

Understanding the Long-Term Challenges of International Students at the University of Iowa

Group 8
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Introduction and Motivation

International students bring rich perspectives to university campuses but their transitions often involve complex, prolonged challenges. Beyond initial orientation, many continue to struggle with navigating academic systems, fulfilling tax obligations, finding reliable housing, and securing career guidance. While existing peer mentoring programs provide short-term help, they frequently fall short in offering sustained, personalized support.

For our CS4510: Human-Computer Interaction course project at the University of Iowa, our group identified a recurring challenge faced by international students: the **fragmentation** and **inaccessibility** of essential **university resources**. Delays in administrative processes, such as receiving a university email ID, further hinder students' ability to access support when it's most needed. These gaps led us to reimagine what long-term support for international students could look like.

Our solution was to design a **student-centered, hybrid web-mobile** platform, not as a replacement for mentoring, but as a flexible, accessible supplement. The goal was to empower students through peer-shared experiences, clear guidance on institutional processes, and categorized, easy-to-navigate information. We envisioned a system where students could not only find help but also offer it.

Human-Centered Design Process Overview

Our project followed a structured Human-Centered Design (HCD) approach, iteratively building our solution through the following phases:

1. **Formative Research:** Identifying user pain points through qualitative and quantitative methods
2. **Early Ideation & Sketching:** Translating insights into task-based prototypes
3. **Prototyping:** Developing both paper-based and high-fidelity digital mockups
4. **Evaluation & Iteration:** Refining the system through usability testing and user feedback

Each phase incorporated specific methods and feedback loops that allowed us to refine our system in response to real user needs.

Phase 1: Formative Research

Methods

We conducted a mixed-methods study combining **surveys** and **semi-structured interviews** with **four international students** (2 PhD, 1 undergraduate, 1 professional degree). Our sample captured a range of experiences - from early-stage newcomers to students further along in their academic journey.

Key Insights

- **Fragmented Access to Information:** Students frequently turned to Google or peers due to difficulties navigating the university's dispersed online resources.
- **Mentorship Gaps:** Existing programs were often inaccessible, brief, or poorly matched, resulting in experiences that felt impersonal or ineffective.
- **Barriers to Early Support:** Some students missed critical opportunities (e.g., orientation events, International Student and Scholar Services (ISSS) workshops) due to delayed access to their university credentials.
- **Platform Preferences:** All participants preferred a web-first system for ease of access and navigation, with mobile support as a secondary convenience.

Impact on Design Strategy

This research prompted a strategic pivot: rather than replicating traditional mentorship, we envisioned a **student-led, forum-style** platform. To lower access barriers, we also opted against requiring university authentication at sign-up, ensuring even incoming students could benefit from early guidance.

Phase 2: Early Ideation and Sketching

Guided by insights gathered during our formative research, our team began designing the overall structure of the platform by focusing on three core goals:

