or not using. (Continuing the listings in the sciences)

[Molecular and Integrated Physiology], Pharmacology, and Computational Medicine and Bioinformatics. So those were the 3 Sciences we picked.

T: If you guys had to rank or prioritize these, which would you say is the most important?

K: So, if you're going to do more than one site, it'd be nice to do at least one or two on the clinical side and one or two on the basic science side so we have that representation. And the reason why that distinction is important is it's a pretty different population, people who want to become researchers and work in a lab, or go in to industry and work in a lab would be on the basic science, and it's a bit different culture, different user group, different training experience than people in the clinical side who are going to become doctors and see patients. So I would probably pick internal medicine and emergency medicine of those two and probably pharmacology and molecular and integrated physiology for the basic sciences.

Y: In the worst case, if we can only pick one, which one would you like to pick? (chuckles)

J: I think it comes down to more about which one you can get more people to test or interview.

K: Yeah, that's probably...

Y: Or we can pick one that's more typical than the others, if possible?

P: One that would generalize better.

K: Really, I think any of the 3 clinical ones are pretty generalizable, probably Emergency Medicine and Radiology, more so than Internal Medicine, because IM is really the biggest, it has lots of divisions. Not all of the departments have that. But EM and Radio... well Radiology has divisions, too; but anyway. In terms of how they've organized themselves, what content's there, how they're using the platform, they're pretty run-of-the-mill in terms of representation. And Radiology, they have a pretty big residency program, and Emergency Medicine, I have contacts there in the residency program, so either of those we know the people in the department, so if you only pick one, we could probably some trainees from there to do stuff for you.

N: I think the goal would be mostly just look at the education section.

K: Yes.

J: So we wouldn't ask you to map out all of Radiology, but just the Education section. What is the sections that we know are intentionally focused just for the students.

K: Not to say the students might not look at the other stuff because they might care about other stuff like who the faculties are, where the physicians practice in different places, and things like that; but to try and narrow the scope, if you are able to do multiple sites, focusing on the education section is what we had thought about.

T: I think for this specific conversation, the interviews might help us know more about what is it they actually look at on these websites, and we might base our usability testings on those.

K: Yeah, I think that sounds good.

J: So we've got some research that we've done with the [M-Threes?] prospective medical school research that we sent that we can send them, the department platform documentation, a list of the different websites, a list of some different competitors, links to different message boards...

K: ... and talk to the med students list and admissions people

J: Yeah.

P: We would like to schedule regular meetings to update you on the progress as we go, how often will we be able to meet? once a week, or once every two weeks?

J: Yeah, once a week if needed, every two weeks would probably be easier. I don't know how many updates you have, but we'll make it work whatever you guys need. And we can also meet through BlueJeans or Google Hangout or something if you can't come out here.

K: Fridays tend to be a little bit better, as long as people are not out of town, which doesn't happen that often. Just because we tend to have fewer standing meetings on Fridays, so if Friday mornings work for you guys, like this time, it might be a good time to try and block out. I would suggest that we just put something on the calendar and if we don't meet, we just cancel, that way the time won't be held.

P: I think Friday is the time that works with all of us, because all our classes are earlier in the week.

K: That's good.

[Meeting ends]

7.2.2a Initial Interview Protocol

Group 5: Human-Chocolate Interaction:
Tim Declonie-Maclennan, Pokuan Ho, Chen Li, Yifan Zhao, Nicole Sype

This interview protocol was developed for a 45-60 minute interview with students or doctors who may be interested in the medical programs (residency, fellowship, etc.) at UMMS. We wish to find out what kind of information they find most important when they research a program they are interested in getting enrolled in.

Interview Protocol

Hi, my name is _____ and this is _____. We are working on a project with the University of Michigan Medical School to help improve the informational websites that are open to public. First, I would like to say thank you for agreeing to meet with us. I will be recording this interview as we discussed through email, but rest assured that everything in this session will be confidential in our reporting. There is absolutely no right or wrong answer to any of the questions that I ask, if you would like something clarified please let me know. Before we begin, do you have any questions?

Background Information:

Can you tell me a little bit about yourself?

1. What is your current job title?
    a. How long have you been at the job?
    b. What does the job entail?

2. You're doing your PhD in cell and developmental technology...
    a. What led you to picking this path?
    b. Is what you're doing right now in line with your expectation when you applied?
        i. If not, can you tell me about those discrepancies or things you wish you had known?

Education:

1. Can you give me a generic overview of your educational path? (undergrad and so on)
    a. Do you plan on doing a fellowship?
        i. If yes: have you started that process?

        ii. Can you walk me through on things you have to do in this process?
        iii. What are some of the key things you look for when assessing a fellowship program?
        iv. Can you tell me anything that would raise a red flag for you?
    b. Plans if not doing a fellowship?

2. What were/are some of the key criteria that you had when selecting a school/program?
    a. How did you come up with those criteria?
    b. Would you change any of those criteria based on what you know now?
        i. How would they change? (Less info vs More info?)

3. What resources did you use when trying to find information about cell and developmental biology (websites, talking to staff, friends etc.)?
    a. How helpful or not-helpful were those resources?
    b. What was or is the biggest frustration when looking for information?
    c. What kind of information could have been provided that you would have found useful?
    d. Could anything have been done to make the experience easier?

4. Other than this direction, did you have any other career options that you considered?
    a. Can you tell me about the process you went through for those options?
    b. What aspects were similar, what aspects were dissimilar?

Ask only if participant has done a residency or fellowship

5. Can you walk me through your process of selecting the school and getting matched?
    a. What has been your biggest frustration in this process?
    b. Could anything have been done to make the experience easier?
    c. What kind of information could have been provided that you would have found useful?

Website:

1. Can you tell me what information was most important to you when you were searching on school's websites?
2. If they plan to do fellowship: What information would you look for now?
3. Did you look at or apply to any other schools for PhD programs?
    a. What did you think about their website?
    b. Did they do anything better than other website? What about worse?

Conclusion

Those are all the questions I have for you today. First of all, thank you very much for agreeing to partake in this interview. If you have any questions later about what we did today, please don't hesitate to let us know by email at _____. We may also get in touch with you later to ask follow-up questions, if any. As mentioned in the beginning, this session will be kept confidential, while we may discuss findings from today's interview within our team, we will NOT divulge your personal information. Thank you!

7.2.2b Modified Interview Protocol

Protocol was changed after the first interview to get better collect data

Group 5: Human-Chocolate Interaction:
Tim Declonie-Maclennan, Pokuan Ho, Chen Li, Yifan Zhao, Nicole Sype

This interview protocol was developed for a 45-60 minute interview with students or doctors who may be interested in the medical programs (residency, fellowship, etc.) at UMMS. We wish to find out what kind of information they find most important when they research a program they are interested in getting enrolled in.

Interview Protocol

Hi, my name is _____ and this is _____. We are working on a project with the University of Michigan Medical School to help improve the informational websites that are open to public. First, I would like to say thank you for agreeing to meet with us. I will be recording this interview as we discussed through email, but rest assured that everything in this session will be confidential in our reporting. There is absolutely no right or wrong answer to any of the questions that I ask, if you would like something clarified please let me know. Before we begin, do you have any questions?

Background Information:

Can you tell me a little bit about yourself?

1. What is your current job title?
    a. How long have you been at the job?
    b. What does the job entail?

2. You're doing your PhD in [cell and developmental technology]
    a. What led you to picking this path?
    b. Is what you're doing right now in line with your expectation when you applied?
        i. If not, can you tell me about those discrepancies or things you wish you had known?

What resources did you use when trying to find information about this program(websites, talking to staff, friends etc.)?

a. How helpful or not-helpful were those resources?
b. What was or is the biggest frustration when looking for information?
c. What kind of information could have been provided that you would have found useful?
d. Could anything have been done to make the experience easier?

Education:

2. Can you give me a generic overview of your educational path? (undergrad and so on)

3. Where does your funding come from?
    i. How do you gather information about it (fellowship/grants)? Both before application and after you come to university.
    ii. Can you walk me through on things you have to do in this process?
    iii. What are some of the key things you look for when assessing a fellowship program?
    iv. Can you tell me anything that you find difficult about?

4. Did you look at or apply to any other schools for PhD programs?
    a. What were/are some of the key criteria that you had when selecting a school/program?
        i. How did you come up with those criteria?
        ii. Would you change any of those criteria based on what you know now?
            1. How would they change? (Less info vs More info?)

5. Other than this direction, did you have any other career options that you considered?
    a. Can you tell me about the process you went through for those options?
    b. What aspects were similar, what aspects were dissimilar?

Website:

1. Can you open your department website and tell me what information was most important to you when you were searching on it?

2. Can you take a look at Michigan's [insert name of person's major]
   Example: http://bme.umich.edu/
    a. Can you tell me your general impression about it?
    b. What's good and what's bad about the information pattern comparing to your department's website?

3. Can you take a look at Michigan's Biochemistry website:
   Example: https://medicine.umich.edu/dept/biological-chemistry/
    a. Can you tell me your general impression about it?
    b. What's good and what's bad about the information pattern compared to your department's website?

Conclusion

Those are all the questions I have for you today. First of all, thank you very much for agreeing to partake in this interview. If you have any questions later about what we did today, please don't hesitate to let us know by email at _____. We may also get in touch with you later to ask follow-up questions, if any. As mentioned in the beginning, this session will be kept confidential, while we may discuss findings from today's interview within our team, we will NOT divulge your personal information. Thank you!

7.2.3a First Interview Transcription (03/01/2018)

My name is Tim and this is Paul. So like I said we're working on a project with the University of Michigan medical school to help improve the informational websites to the public. So first I would like to thank you for agreeing to meet with us, I know you're very busy being a PhD student so we really appreciate that. As I said earlier I'll be recording this interview so thank you for allowing us to do so, so we're going to be asking you a whole bunch of questions and we're looking for an honest response from you, there's no right or wrong answer that you can give us because any information will be very helpful. If you need anything clarified or you have any questions feel free to ask us during the interview, before we get started with the interview do you have any questions for us?

P: No

Tim: Cool. The first question is pretty basic me a little bit about yourself?

P: (laughs) okay. So I'm a third-year PhD student, I work here in the cancer center doing pancreatic cancer research. I'm part of the cell and developmental biology Department. Is it more about my research or more about me?

Tim: Anything about you, it could be Hobbies even.

P: okay. So yeah I came from Puerto Rico 3 years ago for this, for the Ph.D. Basically all I do is do research, go to my classes, go to seminars, exercise, go back to work.

Tim: What kind of research do you do? Is it a specific field or...

P: Yeah I do pancreatic cancer research.

Tim: okaaay

p: I study the specifically immune component of pancreatic cancer in early and late stages.

Tim: So you're training to become a pancreatic cancer specialist?

P: basically, yeah

Tim: That's cool! What all does your job as a researcher entail? We aren't very familiar with this kind of stuff.

p: Working with mice. So I had to, yeah work with engineer mouse models that have specific mutations in the pancreas I had to do surgery to the mice I had to learn to do histology and to understand the histology of the pancreas which is basically the tissue which is different between

a regular and normal pancreas vs a pancreas with lesions.

Tim: okay

P: umm, a lot of immunology, use of flow-cytometry. use of different, expensive methods to understand all the complex environment in the pancreas during those lesions on the tumor and yeah.

Tim: Okay, interesting.

You learn different software to analyze the, um, that data I get from the pancreas or depending on the method.

Tim: Okay interesting. I've always seen um a lot of studies that revolve around diabetes with mice and stuff like that, so I've never actually met someone who actually works with mice to try and benefit usm so thank you for doing that.

P: It's a lot of work, it makes me sad

Tim: I can imagine, your day definitely sounds very busy. Um, so cool! Thank you for sharing that. As you've said you're doing your PhD in cell and developmental biology, what led you to choosing this career path?

