

# User Study Report

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# Overview

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## Objectives

This user study examines the overall effectiveness of the Health Professions Program (HPP) website by analyzing how users interact with the website. The user study focuses on the ease of use of the website, as demonstrated by various users of different technical backgrounds.

The HPP website provides information for students and faculty interested in the Pre-Med program at Carnegie Mellon University. Its primary objective is to attract users to the program through the website and assist current program members by providing technical information.

To improve the HPP website's effectiveness, the user study will enable us to get real-time feedback on various interactions between users and the website. This user assessment is categorized into different primary objectives listed below:

- Learn how users interact with the site's navigation to find information.
- Observe how users prioritize information based on the site's user interface.
- Assess the effectiveness of the site's layout based on user reviews.

## Methodology

- Three participants will complete the study using their computer connected to the CMU Students Network.
- Each participant will be assigned an interviewer to ask a set of pre-study questions, explain the think-aloud protocol, and introduce the study's scenario.
- The participants will be given time to find the specific piece of information as prescribed by the scenario, using the think-aloud process to verbalize their thoughts as they navigate the HPP website.
- A post-study interview will be conducted, whereby the participant will provide feedback on their experience and possible improvements on the website.

## Participants

- Three CMU undergraduate students
  - Different majors

## Scenario Goals

1. Locate general information about the HPP and evaluate how it aligns with students' career goals.
2. Explore how the HPP assists students with the medical school application process and identify key resources available.
3. Find out how to enroll in the HPP and review the steps involved in the application process.
4. Search for available mentorship opportunities within the HPP, including ways to connect with past students who can share their experiences.

## When and Where

This user study will be conducted on Zoom, with the specific date and time to be determined.

## Tasks

**Task 1:** From the homepage, please find information about what the HPP is and how it will assist you.

[If they finish the task before the 7 minutes, move on to the next question.]

Now that you've found the page, please find information on when the HPP begins preparing CMU students for medical school applications.

[Observe the participant as they complete the task and take notes. *7 minutes.*]

### Expected Outcomes:

- Participants click on "Current CMU Students & Alumni" or, click on "Prospective Students" and end up on the "Information for Prospective Students" page.
  - If the latter, they then download the informational PowerPoint presentation.
- Participants read and understand what the HPP is and how it can help students interested in a health profession.
- Participants evaluate whether or not the HPP aligns with their career goals.
- Time permitting, participants learn that the HPP prepares CMU students for medical school applications by January before the upcoming application cycle.

[Direct the participant back to the homepage.]

**Task 2:** After learning what the HPP is, you want to find out how the program will help you with medical school applications. Please show me how you would find this information.

[If they finish the task before the 7 minutes, move on to the next question.]

Now that you've found the page, please show me how you would find information about mock interviews.

[Observe the participant as they complete the task(s) and take notes. *7 minutes.*]

**Expected Outcomes:**

- Participants click on the "Active Applicants" tab and scroll down to "Main components of the HPP application process".
- Participants will understand all the components of the medical school application process.
  - Time permitting, participants will find information on how the HPP conducts mock interviews during the application process.

[Direct the participant back to the homepage.]

**Task 3:** Now that you know more about the HPP, you've decided that you want to apply. Please find information about the application requirements and deadline.

[Observe the participants as they complete the task and take notes. *7 minutes.*]

**Expected Outcomes:**

- Participants click on "Current CMU Students & Alumni" and then click on "Enroll in the HPP".
  - Participants may also note the contact information on the front of the homepage and reach out to the specified advisors for further instruction.
- Participants understand they have to fill out and submit a Google Form to apply to the HPP.

[Direct the participant back to the homepage.]

**Task 4:** You want to connect with past students of the HPP to learn about their experiences and the program's impact. Please find the link to the CMU alumni network group for HPP students.

[Observe the participant as they complete the task and take notes. *7 minutes.*]

**Expected Outcomes:**

- Participants click on the "MSAMP" tab.
- Participants learn how the MSAMP works and obtain a list of names of MSAMP mentors.

# Results

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After conducting the user study with the three participants, we analyzed their experiences and picked out the most prominent problems. Below are the observations and key issues identified during their interactions with the site. More information on other problems encountered throughout the study and their severity are listed in the appendix.

