

Group 1

Ansh Puri 218587527

Kwangmin Ryu 217233321

Mathieu Johnson 220794343

Manavkumar Shah 219935592

Yashavi Mahajan 217848011

EECS 3461

2024/11/29

The heuristic evaluation of the SkillSwap platform, conducted by three expert evaluators, identified several usability issues based on Nielsen's 10 Usability Heuristics. While the platform's design is largely user-friendly, some areas require improvement to enhance user experience.

Key issues identified include:

1. **Visibility of System Status:** Users may struggle to understand their current position when navigating between profile-teach and profile-learn sections. A suggested improvement is adding animations or disabling buttons to clarify navigation.
2. **Error Prevention:** The presence of buttons for adding skills in both sections (profile-teach and profile-learn) can lead to accidental misplacement of skills. It's suggested that each section only display the relevant button.
3. **Aesthetic and Minimalist Design:** Button text on profile and home pages is too lengthy, and simplifying it to 1-2 words would improve clarity.

Edited Prototype: [SkillSwap_Prototype\(P1\)](#)

To address the issue of visibility of system status and to improve navigation clarity, the following changes have been made:

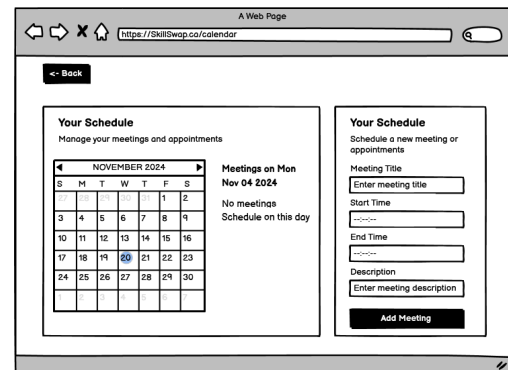
- **Tab Highlighting:** The current tab is now highlighted with a gray background to clearly indicate the active section, making it easier for users to track their location within the platform.
- **Button Consolidation:** Previously, there were two buttons in both the **profile-teach** and **profile-learn** sections, which could lead to confusion. We have simplified this by displaying only one button per section, with the button text streamlined for clarity.
- **Simplified Button Text:** The text on the buttons has been reduced to 1-2 words for a cleaner, more intuitive user experience, eliminating unnecessary complexity.

These changes are aimed at improving user navigation, reducing errors, and enhancing overall platform usability.

Tasks: [SkillSwap Prototype\(P2\)](#)

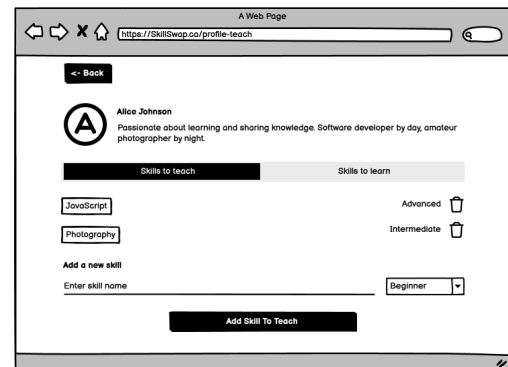
1. Scheduling

- **Task:** Users set a time to connect and exchange skills.
- **Importance:** Scheduling helps users manage their time, avoid conflicts, and be better prepared for their sessions, leading to more productive and successful exchanges.



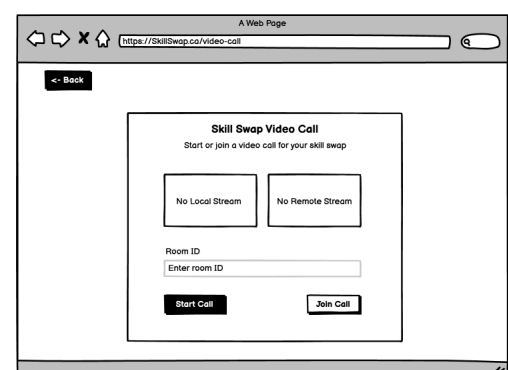
2. Join or Create Video Stream

- **Task:** Users join or create a video stream for their scheduled session.
- **Importance:** Video streams enable real-time interaction, fostering engagement and communication, which is essential for effective skill exchange.