P: Um well first I wasn't sure what I want to study, I just like biology in general and I came into the primary medical sciences and that's a program that has 13 programs in it and that's when the website actually became helpful because you can learn about all the different programs that are in that big program, umbrella program, and then, um, I just pick the area that were interesting. Thinking about stem cells and regenerative medicine, a little bit about cancer, not much about cancer, but then yeah that's why I pick cell and biology specifically. And then when I came in I meet different programs and I like the culture of the CDB program in general so that's why I decided to become part of the CDB program specifically. And because doing rotation different labs, I picked a lab that was also going to be in that department, also surgery department, but I didn't have an option to be in surgery department so CDB...also it's very different, I studied cancer from other peoples finding developmental issues and or cell biology and you can learn all of those things at the same time I'm learning something very different. And I can when I'm doing my seminars I explain that to them and they learn something very different from what their doing, so it's very interdisciplinary.

Tim: Cool, that sounds great. Could you tell me a little bit more about the website you mentioned that had all of the different departments listed.

P: Oh? Is it the program of medical sciences? I don't remember right now much about it, but I know, they, it's also part of like our school. Their website have like, they talk about everything,

like our first year in the program. Which different programs are within the program and then they have a link for all the different departmental websites, like CDB, cellular molecular biology, ecology, and the other, there are 14. Yeah for me it was easy to use and understand. Just go into the link and you see all the different programs. They have like a, summary of, what there students, how many students in different departments, like 6-10(students) in this one, or 5(students) in this one.

Tim: Okay, it sounds like from everything you said, that was the main website you used as a source of information?

P: Yeah, when I was applying. Because being in puerto rico I couldn't just come here and learn, I did everything through the website.

Tim: So you had to rely heavily on the website?

P: Yeah, everything was through the website.

Tim: Um, so is what you're currently doing inline with what you expected when you applied for this program?

P: Even more

Tim: Even more? How so?

P: I didn't have, uh, when I was looking I didn't know exactly where I was coming to. I didn't even know what a PhD actually was, so I was like "Oh I'll do a PhD, okay" and then I applied, like, there's many things that they tell you about like coursework and working in a lab, but there's much more than that. Like it's, like, it's much more, you know more people, it more interdisciplinary than you think it would be, like right now I'm in connection with biomedical engineering, like, depending on which club you're in, you learn so many different things. And you have the ability to take some other courses that are not specifically what they mention, you have more freedom to pick courses that you like or meet other people or get in collaboration with other people and those things they don't tell you on the website because they don't apply to everyone but for me I think it's much more than that.

Tim: So, it sounds like if I'm understanding correctly, um, so it definitely does match your expectations but it also sounds like it exceeds those expectations because there is a bunch of additional stuff you enjoy that wasn't on the website.

P: yeah

Tim: Was there anything that was on the website that maybe doesn't align with what you do right now or doesn't match up?

P: (Thinks for a second) I don't know, I mean maybe things from life, but that doesn't happen through the website. But they actually put in the website how its like to live in Ann Arbor and those are like important I think, like, there are people who aren't from here. Yeah I think, yeah, I can't think of an example right now.

Tim: No no, that's fine! That's fine. Um, you may have covered this but just for my understanding. You mentioned that there is a lot more that the website tells you about than you were aware of. What did it tell you originally about this program that got you to come here, if you remember, I know it's been several years.

P: Um, well I liked the topics of research areas that the, especially the CBD had, cause it was, like, stem cell regenerative medicine, all of those things that sound cool. It also have a list of faculty and explained their research and what they were doing at the moment, and I like that. It also talk about all of the different activities they do and I think those were the main things. Faculty that match my interest, research topics, um, which journal they would publish in, all the different activities they do in some programs.

Tim: Okay, so faculty, research and the activities within the program are the 3 main things you saw on the website that got you to come here?

P: Yeah

Tim: Cool, very cool. Paul I don't suppose you had anything you wanted to ask?

Paul: Is that everything you were gonna ask?! (10 minutes into the interview)

Tim: No no! I was just wondering if anything came to mind!

Paul: No, please just continue with the interview

P: (Laughs)

Tim: So we've talked a little bit about, um, what your current work is, can you give us an overview of what your entire educational path has been? From your undergraduate work to what you do now?

P: Okay, so, Undergraduate I did in puerto rico, I entered through the general biology program, it's a small, much much more smaller university than this, probably 1/5th of the hospital or 1/10th, I don't even know. So it's a very small university, we didn't have many programs we just a general biology, microbiology, and when I entered to the college I decided to do biology because I thought I liked science based on my interests but I didn't know, I was just trying it. I like science actually after my first class, I finished my college in 4.5 years, I didn't know I wanted to do a PhD because nobody told me about research, I learned about research when I was in

my 3rd year, almost 4th, so almost the same year, and during that summer is when I came to the US. for the first time for an internship which was in Iowa, and after that is when I liked research, then I came to another internship in Minnesota later on and so, yeah, that's when I graduate I decided to apply to PhD because I like research and I couldn't think about something else to do and that's in the programs I did in the US is when I learned about PhD and that's when I decided to apply. I learned about michigan because someone was here doing a push back(?) program. Which is like when you, the person didn't get into PhD program, so the push back is training them in research for like a year and allows them to take a GRE exam and apply for a PhD later. The person was here, so I learned about michigan that way, and then I applied the way I told you, I just checked the website and now I'm here. I, the first year, I rotated in different labs, I picked different cancer lab because I like the environment, the research, and the mentoring I was having was matching with what I like, not a micromanager person, my mentor, is a good mentor but is not there all the time telling me what to do, that's what I need. I joined CBD for the reasons I told you, I like the research, the faculty, the environment, the activities, it's a small program so I get to interact with more people, like a big program it's more people but less interaction because it's so big that you get lost.

Tim: One thing I find interesting and I don't know if you mentioned this, but did you do a masters program at all?

P: No, no

Tim: So you went from bachelors to the internships to the PhD program?

P: Yeah and my internships were during the summer when I was still doing my bachelors degree, it wasn't after, it was during those summers, I did 2 internships and then one year apart(?) compared to most people I didn't have a lot of research experience coming here, but I had good letters of recommendation.

Tim: Interesting! So this is something that I'm a little unclear on, especially when it comes to PhD and MD, have you done or applied for any kind of fellowship?

P: Yeah

Tim: Can you walk me through that process you went through?

P: Does it have to be a fellowship? Or can it be any type of funding source? Like grants? I know there are different grants, and I know there are fellowships. I had a fellowship I didn't apply to, it was given to me by rackham because they select some students for this fellowship, but I didn't actually apply. It was based on my application to grad school. I also have, that one doesn't count because I didn't apply, I applied to a training grant Here in the University Which is called the cellular biotechnology training Grant It's part of biomedical engineering Department And

that's funding from NIH Actually but it was given to the university So they can take or select like five or six students That applied and they found them 2 years in a PhD With some requirements like Taking a course , going to monthly meetings , going to the symposium , and do an internship In a biotechnology company. So for that it's different from other Fellowship because I had to write a Personal statement about... just a regular personal statement But I had to include a proposal For a biotechnology product And they will pick you based on your personal statement And your product that you thought about And you wrote about Even though you don't have to actually do it, they just want to see your thinking To develop that product

Tim: Okay, so that was one of the, that was for a grant you said?

P: Yeah it was for a training Grant. So it's part of the University but it comes from the NIH. Which is the, I don't know, National Institute of science...National Institute of Health

Tim: Okay, so you went through...you applied for a training grant Through the National Institute of Health?

P: No, I did it through the university But the money is coming from the National Institute of Health

Tim: Okay, So you applied through the University But the money comes from them (NIH) And in that application process you had to Write a personal statement and you had to…

P: I had to send my application to the...the first application when I came as a PhD student, and I need a letter of recommendation from my mentoring mentor, and what else, and my transcript, and school stuff

Tim: So it was a pretty standard application for the most part?

P: Yeah, but if I applied directly to the national institute of health funding, its called a university supplement and this is the ...(unknown, background noise)... for specific funding, and you Can create a supplement for that. I applied for that one And for that you have to do a big proposal Of your research with many pages Explaining what your experiment is going to be doing , why do you need the money And you have to do many types of forms...Like a form for just the proposal , another form which is called biosketch Which you talk about yourself, it's like a Resume but not really a resume With specific guidelines. You have to do another form for mice, If you are using mice it's going to be a Like how many mice are you going to use, which strains they are, everything about the mice. Which genes or mutation do they have , its a lot of forms, that one Is much more complicated And it's a real mess.

Tim: Okay, interesting. So it sounds like there’s a lot of variance between the different types of Grants and funding

P: Yeah, there are many differences

Tim: How did you learn about those grant opportunities or any fellowships that you've done? How did you learn about them?

P: My mentor.

Tim: Okay

P: Or PI, that's what we call principal investigator. When I say mentor or PI, it's the same thing. She's the one who usually knows which funding is available for me. And she will tell me to apply to them and she will Actually help me , she's a big help With the writing, if you are not good at writing you're not going to get them And I'm not that good.

Tim: So when you're looking at these funding opportunities, is there anything specific that you are looking for?

P: Um, so usually You want a funding that will give you a stipend And who will also cover your tuition And all of your research that you're doing. Would also like, with this training grant, training grant The important thing about training Grants is the worksite training, so like It will train you for something specifically , like this one I applied Right now I applied to it because I'm interested in going into biotechnology company later and that training is super done(? Couldn't make out what she said 20:50) like you have to go to a class(club) on biotechnology You are required to do an internship or a biotechnology company For at least 3 months. That is why I wanted to apply to that one. There's one called F(s?)31 from the NIH And that one is a general funding for students It's good to have it because it's also good for your resume Saying that I applied to or went through All of this or I applied to this grant. If you got it, even better, But just going through the process is good to put on your resume, like you applied to it, which score did you receive? Because those are also scored and if you get a low score it can tell whether you were very close to get it or not. I haven't applied to that one yet, I'm not an expert but I know it's good for a scientist. Because all a scientist when they are like a boss its getting funding for their research.

Tim: Yeah that's actually, I'm glad you said that because that's something I was gonna touch on, one of the big things I'm getting from hearing you talk is getting these grants is crucial as a researcher and a PhD student. It sounds like you really need to...

P: Yeah, if you don't get this, either your PI to have funding for you, or if they don't have the funding for you, then you have to teach or something to generate the money to pay for your tuition. That's why its crucial for us because otherwise you have to work, and we already barely have time for research and then you have to be teaching. Although teaching is also required for most programs for a semester, but if you don't have it (funding) you have to work most of the semesters as a GSI which is a graduate student instructor and that's a lot of work

Tim: Oh, okay.

P: So yeah, you have to find a way to get funding and specifically for PI's, who manage a lab, having funding is very important because that's how you do your research, without money you can't do your research and work anymore.

Tim: Have you ever applied for a grant or funding where there has been a red flag? Where you've been like no I'm not gonna do that

P: No

Tim: Is there anything that could be in a funding mechanism that would raise a red flag personally where you would say I don't feel comfortable or don't want to do this

P: I don't think so

Tim: Okay, cool. So You said, I think you kind of touched on this, your goal is to work for a biomedical company, could you kind of talk about that a little bit, like what specifically you want to do?

P: So I wanted to study medicine, but then I realized I didn't want to, I don't see myself being with patients, and I actually like research more, like discovering, the research, the way I see it is we discover and understand the biology of a system to discover new therapeutics. So then the people in the medical field, doctors, can, biomedical companies will develop those drugs for diseases and then the doctor will say to take it. I want to be in that part, I want to be the one that discovers new therapies or the biology of a system to discover new therapies and biotech companies, that's what they do. They do research to investigate the ways we treat diseases and better ways to do it. Like cancer, a better way to attack the cancer, without attacking the rest of the cells in your body, that's what I wanna do, and I think research...company would be the best fit for me. Um, I don't wanna go to the academic field because I don't feel like I wanna manage a lab or write grants, and that's what they do, they write for grants and get funding and be a good mentor and I don't see myself doing that either, I see myself doing actual research.

Tim: I totally understand that, that's the whole reason I never wanted to go for a PhD because I want to focus on doing the work rather than writing the grants.

P: With my PhD I can still work with a company and do research, but it depends

Tim: We kind of covered this earlier, but you were talking about this earlier, but you were talking about the key criteria for selecting a school, the faculty, research and…

P: The activities, and environment in general like how I feel. That's through the website.

Tim: How did you come up with those being the criteria for where you wanted to go?

P: Well I figured like if I'm going to spend 6 years or more of my life with something it better be something I like doing Or research area that I actually I see it's important to discover something new that will help people it's um something I enjoy doing and something I can be surrounded by people that are good and not someone that will make my life miserable. So I got to be happy.