## The site's labels were not clear enough for users to find the information they needed

This issue manifested throughout the study in several ways. During the second task, participants struggled to locate information about the medical school application timeline because it was largely ambiguous where such details would be found ("Active Applicants"). Similarly, in the fourth task, the label "MSAMP" failed to convey the content of the page, making it difficult for users to connect the label with information about alumni programs.

### Health Professions Program

CMU Students & Alumni	Active Applicants	Prospective Students	Gap Year	MSAMP
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**Participants had difficulty understanding the "Active Applicants" category and the "MSAMP" category.**

The confusion caused by unclear labels have significant consequences for the user experience and the effectiveness of the website. If users have to spend extra mental effort deciphering labels and clicking through the entire website, they may become frustrated and fatigued. Eventually, the cognitive load could cause users to give up and leave the website. A poorly-labeled website also reflects poorly on the HPP program itself. Users may perceive the program as disorganized or unprofessional, which could discourage them from engaging with it further.

We can address this problem by improving label clarity, particularly with the "Active Applicants" category and the "MSAMP" category. The "Active Applicants" category could be changed to "Active Medical School Applicants" to distinguish the information from general details about the HPP. Additionally, the "MSAMP" category could be changed to "Alumni Resources." This solution will have little to no trade-offs, other than minimal time and effort to decide on the best labels to use.

## Lack of clear introduction and distinction of the HPP

Aside from a bulleted list on the homepage, the website lacks a clear introduction for the HPP. This left the users confused about what the program is, how it functions, and what it provides as they navigated through the website. Further, users demonstrated confusion about the difference between the HPP application process and the medical school application process, as the two health programs are not properly differentiated.

If users are unable to understand the HPP, they may leave the website as uninformed as they arrived. The HPP may miss opportunities in attracting potential applicants if they cannot understand how the HPP will benefit them. It is also an inefficient use of resources, as users may overlook valuable offerings like advising, mock interviews, and medical school application help.

We can address this problem by adding a more comprehensive overview to the homepage that introduces the HPP and clearly differentiates it from other health programs. Additionally, we should implement a breadcrumb trail that clearly points users to what they may want to view next (instead of vague buttons labeled “Current CMU Students & Alumni.”) This solution may require moderate time and effort to create a better overview and decide on how to best display it on the homepage.

## Too much written information, not enough visuals

The website relies heavily on written information, with minimal use of visuals to support the content, as users pointed out. The text-heavy design creates a dense and overwhelming experience for users—many who may not want to spend too much time sorting through it—making it difficult to locate key information. One participant expressed frustration with the website’s layout. Specifically, the participant struggled to summarize the required components of the medical school application because there was too much information that was also not grouped logically. During the post-study interview, another participant noted that she wished there were more visuals, such as timelines, to better illustrate how the medical school application process progresses.

### Welcome to the CMU Health Professions Program

The CMU Health Professions Program (HPP) is an advising resource for all current CMU students and alumni interested in pursuing a career in a health profession, such as medicine, dentistry, veterinary medicine, pharmacy, optometry, physician assistant, physical therapy, occupational therapy, and genetic counseling to name a few. The HPP is designed to assist with:

- Exploring possible health careers.
- Developing a roadmap to becoming a competitive applicant.
- Networking with faculty, alumni, researchers, and health care professionals.
- Applying to health professions programs.

Current CMU Students & Alumni ►

**The current HPP overview. Participants did not find this information sufficient and were confused on where to navigate next for more details.**

If there are too many paragraphs of information, users are likely to feel overwhelmed and frustrated. The frustration is particularly problematic for tasks requiring detailed understanding and construction of a distinct timeline. Without clear visuals, users may miss key information or struggle to grasp the linear progression of tasks. This is especially concerning as it may hinder users' ability to complete medical school applications on time or fully take advantage of the HPP's resources.

To address this problem, we should incorporate more visuals and break up dense text using bullet points and lists. A critical area of focus should be the information regarding the medical school application timeline. On this page, a visual timeline painting a clear progression of deadlines can help users better understand the milestones. This solution may require significant time and resources in order to create engaging visuals. However, considering the frustration experienced by users, the reward may be worth the effort.

