Statement of Methodology

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Key Questions

Jacob's Ladder Center is an organization ready to expand. This project aims to help it do so by migrating its student profile assessment procedures to the web. The online tool should help, not only in allowing Jacob's Ladder Center to share information across locations without needing a fax machine, but also in making the process more efficient and robust than it is currently. To understand the best way to accomplish this, we must first understand the current system Jacob's Ladder uses, who uses it, and what their plans for expansion in the future are.

In the interest of creating the best possible product for Jacob's Ladder Center, the following questions need to be answered through this research.

How do the evaluators feel about the existing forms?

This question is at the core of questions regarding the design of the actual assessment forms in our solution. Feedback on the current system from the Evaluators who use it is vital to understanding what improvements the forms may need, or even whether the forms should be changed at all. If we find that our evaluators want to keep the digital forms as close to the paper ones as possible, then we won't risk confusing them by redesigning the forms.

We might also glean information about the administrative process behind these forms. If it seems like the forms change frequently, or new data points are added and removed over time, we may want to consider writing our system to be easily to edit, so that administrators can change forms more easily.

How do the evaluators actually fill out profile assessments?

This question covers a number of issues we may run into when translating the forms from pen and paper to digital device. We need to know where assessments are completed, whether at home, outdoors with limited internet, or inside of Jacob's Ladder Center. If forms need to be completed outdoors, this could pose issues with internet connections, and lead to a crash in the middle of an assessment. This, of course, would be unacceptable.

Additionally, knowing how the evaluators take notes on the forms, how they interact with forms as physical objects, and how they need to work through an assessment with other students will inform how we lay out forms, where we put spaces for extra notes, and how we handle

situations where one evaluator may have to stop one evaluation and resume it later. All of these actions are easy with paper, since it is physical and persistent. Our solution, being in the digital realm, must not take these properties for granted.

How comfortable are the evaluators with various technologies?

In our initial meetings with the client, we discussed what devices might be used to run the profile assessment tool (on the web or otherwise). This key question will inform the ways we design our user interface, and what devices we recommend Jacob's Ladder Center use to conduct evaluations. In our initial meeting, we were informed that the Center plans to purchase tablets for the process being replaced by our new digital solution. If we discover in our research that few evaluators are comfortable typing notes on a tablet, then our solution must keep that in mind and design accordingly. We might even consider suggesting that another device be used for evaluations if the response is strong enough.

What organizational barriers are there to a digital solution?

This question seeks to identify what financial constraints, government regulations, or organizational limitations the evaluators and administrators at Jacob's Ladder Center encounter when conducting profile assessments. It is important for us to know what kinds of regulations our system must conform to, and what data should be most protected from data breaches. If our solution fails to fall within these constraints, then it will be of no use to the Center.

How and when does an evaluator review a profile assessment?

This question is important to understanding how we should design the retrieval of profile assessments. How frequently must evaluators go back and view old profile assessments? We need to know what kind of data they deem most important, and how they intend to use that data later in personalized student plans. We will need to answer this question by looking into what happens to profile assessments after they are completed. This will inform how we organize assessment searches, who gets access to these assessments, and how we store them.

Methodologies Utilized

In order to ability to answer our key questions, we utilized a number of different research methodologies, each covering for the others' weaknesses. As each method neared completion, edits were made to others to ensure that we covered all of the questions we needed answered. The three research methodologies we relied on are described in detail below.

Interviews

In our initial meeting, we were given a completed copy of each type of form used for the current student profile assessment process. To fully contextualize this, however, we needed to know how the users personally felt about the process. By interviewing the evaluators who complete the assessments, we were able to understand their approach from their individual perspectives. By hearing their stories about their usage of the current process, we were able to more accurately craft user stories for the process we are designing. Another advantage of interviews over other methods is the ability to ask for additional clarifications and gauge interest and understanding for proposed solutions, an advantage we were certain to utilize. The primary con in utilizing interviews is the bias inherent in criticizing the current process to a third party, which is reduced in other methods that we also utilized.

Survey

To complement the shortcomings of the interviews and to generate some more quantifiable data, we created a survey for the users of the current system to fill out. This allowed us to have the potential for reaching a greater number of evaluators than the timing of the interviews allowed. The survey consisted of Likert Scale questions with even numbers of options, requiring the responders to pick a side for agreement or disagreement, and some True/False questions, allowing us to get numerical evidence for which percentage of evaluators encountered certain situations in the assessments. We also included a free response field at the bottom to allow the responders to include additional detail on responses. The primary disadvantage of this research methodology was the lack of anecdotal detail in responses and our lack of ability to prompt responders for further information or clarification on free responses, which was largely made up for by the data collected from the interviews.

Observations

Finally, to contextualize all of the information gathered in the other research methodologies, we needed to observe an actual assessment taking place under the current process to get a feel for the in-the-moment struggles and opportunities for future optimizations. In our case, direct observation was not an option, because the presence of an observer during an ongoing assessment could contaminate that student's evaluation, which would be too high a cost for our

research. Instead, we requested that an evaluator record an assessment on video. This video could then be analyzed by someone from our team and further questions of clarifications asked in a later meeting with someone familiar with the process who could explain it.

Jacob's Ladder has unfortunately been unable to complete an assessment recording by the time of this writing, but has scheduled one to be completed later this year.

Key Findings

After completing multiple interviews and reading through the survey responses, we were able to obtain a much better understanding of our users, their current workflows, and the potential degree of effectiveness or ineffectiveness of several proposed components of our solution. The main points of our findings are summarized below.