Tim: So your happiness is Important?

P: Yeah, I think for everyone

Tim: So, Now that you've been here for 3 years, looking back, is there anything, would any of the criteria change based on what you know now versus what you knew when you were originally looking for the program

P: Not really, I think I Have a good decision, I made a good decision because I, right now and I'm happy with what I'm doing, I like what I'm doing, I know it's helpful for people who have been getting cancer, and the people who I'm surrounded by are really good, they help me a lot, they are good people there to help you when you grow and not there to hold you back. So I think those are good criteria

Tim: For sure. Did you, cuz I know so far we've only been talking about Michigan, did you look at or apply to any other programs

P: I did

Tim: Could you tell me about the other schools that you applied to, maybe what was good or what was bad ?

P: Right now I cannot remember the website, All of them of course it had to be through the website and also some of them because I had been there before like the University of Iowa like I knew there was good people maybe the research wasn't as strong because they don't have all the research areas I wanted but I knew the people were good. Minnesota had Really good research and really good people, I like the campus a lot and I already knew that University. I also applied to UPenn and UT western(? I have no idea what university she names here, timestamp is ~29:10) I cannot remember how good were there websites because I actually don't remember but I think like yeah I went to interview in 3 places so I can tell what made me choose Michigan, it was the people. Yeah it was mainly the people, the environment here I like. But yeah I cannot confirm if it was because of their website, I don't remember

Tim: Was there anything that the other schools offered that maybe michigan didn’t offer?

P: (thinks for a second) I don’t think so

Tim: Was there anything michigan offered that maybe the other schools didn’t offer?

P: Michigan has the good program for people like me who didn't know what they wanted to do Like the program I told you about with the 14 in the 1 big program, you can choose, after you finish your first year you can choose, that was the one thing that not all the other universities had, only one or two had them but Michigan had it and it was good, because I Wasn't, some other university you have to apply to a specific program but here I have the chance to explore different areas like neuroscience and cancer and biology all in my first year and then choose what I want to do

Tim: So you like that One year where you got to experiment a little bit and then you got to make a final decision. That's interesting, I wasn't aware that's how the program here works

P: Not all, just that one.

Tim: That's really good insight for us, okay so I know we've talked about this a lot but it's important for us to have a thorough understanding so I know we've talked a lot about how you use that specific website for a lot of your information, did you use any other resources to find information about any of the programs you applied to?

P: Wow I may have seen rankings to see which university was better but I think that's the only other thing I used as a resource, besides asking people who have been to those universities it would be seeing the rankings to see which position the university is in research or in the medical school compared to others

Tim: So your three main things were The rankings, the websites, and the people you had spoken to, those were your three big things that you used his resources? So you've talked a lot about how helpful it was for the website, how helpful were the other two resources for making your decision ? Or not helpful

P: I think asking people was helpful, That's how I actually, make my list, but it's not like I decide based on that. I decide which university I was going to apply based on what people told me mainly, and then also with the website but mainly based on what people told me and then, what was the other one, the rankings, I think the rankings were helpful when I was going to make my final decision after the offers I was going to pick like which one has a better ranking together with which one I enjoyed more during an interview and which one gave me, which was more helpful and stuff like that. I was very confused between Michigan and Minnesota I didn't know which one to choose and I did the ranking and someone made me decide from Michigan

Tim: So it sounds like based on everything you just said that Talking to people was the most important thing that you did when trying to figure out what schools to apply to?

P: Yeah, because there are so many If I didn't have, if someone didn't mention the university to me I wasn't going to just google like University in the US, I was like I know Iowa I know Minnesota I know someone that went to Michigan, I know someone that went to Upenn, I know someone that went to Western, So I'm going to apply to those but I also know people who went to others and they didn't enjoy those University so I didn't include those

Tim: I'm not sure if you remember, but what did those people tell you that would make you either apply to a university or choose not to apply

P: They liked what they were doing And they were happy where they were at because most of those people were Puerto Rican like me so I know it's very difficult to live like in a place totally different like Michigan is from Puerto Rico so if I know someone from Puerto Rico is living here and they liked it and I know that person is reliable Then I will be like okay then I can live there because besides all the research which are my main thing also will I survive the winter or like the weather because we don't have winter

Tim: So it was very important that they said they were happy and I enjoyed what they were doing, did the fact that they came from a similar background as you also, was that important to you?

P: Yeah it's not the same here as someone from Michigan saying Michigan is good versus someone who live in the same area as me who live at her whole life and then moved to Michigan saying it was good, it's not the same. Someone from Michigan or someone from the north would be biased they are used to the snow, they know what a winter is, my Winters were 65°, it's not the same

Tim: I kind of want to go back a little bit, when you were looking for information for all of these programs that you applied for what would you say was the most frustrating thing that you faced when you were looking for information about the schools?

P: That when you go to a Lab website, they didn't have a website or it wasn't updated. It was like the actual Labs website for a specific laboratory, they usually have their website and sometimes you go there and it's under construction or it's not working and you can't no more information about that specific Laboratory or they have a very outdated website from like 2002 and you're like have you published more after that?

Tim: How often would you say that happened to you?

P: 4 lab websites, often, not many Laboratories have good websites because they don't have somebody to manage their website. That happened to our lab, it should be a student working on that because our boss is very busy, and the students are also very busy, and we don't have a lot of chance to work on the website to make it better

Tim: So updating the website or having An up-to-date website is something that's very important?

P: I think it’s very important

Tim: Was there anything else that was frustrating When you were looking for schools and programs

P: let me think, yeah I think it's mainly just that most of the time everything worked fine but if you opened a link and the link was not working for some reason then that's frustrating because you have no way to know unless you call or you're in line for a long time and you don't have time to be calling it would be easier to just Google it

Tim: what kind of information do you feel, we've kind of already talked about it, is there any information that you think should be provided on these web sites or any of the resources that you use that currently.

P: so there's, I just don't remember if there's something missing, but I think for students and I'm applying again I think it's like housing opportunities or something like that, I know like they gave all that information was given to me through email but it's not like on the website, I remember it was all through email or was provided to you, but maybe in the website people could already start looking, like oh there are Apartments here and there and they are close by, but you can also check that by Googling the area, I don't know, just having that information available would be cool but I'm not sure if that information is there or not, I don't remember

Tim: Is there anything else That you think would be helpful for these websites to include?

P: I think everything was pretty good, at least when I applied.

Tim: Like we said, there aren’t any right or wrong answers, we really just appreciate the honest feedback , So this is a little bit different of a question, but is there anything that could have been done that would have made the entire process easier for you?

P: I think everything was pretty easy

Tim: Okay, that’s fine. so this is kind of just a what if thing, other than going into cell and developmental biology field was there any other field you were considering going into?

P: Normal molecular biology, yeah I don't think there's anything wrong with that one but it has a bigger program, too many people

Tim: did you take any active steps to look for information or apply to that program?

P: No I just looked at the website and seen it was a much bigger program And then in my first year when I was already here I saw that it was very big and I didn't want to be in a very big program

Tim: you said that you looked at their website, I know it's been several years but was there anything on that specific website that was different about the cell and developmental biology website?

P: I don't think so, I think it's pretty much the same

Tim: Okay, cool. and then this is something we kind of touched on again but then we started talking about grandt's, did you apply for any fellowships at all?

P: I just don't know if fellowships are the same as grants, I'm very confused

Tim: from my understanding they seem to be essentially the same thing as a grant based on the information I looked up, but I don't think with all the grants They specify the work you have to do, but the fellowships Told you you had to work in one specific area, but it sounds like based on your description that those aren't accurate descriptions

P: Yeah because I have two fellowships, they actually have that on their name, like this fellowship and that fellowship, like the first one I told you was to Rackham and they base the decision on my application and the other one was in CBD and I just had to make a small paragraph about my research and that's it, it wasn't a big deal, and because they award 4 at the same time they didn't have to choose because we were 4 and they had 4. So it's not like I had to do much work for it.

Tim: That makes sense

P: And the other two I told you about the the supplemental and the NIH training Grant

Tim: Okay, cool, so I think I just have one question left. When you apply for a grant is there any specific information that you are looking for in regards to that Grant?

P: Yeah there are many things, not one specific but many specific things, Like how much they're giving you, what does it cover, how many years will it cover, like 2 or 3 years, and you have to do all the criteria, especially if they are from NIH there are many things you have to do and you have to do them early, you have to write your information, I usually look for all that information before I start like all you need because I need to make a big to-do list of all I need which, yeah…

Tim: One other question, so you said you've looked at other programs, was there anything that any program did that attracted you to it specifically?
P: Well based on Research not really, because I like the most of the research, But at the end the person I picked…….. (can't understand) So in there I also base it on whatever activities, activities I told you about like if these two programs did activities, like other programs will do like very simple, Neuroscience I never considered Neuroscience because I'm not interested in that type of research but they do a boot camp for example and during the summer before you, I don't remember when, but when you're starting your Neuroscience program you have to do a boot camp and if you want to join later in the year and you didn't do the boot camp that's a problem. That's something like I wouldn't, even if I considered later, if that becomes a problem for me to enter then it's difficult to be in the boot camp if you're a second year, that's something like if I go to join neuroscience that they do that,I don't know why. the other ones were mainly activities, like if 1 program would do Retreats and social versus another program that didn't do it, I would choose the program at its social and Retreats because I like that better. Those are things, and research or faculty……(can't understand)

Tim: Okay that's all the questions that I had for you. Did you (Paul) have any questions you'd like to ask?

Paul: Yeah I actually have just one, Are you familiar with, so you're a PhD student are you familiar with any other students that are pursuing an MD?

P: Just MD, or MD/PhD?

Paul: Either

P: In my lab we have two MD PhD students but they already graduated from the PhD part, not the MD part. I have another friend who's just starting the PhD part of the md-PhD part So she completed two years of MD and now she's starting her second year of PhD and most of the people I know from the MD are MD Ph.D

Paul: Would you say...I'm not familiar with the difference between MD programs and PhD programs, is the road between them very different?

P: yes it's very different, MDS do a lot of classes and exams during their first two years and then the last two years they do rotations where they follow some doctors in a specific area to see which ones they like better, MD PhD students have 2 years of med school which are the first two years of many classes And exams and then they do their 5 to 6, I think you could do a Max of five and a half years or six and a half years of PhD, you get your PhD and then you go back to med school to do your rotations and all of that for a few years

Paul: So during the PhD portion, its very similar to what you're doing?

P: Yeah the PhD is basically the same, you work in the lab all the time. And the PhD students usually only have classes the first and second year and you have to be in lab all the time or at the same time when you do classes and after that it's full-time lab and working on your research and writing your thesis or paper, mentoring students and going to many seminars, depends on the person being involved in different things.

Paul: Okay, that was the only question I had.

Tim: With that I think we are done! Thank you so much for helping us out!

7.2.3b Second Interview Transcription (03/02/2018)

Tim's Part Starting at 0:00

-Phone Rings-

I-1: Hello, Hi, is this [redacted]?

P: This is [redacted]

I-1: Hello [redacted], I'm chen

P: Hi nice to hear from you

I-1: Yeah, good morning! I'm sorry for the delay, because we were just trying to set up the audio recording for this phonecall.

P: Oh okay

I-1: It's kind of troublesome so it take us some time to do that so we are very sorry for the delay

P: Oh, not a problem

I-1: Thank you so much, in addition to me there is another interviewer in this interview, he is Paul, he is doing the audio recording but somehow his device cannot record his own voice, so I will be the major interviewer and he will take notes. Thank you so much.

P: Yeah not a problem

I-1: Before we get started we would like to give you a brief introduction to the Interview. and we're interviewing you for our project, we're working on a project with the University of Michigan medical school to help them improve the informational websites that are open to the public. First of all I would really like to say thank you for agreeing to meet with, to talk with us

P: No problem

I-1: As I said we will record this interview but all of the information will not be disclosed to any other third parties or any other people, it's only for internal use. there's absolutely no right or wrong answer to any of our questions but we are going to ask you so if you would like to, if you would like something clarified please let me know and if you feel like uncomfortable answering any question or like you want to stop the interview you can just tell us and we'll stop

P: Okay

I-1: Before we begin, Do you have any other questions?