The study revealed three major usability issues with the HPP website: unclear labels, lack of an informational overview, and too many dense text sections. Moving forward, we will focus on improving the website's design by creating clearer category labels, writing a better overview of the HPP, and breaking up text and supporting them with more visuals.

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#### ▼ Committee (mock) interview

The pre-health committee interview is a vital part of the pre-health committee's evaluation of an applicant because it gives the committee a chance to hear the applicant contextualize one's motivations and readiness for a career in medicine as a reflection of one's experiences and education. Committee interviews run starting toward the end of the Spring semester and into the summer, the timing of which depends on an applicant's readiness. Each interview committee consists of two to three faculty:

- A faculty member selected by the applicant
- (Optional) A faculty member selected by the HPP office
- The HPP Director

The committee conducts a video-recorded 60-75 minute practice interview whereby the committee explores various aspects of the applicant's readiness, including one's motivations for pursuing a career in health care, exposure to clinical medicine, academic readiness, research and leadership experiences, as well as one's record of service experiences. Committees provide **targeted feedback and critique** during the interview, assisting students in improving their oral presentation of their application. Following each interview, the HPP Director, with assistance from the committee, drafts a customized evaluative committee letter that is subsequently uploaded to the appropriate application system on behalf of the applicant.

**An example of dense text that can be broken up or supported by visuals.**

# Appendix

## Participant 1

Participant 1 is a junior studying electrical engineering with a minor in entrepreneurship. She has never visited the HPP website before but has prior knowledge of the pre-med program paths offered at Carnegie Mellon University. Her technical expertise spans from hardware engineering to biomedical engineering.

The study was conducted in person and recorded to keep track of findings. Below is a list of problems encountered when completing each task.

### Task 1:

- **Participant experienced difficulty finding the “General Information” drop-down information piece.**
  - **Diagnosis:** Website layout essentially limits user interactivity, and forces users to click on every drop-down list button to find information
  - **Overall Severity:** 4
    - **Justification:** This problem is rated high, due to significant impact on user experience and task completion.
  - **Solution:** Have a landing page that explains what the HPP program is, and provides a brief description of what it does.
  - **Relationship to Other Problems:** [Participant does not realize there is a navigation bar at the top of the website](#), [Participant failed to find general information about the HPP](#)
- **Participant experienced difficulty navigating through the website and spent at least three minutes completing the first task.**
  - **Diagnosis:** Lack of understanding of title names and what they mean, misleading page title names could be contributing to the increased difficulty.
  - **Overall Severity:** 3
    - **Justification:** This problem causes confusion and unnecessarily lengthens time spent, impacting user experience. However, it does not completely prevent task completion as users will familiarize themselves with labels as they progress.

- **Solution:** Have a more accurate page title and subheadings, labeling should be fixed. Increase the number of pages and categorize information correspondingly.
- **Relationship to Other Problems:** [Participant is unable to associate the “Active Applicants” category with information relating to the medical school application timeline.](#)

## Task 2:

- **Participant could not find information on mock interviews and had to leave the website and manually search for the piece of information.**
  - **Diagnosis:** No direct name for this specific piece of information, did not know that active applicants would contain information on application components.
  - **Overall Severity:** 4
    - **Justification:** This should be revised immediately as the inability to find information impacts user satisfaction. Moreover, users should not be forced to seek external solutions.
  - **Solution:** Have a separate page for the medical school application and HPP application.
  - **Relationship to Other Problems:** [Participant is unable to associate the “Active Applicants” category with information relating to the medical school application timeline.](#)
- **Participant demonstrated visible frustration with the website layout.**
  - **Diagnosis:** Poor website layout leads to increased difficulty and, when encountered repeatedly can cause frustration.
  - **Overall Severity:** 4
    - **Justification:** Persistent frustration may completely deter users from the website. It also creates an unnecessary barrier between the user and goal completion.
  - **Solution:** Fix the user interface, and make it more interactive and user-friendly.
  - **Relationship to Other Problems:** None.

## Task 3:

- **Participant found a link to the application deadline for the HPP program, but the information was unavailable.**
  - **Diagnosis:** Not enough updates of information.