3. Adding Skills to Teach or Learn

- **Task:** Users add skills they can teach or wish to learn.
- **Importance:** Adding skills helps users find relevant connections, ensuring meaningful and personalized learning experiences.



User Study

The user study for the SkillSwap platform will evaluate three key features: scheduling sessions, creating or joining video streams, and adding skills to teach or learn. The Wizard-of-Oz (WoZ) technique will simulate backend functions that are not yet automated.

Objectives

- **Usability:** Assess ease of use for core tasks.
- **Satisfaction:** Measure overall user satisfaction.
- **Identify Issues:** Pinpoint areas of confusion or difficulty.

Participants

Five users will be recruited, familiar with video platforms. They will complete tasks and provide feedback.

Procedure

Each session (25-40 minutes) includes:

1. **Introduction (5 mins):** Overview of the study, instructions, and consent.
2. **Task Completion (15-25 mins):** Participants complete tasks:
 - Scheduling a session.
 - Joining/creating a video stream.
 - Adding skills to teach/learn.
3. **Survey (5-10 mins):** Participants fill out a usability survey and provide feedback.

Data Collection

- **Think-Aloud:** Users will verbalize their thoughts during tasks.
- **Observations:** Facilitators will note behavior and difficulties.
- **Metrics:** Time taken and errors will be tracked.

Analysis

- **Quantitative:** Survey responses and task completion times.
- **Qualitative:** Themes from think-aloud and observations.

Survey: [Survey Link](#)

Quantitative Survey Questions (Likert Scale 1-5)

1. The process of scheduling a session was easy to understand and follow.
2. Joining or creating a video stream was straightforward and worked as expected.
3. Adding skills to teach or learn was simple and intuitive.
4. The platform's user interface was clear and easy to navigate.
5. I felt confident in completing the tasks without assistance.
6. I am satisfied with my overall experience using the SkillSwap platform.

Qualitative Survey Questions

1. What did you like most about the SkillSwap platform?
2. Were there any parts of the platform that you found confusing or difficult to use?
3. How would you improve the platform's features or interface?
4. Was there anything missing that you would expect from a platform like Skillswap?

User 1

1. Click User profile
2. type Physics, change skill level to moderate
3. click Add skill to teach
4. checked skill has been added
5. click back to go main page

1. click Skill swap calendar
2. type Meeting title : student 1, Start time : 11 : 00 am, End time : 02 : 00 pm, no description
3. Click add meeting
4. check meeting has been added properly
5. click back to go main page

1. click Video call
2. type Room id : 1121
3. click Start call
4. checked video call was working
5. click back to go main page

The available options were clear and straightforward, making it easy for both me and my opponent to quickly understand and make decisions. The simplicity and limited number of choices helped streamline the process, ensuring that neither of us was overwhelmed, and the decision-making became more efficient.

User 2

- **Task 1: Adding a skill**
 - Click **User Profile**.
 - Type **Guitar**, change skill level to **Beginner**.
 - Click **Add Skill to Learn**.
 - Checked the skill was added successfully.
 - Click **Back** to return to the main page.
- **Task 2: Scheduling a meeting**
 - Click **Skill Swap Calendar**.
 - Type **Meeting title**: Math tutoring.
 - Enter **Start time**: 10:00 am and **End time**: 12:00 pm.
 - Add a brief **Description**: Algebra basics.
 - Click **Add Meeting**.
 - Verified the meeting was scheduled correctly.
 - Click **Back** to return to the main page.
- **Task 3: Starting a video call**
 - Click **Video Call**.
 - Enter **Room ID**: 2233.
 - Click **Start Call**.
 - Confirmed the video call functionality worked as expected.
 - Click **Back** to return to the main page.

Feedback:

Overall, the platform is intuitive and efficient. However, the calendar feature could be improved by providing options to edit or reschedule meetings once they are added. This would offer more flexibility and prevent users from having to delete and recreate events.

