

Heuristic Evaluation of ClassLens

1. Problem

ClassLens is a platform meant to help students and instructors ensure that the classes they take or teach are useful to students' downstream academic and career-related pursuits.

2. Violations Found

1. H4 Consistency & Standards / Severity 2 / Found by: A, B, C

The likert chart in "Write Review" page could be confusing. It has a little light blue dot on the left side and large dark blue dot on the right side. It is confusing and inconsistent which element indicate the scale: the size or the color.

Fix:

- Use either dots of the same size but different color or dots of the same color but different sizes.
- Or, instead of having a dot sitting on the line that the user moves, have an arrow above the line that points down to the line that the user can move, which could change in color or just stay black, so you wouldn't have the somewhat confusing aesthetic of a dot that is similar in shape but different in both color and size to the dots at either end.
- It might be clearer and more understandable to have a few concrete options that the user can pick (not at all useful, slightly useful, mildly useful, fairly useful, very useful...), especially since the bar chart shown on the class's page is broken up into a few bars.

2. H10 Help and documentation / Severity 4 / Found by: A, C, D

In "Write Review" page there is a button "Add another anecdote". It is unclear to me what "anecdote" refers to and what will happen after clicking on it. There's no explanation or examples about this field.

Fix: Use another word or group rows of the form so that user will know where this button belongs to.

3. H5 Error prevention / Severity 3 / Found by: B, C, D

In "Write Review" page, there is no indication on what fields are required or what kind of input is expected. This might cause problem if the user submits an empty response or put too much character in the text box.

Fix: Star the fields that are required and indicate the maximum input. Also potentially gray-out submit button until form is sufficiently filled out.

4. H7 Flexibility and efficiency of use / Severity 3 / Found by: A, C

After submitting the review, there is no other option but to go to the “Review” tab. This could be annoying if the user wants to go back to the course page after submission.

Fix: add option to either go back or go to the “Review” page.

5. H4 Consistency & Standards / Severity 1/ Found by: C

In the “Write Review” page, “I am comfortable using this skill” and “I have used this skill in future classes” are arranged side by side with identical options. This can be confusing because the wording and layout are so similar that it seems to indicate user can only opt for one choice for each line. And the replication of same items is also non-minimal.

Fix: change the layout to s N by 2 form.

6. H2 Match Between System and World / Severity 3/ Found by: A, C

The PLUS and MINUS button in “PIN FEEDBACK” pop-out window is unclear. There’s no explanation on what these sign means and how the pinning works. Does it mean that the feedback is bad, unhelpful deleteable or something I need to take note of.

Fix:

- change the icon or make it clear that you are marking the feedback in what sense.
- Writing out the words positive and negative.

7. H1 Visibility of system status / Severity 3 / Found by: C, D

After pinning the feedback, the status of that particular feedback on the course page remains the same.

Fix: change the color/texture of the icon to indicate that it is already pinned.

8. H3 User control and freedom / Severity 3 / Found by: C

After pinning the feedback, there is no button for unpin or edit the pinned items.

Fix: add the option to edit pinned list.

9. H4 Consistency & Standards / Severity 1 / Found by: C

Inconsistency in wording. In the student page the word “Review” is used to refer to the course form while in the teacher page, it is called “Feedback”.

Fix: make a choice on what word to use and stay consistent. It could make sense to have it be different words based on who's viewing it, but we wanted to make sure it was an intentional choice

10. H4 Consistency & Standards / Severity 3 / Found by: C

In course page, there's a filter field "reviewer". This is not present in other pages so it's unclear how a user could set up his/her identity as reviewer.

Fix: add option to set "my current career", add a login page and profile.

11. H4 Consistency & Standards / Severity 4 / Found by: B, D

On the review page, the words "comfortable using this skill" implies that the user should only check one of the boxes, but check boxes imply that the user should be able to select more than one.

Also, when writing a review, it's unclear how you would add a tag to an anecdote, and if the tags have to be exactly the same as the skills listed above or if the user can choose other skills to tag the anecdote with. Also, from the wording of the anecdote directions, it seems like each anecdote should only be about one skill, but "Tags" seems like the anecdote can be about multiple skills.