- **Overall Severity:** 2
    - **Justification:** This issue is not considered a significant problem as more details are available on other parts of the website. The user is also able to use the advisors' contact information to learn more, but requiring such extensive effort to find a single date is not ideal.
  - **Solution:** More recently updated information that is crucial for the application process could fix the problem.
  - **Relationship to Other Problems:** None.
- **Participant failed to summarize all required components of the application.**
    - **Diagnosis:** Required components are not listed together, which makes it difficult to keep track of all of them.
    - **Overall Severity:** 3
      - **Justification:** The lack of a progressive, centralized list of required components create unnecessary challenges for the user to gather information. They should not have to put pieces of information together like a puzzle.
    - **Solution:** Reorganize the information so that required components and other similar types of information are listed together.
    - **Relationship to Other Problems:** None.

#### Task 4:

- **Participant did not know what the MSAMP stood for, thus never clicking on the tab until later on.**
  - **Diagnosis:** Acronyms should be explained within the webpage, and should not be a page title.
  - **Overall Severity:** 3
    - **Justification:** The user does not know the acronym, preventing them from finding and accessing key information on the website. However, once the user does find it once, this problem is unlikely to repeat.
  - **Solution:** Replace all titles/page headings with acronyms with words that better describe what the page/section represents
  - **Relationship to Other Problems:** [Participant is unable to associate the “MSAMP” category with information relating to the medical school application timeline, Participant took a long time to find the CMU alumni network group link and only clicked on “MSAMP” out of curiosity.](#)

- **Participant found the information available on the MSAMP page to be irrelevant.**
  - **Diagnosis:** The MSAMP page should contain information about how to apply for mentorship, alumni networks, and possible networking opportunities.
  - **Overall Severity:** 2
    - **Justification:** Irrelevant information detracts from the page's usefulness. However, it may still be important to another user, so this problem is not considered urgent.
  - **Solution:** Get rid of the history of MSAMP and list of outstanding MSAMP candidates, replace it with networking profiles and contact information, and information on how to get mentorship
  - **Relationship to Other Problems:** None.

## Participant 2

Participant 2 is a junior studying economics and mathematical sciences. She frequently uses the internet to access websites, but describes herself as not “tech savvy.” She has never encountered the HPP website before, nor heard of the program.

The study was conducted in person and recorded to keep track of findings. Below is a list of problems encountered when completing each task.

### Task 1:

- **Participant read the homepage and did not realize that she can find more detailed information about the HPP under other tabs.**
  - **Diagnosis:** Unclear labels make it difficult for users to know where to navigate after reading the general overview on the homepage.
  - **Severity Rating:** 2
    - **Justification:** This problem could make it harder for users to find comprehensive information that aligns with their goals. However, with more time, most users would likely still be able to locate the information they need by clicking on the homepage’s “Current CMU Students and Alumni” or “Prospective Students” button.
  - **Possible Solution:** Updating the button labels to more directive phrases like “Read More About...” could help create a clear breadcrumb trail for users. This implementation has no significant tradeoffs.
  - **Relationships to Other Problems:** None.

### Task 2:

- **Participant did not realize there is a navigation bar at the top of the website.**
  - **Diagnosis:** The navigation bar is not clearly distinguishable from the rest of the website.
  - **Severity Rating:** 3
    - **Justification:** If a user fails to notice the navigation bar, it poses a significant barrier to their ability to find information. However, once the user finds the navigation bar, this issue is unlikely to recur.
  - **Possible Solution:** Make the navigation bar more noticeable (i.e. color, size, location, etc.). This may take some time to find a design that works best and implement it.
  - **Relationships to Other Problems:** [Participant experienced difficulty finding the “General information” drop-down information piece.](#)

- **Participant is unable to associate the “Active Applicants” category with information relating to the medical school application timeline.**
  - **Diagnosis:** Unclear category labeling.
  - **Severity Rating:** 3
    - **Justification:** It is a significant issue when users struggle to locate the information they need. The participant was on the verge of giving up before accidentally finding it. The severity rating is slightly lower because, once the information is found, the problem is unlikely to persist.
  - **Possible Solution:** Rename the category to something more descriptive and intuitive, such as “Medical School Application Timeline.” This will have little to no trade-offs, other than minimal time and effort to decide on an appropriate label.
  - **Relationships to Other Problems:** [Participant experienced difficulty navigating through the website and spent at least three minutes completing the first task, Participant could not find information on mock interviews and had to leave the website and manually search for the piece of information.](#)

### Task 3:

Participant had no difficulties in locating the information.