User 3

Task 1: Adding a skill

1. Click User Profile.
2. Type Cooking, change skill level to Advanced.
3. Click Add Skill to Teach.
4. Verified the skill was added to the list.
5. Click Back to return to the main page.

Task 2: Scheduling a session

1. Click Skill Swap Calendar.
2. Type Meeting title: Baking Workshop.
3. Enter Start time: 3:00 pm and End time: 5:00 pm.
4. Add a brief Description: "Learn to bake pastries."
5. Click Add Meeting.
6. Checked that the meeting was scheduled correctly and appeared in the calendar.
7. Click Back to return to the main page.

Task 3: Starting a video call

1. Click Video Call.
2. Enter Room ID: 3344.
3. Click Start Call.
4. Confirmed that the video call started smoothly and the camera and microphone worked properly.
5. Click Back to return to the main page.

The app is user-friendly and easy to navigate. Having a preview or confirmation window before starting a video call could ensure users are fully prepared before joining. Moreover, having the ability to simply chat with the tutors/learners would be great.

User-4

Task 1: Adding a skill

- Click User Profile.
- Type Piano, change skill level to Beginner.
- Click Add Skill to learn..
- Make sure that the skill was added to the list.
- Click Back to return to the main page.

Task 2: Scheduling a session

- Click Skill Swap Calendar.
- Type Meeting title: Piano Class.
- Enter Start time: 6:00 pm and End time: 8:00 pm.
- Brief Description: “Learn about key tones”.
- Click Add Meeting.
- Make sure that the meeting was scheduled correctly and showed up in the calendar.
- Click Back to return to the main page.

Task 3: Starting a video call

- Click Video Call.
- Enter Room ID: 1010.
- Click Start Call.
- Confirmed that everything went smoothly.
- Click Back to return to the main page.

Feedback:

The app has excellent proficiency in navigating the app's features, including adding skills, scheduling sessions, and starting a video call. Tasks were completed smoothly and with attention to detail.

User 5

Task 1: Adding a skill

1. Click User Profile.
2. Type jazz form, change skill level to Advanced.
3. Click Add Skill to learn.
4. Verified the skill was added to the list.
5. Click Back to return to the main page.

Task 2: Scheduling a session

1. Click Skill Swap Calendar.
2. Type Meeting title: step up to the beats .
3. Enter Start time: 5:00 pm and End time: 6:00 pm.
4. Add a brief Description: “Learn to live through Dance”.
5. Click Add Meeting.
6. Checked that the meeting was scheduled correctly and showed in the calendar.
7. Click Back to return to the main page.

Task 3: Starting a video call

1. Click Video Call.
2. Enter Room ID: 1712.
3. Click Start Call.
4. Confirmed that the video call started smoothly and the camera and microphone worked properly.
5. Click Back to return to the main page.

FEEDBACK: Your instructions are clear and well-structured, with good verification steps included for each task. To improve, consider adding troubleshooting tips for potential issues and specifying navigation details (e.g., button labels). Excellent effort overall!

Description and Setup

The participants of this user study were five individuals, all of whom were acquaintances of the SkillSwap platform development team. Each participant was familiar with video platforms and had a basic understanding of how online session scheduling, video streaming, and skill-sharing platforms function. The group was diverse in terms of age and professional backgrounds, ensuring varied perspectives on the platform's usability.

The study was conducted using the Wizard-of-Oz (WoZ) technique, where the backend functionalities of the SkillSwap platform were simulated by the facilitator, as they were not yet fully automated. The participants were asked to complete tasks involving three core features of the platform: scheduling a session, joining or creating a video stream, and adding skills to teach or learn. These tasks were designed to assess ease of use, the intuitiveness of the platform's interface, and overall satisfaction. Each session lasted between 25 and 40 minutes, divided into an introduction (5 minutes), task completion (15-25 minutes), and a final survey (5-10 minutes). Throughout the study, participants were encouraged to think aloud and share their thoughts, allowing for real-time feedback on their experience. Observations were also made to note any difficulties or areas of confusion, which will guide future platform improvements.

Overall Result: [Survey Data](#)

Task 1: Adding a Skill

Each participant performed the task of adding a skill to either teach or learn. Generally, all users found this task easy and intuitive to complete.