P: No I think you covered a lot of instructions about the purpose of the interview

I-1: Also the interview is going to take about 60 minutes

P: Okay.

I-1: First of all can you tell us a little bit about yourself, like what's your Current job title, and how long have you been at the job, something like this

P: I am currently a Ph.D student in cell and developmental biology, I entered through the program of biomedical Sciences of the University of Michigan in September 2016, so I've been here for about two and a half years working within the cell and developmental biology Department for about, close to 2 years now.

I-1: Sure, so like what does your job entail, like what's your routine of your day like

P: Yeah. So I am A PhD candidate so most of my days are spent actually in the lab And I've almost completed coursework so my role is kind of conducting my graduate student research, I also am involved in some interdepartmental activities including our department website community which is…(Cannot make out the words here, time is about 4:40)...and then part of a graduate student organization known as developing future biologists, so I'm splitting my time between those responsibilities. But my predominant day-to-day activity is pretty much just working Within my thesis lab which is the lab of... (Can't make out the word, ~5:00).

I-1: Okay, thank you, so um, As we all know you are doing your PhD in cell and developmental technology and actually we are curious to learn why did you pick this path, how did you choose to go to this field?

P: Oh okay that's a good question, so I Did some undergraduate research at a Children's Hospital in a lab that was focused on developmental biology and it was there that I kind of learned that this particular field of research is what interested me the most I think a lot of what we can figure out about disease and regenerative medicine lie in understanding basic developmental biology questions and in particular I really enjoy kind of my rotation through the lab and I really like the opportunity to work with a variety of different model systems to address questions surrounding human development so my lab has Both stem cell models as well as mice models during development. Does that answer the question?

I-1: Yeah yeah yeah, sure. Then like, do you find when you are doing your Ph.D program and you said that all of your current Pursuits in a PhD program is originated from your undergrad research and do you find like your current, what you're currently doing is aligned, are aligned with your expectation when you applied?

P: Um, I would say Yes, I would say I entered graduate school immediately after concluding my undergraduate study so I don't think I had a firm set of research questions that I intended to pursue in graduate school I think part of the reason I came to Michigan was an access to an interdisciplinary umbrella program, so I like the flexibility, I had the option to try out to try different labs and ended up rotating in 3 labs that all addressed different questions in biology and so I like, it was really important to when I came here to have a program that would allow me to explore in the first year before having to commit to my doctoral research.

I-1: Oh, that’s pretty cool. And How did you, did you do your undergrad also in Michigan?

P: Um, I did my undergraduate in the state of Michigan, I did it at a small local art college, Kalamazoo College.

I-1: Oh okay, then How did you get to know the programs, the PhD programs in Michigan, like how did you, you mentioned that there are several different Labs, how did you get to know that kind of information when you applied?

P: So there is a, there was kind of a faculty portal for the program in biomedical Sciences homepage that Kind of you could go and you could search for faculty based on their department or their research Focus and through kind of looking at those resources I had identified certain faculty that fell within what I believed to be my research interest at the time. And also, we have a really good interview weekend here so when I came to visit to interview and had the opportunity to interact with many many faculty and that was kind of a good indication of potential faculty I wanted to work with when I arrived here next fall.

I-1: Oh, so can I say that The primary channels you used to gather information about the PhD program is one the website itself and the other is campus visiting?

P: Yes

I-1: Oh okay. Thanks. So you just mentioned when you decided to take the Michigan program, you really valued its diversity, like it has several different kinds of paths in your field, and other than that, Do you have any other criteria you used to select PhD programs?

P: Yeah, so I really you know through the whole interviewing process when I was actually on campus I really felt like all of The Graduate students were really happy and excited to recruit their students for the next year and so they really made me feel pretty welcome and excited to pursue my PhD at Michigan. And so I think that the environment throughout the interview process really kind of solidified my decision to come to Michigan as opposed to other universities for my PhD.

I-1: So you mean like, You really felt that kind of atmosphere when you visited campus, right?

P: Correct.

I-1: Yeah but, did you get any relevant information about campus atmosphere or student life when you were visiting the school website, did you get the sense of, do you get the sense of the campus atmosphere when you were purely, um, looking at the information provided by the website or you can only get that information when you really go to the campus and experience…(experience this(?) Not sure what was said.)

I-1, I-2: interviewer; P: Participant

P: The way this search would go right now, it's reliant on searching for a particular personnel, principal investigator, and then it's always really helpful when they have an updated website that clearly outlines their most current project they're working on, as well as if they have any openings for postdocs or graduate students. But frankly right now, still being 2.5 years away from graduation, I don't want to get my hopes up because the lab environment can change dramatically in that time frame.

I-1: Yeah, you have mentioned the term "Research Personnel' several times, because it is not in the medical field, can you please explain a bit more about what you mean by "Research Personnel"?

P: Yeah, Sorry. So in this context I'm referring to the Principal Investigator of the lab: the person who runs the lab and the predominant mentor and the predominant funding provider. So they're the ones who are often coming to give talks about their work at the university.

I-1: OK, so you were applying your PhD program, in addition to the Michigan program, you also mentioned that you were looking for other programs. Were there anything that was pretty helpful or kind of helpful in terms of information they provided by the websites of other universities or programs.

P: Yeah, there's one thing I actually remember about Michigan that I appreciated, I can't remember where this document was located, but they had basically a single page PDF that outlined their typical class in terms of where the students were geographically, the size of the class, the average admission statistics, so GRE scores, GPA, the breakdown of gender ratios. So I feel like that kind of information was a good implication to whether I was a competitive applicant.

I-1: Were there anything from other websites from other schools that you found helpful?

P: I'm trying to think… I can't remember there being any particularly strong website. I think that decision was mainly made when I developed the list of schools I was initially applying to, but the ones I ended up applying to all had similar caliber of resources online.

I-1: I-2, do you have questions you'd like to raise?

I-2: I wasn't sure if this was the question that was asked. Did you ask her whether she looked at other programs apart from University of Michigan?

I-1: Yeah, I asked that. You mean the PhD program right?

P: Yeah

I-2: What was her answer to whether those programs provided anything useful?

P: I can reiterate and just say that I was looking at other program, probably close to 10 other programs, and to be honest, I can't remember anything that was particular strong about the online resources. I think that the initial decisions to apply to certain universities were made based off of easily digestible the information online was. But when I was deciding between schools, the online resources weren't as useful at the point because I'd already established personal connections with the universities and I had people I could directly ask questions to. Did that make sense?

I-2: Absolutely, you also mentioned about having a single page pdf that outlined everything, geographical statistics and those, is that something that's important to you to make the decision or is it something convenient for you to have to evaluate…

P: I think it definitely has good information, I think the one thing: I wasn't expecting to stay within the state of Michigan, so if I wasn't originally from Michigan, let's say from the west coast, kind of understanding the geographical breakdown, you know if I saw that I wasn't going to be the only student fr om a particular state or a particular geographical region, that would have made me feel more comfortable about moving to a brand new area. I live fortunately [indecipherable] went to graduate school which was only an hour and half away from my undergraduate. But information like that is important when considering moving far away from your comfort zone.

I-2: I see, another question is, you're 2 years into your program right now, was there anything you wish you had known before you applied? Was there something that you found out after you got in the program and felt it'd helped if you had known before you applied?

P: I think one of the things that is actually on, I'm looking at the website right now and it's available, but I think opportunities about training grants are really important for me now, understanding kind of the diversity of training opportunities that exist in addition to the research that's going on is a huge traction to a particular graduate program. I think really making it clear how flexible the PIBS program initially is, that you truly have access to lots of research labs, I think is helpful. And I think that they recently generated kind of a portal website for first year students to have access to in terms of faculty that are accepting rotation students and kind of overall course structure which was helpful when I got here but I don't remember that being accessible when I was applying.

I-1: For that portal website, do you still remember the exact link, the URL, of that portal?

P: I think I still have it bookmarked, yeah it's a Google site. I can email it to you.

I-1: Yeah, that would be very helpful, thank you!

P: I'll send you that email right now.

I-1: Thank you.

P: And I don't think that there's anything protecting it for admitted students, I just don't think it was shared.

I-2: I guess I just have one clarification question, because to my understanding, grants and fellowships are two concepts that are very similar, like you're getting funding to perform research. In your understanding, is there a difference between the two?

P: The only subtle distinction is that at least with the training grant, well no, sorry, that's the language, it depends on which word people use. But, the training grant was really designed to be a training opportunity. So it's more centered on the universal idea of training. So under the BioTechnology training grant, so it's really designed to expose you to that career path; whereas fellowships are more directed towards fostering, or funding, a student without any particular motivation to pursue towards any research interest or career. It sometimes the only distinction I see.

I-2: Yeah, sort of.

P: I think they're pretty interchangeable.

I-2: Do you apply the grants through your program or do you apply through your lab?

P: We apply through the program. So the structure is that you apply to the program in Biomedical sciences and if you didn't get it, then you have access to 14 different PhD programs, and the PhD program that you end up joining after the completion of your first year, is primarily dictated on which lab you end up in. So, labs frequently have a primarily affiliation with one of the 14 programs, but also have secondary and tertiary ones. For example, in my situation, my thesis advisor is part of the Cell and Developmental Biology program, as well as the Cell and Molecular Biology program. So I could have joined his lab through either of those 2 programs.

I-2: I see, that's very convenient.

P: Right, especially in your first year you have to make decisions to take certain coursework before knowing exactly which program you're gonna end up in, so it's nice to have this flexibility to join a lab without having to completely redo your course work.

I-2: It's kind of interesting why they would split a program into 3 similar programs, do you know the reasoning behind it?

P: I know at one point they all used to be one. So the Molecular, Cellular, and Developmental Biology program was affiliated with the college of Literature, arts and sciences, whereas Cell and Developmental Biology was pertinent with the students of Medical School. Those 2 that I just mentioned are associated with either the Medical School or the LSA; and then the third one is not a department, it's just a program. So these are important differences, but it's really confusing to a person who's applying (chuckles).

I-2: Does that mean if you were to go through the program that's from the Medical School, that gives you more chance of exposure to clinical side of things, and if you were to go with the one that's from LSA, you might be exposed to the other side of the academia?

P: That's correct. I would say LSA is more focused on very basic Biology, and the faculty in that department do have obligations to teach undergraduates. So they have a stronger teaching burden, I don't know if I want to use that word, but a stronger teaching responsibility to teach undergraduates; whereas the faculty in the Medical school are predominantly responsible for teaching the Graduate level courses in the Medical School. So the teaching responsibilities for faculty members are different as well as the overall the research tone. However, especially my department (Cell and Developmental Biology), there are plenty of faculty who are doing what is considered more Basic Science. Not everybody in my department is required to have direct clinical associations with their work.

I-2: Is this information on the website or is this just something that everybody thinks is common sense, so they wouldn't include it anywhere?

P: Oh, it's not common sense at all! It took me a year and a half to figure it out and it took me half a year to fully realize the differences. If you search these programs, they have 2 independent websites, the information is all there, but understanding the nuances is not intuitive, for someone who's not familiar with the University of Michigan.

I-2: Did you go straight from undergraduate to PhD program, without having a master's program?

P: Correct.

I-2: Did that pose any challenge for you coming into a higher level compared to people going through a master's program?

P: So with Cell and Developmental Biology, there isn't a master's program. So you pretty much can only enter through the doctoral program, so in that sense there is a uniformity. I mean people do have mastery that come in, but there's not really a divide or a decision that has to be made to apply to that the Mastery or the PhD program. There were some unique challenges with just having a limited level of experience before coming to Michigan, but I think that the program is really good at [preparing the students for the next year]

I-2: Is this specific to the University of Michigan or is this absence of a Master's program pretty common across the country?

P: It's pretty common. Students do [sometimes] come in with a masters, but it's not uncommon to bypass the masters.

I-2: I wanted to go back to this concept of umbrella program that you talked about, how easy was it for you to navigate on the website of the different subprograms under the umbrella?

P: It's pretty clearly laid out in terms of what program comprise of in the umbrella program. So the 14 are clearly listed, it's just not always obvious what the differences are between similar programs as well as what it means to have a faculty member that has multiple [appointment?] And frankly because it actually does impact your application, so if I indicated one of the 14 programs as my primary appointment, that program is responsible for my application.

