

Redesigning the CS Office Hours Experience

Defining the Problem

Office hours provides an extra resource for students who need extra help. Due to the massive student base in CS classes, CS office hours implement an online queue system to systematically help students. However, CS office hours are notorious for being inefficient and stressful for not only students, but also the TAs, tutors, and academic interns.

Needs Being Addressed

For Students:

- Reduces confusion
- Debug HW or projects
- Increases assignment completion
- Contributes to a healthy general atmosphere of class

For Staff:

- Gauge how well their students are doing
- Reach out to students who do not ask questions during discussion or lab

Significance of needs

- Homework, labs, and projects comprise a significant portion of the grade for many CS classes; getting questions answered is essential to many students' completion of the assignments
- There are alternative platforms for question-asking (as later noted in user research), such as labs, git-bug, and piazza; both of them are used quite frequently, according to interviews conducted
- Course staff is responsible for knowing enough information to efficiently answer student questions

Pain Points

For Students:

- Wait time too long
- No room, have to sit on the floor
- Not getting the help they came for and/or need

For Staff:

- Too many students, not enough staff
- Staff always in a rush to get through the queue so cannot provide adequate help in time

User Research

Primary Research

Each of us interviewed 3 people, with a combined total of 15 interviews from CS graduate student instructors, teaching assistants, and students.

Secondary Research

For secondary research, we wanted to know how other schools did Office Hours. We used the power of Reddit to see how Cornell University held office hours for their introductory computer science and information science course.

They also often exceed the capacity of their classroom and go into neighboring rooms because that “is the best” they can do as “there is no other place on campus, with computers, that can fit this many students.”

In addition, they face a similar issue that Berkeley does, which is simply not having enough manpower to provide more staff. In the comments section of this Reddit post, people discussed topics like how students don’t try to debug code themselves prior to coming to OH and how students need more time than what staff can give. One suggestion was to hold OH on weekends too to spread out the number of students who attend.

Research Goals

Efficiency

- When is the queue is not insanely long?
- How can we make the staff/student ratio is better?

Success

- Are questions actually answered, such that the students can proceed by themselves?
- Are students are able to complete assignments on time?

Good staff-student relationship

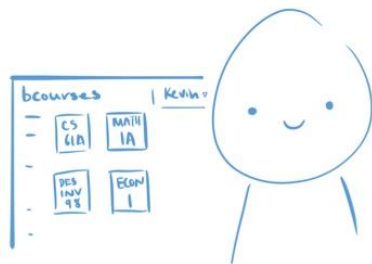
- How to maintain open communication and good sentiment/reputation?

Qualitative Research

- Immersion
 - Some of our team members are currently in CS classes and they went to OH to get a better feel of the experience.
- Observation
 - Other team members just went by themselves, pretended to be a student, and observed how office hours was run.
- Expert Interview
 - Interviewed CS staff for the inside scoop on how staff try to improve the OH experience already.

Synthesis & Key Insights

Storyboard



THIS IS KEVIN. HE IS A
CS 61A STUDENT.

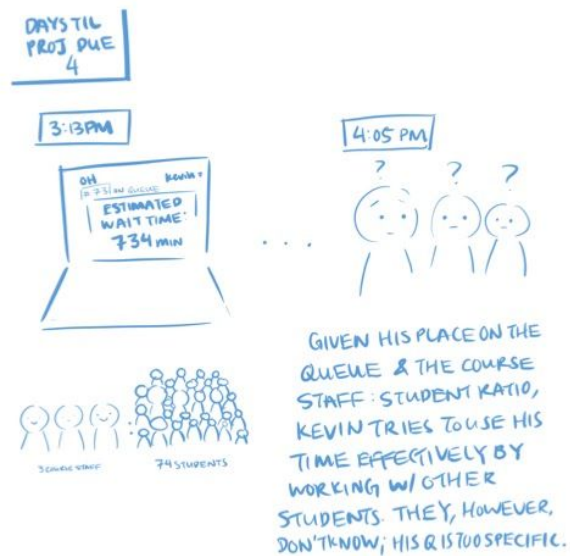


KEVIN IS STUCK ON A PROJECT.
HE HAS A SPECIFIC BUG. SO, HE
DECIDES TO GO TO OFFICE HOURS.



KEVIN IS SHOCKED
BY HOW MANY
PEOPLE HE SEES
INSIDE OH.

HE TRIES TO
QUICKLY SIGN
UP ON THE QUEUE.



GIVEN HIS PLACE ON THE
QUEUE & THE COURSE
STAFF: STUDENT RATIO,
KEVIN TRIES TO USE HIS
TIME EFFECTIVELY BY
WORKING W/ OTHER
STUDENTS. THEY, HOWEVER,
DON'T KNOW; HIS Q IS TOO SPECIFIC.