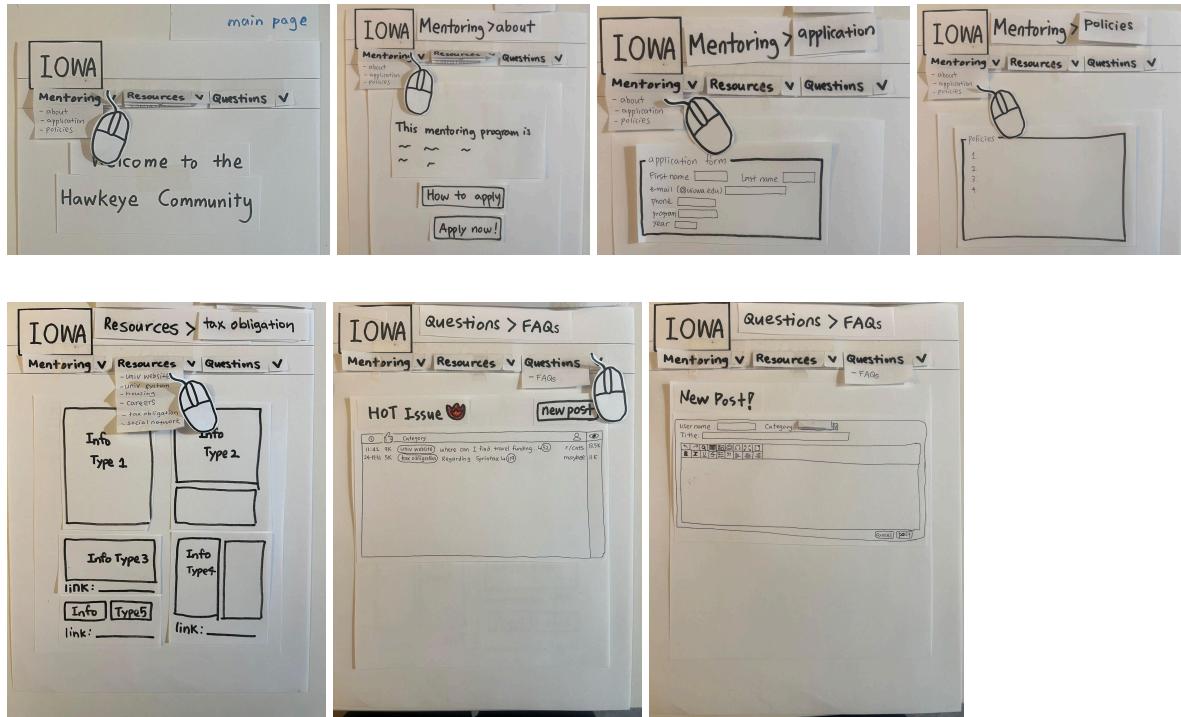
1. Provide an environment for effective **mentor-mentee matching**.
2. Offer **centralized, easy-to-navigate** access to essential information for mentors to share with mentees.
3. Create a space for **real-time communication** and **discussion** beyond individual mentor-mentee relationships.

We originally considered requiring a UIowa email login to ensure trusted participation, but dropped the idea after learning some students receive their IDs late. To ensure early access, we kept the platform open and may explore lightweight verification in future versions.

With these goals in mind, we sketched out the platform's initial layout through low-fidelity paper prototypes. These included:

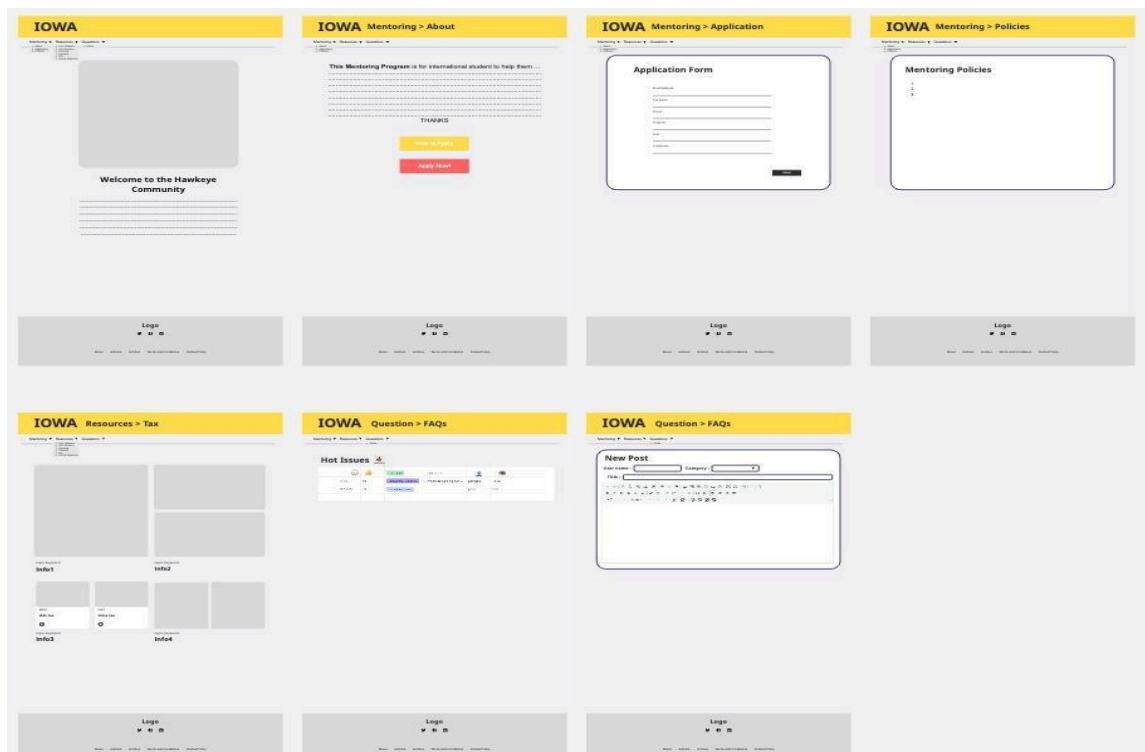
- A **main page** with clear entry points to all major sections
- A **mentorship page** introducing the program and offering an application form
- A **categorized resources page** that groups essential topics (e.g., taxes, housing)
- A **Q&A board** labeled “HOT Issues” for open discussions and community help

