

Heuristic Evaluation of UpQuest

1. Problem

UpQuest is an iPad app that allows teachers to create, manage and administer customized quizzes to their students and track their progress in specific academic areas over time.

2. Violations Found

1. [H2-1: Visibility of System Status] A, B / Severity 2

When a user goes to the Manage Quizzes homepage, she can still see the Assign option even for quizzes that have been already assigned (the Assigned label just gets added to the upper corner). This doesn't give us a clear view of what has already been administered at a glance and requires too much effort (the button still being there makes us think we can re-assign it). A solution could include changing the Assign text to **Assigned** once the quiz is administered - it would provide clarity of the system status along with removing the unwanted clutter.

2. [H2-1: Visibility of System Status] A, C / Severity 2

A major issue I encountered in terms of status visibility was not knowing that Algebra 1 is clickable - it was very unintuitive, especially because there was already a Manage Quizzes button below. Even more confusing was the fact that it led to students' grades - I would expect to see this in the "filter by student" option in Results, which wasn't shown in the prototype. I would suggest this student overview is achieved simply through picking the student filter rather by devoting an entirely new and separate button for it.

3. [H2-1: Visibility of System Status] A & D / Severity 3

While the more specific sub-tasks have a clear flow, the principal three tasks don't seem to be delineated clearly enough from the beginning. For example, the Algebra 1 box could have separate buttons for Managing, Creating and Results instead of clustering everything in the Manage section. This would help acquaint users right away with the great possibilities that UpQuest offers.

4. [H2-1: Visibility of Status] B / Severity 1

On the quiz results page, looking at results for question 1 for example, perhaps you could color question 1 on the bar graph of overall quiz results. Not quite a violation - just would be helpful. Also when creating a quiz, color code questions by difficulty level.

5. [H2-2: Match Between System and World] C, A, B / Severity 2

The charts with no tables on the same screen could be made more clear if there were number labels on them (e.g. a mark signifying every 10 or 20%), just as they are usually presented in the real world. This would help the teachers read information much more easily and accurately and quickly get a sense of what exact percentage of the quiz the student got right. The graph often forces you to infer that the x-axis is quiz number (or time). It also seems strange that there is an arbitrary lone tick mark of 60% on the y-axis - try to label the axes more regularly.

6. [H2-2: Match between system and the real world] C, A / Severity 3

There is too much information on the quiz results page and it's difficult to decipher. Do "ABCDE" refer to the percentage of students who chose that multiple-choice answer, or to students' grades? Does the triangle represent the correct answer or the most popular answer?

7. [H2-2: Match between system and the real world] C / Severity 1

When viewing a class, not clear what the red dots represent. Is this meant to represent failing scores?

8. [H2-2: Match between system and the real world] D / Severity 1

I am unsure what "Question Statistics" means when adding questions to a quiz.

9. [H2-3: User Control and Freedom] A / Severity 1

While users have the freedom to import preset questions when creating a new quiz, they also have the option of importing an entire quiz. I think it would be good to add the option of viewing a preset quiz and adding only certain questions from it instead of having to import all of it or remember the questions you liked and copying them as your own questions. A simple +add button or checkbox next to each question could suffice.

10. [H2-4: Consistency & Standards] B / Severity 0

Sometimes I'd click on "Q3" and get directed to the "Q1" results page, or "Zac Chu" and end up on "Alex Hall"s page. This is probably only true for your medium-fi prototype but just something to keep in mind. Maybe make only the Alex Hall and Q1 buttons clickable.

11. [H2-4: Consistency & Standards] B / Severity 0

On Alex Hall's page, the title bar says "Students" but it really only is describing one student. Change to "Student" to reflect that.

12. [H2-4: Consistency & Standards] B / Severity 0

Really minor..."Quiz repository | My class quiz" are both sentence cased, but "Quiz Folders" is title cased. Please choose one and unify. Personally I like the former.

13. [H2-4: Consistency & Standards] B / Severity 0

Change "My class quiz" to "My class quizzes" or even something generally more descriptive.