Fix: For the first problem, change the wording to be "these skills", or make the check boxes radio buttons to enforce choosing only one skill.

For a user to choose tags, if you want to enforce that the tags should only be given skills, have them choose from a drop-down list instead of entering their own text. If each anecdote can be about multiple skills instead of just one: change the wording of the instructions to something like, "Choose (at least) one of the skills...".

12. H7 Flexibility and efficiency of use / Severity 2 / Found by: C

In course page, the user cannot select reviews that corresponds to "comfortable" vs "uncomfortable". Since reports of the two rates are placed together with the reviews, it is natural to ask for displaying only reviews of one type.

Fix: when writing the review, allow the user to rate it as positive or negative. Or do it automatically.

13. H7 Flexibility and efficiency of use / Severity 2 / Found by: A, B, C, D

In the “career-skills-courses” map, it seems to display all the related courses. If someone wants to view courses that he hasn't taken, it would always take more operations to reach there. Users might want to browse careers, skills, or courses alphabetically or sorted in a different way. For example, a student might just want to view all 200-level courses. It would be cool to be able to sort or filter so that you can explore in a more limited space without having to scroll through all options.

Fix: do an automatic suggestion or allow the user to choose level of the course. Another possibility is adding a side panel with options to sort or filter the career graph by.

14. H1 Visibility of system status / Severity 3 / Found by: B, D

Once a user has written a review, is there a way for them to see the review they've written? Can users edit reviews they've written, or is it set in stone once they submit? Something that builds on this is the idea that it might be cool to allow/prompt reviews from the same reviewer over time, but unlike the functionality of simply viewing a review you've already given, that seems like it's beyond the scope of this prototype/project.

Fix: In the same toolbar where it gives you the option to view “My Bookmarked Courses”, you can have the option to view “My Reviews”, so the user can see what they've said about past courses.

15. H4 Consistency and standards / Severity 2 / Found by: B, D

On the Explore page there's a section called “skills and key concepts” when on the Review page they're just called skills - this might be for succinctness, but I just wanted to bring it up in case it wasn't a deliberate decision. As a more minor note, when reviewing CS106A there are 4 skills listed, but on the main class page there are only 2.

Fix: Make sure the content is linked to avoid inconsistencies (obviously will be easier when not dealing with Marvel), and decide on a consistent way to refer to these “skills and key concepts” that makes sense for both reviewers and explorers

16. H2 Match Between System and World / Severity 2 / Found by: A, B

It isn't immediately clear that there's a difference between clicking on a career/skill and clicking on a class. I expected that clicking on a career would give me more information about it, just like clicking on a class would lead me directly to the class's description and reviews. On the flip side, clicking on something in Careers or Skills makes the visualization change, but clicking on something in Classes brings you to that class page instead of changing the visualization.

Fix:

- Somehow highlighting the class row over the other two rows. Make them larger? Not as aesthetically pleasing or perfect for the way that your site works, but I know that other sites tackle a similar problem by having successive drop down menus in which you select a category and then one of its subcategories to get to the final list of suggested items.
- Have the visualization change when clicking a class, with a pop-up icon below the class bubble that says something like, “navigate to the class”.

17. H8 Aesthetic and Minimalist Design / Severity 1 / Found by: A

The menu in the top right corner for “Bookmarked Courses” and “Logout” is very small.

Fix: Since the rest of the screen gets greyed out anyway, the menu could be larger and more readable, and based on some of our previous suggestions, there are items that can be logically added to this menu. Or the “Bookmarked Courses” could even be included elsewhere (maybe the review/explore tab?), and the menu could just be replaced by a logout button

18. H8 Aesthetic and Minimalist Design / Severity 1 / Found by: A

Really love the color scheme, but maybe there are too many shades used. For example on a class’s description/review page, there’s a dark blue for the “write review” and “bookmark course” buttons, a desaturated dark blue for the “more” buttons, a brighter and lighter blue for the Skills + Key Concepts tabs, and then a color gradation for the bar chart.

Fix: Color most of the buttons the same blue to avoid that confusion. I really like the bar chart the way it is though!