<Low-fidelity Paper Prototypes>



These sketches served as a foundation for refining our ideas. We then created **higher-fidelity prototypes using MIRO**, where we visualized layout, content placement, and interaction more clearly.

<Higher fidelity Prototypes - MIRO>



During in-class design reviews, we presented both the paper and MIRO prototypes and received actionable feedback across several frames. Key suggestions included **improving color contrast and font size for better accessibility**, **adding direct-access buttons** (e.g., “**Find a Mentor**”), and **enhancing usability through confirmation alerts, icon explanations, and editable Q&A posts**. This feedback guided refinements in the next phase, reinforcing the need for a more accessible, intuitive, and mobile-friendly system.

Key design values emphasized in this phase included:

- **Clarity and simplicity of purpose**
- **Task-oriented and intuitive navigation**
- **Accessible interactions and forms**
- **Support for ongoing community discussion**

By combining iterative sketching with detailed in-class feedback, we laid a solid foundation for responsive, user-friendly prototypes moving into the next phase.

Phase 3: Implementation Prototype

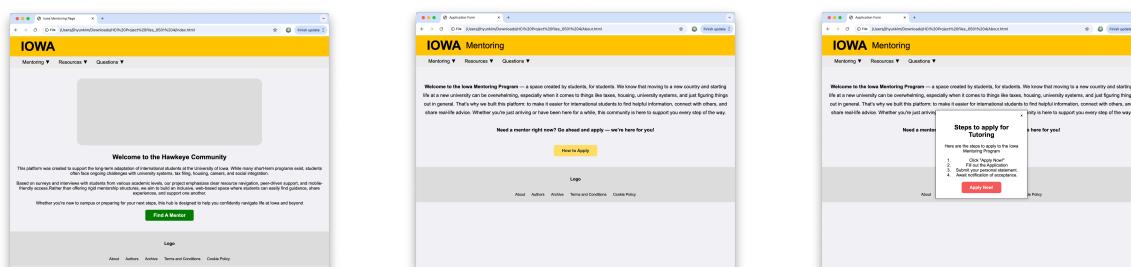
Building on our early sketches and feedback, we developed both a functional web prototype and a mobile mockup to test usability, responsiveness, and feature completeness across platforms.

Web-Based System (Primary Prototype)

Our main prototype was built using **HTML, CSS, and JavaScript** to simulate a functional web application. The prototype includes the core features of our platform and serves as the primary interface for users. Key components include:

1. Main page with **tab-based navigation** across Mentoring, Resources, and Questions
2. **Mentorship application form** with submission confirmation feedback to enhance user trust and completion clarity
3. **Resources section (currently focused on Taxes)** structured into categories to simplify access to critical information

This version of the system allows users to interact with essential functions as they would in a real environment, giving us insight into layout efficiency, information hierarchy, and navigation flow.



The image displays four screenshots of the Iowa Mentoring web application:

- Application Form:** A screenshot of the application form page. It shows fields for Email Address, Full Name, Phone, Program, Year, and Preferences. A "Submit" button is at the bottom.
- Successfully Submitted:** A confirmation message stating "Successfully Submitted" with a checkmark icon. It includes a "Logo" section and links for About, Authors, Terms and Conditions, and Cookie Policy.
- IOWA Resources:** A page titled "IOWA Resources". It features a "Resources" section for international students and a "Taxes Information" section with a step-by-step guide for international students.
- IOWA Resources > Tax:** A detailed "Taxes Information" page with sections for Step 1: Get Started with Your Taxes, Step 2: Understand Key Considerations, Step 3: Choose a Filing Method, and Step 4: Pay Your Tax Online. It also includes links for Additional Resources and State Tax Info.

