

Assignment 7 - Low-fi Prototyping & Pilot Usability Testing

TutorNOW

On-demand, student-to-student campus tutoring

Team Members

Ryan Matsumoto (Team manager and documentation), Josephine Chen (User testing), Asli Kimya (Designer), Louis Brion (Developer)

Introduction

TutorNOW is an on demand peer-to-peer campus tutoring application in the early stages of development. Following our contextual inquiry, task analysis, concept video, and initial sketches, we decided to develop a low fidelity prototype that allows users to create profiles, search for a tutor/tutee, and review the tutoring session. We tested this prototype on three potential customers to allow us to easily observe user interface problems and identify potential improvements. Through these tests, we learned how excited students were about TutorNOW and what functionality they found most and least useful.

Mission Statement

TutorNOW aims to revolutionize the education industry by connecting college students who need help with college students who can give help. We are improving tutoring by leveraging technology to connect students with the best tutors immediately and reliably. Ultimately, we hope to empower college students to learn from each other in a more convenient, timely, and collaborative environment.

Prototype Description

Our prototype was divided into three sections based on the tasks that a user would perform. These sections included creating a profile, being matched with a tutor / tutee and reviewing the tutor / tutee. The components of our prototype were made on 3x5 note cards with inserts for relevant menus as well as a map for components that involved locations. Users progress through the visual screens by touch, filling out text fields, selecting from drop-down menus, and positioning maps.

The **profile creation** screens are comprised of a linear screen progression that allows users to input information about themselves, their tutoring interests as well as their tutoring needs. See *Figure #1*

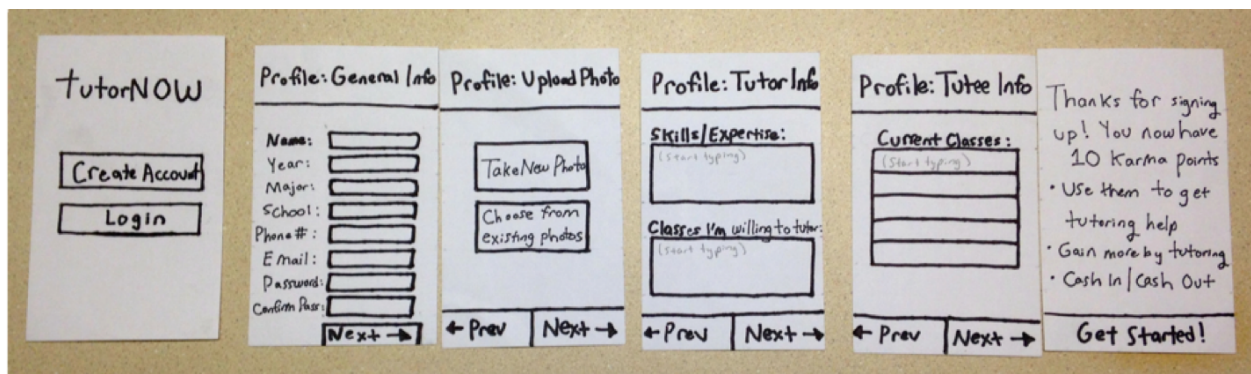


Figure #1: Profile Creation

The **tutor / tutee matching portion** involves two separate screen progressions depending on whether you wanted to be a tutor or tutee at the time. These screens allow the user to input more specific information about exactly what they want to teach or learn at the time, including relevant class, assignment, timing, and location information through the use of text fields, drop-down menus, and maps. See Figures #2 - #5