14. [H2-4: Consistency and standards] C / Severity 1

On the first page, "Algebra 1-3" are separate boxes - are these meant to indicate 3 sections of the same course, or 3 different courses? If they're meant to be different sections of the same course perhaps it could be made clearer that they go together by using the same color or grouping them together by proximity (e.g., slightly overlapping like a stack).

15. [H2-4: Consistency and standards] C / Severity 1

On the quiz repository->add a new quiz page, it might be better to have some kind of tags on the questions so that users can quickly see what areas they might cover, rather than only "easy/medium/hard" (which are subjective). *Edit: I see that the tags appear when making a new question, but are not on the previous screen. They would be useful on the previous screen as well.*

16. [H2-4: Consistency and Standards] A / Severity 2

The wording in the Add New Quiz interface is confusing and inconsistent: on the left side we have Quiz Folders, an option to add a new Directory and to view the Repository. This could be made more consistent and standard-friendly by renaming the Repository to Library and Directory to Folder to match the Quiz Folders - a simple switch to more user-friendly digital terminology (folders and libraries).

17. H2-4 (Consistency and standards) C / Severity 0

Not clear what "popularity" refers to on the question selection screen.

18. H2-4 (Consistency and standards) C / Severity 1

There are two "save" buttons available on the make-a-question page, as well as a separate "back" and "cancel" button which appear to do the same thing.

19. [H2-4: Consistency and Standards] D / Severity 1

I don't know if clicking different "manage quizzes" buttons on the home screen takes you to a different directory. If not, there shouldn't be a manage quiz button for each of the three classes/sections.

20. [H2-5: Error Prevention] A, B, D / Severity 3

Accidentally administering a quiz or setting the wrong due date/student population could be a potential problem. A simple and well-known solution like a pop-up screen saying "You picked date X and student group Y, are you sure you want to assign?" could do the job. Moreover, an "edit" button in the quizzes could help alter these conditions (an edit and delete icon in the corner could be a simple graphical solution, as well as being able to duplicate them to make slight alterations).

21. [H2-6: Recognition not Recall] B / Severity 1

The hierarchy of views is unclear and I have to remember what class "Quiz 1 Results" is for. Maybe have a tree path directory (like "Algebra 1 > Quiz 1 > Results")

22. [H2-6: Recognition rather than recall] C / Severity 2

It might be useful to have some kind of reminder about the content of each quiz so that the user doesn't have to remember what was in Quiz 1/2/3 before assigning it or viewing the results.

23. [H2-6: Recognition rather than recall] C / Severity 1

Same as above; after clicking the assign button, it might be useful to have a reminder of the content in some way so that the user can set an appropriate due date.

24. [H2-7: Flexibility and efficiency of use] D / Severity 1

It would also be awesome if teachers could edit existing questions, so if they find a good one someone else made, they could add to it without having to create a new question, copy and paste the text and image in, etc.

25. [H2-7: Flexibility and efficiency of use] C / Severity 0

The "delete quiz" button is separate from each of the quizzes, so it's not clear exactly how a user would delete a quiz. Press it first then select the quizzes to delete, drag the quiz to the delete box, etc.

26. [H2-7: Flexibility and Efficiency of Use] A / Severity 0

Note: Not an explicit UI problem, but could be solved through changes in UI: The problem of cheating has been pinpointed as a major risk: since teachers have no awareness of how students are solving the quizzes, they could easily be getting external help. One way to mitigate this risk would be to allow communication with the teacher - not necessarily in the form of chatting, but perhaps a request for hints that the teacher could send to an individual student or (more generally) incorporate into questions - the hint feature could be an interesting addition.

27. [H2-8: Aesthetic and minimalist design] C / Severity 1

The quiz results page provides a bar graph as well as a percentage table that appear to duplicate the same information. Are both necessary?

28. [H2-8: Aesthetic and minimalist design] C / Severity 2

When viewing a single student's results, having information about which questions they got correct or incorrect (cross or check) is useless without any information about which questions dealt with which concepts. Simply knowing that a student missed questions 2-4 on quiz 3 would not help a teacher to diagnose the student's weakness, but knowing that a student missed the quadratic functions questions would be more useful. I think it would be better to remove the crosses and checks to avoid information overload.