I-2: I see, so you're saying they have everything on the website, but for some ambiguous stuff, such as the 3 programs that you're mentioned, they're not very clearly differentiated?

P: Correct.

I-1: I'm curious about the 14 programs you mentioned, are those 14 programs all about Cell and Developmental Biology?

P: I used to know them all, so it ranges from a handful of Cell and Developmental Biology [programs], there are Immunology and Microbiology, there's one associated with Neuroscience, Biophysics, Biochemistry, and Cancer Biology as well. I can send you the 14 programs as well.

I-1: That would be helpful, thanks!

I-2: You mentioned that there maybe some teaching responsibility that comes with the PhD program, is that information also on the website, or is it something you sort of found out after you've come to the program?

P: I don't remember it being on the website to be honest, it does vary substantially between programs in terms of teaching requirements for graduate students. So I think if it's not there, it's important information because that will determine… one of the program, I had to teach for 2 semesters and my current program I only had to teach for one semester and some require undergraduate teaching and others require graduate level teaching.

I-1: When you were looking for a certain information on the website but it doesn't provide that information, what would you do to get the answers?

P: When I was deciding between graduate programs, I ended up having to write out lists with questions and contacting the Graduate chair, so a lot of it was through email and phone call if I couldn't find the information online. And then when you're actually here, it's pretty easy to identify a person who would know the answer that's not there, but it definitely would be nice to have those information accessible online.

I-1: Are the contact information also provided on the website?

P: There is, on the portal that i sent you, the new student portal, you can get information from various department to people that can answer your question, I don't think that's very readily

accessible on the initial PIBS website if I recall, but again it's been a while since I've looked at that particular website.

I-2: You mentioned that having an updated lab website is fairly useful in deciding where you want to go, now that you're in a lab, how difficult is it to maintain the website?

P: I would say my thesis advisor is particular dedicated to having an updated lab website so he has all the responsibility of updating it, and I think that it is pretty standard for that responsibility to fall on the PI of the lab, but I would say his situation is rare in terms of having an updated lab website, and so it still is a problem as a graduate student when you're looking for contact information. Like something that will happen a lot is I'd be looking for a particular reagent from a lab and there's not a clearly contact aside from the PI. So you know, you could get a much quicker response from a lab manager or another student in that lab before emailing the PI. So that information is still very valuable even after I've joined a lab and it can be hard to find.

[Inquiry about anonymity of this interview]

[Interview Ends]

7.2.3c Third Interview Transcription (03/04/2018)

I-1, I-2: Interviewer P: Participant

(Brief introductions by Interviewers.)

I-1: Can you briefly introduce your background? Like your major, job or so.

P: Sure. My name is [xxx], I'm a 5th year PhD student at a joint BME program of Georgia Tech University and Emory University. I focus more on bio-material for the immuno-therapy on cancer.

I-1: Is BME stand for Biomedical Engineering?

P: Yes.BME is Biomedical Engineering. Some universities will call it Bio Engineering.

I-1: Ok. What is your daily work responsibility?

P: I have my own research project. It includes many aspects. One of the aspects is doing thesis project for my PhD degree thesis. And my focus is on (website: 2:29), which requires me to do experiments related to biology or chemistry, At the same time, I also do literature review or write some papers, articles, to summarize the result of those experiments.

I-1: Great. So you said you were at your fifth year PhD program. May I know why you choose this academic path?

P: I feel like people who choose this path are either passionate about doing research, or passionate about medical science. I'm the latter one. I like medical science and want to either do practice in this area, or develop methods to solve problems that cannot be solved yet. So I choose this path. And PhD program is a necessary training. If you didn't go through it, you would not have enough knowledge base or skills to achieve your research goals, not to mention make some impact. So you have to get a PhD degree.

I-1: Is what you're doing right now in line with your expectation when you applied?

P: In a manner of speaking, yes. What I'm doing right now is in line with what I expected, because I had similar research training during my undergrad so I knew how PhD life would be like.

I-1: You just said "in a manner of speaking". So can I say there were some discrepancies or things you wish you had known?

P: Yes. It actually related to your interview topic. When choosing research focus, PhD advisor, or even PhD program or school, you need to read through a lot of medical schools or graduate schools' websites. But most of the information on them are not updated in time. After I come to the lab here, I find this problem is even more serious than I thought. Because I know the information about research projects, results and the progress at least for the lab I belong to still remains at 2/3/4/5 years ago. The website of our lab is not updated, which makes the school's website not possible to reflect the real information. So when I applied to schools, I had no idea about what were exactly going on in those labs or advisors. I had to make decisions by sense. I can only contact with advisors closely after I come here. US students actually have more advantages on this way, because they are able to fly to their target schools and talk to advisors, which is pretty difficult for international students. So the information you know when you apply is quite different from the one you know after you come for international students.

I-1: It's very inspiring for us to know it. Can you give us a brief overview of your educational path? (undergrad and so on)

P: My undergraduate education...a part of it maybe not that representative because I began my undergraduate study Peking University, I was in College of Engineering. And after the first year of general education, I declared my major as Biomedical Engineering. So I didn't decided at the very beginning but after I explored a little bit. After I decided my major, my path was kind similar like others who chose to do a PhD program. Everyone went into labs and did research training. Some of us, including me, went to only one lab, stayed there for 2-3 years and continued toward the same direction since we were very interested in it. But some people might feel they didn't match the original topic well so they would switch to another lab to explore what they truly loved, and then continued their graduate study on that topic. I am pretty consistent. I used the research results I made during my undergraduate to apply graduate programs.

I-1: Great. So you mentioned you decided to do PhD program during your undergrad. Then which year were you made up your mind and began to explore related application information?

P: I believed I decided to go abroad to further my education first, and I had never thought about a master degree. Because the career path was not very different between a master student and a undergrad of this major. Neither of them have a very clear target position. Only when you finish your PhD degree then you will have more high level opportunities. Besides, I was considering about doing research at that time, which I had to do a PhD. And I made up my mind during my sophomore year. Because at that time we should begin to prepare our GRE exam. As for exactly when did I decide, I can't remember very clearly.

I-1: Is there any specific career path in your mind?

P: After I began to pursue my PhD degree, my career path has been changing all the time. I used to want to be a professor. I don't if BME program has any similarities to your medical school. Our BME is more like engineering program. Most of our research projects are still in research phase. They cannot be applied to clinical use. So we are quite similar to biology or chemistry's [排量？：10:25], which leads to the limitation of our funding sources. Most of them are from NSF (National Science Foundation) and NIH (National Institutes of Health). Thus, recent years, especially when the new president took the office, these two fundings have been cut by more than 20%. The possibility of getting funded has decreased, which makes it less possible to get a faculty position. And the competition become more stiff. So now I tend to go to industry , like pharmaceutical companies, to be researchers.

I-1:What resources did you use when trying to find information about your career path and this field (websites, talking to staff, friends etc.)?

P: Mostly by the word of mouth. School websites don't provide much of this. But there are someone called...Student Industry Coordinator or Coordination Manager. They are between the industry and academia, and care about students' placement after graduation. They usually send emails about career fair, company workshop or something like National Laboratory, or government organizations like FBA. These are mostly through emails. And I will know about the decreasing fundings from the information sessions through those emails. And they also tell you what's the prospect to be faculty or go to industries.

I-1: so you just talked about your funding information sources after you became a PhD student. Could you please talk about how you gather information before you came here when applying? How did you know where were they come from or were they sufficient enough?

P: Before I applied for the programs, I didn't know much about it. Especially because China's funding system is very distinct from U.S.'s funding system. Chinese fundings are come from national fund, and advisors need to apply for grants. And the equipments are come from those fundings. But the labs and sites are provided by universities. And

advisors don't need to pay for students. Students' stipends are come from governments. But it's quite different in US. US advisors get funded from governments. And governments also need to give even more money to universities to cover the lab expenses, including water and electricity, which makes it even harder to gain a funding. Because governments need to pay more than twice of the amount of the funding if they decide to fund an advisor. Back to that time (when I was applying), I had no idea about it and thought that advisors must be rich. And since I'm an international student, I can't apply for some scholarships like US students. Some universities can give international students fellowships or scholarships, which means advisors don't pay those students salaries. Yeah, I forgot to mention that advisors also need to pay students salaries. Biology labs like us spend most of the money on equipments, supplies and experiment materials. However, some labs using computer to do research, so called "dry lab", spend of their money on students' salaries. Thus, if an advisor wants to admit a student, he has to consider about his financial capacity. If he lacks funding, he is not able to support any more students even if he needs them badly. I didn't know about this until I contacted two US advisors, they told me that they were not able to admit me because they didn't have enough funding.

I-1: You just mentioned that you are supported by your advisor's grants. Are you able to apply for any fellowship to support yourself as well?

P: It really depends. Different universities have different policies. Georgia tech is not very likely to give international students fellowship. It is nearly impossible. If there was any, they were more like annual student award, research award, etc, which only give students about $500 or $1000 per year for rewarding purpose. But Georgia tech has nothing like this. As far as I know, universities like Pennsylvania University will provide students fellowship opportunities. And this also depends on programs. Different medical schools have very different programs. And it's not only related to program, but also related to research focus. Programs like material science and mechanical engineering may be able to apply fellowship using their research results from some National associations. They might get fundings regardless of your nationalities. But programs like BME, it depends. Associations like American Heart Association will provide fundings. And you can get scholarship or fellowship from it if successfully. But they have nothing to do with universities. All in all, it all depends on universities and research focus.

I-1: Sure. As you mentioned earlier, can I say you didn't care too much about fundings when you applied for schools? And correct me if I am wrong, you said you thought they were all pretty rich so maybe funding was not a critical criteria back to that time?

P: Yes. But it was five years ago. The major reason was I was an international student, I didn't know much about US systems. After I came to US, I found that the undergrads in my lab knew about this pretty well. They were born and raised in US, and they are trained in US. So they know this kind of things well, and will consider this when they apply universities.

I-1: Ok I see. So may I know if it was because the information on websites was not clear enough that international students like you couldn't understand it well, or was it more like you personally didn't think about it because of the background difference?

P: I think 70% - 80% was due to I didn't think about it, but I'm also pretty sure that school websites didn't provide enough information. Another reason of it might be it was not good to show detailed information about which professor had sufficient funding and which not. It's more like their privacy. And there is another reason. In my area, there are two deadlines for funding applications at the beginning and the end of every year. Advisors can get funded at anytime. Thus, it's not convenient for them to update their funding information since it changes so rapidly.

I-1: Ok, thank you for the information. My next question is can you remember were there any other programs you applied besides the current one?

P: I...applied for more than 10 programs.

I-1: Is it a typical strategy to apply for more than 10 programs?

P: I think 10+ is not a largest number, but it's definitely a lot. Many students apply less than 10. But it's rare to apply less than 5. Most people apply a lot of programs.

I-1: Sure. Then what's your key criteria when applying for programs? Both when you formatting your decisions to apply, and selecting after you got offer

P: First of all, I considered about the rankings of BME programs, such as US News Rankings. Based on rankings, I also cared about the research focus of each programs. For BME, some schools focus on imaging...image processing, or artificial limb, etc. Or there could be diagnosis and prevention. For our BME, held by Georgia Tech and Emory, focus more on bio-material and device. So that's the research focus. And the most important thing is, since PhD is under the supervision of one advisor for 5 years, so… I would like to study bio-materials, so I would see which program had the advisor I wanted to follow with. The last concern is location.

I-1: Sure. As for the advisors, I want to go a little bit deeper. How did you gather information for advisors? How did you know which advisor you were interested in?

P: First of all, you need to read many papers when you do research during undergrad. Then you would know who are the greatest in related area. Second, if you have further academic exchange with advisors, you will know more about them. You will know their way of behavior, supervising students, and lab productivity. In a word, first their academic status, second their personal style. For me right now, I will also consider about their funding. Not all prestigious professors have enough funding. After I came here, I find many famous professors don't have enough money. Because they might be famous and got fundings for their past research…

I-1: I see. Glad you've touched my next question a little…Would you change any of your criteria based on what you know now besides funding issues?