19. H3 User Control and Freedom / Severity 2 / Found by: A

There isn’t a way for the user to access their previously taken classes directly on the home page. If a user were to get on ClassLens to review some classes that they took, it would be super helpful to have all their classes in one place

Fix: Maybe include it in the top right menu

20. H4. Consistency and Standards / Severity 1 / Found by: D

On the review page, the term “course” is used to describe the course taken by the student, while on the explore page, the term “class” is used for the same meaning. Although it is less likely to cause confusion, it would be better to use either “course” or “class” throughout the web app.

Fix: Choose either “course” or “class”.

21. H6 Recognition rather than recall / Severity 2 / Found by: D

On the review page of teacher’s version, it seems that teacher can look up feedbacks of a course taught by other instructors, as shown in the filter. However, when pin a feedback. However, in “my pinned feedback”, it only distinguishes the feedbacks with class name and the quarter it is taken, while missing the name of instructor.

Fix: Add the name of instructor in “my pinned feedback” page.

22. H8. Aesthetic and minimalist design / Severity 2 / Found by: D

On the review page of teacher’s version, it only shows the feedbacks of certain skill or key concepts. In fact, teachers care more about “I wish I learnt” compared with “a useful skill or key concepts I learnt from this course” so that they can get improved.

Fix: Showing the comments of “I wish I learnt” in the review page of teacher’s version.

23. H7 Flexibility and efficiency of use / Severity 1 / Found by: D

The current UI only allows students to bookmark a course. However, sometimes students may also want to save a skill or a career he or she is interested at.

Fix: introduces “Bookmark Career” and “Bookmark Skill” functionality.

24. H4 Consistency and standards / Severity 1 / Found by: B

On the class page, it shows a star rating in gold, but this kind of rating/way of displaying information isn’t used anywhere else on the site. I understand if this was chosen to take a break from the blue gradient scheme, just wanted to point out that it is different than how most other things are represented, and how information is represented on the review page.

Fix: Potentially incorporate the blue scheme into this (gradient or no gradient), or dots instead of stars, etc. Or if all of that makes it stand out less, or makes it less clear that this is an aggregated usefulness score, leave it as it is.

25. H2 Match between system and the real world / Severity 2 / Found by: B

Again for the star rating of usefulness on the class page, it took me a little bit to realize that the star rating was for usefulness and not just a general rating of the class, since that's often what star ratings signify. This might be fine because usefulness might be a general enough concept that the use of a star rating provides a good metric to the user, but users might also glance at the star rating and assume it means something like how much people enjoyed the class or a different metric like that.

Fix: Potentially consider a different way to represent the aggregate/average usefulness rating to the user without relying on the star rating format.

26. H7 Flexibility and efficiency of use / Severity 2 / Found by: B

When on the review page looking at skills and key concepts, users might want to immediately see other courses that have a particular skill, maybe even the ability to compare courses with better or worse reviews on that particular skill (although that last part might be venturing too much into a course planning task outside of this project's scope).

Fix: To fix the easier problem of just navigating to similar courses, one solution could be to have a button to the right of the anecdotes bubble that says "more courses with this skill". To make it clear that it means the skill that's selected, the button could move to be parallel to the skill that's selected on the left, instead of just remaining static.

27. H5 Error prevention / Severity 3 / Found by: B

As a teacher pinning feedback, feedback can be pinned without first choosing a polarity, while the system doesn't have a way to display feedback that doesn't have a polarity.

Fix: Gray-out the "Submit" button until the user has chosen the polarity of the feedback.

28. H3 User control and freedom / Severity 2 / Found by: B

As a teacher pinning feedback, one piece of feedback might be mixed in polarity, so a user might not want to label it as just positive or just negative. It also might not have polarity at all, but with the nature of the anecdotes this is less likely.

Fix: In addition to the positive and negative polarity choices, have another choice that's something like "Other" so teachers wouldn't have to label something that wasn't totally that polarity.