- **User 1** added a skill to teach (Physics) and changed the skill level to moderate. They checked that the skill had been added successfully and felt that the process was straightforward.
- **User 2** added a skill to learn (Guitar) and set the skill level to beginner. They confirmed that the skill was added without any issues.
- **User 3** added a skill to teach (Cooking) and set the skill level to advanced, verifying the addition successfully.
- **User 4** added a skill to learn (Piano) and changed the skill level to beginner, finding the process clear and easy.
- **User 5** added a skill to learn (Jazz form) with an advanced level, confirming the successful addition.

Participants universally appreciated the simplicity of the task. The user interface (UI) was clean and easy to navigate, and the system responded quickly to their actions. There was no significant confusion or difficulty reported during this task, which suggests that the functionality for skill management is working well.

Task 2: Scheduling a Session

Scheduling a session through the SkillSwap calendar was the next key task, and while the process was generally smooth, there were some observations worth noting.

- **User 1** scheduled a session with the title "Student 1" from 11:00 AM to 2:00 PM and confirmed that the meeting had been correctly added.
- **User 2** scheduled a meeting titled "Math tutoring" from 10:00 AM to 12:00 PM, including a brief description of "Algebra basics," and verified the addition.
- **User 3** set up a meeting titled "Baking Workshop" from 3:00 PM to 5:00 PM, adding a description of "Learn to bake pastries," and confirmed its accuracy.

- **User 4** scheduled a meeting titled "Piano Class" from 6:00 PM to 8:00 PM, adding a brief description of "Learn about key tones," and found that the event had been successfully scheduled.
- **User 5** scheduled a session titled "Step up to the beats" from 5:00 PM to 6:00 PM, including the description "Learn to live through Dance." They confirmed the meeting was properly added to the calendar.

The task of scheduling a session was mostly completed without problems. The interface for adding the meeting title, time, and description was easy to follow. However, **User 2** and **User 3** suggested improvements related to editing and rescheduling meetings once they had been added. Both felt that the ability to edit existing events instead of needing to delete and recreate them would offer better flexibility. This feedback suggests a potential area for future improvement, as current functionality limits users who might need to change meeting details after scheduling.

Task 3: Starting a Video Call

The final task involved starting a video call by entering a room ID and initiating the call. This task was successful for all participants, and the video call feature worked as expected.

- **User 1** entered the room ID "1121" and confirmed that the video call functioned smoothly, with both audio and video working properly.
- **User 2** used the room ID "2233" and reported that the video call was working well, with no issues.
- **User 3** used room ID "3344" and confirmed that the video call was launched correctly, with the camera and microphone functioning without problems.
- **User 4** entered room ID "1010" and experienced no issues with the video call, reporting that everything ran smoothly.
- **User 5** used room ID "1712" and confirmed that the video call started without issues, and all features worked as expected.

Overall, the video call functionality was praised for its reliability and ease of use. All participants experienced no significant issues during this task, which suggests that the video call feature is one of the most polished aspects of the platform.

Overall Satisfaction and Feedback

After completing the tasks, participants provided general feedback regarding their overall satisfaction with the platform and suggestions for improvement.

1. **Ease of Use:** All participants generally found the platform easy to navigate and intuitive. The task flow was logical, and the options available were clear. The simplicity of the interface helped users feel confident in completing the tasks without assistance. For example, **User 1** appreciated how clear and straightforward the options were, while **User 4** felt that the app's proficiency in navigating features was excellent.
2. **Suggested Improvements:** Some participants provided valuable suggestions for improvements. **User 2** recommended adding features to edit or reschedule meetings after they had been added to the calendar. This suggestion indicates that while the scheduling system works, it could benefit from more flexibility. **User 3** proposed adding a confirmation or preview window before starting a video call, ensuring users are fully prepared before joining. Additionally, **User 3** suggested the ability to chat with tutors or learners, which would be a useful communication feature before or after a session.
3. **Platform Strengths:** Participants were overall satisfied with the platform. **User 5** highlighted the clear instructions and well-structured task completion process, expressing that the platform's flow worked well. Most participants found the process of adding skills, scheduling sessions, and starting video calls simple and effective. The video call feature, in particular, was praised for its reliability.
4. **Suggestions for Enhancement:** A recurring piece of feedback was related to the ability to manage scheduled sessions more effectively. Adding features for editing or rescheduling events would enhance the flexibility of the platform. Additionally, having troubleshooting tips or FAQs available for users to refer to would help alleviate potential issues, especially for first-time users. **User 5** also suggested specifying navigation details, such as button labels, to make it even easier to understand the process.