P: I used to believe PhD was an endpoint. PhD should find out some awesome results. You should make achievements during PhD time. But now I feel like PhD is only a training. From this perspective, there are many criteria I should change. First thing is the advisor's academic status. I used to want to select a famous professor. He might guide many junior professors, and many students. And I believed that the more students he had, the better he was. Now I totally changed my mind. Now I can accept some young professors who just became faculty. They know about the frontier technology in this area and they have the potential. Besides, they have more time to care about students' development. And since they just went through this period, so they understand students more. Second thing changed is advisors' personal style. I used to think it was okay for them not to be hands-on. For us, hands-on and hands-off is very different. Because we also need to do experiments, but not only write papers and manipulate data. Some professors haven't done any experiments for decades. They don't know about those practical problems, but only know about methodology. The difference between practical and theoretical is huge for medical science. So if an advisor forget about those practical experience, he is not the right one to supervise students. For example, some advisors have already achieved a high level, so they don't need more papers to keep their fame, academic standing and title. They may already get tenure. Then they will care more about title. Then they will not have much time to care about their students. I thought it was okay since I could do research even slowly by my own. But now I feel it is very important for advisors to have plenty of time, practical experience, and care about their lab work.

I-1: Great. Thank you for your informative answer. My next question is what other ways did you use to find information about different programs, other than searching on their websites? Like communicating with professors, asking friends, etc.

（28:01）

P: It's a must to communicate with professors which I didn't do very well while I was applying. In a nutshell, (international) perspective PhD students would better email professors to ask about the programs. Some professors would reply some would not. In my case, it was not difficult to get information about the Georgia Tech (GT) program because my university has partnership with GT, and we also had visited GT earlier in one summer, so I was relatively familiar with the GT program. However, it was not the case for every program I applied. I didn't have contact who I could consult in each program. But things should be easier for native students. They can attend academic conference. For example, undergrads in my lab will go to conference with us. There are undergrad sessions at those conferences and they thus have opportunities to present their research and have in-person communication with bosses of labs. Typically there will be boots in the conference where directors from different PhD programs, who are professors as well, will introduce their programs to prospective students and have a more intimate communication with them.

I: Is there any difference between the information you could gather and that gathered through such more personal channel?

P: I feel like when applying for graduate schools, if your standard exams like GRE and TOEFL are good enough and you have very rich undergrad research experience as well, it's pretty easy to get admitted by top programs. With that being said, in a lot of cases even minor things can largely influence your final decisions except for the factor of "instructors". For most undergrads, although they have had research experience, few of them will have very distinct or strong likes and dislikes (of instructors). Most undergrads have at least one or two instructors they appreciate in each university. It's rarely the case that there is none of the instructors from a certain university I appreciate or I only want to go to a certain university becasue of a certain professor without thinking about other universities. Given that, other things like geographic location, living environment and conditions, professors' personalities or eccentricities can be conclusive. Moreover, the mindsets of doing research when you are an undergrad or grad student are different. When I was an undergrad, I thought about learning more skills instead of how much time it would take to get a fruitful result. While in PhD programs, we have milestones. More specifically, we need to do (....31:40….) in first year and research proposal for 2nd and 3rd year and then thesis in the fifth year. In short, you need to report your progress each each and you have this fixed schedule which result in different state of minds, goals and processes as well. Thus, it will be very helpful if people can learn the different requirements and focuses of different programs as well as mentors' personal styles through communication with faculties and alumni who graduated from the same undergrad programs and now work at the lab they are interested in before they apply for PhD programs.

I: Okay now we are going to move to the website part. How often do you use your department's website?

P: Not very often.

I: No problem. You can just go ahead and open the link of your department's website I just sent to you although I am not sure whether this is the correct one.

P: Am I supposed to make comparisons?

I: Yeah. But you don't need to do it now. We just want to learn which sections of information you think are important from the perspective of applicants?

P: Wait for a second. The website is still loading.

I: No problem…….. It seems that you are not very familiar with your department's website?

P: Oh, is what you gave me my department's website?

I: Yeah right. Correct. I just want you to have a look at your department's own website first. Do you use it often?

P: Not really. It's has been not that useful for me since I entered the program. Now I use it mainly for downloading some forms like the forms for milestones I mentioned earlier.

I: Okay. Then did you use it often when you applied the program?

P: I mainly used the application website, another website, while I was applying. I felt like there is not much information for future students.

I: So you just mentioned the application website. Did you use that website mainly for application rather than searching for information?

P: I think my case is kind of special because my knowledge about the Georgia Tech - Emory program is mainly from 2-3 years ago before I applied. Because of the partnership between my undergrad department and GT and Emory, some of the courses we took were taught by their professors. Plus, we visited their program during the summer of the third year. So I have learned enough information about this program that it's not very necessary for me to use its website.

I: Okay, gotcha. Then I can send you our university's website…(http://bme.umich.edu/)

P: I have seen your website. I also applied for the Michigan program.

I: Ok. Then could you recall your feeling of visiting the Michigan website when you applied? If you are not able to recall, you could just generally tell us what do you think about our university's website when you go through it now.

P: I like the UMich program's website at the first glance. I remembered that the website of the Berkeley program was a bad design with very small fonts and crowded layout. I didn't apply for that program because of its website (laugh). You see, I can hate a website to such an extent. Of course, that program is not a highly ranked program so I had nothing to lose essentially. Your university's website is rather clear and with good color use.

I: Could you please briefly go through the top navigation bar and tell me if there is anything you feel missed?

P: Do you mean from the point of view of prospective students?

I: Yeah right.

P: Okay.

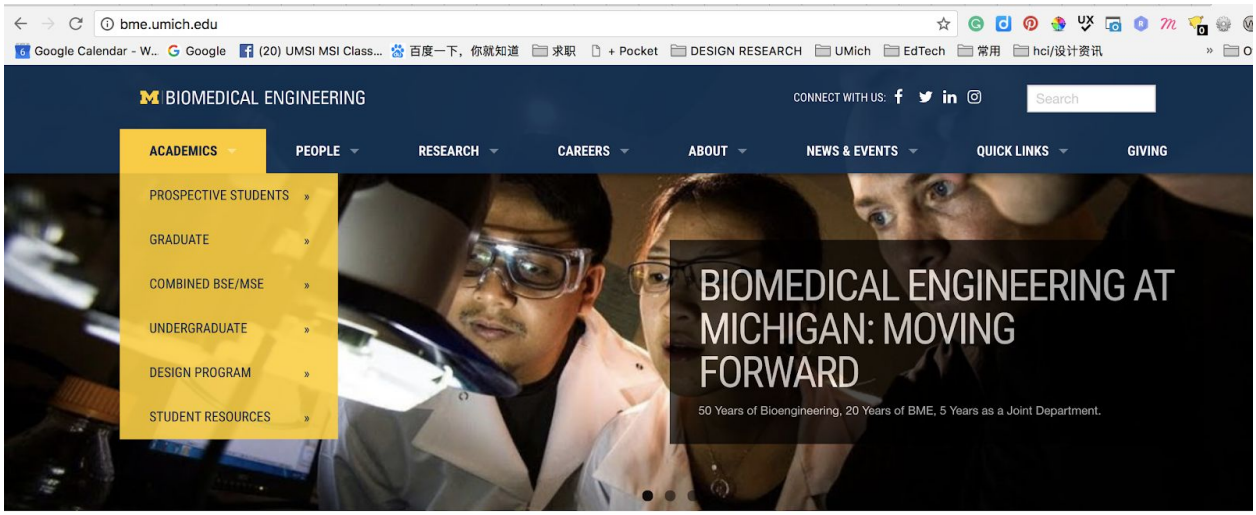
(P was looking at the website.)

I: Or is there any information that is not very easy to find or you think is missed at the first glance? It's okay if you cannot answer this question for now.

P: I feel generally speaking it's quite clear and straightforward. For instance I can see that the "Perspective Student" section is the first subsection under "Academics" in the top nav bar. This is quite clear for me and I will definitely click into that link if I am preparing my application. And then… "People" is another important thing. (silence)

I: You do not need to take a very close look. Just tell us your rough feeling.

P: In my understanding, "About" should be placed on the rightmost side but here it's in the middle which I am quite surprised about. I feel like "Why choose BME" and "Ann Arbor" are the two most important items under "About".



I: May I ask why you finally didn't choose the BME (Biomedical Engineering) program at that time?

P: UMich gave me offer very very very late. It was almost July (39:24). A (UMich) professor reached out to me in early April to invite me join his/her research team and agreed to offer me the things I want, but I am not sure whether I had already received Georgia Tech's offer at that time. GT gave me offer in the end of Jan. But the Michigan offer came in almost July. So I felt like I was not able to change my decision at that time. Speaking of UMich, my major concern was its ranking in the field. UMich and GT were not on the same level at that time.

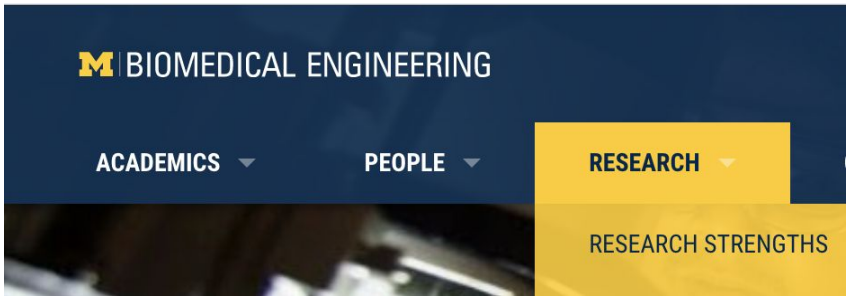
I: GT had a higher ranking, right?

P: GT was No.2. I forgot the ranking of UMich.

I: (Laugh) Okay. We are good with it if you cannot find anything else. We will have more professional testing later so you don't need to worry about it. Chen, do you have any question to ask?

I: Oh wait a moment. Let me see my notes…...Oh, at the beginning you mentioned that the information on your school's website was outdated and the latest research progress was not updated. And you said such a problem was not that serious for native students because they could just fly to the university they were interested in to learn about the information but it's more of a problem for international students. Could you please talk more about how this problem of lack of updated information bothered you or caused any difficulty to you? Is it the case that looking back, if you were able to know the information you didn't at that time, you would make a different choice of your PhD program?

P: It was not the school's website that lack the updated information but the labs and research groups' websites. But these websites are linked with school's website. I know my research group doesn't update its website because our boss doesn't spend money and time to hire professionals to do this job. Instead, he/she only asks graduate students to do it if they have time. For one thing, grad students don't have the skills which they have to learn from scratch when they need to use it. For another thing, people are all busy and don't have time to update the website. How does this affect application? For instance, when I was an undergrad and prepared for my application, I would search for research areas I had experience with although the experience was very limited. If the information was not updated, the problem would be, say, I read this professor's paper on this topic and it's a paper published in 2000s or even 1990s and I didn't know that he/she is no longer studying this topic or he/she has retired. We have a professor who previously studied ?-Chemistry (44:18). He has changed his focus from ?-Chemistry to ?-Biology (44:39). If this professor's website is not updated, one possible problem will be that I only know he/she studies ?-Chemistry and have no idea that he/she has transferred to the ?-Biology, and if I want to do ?-Biology, I will not contact this professor and thus lose a potential opportunity. Another possible problem is if I am interested in ?-Chemistry but don't know the professor has changed his/her study focus and reach out to him/her to introduce myself and ask for PhD position, this professor will not reply to me because he/she no longer works on this topic. Thus, from students' perspective, they may waste a lot of time and energy because of the asymmetric information. I am now looking at your university's website. Similar to my program's website, they both have "research strength" which presents the program's latest and the strongest research projects. But when doing application, students want to learn about individual professors, so it will be better if they can update their personal websites or websites of their labs or research groups.



I: So it sounds like that although there is lack of updated information, it's not very likely that you will choose the wrong program because of this problem because typically applicants will reach out to professors to ask about their research and if the professors are no longer studying a certain topic, students will be able to know through this communication.

P: Yeah what you said is possible. But as I just said if I don't know this professor is working in this field, I will by no means to reach out to him/her.

I: Oh…
P: In other words, I don't know I actually have better choices.

I: Okay gotcha. So there are two types of problems. One is you know this professor has research experience in this area but you don't know he/she is no longer working on it. Another is you just don't know the professor is working in the field you are interested in.