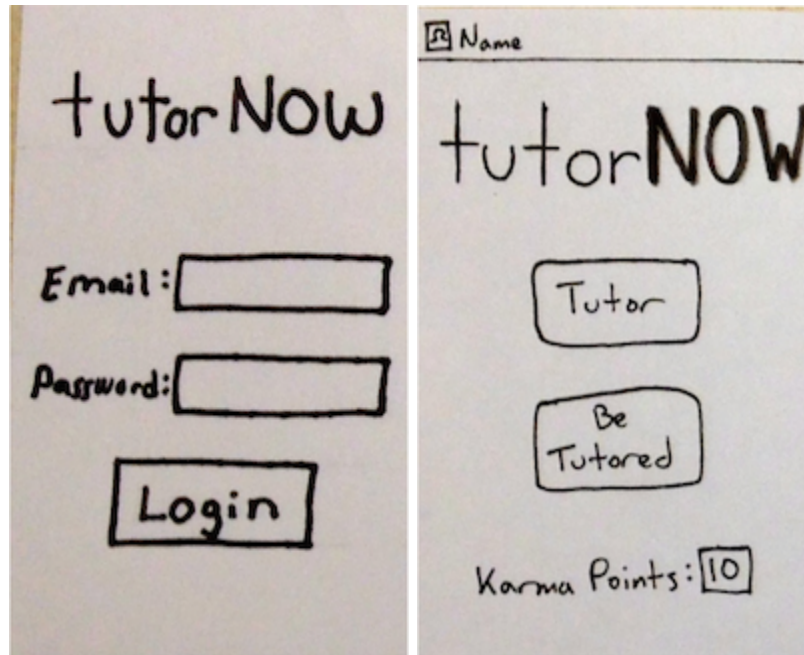


Figure #2: Logging into the user interface and selecting "Tutor" or "Be Tutored"