Propose Change

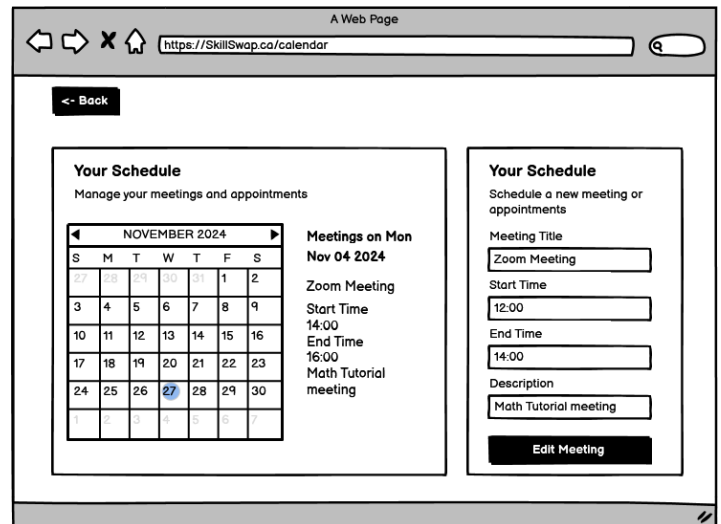
Based on the feedback from the user testing, here are some proposed changes to improve the SkillSwap platform:

1. **Editing and Rescheduling Meetings:** Add an option to edit or reschedule meetings in the calendar. This would allow users to modify meeting details without needing to delete and recreate events, offering more flexibility.
2. **Confirmation Window for Video Calls:** Introduce a confirmation or preview window before starting a video call. This will give users the chance to check their audio and video settings to ensure everything is working properly before joining the call.
3. **Chat Feature:** Add a chat feature for users to communicate with their tutors or learners. This would allow for quick exchanges of information without starting a video call.
4. **Help Section and Troubleshooting Tips:** Include a Help/FAQ section with troubleshooting tips for common issues. This would provide immediate assistance for users encountering problems and enhance their overall experience.

Implementation of the changes: [SkillSwap Prototype\(P5\)](#)

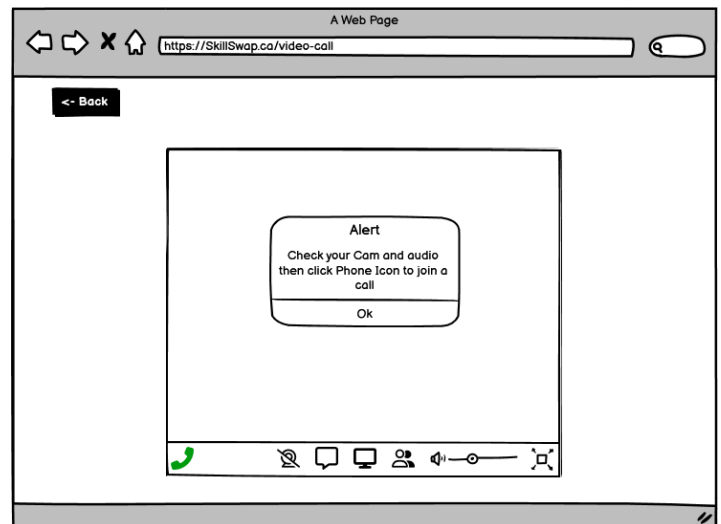
1. Editing Meetings:

To improve flexibility and ease of use, an Edit button has been added to the meeting schedule, allowing users to modify meeting details without needing to delete and recreate events. This feature enables users to quickly change meeting times, locations, or participants, streamlining the process and preventing unnecessary cancellations and new invites. This update enhances the scheduling experience by saving time and effort while keeping all meeting details intact.