P: Yes and the email communication you just mentioned is actually not helpful if the professor just doesn't reply you and you thus have no idea whether they don't reply because they are no longer doing the research you are interested in or they are just busy or don't have enough funding to recruit PhD students.

I: When you applied, If professors didn't reply, would you reach out to them or their grad students through ways like Linkedin or any other channel to seek information?

P: (Laugh) I am too old. We didn't have Linkedin at that time. And Linkedin is not that helpful because I guess the information on Linkedin is mainly about publications and previous positions rather than current research. This depends on research areas. Particularly for my area, it typically takes 2-3 or 3-4 years to publish a paper. It's very likely that when the paper is submitted, the research project has already finished and when it's published it's already 2-3 years later. Therefore, when you see that paper, it's very likely that the professor is no longer doing research in that area.

I: Following that, in the professor bio section of the school's website, not individual lab or research group website, what kind of information should be placed there for students' reference in addition to the current research direction and outcomes you just mentioned.

P: The most important thing is current research focus. Considering that typically professors have several research focuses and with each one being introduced, I guess there will not be enough space for other information. But at least I hope on professors' personal websites they can update the "People" section, the group members, in a timely manner. So potential students can reach out to other current research members even if professors don't reply by themselves.

I: So you mentioned that your PhD application happened five years ago. Do you know whether the current candidates have any more advantaged channel or way through which they can gather information?

P: I don't know how Chinese students do now but I know as far as I know about American students, it's essentially the same. Nothing new. Undergrad students can contact grad students who they work with in the same lab. Almost each grad student applied for several programs. So they can ask information from them. Also professors can give some advice on their application. What's more, they can ask professors they work for to write recommendation letters for them. The professors can help their students connect with other professors or labs. Additionally, as I have mentioned earlier, undergrad students can attend academic conferences and have a personal conversation with their future instructors and professors. This is the advantage of American students. As for the difference between now and five years ago, I guess this is also what they did five years ago. Another thing is campus visit. Every year in spring, grad schools will invite admitted students to take a campus visit and that's another way to gather information. Other than that, it's online searching. I don't know there is any new tool or website that can help with it. But Linkedin is kind of helpful in a sense that it can help you identify whether you have any connect in a university or a program you are about to apply. It's limited in helping you learning about academic related information but it can help you to enlarge your network.

I: Okay. And I want to confirm with you a point you just raised. You said one way to improve the website is to provide the contact information of current grad students of each lab. Do I understand it correctly?

P: Yeah. But I guess in that case people have to ask professors' permission to do so because some professors may not be willing to letting their current students spend extra time on helping prospective students. Instead, they want the students to focus on their research 24/7. But at least the information about professors' latest research focus should be updated on the website. Besides, it's often the case that in the professor bio section on the websites a large paragraph is about what kind of awards this professor has won but this information is not very informative for prospective students. You will not be able to remember who wins what prize after you go through dozens of webpages. Even if there are very important awards, it's not necessary to list

them in the body paragraph. Instead, they can be listed at the end in a separate paragraph. The body paragraph should focus more on their current research focuses.

I: Thank you very much. It's very informative. That's all of our questions.

7.2.3d Fourth Interview Transcription (03/05/2018)

I-1, I-2: Interviewers; P = Participants

I-1: Hello, my name is Paul. We are working on a project with University of Michigan Medical School to help with their informational website. First, we wanted to thank you for agreeing to participate in this interview. We will record this session, and there is no right or wrong answer questions. However, if you're confused about any questions, please let me know and I will explain them in more detail. Do you have any questions right now?

P: No

I-1: Ok! Then we'll begin the interview. Can you please tell me a bit about yourself?

P: I studied Chemistry with a bit of focus towards Chemical Biology. The programs I applied to were more general: Chemistry, Chemical Biology. Then I went to Arizona State and did Clinical Research related work including diseases, case control studies, assays, Technology developments and the likes.

I-1: What program did you enroll in at Arizona State?

P: PhD program in Biochemistry.

I-1: Did you do Masters before that?

P: No.

I-1: So you went straight from Bachelors to PhD?

P: So in general, Chemistry/Biochemistry, aside from Chemical Engineering, are mostly PhD programs. Rarely do they have master programs.

I-1: So what kind of work did you do at Arizona State? For example, you mentioned Bio assays, do you work mostly in the lab or do you have work outside of lab?

P: Primarily inside the lab. And of course there are collaborative projects, but it's mostly split between 'wet lab' and ‘dry lab' where one is hands-on work and one is literature review and data analysis kind of work.

I-2: So did you work in the 'wet lab', or the 'dry lab'?

P: I did more work in 'wet lab', but I did both.

I-1: Can you tell me a bit about how you got interested in Biochemistry?

P: It's most likely due to my major. I did research work in labs for my major. Even though you can choose which professor's lab you want to work with, but once you go in, you just do whatever work there is to do. Through that I learned more about the field and discovered some new and interesting subfields. The more I learned the more I got interested, so that's how I came to choose this path.

I-1: Did what you do at Arizona State differ from the expectation you had for the program?

P: I didn't have a clear idea at first, to me the most important thing was what the professors were doing, and chose... well, about your question, the things I did in the end were still discrepant with what I had in mind at first. My background was more Chemistry oriented, but the things I did [at Arizona State] were more Biology oriented.

I-1: So do you mean the actual direction is pretty much only decided after you got into the program?

P: Yeah, because for example, in Master programs they have a more [I couldn't tell what the adjective was... 寂靜? 5:00] curriculum, so basically they have fewer electives. In PhD, you only get limited courses and there'd be classes in the same category based on different research focuses and so you can choose different classes, but then your research work is something else. Therefore, variation and [CO2?? 5:25] will be slightly larger.

I-1: OK! Based on what I know many PhD programs have a first year with lab rotations. Did you have that?

P: Yes.

I-1: Can you talk a bit about going through that process?

P: So generally there would be 3 rotations. [The logic is, since] what you heard or the researches you saw, like published papers, or just hearing people talk about what their lab is doing are still different from what you end up really doing in the lab, so because PhD programs are 5 years, to know what your fit really is still requires some experimentation. So at the time of choosing, you'd have different considerations, one would be choosing a field you're familiar with, or one that you enjoy now; and you'd also take previous students' comments about their labs into account. You'd take all those into account [when choosing your rotation].

I-1: In the labs that you rotated in your first year, did you learn about these labs at the time of applying or did you make those decisions after you entered the program?

P: There are 2 types of PhD programs [in this regard], some programs have everything pre-decided, say at the time of your interview, they'd match you with professors in your target path and the final admission decision is made by the individual labs. Some programs have a committee to choose their candidates and so no advisors are decided

beforehand, they'd make the [rotation] choice after they'd entered the program. In our program, maybe 2 to 3 people had selected the mentors they want to work with beforehand, but most of us got into the program first then selected our mentors.

I-1: Did you find any frustration with the selection process when you were going through it? For example, did you feel like some information could have been obtained easier?

P: In your perspective (he meant specifically thinking about the webpages), maybe lab websites are not updated: = what you're seeing are things from many years ago, but then once you entered the lab, you found out that it's very different from before.

I-1: Did you mean specifically lab websites? what about department websites?

P: Because trends in different fields are also different... specifically, department websites and lab websites are separated out, department websites are usually alright. They mainly just update latest news or some curriculum related things. What [the labs are doing] specifically are hosted in their individual websites.

I-1: So at the time of your application, you looked at these lab websites?

P: Of course.

I-1: Did you try to find information from other sources?

P: If you're really into some labs, then you'd also send emails to contacts you can see on the web page like current students or post-docs. You'd think about sending those people emails. Some would reply very enthusiastically, but some wouldn't reply at all. But this would be another way to learn about those labs.

I-1: So to make sure I'm understanding it correctly, you'd contact the lab directly and not to the department?

P: You wouldn't contact the department, [since] you can just reach out to the professors directly, but they're busy so they may not reply. If you reach out instead to the students, they might share their thoughts with you as they're also students.

I-2: When you were reaching out to the students in the lab, what channels did you use? Through lab websites or...?

P: Most lab websites will have "current member" or a similar page, like a [personnel listing], some people will have contact emails, some will not. If there's contact email available you can send an email and ask.

I-1: You mentioned about the problem of some lab websites not being updated. Were there other problems that you saw could have potential improvements at the time of your app?

P: The department website?

I-1: Either the department website or lab website, were there things that you saw could have improvements, apart from lack of updates?

P: In terms of lab design, there are 2 extremes. one extreme would be old layouts that are mostly text-based, but they have nice information linking, like clear categories. For example, 'Current Students', 'Prospective Students', 'Faculty', or a page design that accounts for different audiences; or they'd have a dedicated page for program roadmaps, courses. The other extreme would be sites that are fancy with lots of pictures and videos but are actually lacking in content quality and links. And videos would make websites load slower, etc. These would be the 2 extremes. The ones that lie between these two are better; for example, they'd have detailed 'Current Students', 'Prospective Students' and updated news for the department or the entire school... and even more interesting elements like Facebook or Tweets.

I-2: Do you remember any schools or program websites that really stood out to you in terms of usefulness? It's fine if you don't.

P: I can't think of one immediately, but I'm looking at Michigan Medical School's website, and just to give an example, they have a huge logo at the top, and a picture with a general introduction; and down below they have categories like MD, MD/PhD, PhD or other stuff, these categorizations are great. Something they could change would be putting the list of titles together, because when the image is too big, it gets tough to find the corresponding link.

I-1: I wanted to make sure which page you're looking at, can you please tell me the URL?

P: medicine.umich.edu

I-1: Got it.

P: I just googled Michigan Medical School and got to the site.

I-2: Regarding the website, we will have a focused discussion later in this session; but I'm wondering where your funding came from when you did PhD at Arizona State?

P: My funding came from being a TA (Teaching Assistant) which meant it came from the program, and later came from being a RA (Research Assistant) which meant it came from fundings from lab projects. Generally, these would be the 2 ways to get them. One would be, for example, junior faculty or labs that did not do well in getting fundings, the program or the department would help them, but at the same time, because they're funding you, you have to compensate by becoming a TA. At a lab that's more well established (he used the term 'mature') and has more work going on, if teaching becomes too much of a burden and eats into one's time, then the advisor/lab will provide funding from various grants that are for Grad students as wage.

I-1: So those would be grants for labs, not specifically for you?

P: The ones for individuals are fellowships, but... how do I put it... international students get fewer of those opportunities. Otherwise, NIH, NISF or various associations will have fellowships available for applying; but the case that happens more often is to get those funding from grants to the lab.

I-1: So did you apply for fellowships?

P: There weren't many I was eligible for, so I didn't apply.

I-1: So this is tougher for international students in terms of eligibility?

P: Yeah, it's less in comparison. Back then there was only a Taiwanese peer that got a fellowship, most students I know from China didn't get them. Some American students from the lab got some fellowships in their 2nd, 3rd year, but not everyone got it.

I-1: So when you first got there, you didn't have to bother too much with the fellowship, and can focus more on your research, is that correct?

P: Yeah, I mean after all this was Fundamental Science, so like Chemistry, Physics, Biology and the likes. The fundings for these will come from the department or the lab. In other cases, MD programs will have some programs that only accept a student after they got a fellowship.

I-2: I wanted to ask where the information for fellowships or grants came from for you both before you applied and after you got into the program?

P: Before I came, I knew very little because Program will say, 'There's some way your tuition will be covered', and you'll get a guarantee that you can keep studying in the program. More specific information came after I came, like from information session, or an email that says, 'There's this fellowship available for application'. So I only learned more about it after I came.

I-2: So is it correct to understand that you didn't particularly care about a lab's grants or whether they have enough funding about when you were selecting the program? That you'd suppose they have [those fundings] if they said that (I think it's referring to 'There's some way...')

P: Not entirely, at the time of application, whether your program will cover your tuition is a binary decision. So when I was selecting a lab, I'd look at a professor's CV which would include which grants they got. For example, NIH or NIS's funding can be found online as well. From that, you can get idea about the scale of the lab, how much yearly budget they have; because if a lab has limited funding, then there's less chance for you to get (not sure what he said 'IE'? 19:23). So you'd still do some homework.

I-2: Were you aware of these at the time of application or did you only find out some information were discrepant from what you knew at the time after you came?