Evaluators are okay with the current process.

One of the biggest points that our research demonstrated was that, in most all situations, the evaluators understand and accept the current assessment process. Though our solution is necessary for the Center to expand its research and administrative operations, it should build upon the current process rather than redesigning it from scratch. Some of the evaluators are those that created the process in the first place, and are somewhat loathe to learn an entirely new system. Our digital solution should take care to utilize the existing cognitive mapping that the currently-working evaluators have developed in order to encourage adoption. All interviewees mentioned specific areas that could use improvement and areas where the potential for enhancement existed, which should be the secondary focus of the development of the digital process.

Ability to take notes is essential.

Evaluators value the ability to take notes for each topic, so ease of note-taking such as that done with pen and paper is a priority. Evaluators conveyed enough competence with technology to take notes on a digital keyboard on a tablet for easy mobility. Simplicity with the interface is also necessary for users to easily take notes as it is often required for the evaluator to remember certain aspects of the student they are observing and fill out the actual notes later rather than in real time.

Additionally, some evaluators interviewed mentioned that there are specific situations where the use of pen and paper may be essential, as with parent interviews, where the potential loss of interpersonal connection from technology use is too high a price. The solution must be able to allow usage of pen-and-paper notes that are later incorporated into the completed assessment.

Tablets will be necessary during the assessment.

Although we considered the possibility of other technologies for completing the assessment, many of the evaluators in interviews mentioned that they sometimes have to get down on the floor with the student, and need to remain mobile. Additionally, according to the survey results, the assessments may need to be completed outdoors, which rules out any technologies that require the device to be plugged in. Every responder to the survey claimed comfortability with taking notes on a tablet, though some were uncomfortable with the tablet interface from a broader perspective. Our solution must be similar enough to the original form when displayed on the tablet.

Assessment procedures change.

When asked in the interviews whether the form has changed during their time here, almost every interviewee stated that it had. Some added that it had changed in small parts since the start of this year. When asked for specifics, it was revealed that the only common changes are visual (changes to the layout), but the underlying data has not changed in a few years. Our solution needs to incorporate the ability to reorganize or rename sections and fields within them, as these seemed to be the most common edits. Although the changes may be uncommon, the system will need to be built in such a way that inclusion of new assessment criteria that does change the output data can be done without redeveloping the system entirely.

The "cheat sheet" needs to be accessible.

During the interviews, one struggle with the current system that was mentioned was the unfamiliarity of the newer evaluators with the criteria for rating some aspects of the student. To solve this, newer evaluators have been printing out "cheat sheets" that include the specifics of what constitutes each numerical score for each category. Upon being prompted, all who needed to use the cheat sheet mentioned that it added an additional hurdle of having to constantly flip pages back and forth. In our solution, we need to consider making this cheat sheet, or specifically the components relevant to each field on the assessment form, easily accessible in the middle of an assessment.

The assessment may stop and start later.

Every evaluator in the survey and the interviews stated that there had been a time where they had to stop an assessment before completion and pick it back up later. Whether this was a change in location or a reschedule of the remainder, this resulted in a need for the information to persist in its uncompleted form until a later usage. Our solution must support the ability for a form to be saved and exited despite its not being complete in order for the current workflow to be supported.

Evaluation sections should be easily navigable.

Evaluators normally do not fill out the form in the order that the form is set up, i.e. they jump from page to page based on the specific student, so there is not one order to complete the form that applies to all. Evaluators have trouble with the large amount of pages in the current form which causes difficulty when navigating the evaluation form. This potentially creates a learning curve for those who do not know where everything is in the form. This problem calls for an interface which provides categorization of sections that can be seen on one page, so evaluators won't lack efficiency when looking for a certain section. The current form was also described as crowded which can affect the navigability of the form on a smaller scale. A cleaner, less cramped interface was described as a possible aspect to allow for more ease of use.

The assessment form needs to be shared between users.

Evaluators have a Senior Evaluator who is required to check over and verify the student's form. This sharing of the form could happen during as well as after the form has been considered complete depending upon whether the evaluator needs to ask questions or clarify anything during the evaluation process. It may also be necessary for evaluators to see the "initial" evaluation as well as other previous "re-evaluations" for a certain student in order to correctly assess the current state of the student and take into account growth or lack thereof based on previous years. Information gained from other evaluations or from the intake form should be available for the current evaluator to standardize the evaluation longitudinally for one student such as reinforcers (calming agents) for the specific student as well as inclination to aggression.

Appendix

Survey

The following survey link leads to a duplicate of the survey sent to our users to collect their responses. This responses to the following link are not monitored.

https://docs.google.com/forms/d/e/1FAIpQLScWsxjGnvwgCHsW1MsPCPm6dNDZspz9rYrbBHTWDQ0zRtcEsg/viewform?usp=sf_link

Interview Questions

The following questions were a loose structure for our interviews and follow-up questions were asked based on the responses to these questions. A dialogue was created and questions were altered and added based on the user we were interviewing as our understanding developed.

1) What do you like about the current student profile assessment process?
2) What do you not like about the current student profile assessment process?
3) What changes to the current assessment process would you like to see changed in the new system?
4) What kind of environments do you usually complete assessments in?
5) Is there a time you have shared assessment forms with parents or students?
6) Do you write notes of clarification beside questions on the forms and, if so, what kinds of notes do you typically write?
7) In what ways have the forms changed since you've been here?
8) If you revisit old assessments, do you typically revisit some parts of the assessment more frequently than others? What does that process look like?
9) Do you ever have to go back and modify old assessments?