
Final Report | [All Questions Answered](#)

INTRODUCTION: CONCEPTUALIZING THE PROTOTYPE

The *All Questions Answered* website is intended as a discussion forum for educators, with a focus on the kinds of questions one might ask a mentor, or the kinds of questions a mentor might ask. The site is predicated on the idea that there are some questions one doesn't like to ask face to face. It may be that there is no one available to act as a mentor for the site's user, or it may be that the user just doesn't want to ask his or her mentor. Similarly, there are some people serving as mentors who might want advice on how to deal with a problem in their mentoring relationship, but might not know who to ask.

Given the format, users can both ask and answer questions. Responses will be rated, as they are on sites like stackoverflow.com, giving forum users a way to judge the answers they're receiving, and a way for community members to build trust. Users can create login IDs and upload profile pictures, as well as enter profile information – if they want to. Users can also visit the site anonymously, though currently there is no capability to ask questions anonymously.

The target users for this site are tenure-track and tenured faculty members – or really anyone who has an interest in mentoring or being mentored. Discussion topics and comments will be moderated, but there will be no effort to limit the site to the faculty of one institution. Down the road, ideally, there would be different forums for different kinds of questions, and users would identify the forum that best suited their needs.

LITERATURE REVIEW

I undertook a literature review to determine relevant elements in the system. My experience of discussion forums is limited to using them as an information source, primarily for coding. The literature review brought out three themes that seemed important to my development of the prototype, and all were related to the idea that the site must be managed to be successful (Pieterse & Van Rooyen, 2011):

Users can be socialized to become more productive members of the community.

A small fraction of users supply most of the content in an online community, and do the necessary administrative work, but little is known about how to identify these users and support them. The organizers of an online community can apply what is known about the members of actual communities – namely, that socialization experiences (i.e., mentoring) can increase commitment to the organization, and competence for the users (Farzan, Kraut, Pal, & Konstan, 2012) – in order to improve an individual's commitment to the community, and the overall community itself.

There should be systems for developing trust in other members of the community.

Trust has an influence on the flow of information in a social network. Trust results in communication behaviors that are statistically different from random communications, and the influences of trust can be simplified, isolated, and measured through an algorithm (Adali et al., 2010). This has an impact on my prototype, because users must trust the information they are receiving in order to continue participating in the forum. As Golbeck (2008) notes, “finding trusted information created by trusted people is the new challenge.”

Lurking members may further the community’s educational goal.

Though lurking behaviors in an online forum have traditionally been considered as negative, lurking is really a necessary process, as it allows the participant to learn the norms of the community before taking the risk of asking a question (Lee, Chen, & Jiang, 2006). It’s really a form of peripheral participation, where the user begins to construct his or her identity in relationship to the community. This kind of participant is learning through observation of the behavior of others (Chen, 2004). Therefore, the prototype should include some sort of space for the peripheral participant to occupy.

PROCESS: CREATING THE PROTOTYPE

Introduction

Initially, I considered setting up the site with WordPress, which has many tools for developing discussion forums. However, WordPress is completely new to me, while I am quite familiar with ColdFusion. I felt I would be able to work more effectively with ColdFusion, even if it did mean developing all the functionality from scratch. One of the unusual aspects of this project was that I don’t often get to design a ColdFusion project from start to finish. Usually, I am modifying or repairing something already created. Despite that caveat, I have been working with ColdFusion since before Adobe bought it, and used it intensely over the summer. I am about as familiar with it and comfortable with it as is possible for someone with no training to be.

Another aspect of this prototype that was somewhat unfamiliar was the emphasis on design. Of course, I always try to design the applications I build, to make them appealing to look at and easy to use, but this is the first application I’ve made where design would have an impact on my success. In the past, I was designing for a captive audience, and the work I was doing generally replaced work with no design at all, so whatever I did was an improvement. On this project, I gave much more attention to usability than I confess that I usually do.

For example, in the past I have simply picked colors that I thought looked appealing. However, I have a rather different sense of appeal than some people do, so sometimes I don’t get the colors right. As I was beginning the design for this site, I chose a set of colors from the Microsoft Office themes, and used those or derivatives of them for every element on the site. It’s very satisfying to be able to report that every user of my site has complimented the color scheme. The only negative comment was that there wasn’t enough contrast between the green buttons and the button type color; that has been corrected.