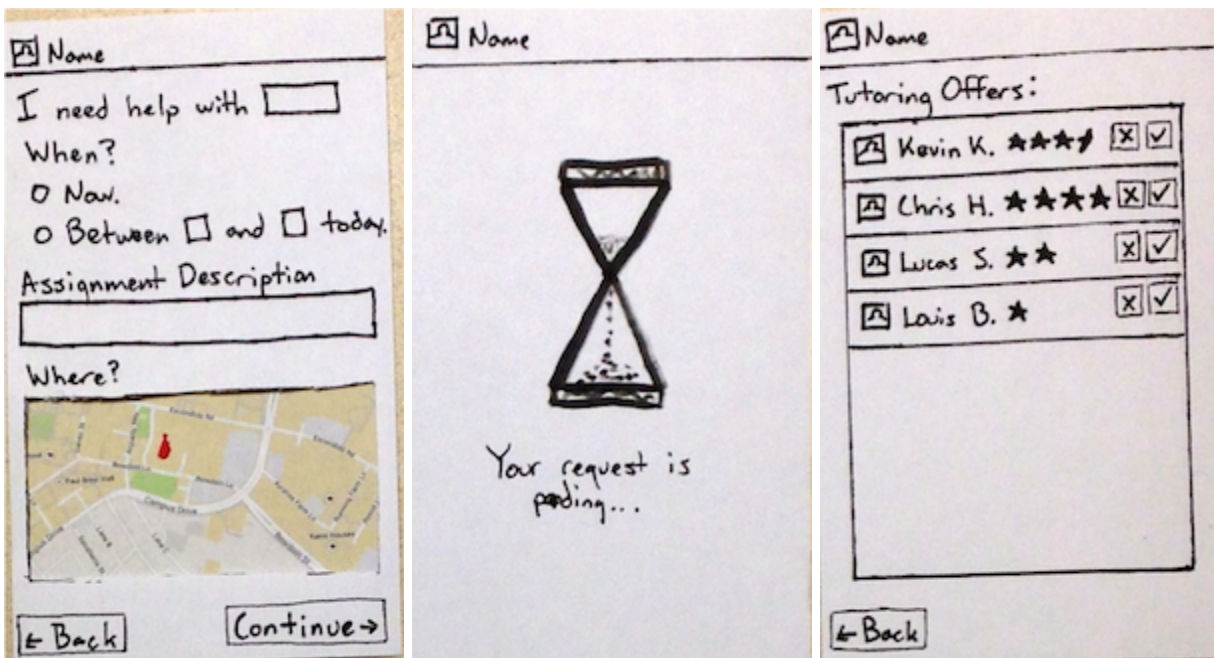


Figure #3: Flow if you selected "Be Tutored" and want tutoring help

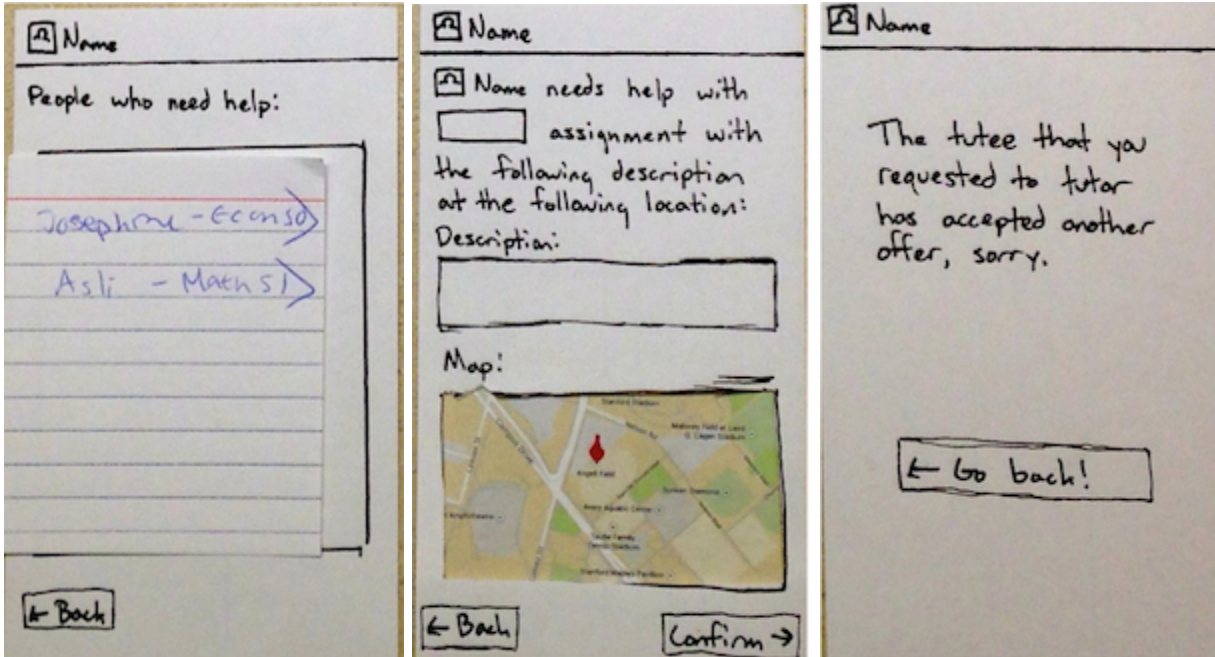


Figure #4: Flow if you selected "Tutor" and can give help



Figure #5: Confirmation screen for both tutors / tutees

The **reviewing portion** has two similar but separate flows that allow tutors to review their tutees and for tutees to review their tutors through a star system, an endorsement system, and text boxes for comments. See Figures #6 - #9