Mobile App Mockup (Secondary Prototype)

To explore mobile scalability and responsiveness, we also developed a **mid-fidelity mobile mockup** using Miro. This prototype reimagines our web platform for touch interaction and smaller screen sizes, focusing on core tasks while maintaining usability. Features include:

- 1. Home screen with large, touch-friendly navigation buttons**
- 2. Card-style layouts for mentoring, housing, taxes, and career resources**
- 3. FAQ and Q&A sections with simplified input fields for posting and browsing questions**

This helped us examine the feasibility of extending our system to a mobile-first or mobile-compatible format in the future.

The image displays seven screenshots of the mobile app mockup:

- Main Page:** Shows a welcome message: "Welcome to the Hawkeye Community". It includes a "Get Started" button.
- Resource Cards:** A grid of cards for Find Mentor, Housing, Career, Tax Help, Questions, and Community.
- Mentor Application:** A card-style application form for "Find Mentor" with fields for Email, Full Name, Phone, Program, Year, and Preferences.
- Submission Page:** A confirmation message: "Application Submitted!" with a checkmark icon.
- Resources - Taxes:** A "Resources > Taxes" page with a "How to file your taxes?" section containing several cards.
- Questions Page:** A "Questions > Hot Issues" page showing a list of "Hot Issues" with comments.
- Post a Question:** A "Questions > FAQs" page for "New Post" with fields for Username, Category, Title, and Description.

Design Revisions (From Feedback and Reflection)

Based on in-class feedback and implementation experience, we made several improvements to enhance usability and accessibility.

Peer Feedback–Driven Changes:

- Applied the official University of Iowa color palette for visual consistency
- Increased navigation font size for better readability
- Added a “Find a Mentor” shortcut on the homepage
- Improved text contrast in the “How to Apply” section
- Included a confirmation message after form submission

Changes from Implementation Reflection:

- Initially planned as static page labels, the top navigation titles were updated to **function as interactive tabs**, allowing direct access to Mentoring, Resources, and Questions sections
- Introduced a Resources landing page to support clearer navigation flow
- Replaced static instructions with a step-by-step “How to Apply” popup
- Designed the Tax Resources section with card-based layouts that link to relevant external sites, improving clarity and interaction

These updates reflect our iterative process and aim to ensure the platform is intuitive, accessible, and aligned with both user needs and institutional design standards.

Phase 4: Evaluation and Iteration

We conducted **task-based usability testing** with short **follow-up interviews** to evaluate the platform’s usability and gather user feedback. Participants were asked to:

1. Complete and submit a **mentorship application**
2. Navigate to the **tax help** section and explain the steps they would take

During testing, we observed their navigation behavior, points of hesitation, and interaction patterns. After each session, we conducted brief interviews to reflect on their experience and gather suggestions. We also introduced the **Miro-based mobile prototype** to explore cross-platform usability.

Participants

We tested with **five international students** (2 PhD, 1 master’s, 2 undergraduates), all actively using university systems and representative of our target users.

Key Takeaways

- **Structured layouts** (e.g., Tax page) helped users feel confident navigating information
- **Unclear labels** (e.g., “Preference”) caused confusion in application form
- **Visual variety** increased engagement; overly text-heavy pages felt dull
- **Web version was preferred** over mobile for ease and immediacy
- **All users found the platform helpful** and said they would recommend it to peers

Final Design Summary

Our final system includes:

- **Web-based platform:** Tabs for Mentoring, Resources
- **Mentorship form** with submission feedback
- **Tax resource page** with step-by-step guidance
- **Mobile mockup** supporting cross-platform scalability

This design is scalable and easily modifiable, addressing diverse adaptation needs through a community-first approach.

Design Evolution and Reflection

From our initial concept of structured mentor matching, we evolved toward a decentralized, accessible platform that fosters real-time peer support. Our assumptions about access control and app preference shifted based on formative research and usability testing. Each iteration was shaped by concrete user feedback, leading us to prioritize web-first deployment, intuitive navigation, and flexible communication tools.

This responsiveness demonstrates the strength of the HCD approach, we continuously revised our system to better serve the real and nuanced needs of our target users.