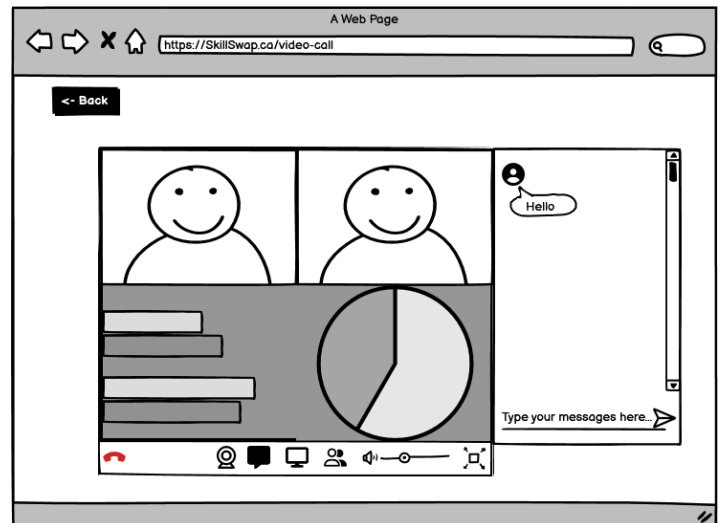
2. Audio and Video Check Before Joining a Call:

A new feature has been implemented that allows users to check their audio and camera settings before joining a video call. An alert box appears, showing the current settings and confirming whether everything is working correctly. This proactive step helps users avoid technical issues during the call, ensuring they can make adjustments if needed before entering the meeting. It enhances the reliability of the video call experience by giving users peace of mind and preventing disruptions.



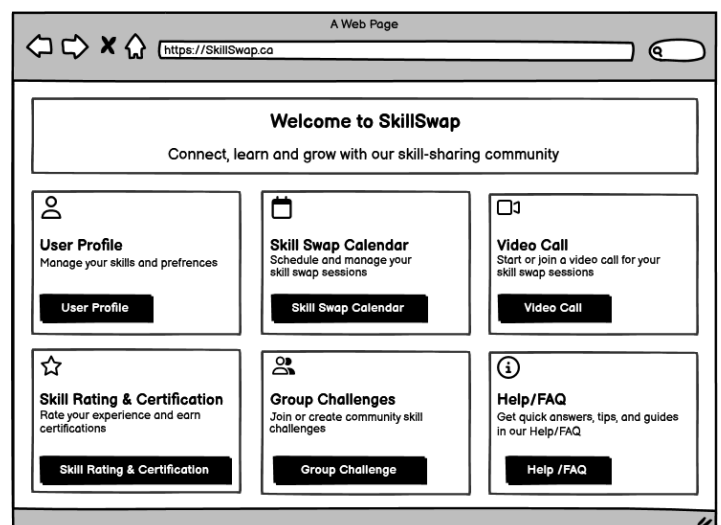
3. Chat Feature in Video Calls:

A chat feature has been added to video calls, allowing users to communicate with each other through text during the call. By clicking on a chat icon, users can open or close the chat box, with the icon clearly indicating whether the chat is active or not. This feature makes it easier to share quick information, links, or comments without interrupting the flow of the conversation, improving the overall interactivity and convenience during calls.



4. Help/FAQ Section on the Main Page:

A new Help/FAQ section has been added to the main page, providing users with instant access to troubleshooting tips and solutions for common issues. This section aims to reduce user frustration by offering immediate assistance and guiding them through potential problems. The addition of this resource helps users resolve issues quickly, enhancing their overall experience and reducing the need for external support.



Workload distribution and summary

Our team first improved the prototype based on a heuristic evaluation, which identified key usability issues. After making the initial improvements, we conducted a user study using the Wizard-of-Oz technique to simulate missing features. We selected three main tasks for the study and gathered feedback from five users. Analyzing this feedback allowed us to further refine the prototype, addressing any remaining issues. We have created an improved version based on the user feedback.