DAYSTIL
PROJ DUE
4

4:57 PM



KEVIN HAS CLASS @ 5 PM, SO HE LEAVES W/O HIS Q & SOLVED. HE DECIDES TO TRY AGAIN TMRW: IN THIS CASE, MONDAY.

DAYSTIL
PROJ DUE
1

1:58 PM



2:05 PM



KEVIN ARRIVES EARLY & GETS ON THE QUEUE IMMEDIATELY

THE STAFF: STUDENT RATIO IS EVEN WORSE TODAY, CLOSER TO THE PROJECT DUE DATE.

DAYSTIL
PROJ DUE
1

3:10 PM



IT IS FINALLY KEVIN'S TURN! AN OH AI COMES OVER TO HELP HIM.



THIS AI IS UNDERPREPARED TO HELP - HE HAS NOT DONE THE PREP WORK FOR THIS WEEK, SINCE HE HAD 3 MIDTERMS.

DAYSTIL
PROJ DUE
1

3:27 PM



THE AI LEAVES TO HELP OTHERS AFTER GIVING A POOR EXPLANATION. IF ANYTHING, KEVIN IS NOW MORE CONFUSED.



EVEN THEN, OTHER STUDENTS ARE UPSET

THAT THE AI SPENT SO LONG HELPING KEVIN.

HOURESTIL
PROJ DUE
7

3:32 PM



THE OH QUEUE IS SO LONG THAT KEVIN DOES NOT SIGN UP TO POSSIBLY GET HELP FROM ANOTHER STAFF MEMBER.







KEVIN GOES HOME AND TRIES, AGAIN, TO DEBUG. HE DOESN'T HAVE MUCH LUCK, & THUS TURNS HIS PROJECT IN INCOMPLETED.



HOW MIGHT WE IMPROVE OH SO THAT STUDENTS LIKE KEVIN CAN GET THE HELP THEY NEED?

Synthesis

- Personas

<p>Kevin the Student</p>  <ul style="list-style-type: none"> • Hardworking • Needs Help • Often confused 	<p>Steven the TA</p>  <ul style="list-style-type: none"> • Prepared to help • Gives good advice • Time efficient
<p>Calvin the Student</p>  <ul style="list-style-type: none"> • Impatient • A bit selfish • Rants on Piazza 	<p>Jeremy the AI</p>  <ul style="list-style-type: none"> • Unprepared • More confusing than helpful • Sleep deprived

- Journey

Process	check OH online	go to OH	get in the queue	get help	solve problem
student goals	To get help on homework/labs/projects/concepts in general.	To get help on homework/labs/projects/concepts in general.	To get help on homework/labs/projects/concepts in general.	To get help on homework/labs/projects/concepts in general.	Make the code work as intended.
student thoughts	It is almost always possible to pick a time slot.	OHs are usually held in Soda Hall or Cory Hall, which is a little faraway.	The queues are way too long.	Sometimes the TAs or AIs cannot answer the question immediately.	Debugging takes too much time.
overall experience	There are plenty time slots to choose from.	It takes about 15 minutes to walk to OHs.	Wait for about an hour to speak with a TA or AI. And there is no place to sit	Sometimes, students have to wait in another line to get help from another TA.	Questions are usually answered immediately except for debugging.
ideas to improve	Attach the TAs' names in each OH time slot.	Add more locations such as Moffitt or Main Stacks.	Add more TAs and AIs and more space.	Emailing the problem to several TAs at the same time might save time.	Set a maximum time that a TA spend helping one student during OH.

Insights

1. The rooms that OH are held in create a physical limitation to how many students the staff can help.
2. The OH experience hinges significantly on availability/knowledge of the course staff because students are going to them for academic help.
3. Piazza provides quicker help, but it is more difficult to address issues such as debugging or gaining a better conceptual understanding over Piazza than through OH.
4. OH is a great place for conceptual learning because students get more personalized one-on-one help.
5. The faults with office hours stem from all sides, not just with its immediate facilitators (course staff).
6. OH conditions such as crowdedness and level of helpful staff vary based on time of day, if there is an upcoming deadline, and because of varying experience levels required for staff.
7. Course staff have a more positive perception of OH effectiveness, because they are often more productive than students.
8. It is hard to remember that the staff are also college students with their own schedules and limitations because of the tense environment long wait times and deadlines can create.
9. The quality of help received during OH depends significantly on the expertise of the course staff giving the help.
10. The OH setting is more casual than a traditional classroom which allows students to open up more and feel more comfortable asking questions.