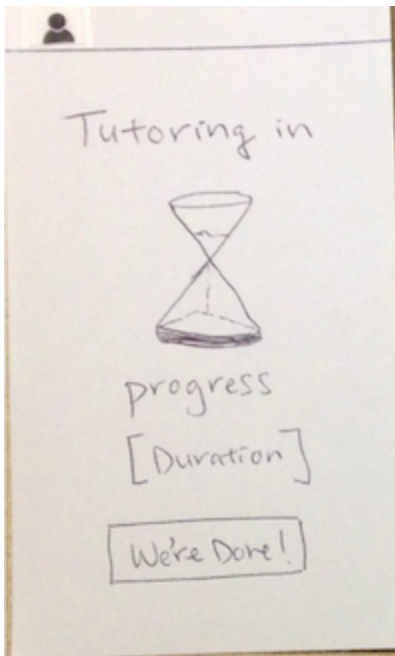


Figure #6: Tutoring in Progress Screen

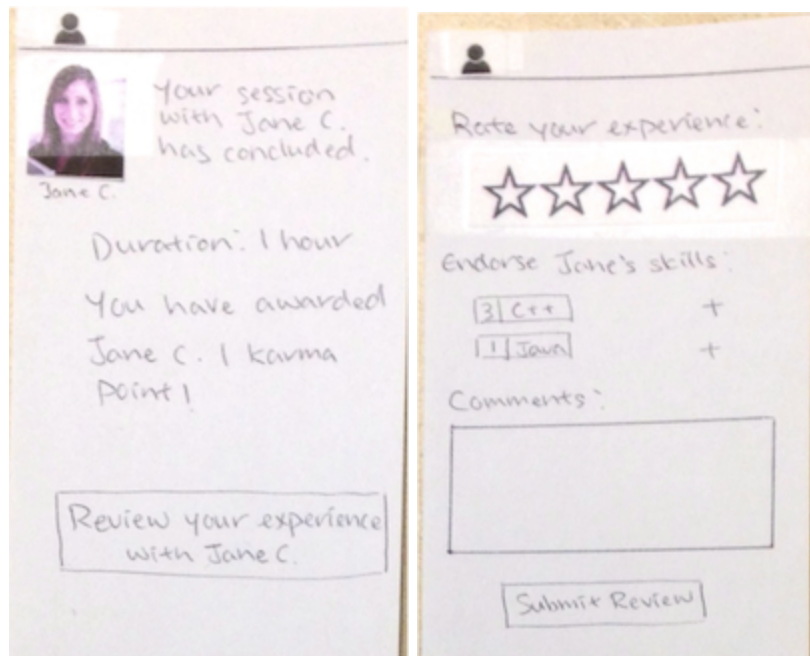


Figure #7: Review Flow for Tutees

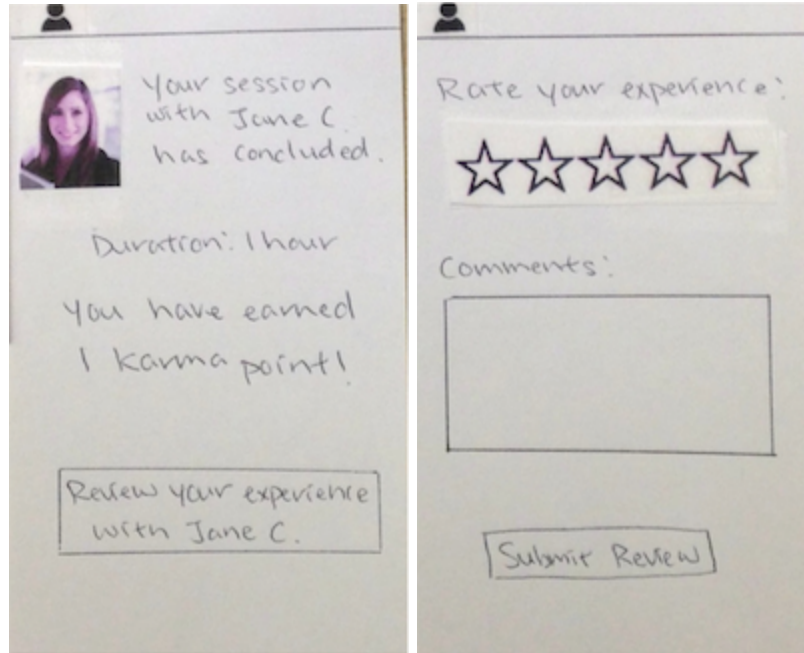


Figure #8: Review Flow for Tutors

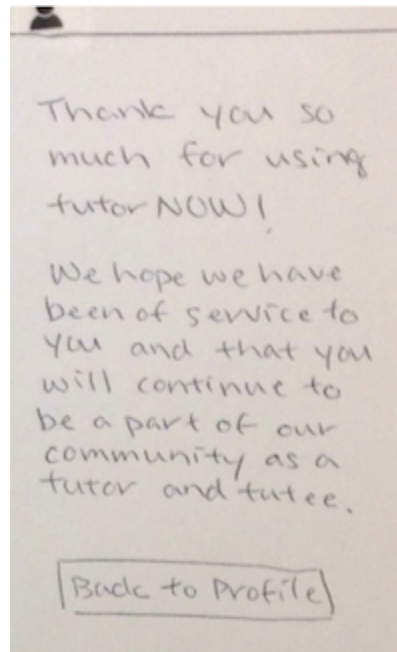


Figure #9: End of Tutoring thank-you screen

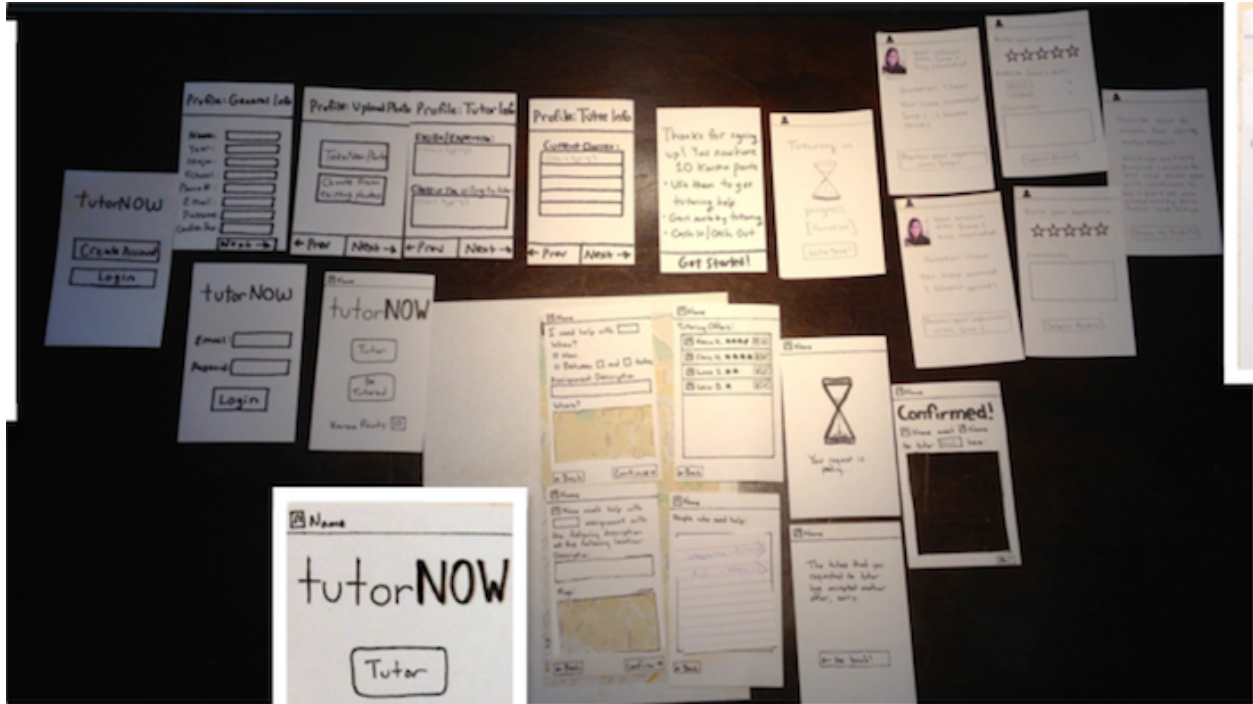


Figure #11: The entire TutorNOW lo-fi prototype laid out on a table!

Method

1. Participants: demographics, how recruited/compensated

- Participant #1: Lucas is a sophomore who needed help reviewing for the CS 103 midterm and tries to help his friends with physics. He lives in Louis' dorm (Murray).
- Participant #2: Henry is a senior majoring in Economics and cotermining in MS&E who regularly helps students and friends in the MATH 50 series and the ECON 50 series. This quarter, he would appreciate homework help for CS108. He was recruited while reading a newspaper at Lagunita Dining Hall.
- Participant #3: Tanvi is a junior majoring in human biology who needs help with her humbio classes. She often helps her friends with physics homework. She was recruited when we walked by her as she was relaxing at Starbucks.
- All three participants were compensated with doughnuts and gatorade

2. Environment

- Participant 1: Lucas' dorm room was used which is where he was studying.
- Participant 2: Right outside Henry's dorm room where he often works on his assignments
- Participant 3: Met Tanvi at Tresidder Union Starbucks after lunch
- We chose our locations based on where we could find participants and also whether or not the location would be a good tutoring meetup place.
- For each test, a table was used to put the application on. Each participant would sit at the middle of the table while working through the tasks. The "human computer" would sit to the participant's left, the facilitator would sit to the participant's right, and the other two team members would sit around the table taking notes.