P: I was aware at the time of application, but because of the huge workload [at the time], you'd only look at some specific labs; you'd only look at whether a lab has enough funding after you [confirmed] your interest in the lab.

I-2: Was there any discrepancy between the lab's actual grant situation and the information you got when you were applying?

P: They're pretty consistent. If there's any discrepancy, it'd come from lab's expenditure that you didn't know. Even if they have lots of funding, if they have lots of spendings then they're still working with a tight budget.
I-2: Ok.

I-1: Even though you may not remember all the programs you applied to including Arizona State, what were some of the criteria that you found important for deciding which program to go?

P: First, you must get an offer (chuckles). You'd also consider safety issues. For example, Baltimore and New Haven... New Haven is fine... Baltimore is... even though I didn't get its [offer], I did not want to go that badly due to safety concerns. When you look at its location and say whether it's in a great corn field or in a city setting, you'd make a choice there [about whether you want to go]. When I was applying, when you didn't know that much you'd look at rankings, like the school's overall rank, and that of their specialty programs, because that's important for PhD students. And then, professors from each department would have different directions, and you'd look at whether that direction is the University's strong point, and whether there's a mentor you're interested in (22:00), or whether there's a professor that's already made a big name for him/herself, or did they come from a prestigious lab; [if yes,] then [I'd] look at their research directions spontaneously.

I-1: Ok, thank you. That's a pretty complete answer. Since you had been in that program, have you ever changed any of your criteria? Or is there anything you hope you could know earlier?

P: Hmm, not too much. Maybe I would emphasize more on 2 aspects I just mentioned. One is the academic atmosphere and research focus, which means you should think about it carefully, instead of only looking at the decent ranking of that school. It would be so embarrassing that there is no research directions in that school you feel interested in. Another important thing is daily life. Different people have different lifestyles. Some people like metropolitan life, then New York would be a good choice. But if you like quiet and peaceful life, New York City would not be a good choice to you. Somewhere midwest or northeast would be better.

I-1: Ok. May I know did you find the information of living style, security, etc from school websites? Or did you take other approaches?

P: There is not too much information about it on school websites. Some programs may have a brochure, or promoting files, introducing campus life or so. But I mostly found them on some online forums, where people post their experience in different universities. I learned a lot from those postings.

I-1: Could you please introduce a little bit about those forums? Are they Chinese forums or?

P: Mostly Chinese forums. There used to be Feiyue, Taisha, GT...International students need to pass GRE and TOEFL, so there are some related forums. As for US forums, I may looked at ResearchGate for a little bit. And you can also search RateMyProfessor

for course information. But I began to know them only after I came here. And they are used for course information. As for labs and research information, the channels are indeed limited. Because there are usually a small amount of lab members. And not everyone would like to share their experience online.

I-1: So can you also find information about security issues on forums?

P: Yes. And you can also see the crime rate for every state or district. But you can only search for them when you decide where you want to go.

I-1: Ok. Let's switch to next question. May I know what other directions or programs you would choose other than Biochemistry?

P: There weren't too many options for me at that time. Chemistry, chemistry engineering, which I actually didn't want to apply. Other than that...maybe more related to biology, like biochemistry, biophysics, biomedical engineering, etc.

I-1: So when you were applying for graduate programs, did you ever think of applying for any them?

P: I mainly applied chem and biochem, because back to that time, departments were divided in this way. Now they may have some fancy names like molecular science. Or some may have institutes. For example, Harvard has Brown Institute. West coast has Scipps. These are more integrative. When you are applying for programs, not every institute has a program. School programs are mostly under Engineering school or science & art. So when you apply, you apply for departments.

I-1: Ok I see. So can you compare the difference of application process between chemistry or chemistry engineering with biochemistry? Or are they pretty similar? Both application and the research focus.

P: Application process...is quite the same, basically graduate school application process. There was no big difference.

I-1: So neither of them provide a master degree?

P: It's pretty rare for chemistry. Biology has some. But I didn't pay much attention to them, since I couldn't learn from them. What was your question again?

I-1: My question was what were the difference and similarities between the application process of Arizona State University and other majors you might apply like chemistry?

P: Application Process was quite similar. The research focus would various. Even if you were in the same program but chose different directions, the things you might do would be totally different.

I-1: Ok I see. Let's move to next part. Could you please look at the website of University of Michigan (https://medicine.umich.edu/dept/biological-chemistry) and give some feedbacks? We can send you the link of it.

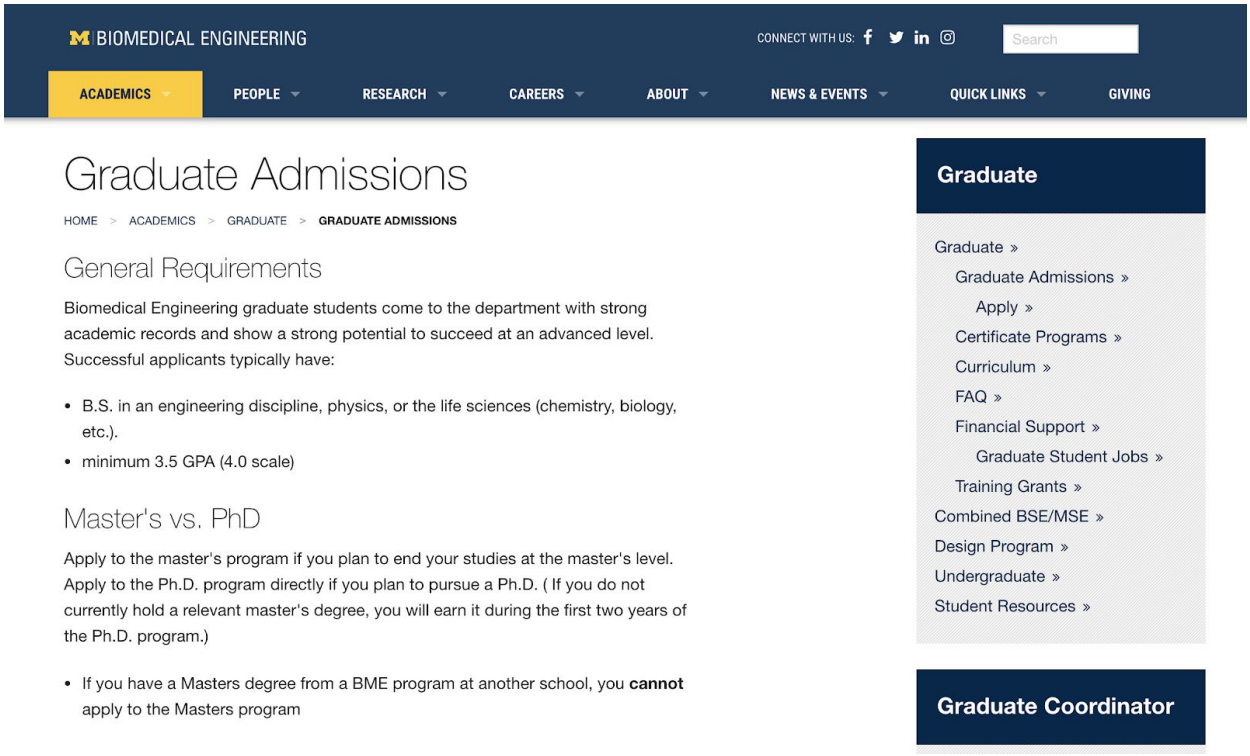
P: Ok I see it. Is it biological chemistry?
I-2: Yeah. Is it similar to your PhD program?
P: Yes, it looks exactly the same.

I-1: Could you please go through it and tell us about your impressions of it?
I-2: You can ignore about the design itself and talk more about the information pattern. For example, some information is missing but you think it is important, vice versa.

P: It's petty typical from the first look. All structural staff about bio-chem is on there. General information is on the center, and News is on the right. And list is on the left. It's better than put the list on top, a little bit better. Let me take a look at content first. Do I need to emphasize on admission and application? Or…

I-2: You can assume you are a prospective student who wants to apply for this program and take a look at this website, what will you pay attention to?

P: I'll definitely focus more on PhD/Master program and admission information. It looks like this part is hidden inside many other things. And you will also notice the course descriptions, and see what you will learn from this program. I personally would recommend they divided prospective students and current students into 2 columns, so it would be more clear. I'm looking for faculty...yeah got it. Their use only alphabetic order to list faculty. Maybe you can also divided by directions, like organic chemistry, biological chemistry or even more specific. For example, more like a biology. It's true you will look through all of them when you are applying, But I think it would be better to categorize them by research focus, field or so. I will first look at what requirements they have for admission. On this website, the information is accessible only after I go to the PhD program section (33:10). The requirements for admission and graduation should be more distinguished from each other.



Another thing is faculty. I think grad students care about their future research focus and thus it's helpful to show professors different research areas. If you have time, you can take a look at the websites of top 30 or top 50 biomedical engineering programs to see which ones are more comprehensive than others, or what strength each website has.

I1: When you are talking about ranking, do you mean something like the ranking by US News?

P: Yes.

I2: We will do comparison work in the following competitor analysis. Do you have any other question?

I1: Are the websites of top ranked programs more superior than others?

P: Not necessary. Some long-established programs' websites are quite old-school, with a lot of text and links.

I2: Will you decide to not apply for a program because of its badly designed website which causes you terrible user experience?

P: It will not be a dominant factor. Say it's a really great school and you really want to get enrolled, you will take effort to seek information on that website.

I2: Has it ever happened to you or your friends that you lose a potential chance to talk with someone you are interested in or a working opportunity because the information about their research focus is not updated on professors' or their labs' website?

P: It happens. For instance, you don't know that a certain professor is doing something related to your interest until you study at that program for a while. Additionally, department divisions are relatively flexible now. You can find someone from Physics or Biology department. Or the person is an adjunct professor. So, sometimes you can choose your mentors/instructors from other departments.

I2: What do you think is important information that should be placed at the professor bio sections of a program's website? Research focus or any other thing?

P: The most important thing is research focus but the information is not necessarily updated. Some fields develop very fast and new techniques are coming each year. But sometimes the information is still about techniques that are used several years ago. I also hope to have the contact information of at least one or two current students or staffs who I can reach out to. After all professors are typically very busy and don't quite have time to respond peoples' emails.

I2: So you mean you hope to have something like a clearly structured 'Lab People" page where you can find the information you want easily?

P: Yeah. Typically there are two different kinds. Traditionally, the program website has webpages for individual professors which list their names, emails and general interests. Now, at least relatively young professors, they have a separate, self-built website. With this tree-shaped, information structure, the program website doesn't have to hold too much information. It can direct visitors to external websites for particular information they are looking for.

I1: Let me confirm this with you. So what you were talking about is that there should be a link to an external webpage on the professors' bio pages on the program's website?

P: Yes. It's enough to give a summary on the program's webpage. In most cases, labs have their own webpages.

I1: I want you to go back to the UMich Biochemistry website. Is there any information you find unnecessary from the perspective of prospect students?

P: It depends. Individuals have different things they value. The website is not only for academic program candidates… Two aspects I guess. One is for current students. They will look for information like current news. So it's for internal use. Another is for colleagues in the same area from other universities. They may want to know what kind of latest research outcomes you have, who get what awards and publish what papers. These are things that are less important for new students or applicants. So such information should still be there.

I1: After you started your study at Arizona State, how often did you visit your program's website?

P: To be honest it's not often. Only when I need to find some requirements, administrative information or I want to know what papers other labs have published recently. Other than that, I seldom visited the website.

L1,I2: There are all the questions we have. Thank you very much!

P: I can give you some other examples. For instance, you can have more pictures for the "Life in Ann Arbor" section, right? The pictures in the research section is fancy enough. Additionally, the faculty section can be further divided.
L2: I think of another question. So you just mentioned that you prefer the websites which are designed like a brochure. Why is that?

P: In typical websites, you find the information you need under different sections while a brochure summarizes the information an applicant needs all together.

L1: Is the so called "brochure" a webpage or a document?

P: Maybe a document. But how to say…...maybe a very long web page which has sections like life, program, admission requirements, future research (opportunities).

L2: Okay! Thank you! Very Helpful

7.3 Affinity Wall

URL: https://realtimeboard.com/app/board/o9J_kzuigtk=/