Future Direction Reflection

In the early phases of the project, we emphasized features like the “Hot Issues” board to promote open-ended discussion. However, through interviews and usability testing, we discovered that international students prioritized structured mentorship and access to categorized resources over freeform discussion tools. As a result, our final design centers on these two priorities, while intentionally leaving space for future iterations to expand discussion capabilities through forums or hot-topic threads. This approach ensures the platform remains adaptable to evolving user needs while staying grounded in user-centered research insights.

Opportunities for Future Work

- **Expand Resource Categories:** Incorporate health insurance, visa information, and academic writing support.

- **Implement Functional Forum:** Add backend capability for posting, replying, and moderating discussions for Hot issues board.
- **Authentication Layer:** Introduce lightweight verification for trust without limiting access.
- **Scalability:** Expand to support other underrepresented student groups such as transfer or first-gen students.
- **Mobile App Launch:** Develop a functional, downloadable version based on the Miro mockup.

Conclusion

Our project evolved from a basic idea of connecting students with mentors into a full-fledged platform for sustainable support. By applying a Human-Centered Design approach and iteratively incorporating real user feedback, we created a flexible, web-first system that facilitates mentorship, resource access, and scalable communication. The feedback from international students at the University of Iowa helped us prioritize what matters most: early access to help, personalized guidance, and peer-driven support. While some features like real-time discussion are planned for future versions, our current design successfully lays the foundation for a lasting solution that grows with its users.

Team Contribution Statement

- **Priyanka Singh** led the mobile prototype design using Miro, developed and refined interview questions, created early storyboard sketches, and structured the written reports throughout each phase of the project.
- **Jihyun Kim** was responsible for developing the paper prototypes and designing the web-based prototype using HTML, CSS and JavaScript. She also integrated peer and user feedback to enhance both the visual design and overall functionality.
- **Riya Kulkarni** contributed to designing the visual aspect of the platform, led the creation of the in-class presentation for peer feedback, and managed the incorporation of feedback across iterative design phases.

As a team, all members actively participated in formative research, conducted interviews, usability testing, documentation, and presentations, collaborating closely at every stage to ensure a coherent and user-centered final design.

References

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Appendix

Interview Notes

- Summaries from four semi-structured interviews with international students at the University of Iowa:
 - Participant A (PhD, Year 3): Struggled with tax documents and had never heard of ISSS resources. Expressed desire for centralized FAQ-style resources and mentorship matching.
 - Participant B (Undergrad, Year 1): Missed initial orientation due to delayed HawkID activation. Preferred web-first solutions and wanted a peer-to-peer discussion board.
 - Participant C (Professional degree): Found existing mentor programs too brief and impersonal. Wanted structured, ongoing guidance and reliable housing tips.
 - Participant D (PhD, Year 1): Strong interest in helping new students but unclear on where to start. Valued anonymity and accessibility in any digital support tool.
- All participants emphasized early access, community-driven help, and mobile compatibility.

Survey Questions

- Conducted via Google Forms with 15 international student respondents. Sample questions:
 - What were the biggest challenges you faced in your first semester?
 - Did you use any existing university support systems? If yes, which ones?
 - Would you find a peer mentor or discussion forum helpful?
 - What topics would you like categorized support for? (e.g., taxes, housing, jobs)
- Most common responses included: confusion about tax forms, lack of clarity in housing contracts, and difficulty finding accurate job/internship resources.
- Usability Testing Script
- Tasks:
 - Complete and submit the mentor application form.
 - Navigate to the Tax Resources page and describe steps you'd follow.
 - Locate and explore the "Questions" section.
- Follow-Up Questions:
 - What part of the platform felt easiest to use?
 - Did anything feel confusing or unclear?
 - How would you improve this system?
- Each session concluded with short user reflections.

Feedback Summary

- Compiled from peer reviews during class design check-ins:
 - Phase 2: Suggested reducing text and improving color contrast; added visual clarity and task buttons like “Find a Mentor.”
 - Phase 3: Positive feedback on mentorship form flow and homepage layout. Suggestions included mobile design tweaks, and form field clarifications.
 - Phase 4: Encouraged replacing long text with visuals in the Resources section, simplifying form instructions, and enabling real-time feedback on submissions.

Additional Design Artifacts

- Low-Fidelity Sketches: Early layout plans for homepage, resource tabs, and form pages.
- MIRO Prototypes: Mid- to high-fidelity digital mockups showcasing web and mobile versions