3. Tasks

- Task 1 - Sign-up (easy) : Create a joint profile to be a tutor/tutee. Includes general information about the user, tutor information, and tutee information.
- Task 2 - Matching tutors and tutees instantaneously (difficult). Each participant chose the role of tutor or tutee and went through the process of either requesting help or fielding requests for help as a tutor.
- Task 3 - Ensure that tutees are matched with high quality tutors through a system of ratings, reviews, and endorsements (medium difficulty)

4. Procedure

- Louis played the role of facilitator, Josephine was the “human computer,” and Ryan and Asli took notes. The facilitator walked around dining halls, dorms, and Tresidder to find participants, invite them to participate in our experiment, and encourage them with doughnuts. If they accepted, the rest of the team would come over to begin.
- After everyone introduced themselves, the facilitator explained how the experiment would work and had the participant sign the consent form. The facilitator described our project as an application aimed at connecting college students with instantaneous homework help.
- The participant was then guided through the three tasks, with the facilitator explaining what he wanted the participant to accomplish at the start of each task. The participant was encouraged to think aloud about what she was doing, ask questions, and note any areas of difficulty. The “human computer” exchanged interface screens and features when necessary, while Ryan and Asli continued to diligently take notes.
- At the end of the session, we asked the participant for any additional comments and what she thought of the application overall. After thanking our participant, he/she left and the team discussed the results of the session.

5. Test Measures

- During our experiment we observed each participant’s ability to perform each task, speed at performing each task, and emotional response to each task. We also kept track of major UI issues and areas of confusion. We wanted to see if our participants enjoyed using our interface, if the user interface was intuitive, and what improvements were necessary. Since participants were encouraged to think aloud about their experience, we were also able to garner a wide range of qualitative data.

Results

- During the first task (setting up a tutor / tutee account), all three participants was confused about why they were being asked for both “tutor information” and “tutee information,” if they only wanted to use the app for one of the roles.
- One area of confusion was the karma point system. When Henry first saw the “You have earned 1 karma point” screen, he was really confused about what karma points were and how the system was organized. Lucas was also confused, asking “Can I know how many karma points I will get before a tutoring session?” Tanvi asked if she had to tutor to gain karma points, or if she could pay money for a certain number of karma points.
- Another area of difficulty was the location based matching system. Henry and Lucas were confused about who set the location- the tutor or the tutee. Henry suggested that we don’t allow the tutor to change the location-- just have the tutee set the location. Lucas suggested that we incorporate common meeting places like Tresidder and Old Union as several “default” meetup locations.

- All three participants generally enjoyed using our application. At the end of her session, Tanvi remarked “I would totally use this app!” She really appreciated the karma points system, and the collaborative learning environment it fostered. Lucas felt that the user interface was nice, clean, and simple, while Henry particularly appreciated the ratings, reviews, and endorsements section.
- All three participants were able to finish the three tasks in a relatively short amount of time. They found the user interface friendly, simple, and easy to navigate. The participants spent an average of 3 minutes on the first task, 5 minutes on the second task, and 2 minutes on the last task.