29. [H2-8: Aesthetic and Minimalist Design] A / Severity 1

While the overall interface design is clear and aesthetically appealing, I have noticed a few instances of unnecessary clutter. Selecting a class on the Canvas-like homepage leads us to a new screen that, again, lets us select a class in the upper right corner (the case in both Manage Quizzes and just clicking on class name). Since we have already selected a class and the home button is always present, removing this could allow for more space and a cleaner interface.

30. [H2-8: Aesthetic and Minimalist Design] A, C / Severity 1

There are unnecessary instances of grade graphs that detract from what is important on specific question screens. When a user clicks on the Q1 button, she likely expects more novel information about that question specifically; instead, she gets that + a repetition of old information (answers distribution that has already been given in the table on the previous page). Removing this would not compromise information but would significantly reduce clutter and help focus on only relevant content.

31. [H2-8: Aesthetic and Minimalist Design] A, C, B / Severity 3

I found the shapes and colors to be confusing and unnecessary, harming Task 3 (information visualization). As for shapes, the triangles, circles and circles + lines were unclear - I was only able to interpret them after comparing the numbers they accompanied to other numbers. I think removing the triangle for the most often selected answer wouldn't do any harm as it is easy to read off the table for those who are interested in that specific thing. As for the below-average scores, I think just making the number/box red could be cleaner than adding shapes inside the box. As for colors, I was confused in the sort by tag interface - I later understood the tags in red got fewest correct answers, but I found this coloring unclear and unnecessary as that information can easily be read off the chart.

32. [H2-10: Help and Documentation] A, B / Severity 2

While being able to easily create new quizzes (Task 2) is crucial for the overall usability of UpQuest, the Add New Quiz interface is somewhat unclear. The questions and quizzes seem to appear out of nowhere - do they come from a built-in library, were they posted by other teachers using the app or are they perhaps questions previously asked by the user? This could be resolved by a Help button (e.g. a question mark in the corner) that could provide a clarification and overview of options at the user's disposal: add own question, add existing questions and add existing quizzes (and possibly select only specific questions from the quizzes). In general, a help button placed on important pages could be useful for new users.

3. Summary of Violations

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)
H2-1: Visibility of Status		1	2	1		4
H2-2: Match Sys & World		2	1	1		4
H2-3: User Control		1				1
H2-4: Consistency	5	4	1			10
H2-5: Error Prevention				1		1
H2-6: Recognition not Recall		2	1			3
H2-7: Efficiency of Use	2	1				3
H2-8: Minimalist Design		3	1	1		5
H2-9: Help Users with Errors						0
H2-10: Documentation			1			1
Total Violations by Severity	7	14	7	4	0	32
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)						
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4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B	Evaluator C	Evaluator D
sev. 0	14%	57%	29%	0%
sev. 1	21%	14%	50%	21%
sev. 2	71%	43%	57%	0%
sev. 3	100%	50%	50%	50%
sev. 4	-	-	-	-
total (sev. 3 & 4)	100%	50%	50%	50%
total (all severity levels)	41%	34%	47%	16%

5. Summary Recommendations

[merge the general recommendations you made here]

We really appreciated this prototype as it presents a potentially useful tool for automatizing teachers' evaluations of students and allowing them to quickly access a broad picture of students' strengths and weaknesses at the group and individual level. While the overall UX is generally smooth, the main problems with the design and interactivity of UpQuest are in the visibility of status and minimalist aesthetic. The first major suggestion we have is to work on the clarity of the tasks and separate the options more cleanly (have Create, Manage and Results be more separate on the Algebra 1 box). The second major factor that detracts from the simplicity of the interface is redundant repetition (especially in terms of charts, graphs and shapes) - removing these on some screens wouldn't rob users of information, but would bring great benefits in terms of elegance of the UI. This app has a lot of detail and layers and it sometimes seems like an information overload - help guides and distributing information across more screens could be a useful solution. More teacher-student interaction and feedback could also be helpful for a more customized learning experience. Minor changes in terminology and font size could similarly improve the overall aesthetic design. Overall, we are all excited to see what the UpQuest team comes up with next!