3. Summary of Violations

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)
H1: Visibility of Status	0	0	0	2	0	2
H2: Match Sys & World	0	0	2	1	0	3
H3: User Control	0	0	2	1	0	3
H4: Consistency	0	4	2	1	1	8
H5: Error Prevention	0	0	0	2	0	2
H6: Recognition not Recall	0	0	1	0	0	1
H7: Efficiency of Use	0	1	3	1	0	5
H8: Minimalist Design	0	2	1	0	0	3
H9: Help Users with Errors	0	0	0	0	0	0
H10: Documentation	0	0	0	0	1	1
Total Violations by Severity	0	7	12	8	1	28
Note: check your answer for the green box by making sure the sum of the last column is equal to the sum of the last row (not including the green box)						

4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B	Evaluator C	Evaluator D	Evaluator E
sev. 0	0	0	0	0	
sev. 1	28.5%	14.3%	28.5%	14.3%	
sev. 2	33%	58.3%	25%	33%	
sev. 3	25%	37.5%	75%	37.5%	
sev. 4	50%	50%	50%	100%	
total (sev. 3 & 4)	33%	44.4%	77.8%	55.5%	
total (all severity levels)	32%	42.8%	42.8%	35.7%	

*Note that the bottom rows are *not* calculated by adding the numbers above it.

5. Summary Recommendations

Overall we really liked your design! The biggest issues were:

- With the logic of the explore page: though we liked the idea of following the lines down from career to skill to class, we didn't immediately understand that path and that the ultimate goal is to end up on a class page. We would recommend coming up with a different layout, for example, designing the class row differently. Maybe they could stay circles, but the rows above are smaller boxes. Or you could have 3 different search boxes such that one searches careers, another skills, and the last classes, and position them like: "I'm interested in being a [career search box]," "I'm interested in learning [skill search box]," and "I'm looking for the class [class search box]." When you search something, it'll list the skills you need/classes you need to take?
- Next, keep making sure you're differentiating this project from existing tools like Edusalsa and Carta. Focusing on the career/skills graph on the homepage is good, and separating the reviews of classes by skill is also good. One idea to further differentiate class reviews on ClassLens from those on Edusalsa and Carta is to not only enforce that anecdotes focus on a particular skill learned (or not learned) from the class, but also to require the user to include what downstream role they're reviewing the class from, whether it's a later class or a job. That could give students and teachers even more perspective/context when reading reviews.
- Another issue might be about the user control. The idea behind the project is to simplify the reviewing process by limiting the teacher and student to certain fields only. While in some cases this benefits the organization of reviews, sometimes the teacher might find it awkward if he wants to add more specific questions. Another element that is hard to deal with is the career map. There're much more bubbles than you can display on one

screen. What to display? How can a user efficiently browse through the list? Will the visualization of connection still works if the user swipes far right? These are some issues that might come up when implementation.

- Lastly, you should do a few tests on both student and teacher, and figures out what they really need. Do teachers want to search for skills and careers as well? Do students want to share some negative experiences when they took the course?
- To conclude, the project does a good job in the consistency in color and layout. But there're some small issues that should be addressed to remain clarity.

Severity Ratings

- 0 - don't agree that this is a usability problem
- 1 - cosmetic problem
- 2 - minor usability problem
- 3 - major usability problem; important to fix
- 4 - usability catastrophe; imperative to fix

Heuristics

H1: Visibility of System Status

- Keep users informed about what is going on

H2: Match Between System & Real World

- Speak the users' language
- Follow real world conventions

H3: User Control & Freedom

- "Exits" for mistaken choices, undo, redo
- Don't force down fixed paths

H4: Consistency & Standards

H5: Error Prevention

H6: Recognition Rather Than Recall

- Make objects, actions, options, & directions visible or easily retrievable

H7: Flexibility & Efficiency of Use

- Accelerators for experts (e.g., gestures, kb shortcuts)
- Allow users to tailor frequent actions (e.g., macros)

H8: Aesthetic & Minimalist Design

- No irrelevant information in dialogues

H9: Help Users Recognize, Diagnose, & Recover from Errors

- Error messages in plain language
- Precisely indicate the problem
- Constructively suggest a solution

H10: Help & Documentation

- Easy to search
- Focused on the user's task
- List concrete steps to carry out
- Not too large