Discussion

- Since participants were confused about being asked for both tutor and tutee information during account creation, we should make it more clear to incoming users that everyone sets up a “joint profile” for both roles. We can accomplish this with a simple text field with an explanation of how the TutorNOW profile system works before asking for tutor / tutee information.
- We also learned that the karma system has a lot of potential (as per Tanvi’s comment “I love the karma!”) However, we also learned that it can be very confusing for first time users. We should add a UI screen to explain to users when they first create their accounts what “karma points” are and how the system works. We can also add a UI screen during the second task that tells tutors / tutees how much an hour of tutoring costs in terms of karma points.
- To solve Tanvi’s confusion about if you could get karma points without tutoring, we can add a feature during the profile setup that allows users to link their Venmo accounts to TutorNOW for cash in / cash out capabilities. Users will be able to convert cash into karma points if they are tutee more often, and can convert karma points to cash if they tutor more often.
- Since there was confusion about the map and who sets the tutoring location, our future prototypes will make it clear that the tutee sets the location, not the tutor. As per Lucas’ suggestion, we can plot several common tutoring meeting places on the tutee’s map, including Tresidder Union, Lathrop Library, and the Graduate School of Business. Tutee’s will be able to select one of these popular meeting places or set their own custom location. Simplifying the location negotiation process like this will make the task of finding tutoring faster.
- However, the experiment could not reveal to us well our movable map works. When a tutee requests help, he should be able move the map around so that the “tutor location” marker is placed at the desired meetup location. Since we used a lo-fi prototype, we just manually moved around a cutout map. Once we develop higher level prototypes, we can better see if the user understands the movable map mechanism.
- We were also unable to test our back buttons, since none of the users clicked them. In the future we will need to test these to make sure we cover what happens when a user makes a mistake and wants to edit his profile / tutoring request.
- The experiment helped us realize that college students would really appreciate our application. All three participants loved our interface and the fact that they could get homework help immediately. Our user interface seems to be on the right track, and there are several major changes we can make to improve it even more.

Appendix

(Starts on the next page)

Consent Form

The TutorNOW application is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of TutorNOW. Data will be collected by interview, observation and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Ryan Matsumoto, Asli Kimya, Josephine Chen, Louis Brion) or with Professor James Landay, the instructor of CS 147:

James A. Landay
CS Department
Stanford University
650-498-8215
landay at cs.stanford.edu

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my behavior and opinions in relation to the TutorNOW experiment. I understand I may withdraw my permission at any time.

Name _____

Participant Number _____

Date _____

Signature _____

Witness name _____

Witness signature _____

Demo Script

- (After facilitator finds participant, entices participant with doughnut, and brings participant to testing area)
- Facilitator: My name is Louis Brion and I am a member of the TutorNOW team. We are a group of four CS 147 students working on an application to connect students who need homework help with students who can give homework help. My teammates include Asli Kimya, Ryan Matsumoto, and Josephine Chen. Today we are testing our application on potential users to find potential issues and improvements that should be made. Today we will be having you perform several key tasks with our application. First, we need you to read over this consent form and sign it.
- Participant: (Signs consent form)
- Facilitator: Now we will proceed to the first task. Throughout this entire experiment, we'd like you to think aloud and tell us anything you're thinking about the application. This is important so we know what needs to be improved and what is working already. Your first task will be to create an account using our application.
- Participant: (Completes Task #1)
- Facilitator: Great! Now, we will proceed to our second task. You will need to either seek tutoring help or volunteer to be a tutor. Go through the whole process of being matched with a tutor or tutee.
- Participant: (Completes Task #2)
- Facilitator: Awesome! For your final task, you will review your tutoring / tuteeing experience.
- Participant: (Completes Task #3)
- Facilitator: Thanks so much! Do you have any more comments or suggestions?
- Participant: (Makes comments/suggestions)
- Facilitator: Thanks for all your help today!

Task Descriptions

Task #1: For your first task, please set up a tutor / tutee profile that you will use for the remainder of this experiment

Task #2: For your second task, please choose to be either a tutor or tutee. If you choose to be a tutor, use the application to be matched with a student looking for help. If you choose to be a tutee, use the application to find a tutor.

Task #3: For your third task, please review/rate/endorse your tutor / tutee and your overall experience.

Notes From Our Testing- Henry

Testing Documentation:

Henry Cao

Senior - B.A. in Econ and M.S. in MS&E

Task 1: Create account

General info

- wait is that the password i created for my stanford account??
- henry
- “my birth year or class year?”
 - class
 - confusion about what “Year” field meant
- major
- stanford
- phone
- email
- password
- confirm

Update photo

- “can I click next?”
- “I don’t want to upload a photo before using it yet”

Tutor info:

- skills and expertise: tutor for burbank, math 50 series, core econ classes
 - perhaps we need suggestions for types of skills people can fill in here
- classes willing to tutor: econ 50-52, math 50 series

Tutee profile:

- “what does this mean?”
 - unaware that this was a two-way interaction (ie. people can be both tutors and tutees)
- “you should make it clear. otherwise, I’m confused about what it means”
- subject he would want help in: CS 108

Task 2: Fielding Tutees’ requests

Thanks for signing in!