### Task 4:

- **Participant is unable to associate the “MSAMP” category with information relating to the medical school application timeline.**
  - **Diagnosis:** Unclear category labeling.
  - **Severity Rating:** 3
    - **Justification:** The use of the acronym “MSAMP” without clear explanation makes it difficult for users to find information related to the keyword “alumni.” It creates a barrier to navigating, but once the user learns what it stands for, the problem is unlikely to persist.
  - **Possible Solution:** Replace the acronym “MSAMP” with a more descriptive label, such as “Alumni Resources” to make its purpose immediately clear. This will have little to no trade-offs, other than minimal time and effort to decide on an appropriate label.
  - **Relationships to Other Problems:** [Participant did not know what MSAMP stands for, Participant took a long time to find the CMU alumni network group link and only clicked on “MSAMP” out of curiosity.](#)

## Participant 3

Participant 3 is a CMU sophomore studying architecture. She frequently uses the internet and finds herself familiar with navigating through other university department websites. She has never visited the HPP website prior to the study and has no knowledge of the program.

The study was conducted in person and recorded for later reference. Below is a list of problems encountered when completing each task.

### Task 1:

- **Participant had a hard time distinguishing between the Health Professions Program and medical programs in general.**
  - **Diagnosis:** A lack of clear introduction to the HPP can confuse users' understanding of its purpose and how it differs from medical programs.
  - **Severity Rating:** 3
    - **Justification:** If users do not immediately understand the distinction between HPP and general medical programs, they may become frustrated or leave the website without fully exploring its offerings.
  - **Possible Solution:** Provide a concise overview/introduction to the HPP at the very beginning of the webpage to ensure users understand what the program consists of before digging into more details.
  - **Relationship to Other Problems:** If users cannot understand what HPP is and how it differs from medical programs, they may choose to not continue exploring the website.
- **Participant failed to find general information about the HPP.**
  - **Diagnosis:** Key details about the program are buried within the webpage and users can have a hard time learning about the HPP in general.
  - **Severity Rating:** 4
    - **Justification:** The lack of easily accessible information presents a major barrier for users who are new to the HPP website. If they cannot quickly find an overview of the program, they may assume the site lacks the information they need and exit the site. This issue is important due to the impact on users' initial impression of the website.

- **Possible Solution:** Provide a concise overview/introduction to the HPP at the very beginning of the webpage to ensure users understand what the program consists of before digging into more details ("About HPP" or "What is the HPP?").
- **Relationship to Other Problems:** [Participant experienced difficulty finding the "General Information" drop-down information piece.](#)

## Task 2:

- **Participant was confused and failed to find information about mock interviews.**

- **Diagnosis:** Information about mock interviews does not appear clear to the users, causing users' inability to find this resource.
- **Severity Rating:** 2
  - **Justification:** Although this issue may not be as critical as failing to find general information about HPP, difficulty locating mock interview details can negatively impact users who are actively seeking career preparation resources.
- **Possible Solution:** Improve the visibility of mock interview information by placing it under a clearly labeled section ("Career Resources" or "Interview Preparation").
- **Relationship to Other Problems:** If users struggle to locate specific services, they may lose trust in the site's navigability and leave before discovering all available resources.

## Task 3:

Participant had no problem finding information to apply for the HPP

## Task 4:

- **Participant took a long time to find the CMU alumni network group link and only clicked on "MSAMP" out of curiosity.**

- **Diagnosis:** The acronym MSAMP is not clearly defined to users, which can cause confusion and unfamiliarity.
- **Severity Rating:** 3
  - **Justification:** If users do not recognize or understand the acronym MSAMP, they may assume that it is irrelevant to them and overlook valuable resources.

- **Possible Solution:** Rename MSAMP to include information about the actual term and add a short description of MSAMP to further explain it to users.
- **Relationship to Other Problems:** [Participant is unable to associate the “MSAMP” category with information relating to the medical school application timeline. Participant did not know what the MSAMP stood for, thus never clicking on the tab until later on.](#)