- “does this mean i can turn my points into cash?”
 - clarification of karma point system in the beginning needed

login

TutorNOW

tutor

- waiting to get a request - no screen to see meanwhile
- map
- what if i click confirm
- request is pending

- “but i haven't learnt how many karma points i can get?”
 - “can i know more to learn about the details of the exchange?”
 - “person asking for help should say how many karma points he/she is willing to give.”
 - supply and demand: if more people want help in a certain subject but there are fewer tutors, the tutors should be paid more for that subject

Confirmed

- okay
- “Is there a system in which i can text the tutee, or how do i know they are coming?”
- Before confirming, Henry wants the following information
 - how many karma points will be awarded
 - where they should meet
 - i may wanna make the appointment for the future
 - what is the times you are available
- great to have both for tutors - drop-in/ when you are free make it
- “don't allow for location negotiation”
 - wastes time
 - it complicates the app
 - potential solution
 - say common locations for tutoring
 - tutee says preferred location
 - have special locations
- “how much i should pay you? where we should meet? I dont want to lose time for that”
- “the tutee should decide how many karma points to give to the tutor and tell the tutor the rate beforehand”

TUTORING HAPPENING

- what if I want to make things complicated
- how much is a karma point? If it costs 100dollars I may want to waste 1 hr of my time with the tutor and gain more money as a tutor
- its better to avoid negotiation about the price/ and less relevant issues, and have the official tutoring start time occur only when they meet

IT ENDED

- Review page five stars
- no comments
- what if I click one star

- if you have to give low reading you should write comments
- “give customized response to different rating - bad rating oh why? we want to improve”
- I’m still skeptical - how to price tutoring
 - later at night it should be more pricey
 - transportation time should not be included
 - if the transportation time is less than some threshold, you get some award (aka a karma point)

Notes from Our Testing- Tanvi

Name: Tanvi Jayaraman

Year: Junior

Major: Human Biology

How Recruited: Friend of Asli who we ran into at Starbucks. Gave her a doughnut

10/22 1:14PM

Test-Master: Asli

Note-Taker: Ryan

Setting up Profile

- Tanvi, 2016, HumBio, Stanford, 916-718-2557, tanvi@stanford.edu, password, password, click NEXT
- Upload photo (maybe same as Facebook)?
- Unclear why it’s asking me about tutor info (if i just want to tutee)
- Skills/expertise: Writing, editing papers, humbio
- Classes: Any sort of english, writing, pwr class, thinking matters
- We should make it clear that you type in classes like “CS 109” or “CHEM 133” rather than other names for the course
- Confused about tutor vs. tutee information
- Classes: HUMBIO 129, HUMBIO 82B, CHEM 133
- GET STARTED

I need help now

- with CHEM 131
- Between 5 and 7pm
- Assignment Description: PSET week 5
- Moves map to somewhere near Tresidder (lives on west campus)
- “I want the four star guy”
- Chris H.
- Request is pending

- Unsure whether to move map or not once tutoring is confirmed

Ratings, Reviews, and Endorsements

- Tutoring in Progress
- Click we're done when done
- Clicks review
- Four stars
- Endorse for "Ochem"
- Comments: "Chris was really good at explaining mechanisms and different reagents for the week"
- Submits review
- Back to Profile
- Clicks be a Tutor

Being a tutor

- Wants to be able to select a future time for tutoring (rather than right now)
- People who need help now pop up
- Clicks Josephine to tutor her for writing
- "Do I have to go where the tutee wants me to go?"
- Confusion about who should pick meeting place
- Meet at Tresidder
- Review your experience with Asli
- Rate her 5 stars
- "Very receptive to my tutoring, asks great questions, was very cheerful"
- Submit Review
- Back to Profile
- You have 10 karma points again

Additional Comments + Suggestions

- Having karma points has a good incentive
- "Karma points" sounds good and you feel like a good person
- Wants to give help as much as receiving help
- Tutor/Tutee should both be able to set available times
- Joint profile during setup can be confusing
 - Have more explanation of tutor/tutee/point system
- Make it clear that you can both give and get tutoring