Regarding these elements of design, I realized that I have crossed some sort of line in my use of CSS, and it has gotten a lot simpler than it used to be. I did feel a little shy about the actual design, as I have all semester, because my designs tend to be much more two dimensional than web design really is these days. That is, I tend to design a stack of paper, rather than real multi-dimension forms, but I'll learn. Eventually.

On the other hand, this system should really be very simple, and I think the design reflects that. In



fact, the system is so simple that I found it a challenge just to come up with what seemed like an appropriate number of requirements or tasks for a usability test. This idea of simplicity is reflected in the menu. There are many ways to make a menu, and I'm lucky enough to have software that will make a Java menu almost automatically, but using one of those relatively elaborate menu packages – or even just using CSS – always seems to take far longer than one would expect. So, I made my menu using graphic elements in an HTML table structure, and each graphic is wrapped with a link tag. The menu is a separate file from the other pages, loaded with a server-side include or a ColdFusion include statement, and it even responds to the user's logged in

state, through a series of very simple if statements. Left, the menu is reflecting that the user is logged in.

I originally chose a serif font and set it in a fairly small size, based on the idea that there would be lots of text displayed on the screen, and it would be better if more text fit on each screen. However, usability testing and early reviews of the prototype demonstrated that a bigger font, and a sans-serif font, would be easier for users to read. Since the entire site is based on ease of reading, I changed the fonts.

When it came to designing the forms that the user needed, I definitely saw the advantage of sketching the prototype before trying to code it. However, my sketches didn't really include all the interaction between the different forms, and that was where the challenge lay – something like keeping too many plates spinning, as one tries to think through all the permutations. For example, once the user has logged in, should the next screen be the index screen, or the "ask a question" screen? After the user's question or answer has been submitted, what should the next screen be? Another challenge for me is error-trapping. As I mentioned above, I am usually working at the most basic level, where the alternative is a piece of paper and a typewriter. However, a site like this one must be user-friendly, and it can't be crashing all the time. Finally, I had to give more attention to user feedback than I usually do, and as it turned out, I didn't give it enough, at least in the initial prototype.

One of the distinct pleasures in creating this application was the realization that I am better at this sort of thing now than I was a year ago. At just about this time last year, I was working on a final project for LBSC 670 which involved a new system of organization for information on the Faculty Affairs website, also making use of tags. At the time, I wasn't able to make the necessary database joins to get the system to work properly, but now – I can.

Data Table Structure – Briefly

In addition to the table storing user information, this system uses four tables – one for the question, one for the answer, one for the tags, and one that maps everything together. Database table structures and relations are listed in the appendix. I made use of ColdFusion components – database functions that I created – to join these four tables to gather the relevant information to present to the user.

ColdFusion Components

By means of ColdFusion components – reusable code snippets and functions – I was able to include much better quality user feedback. For example, in the past I have always just let the chips fall where they may when it came to text-entry boxes (I’m afraid to admit it). I would give the user a warning if he or she wrote too much, but if the warning was ignored – boom. System crash. The way I used to think about it, if you didn’t pay attention to screen warnings, you probably shouldn’t be using anything more complicated than a xylophone anyway (intentional joke). With this system, however, I finally (finally!) wrote part 2 – first the warning, then truncate the text-box entry, so there can be no system crash. I’m embarrassed by how easy it was, especially when I think about all the poor people who used my surveys over the summer, and blamed themselves when the surveys crashed.

Designing the Forms

Displaying the questions with their answers seemed to be the most important part of the site. I thought the questions should be displayed as teasers, and if the user was interested, there would be a link to read more. I set things up this way because I imagined that questions would be more complicated, or at least more verbose, than they have turned out to be. By means of the teaser, the user would be able to rapidly browse a list of questions, looking for those that were of greatest interest.

The index page, the search results page, and the “answer a question” page are all set up this way.

mentors | mentees

ALL QUESTIONS ANSWERED

KINDLE GIRL SIGNED IN

ask a question
search AQA
tag a question
answer a question
users signed in
sign out

What do you want to answer?

ALL QUESTIONS ASKED...

?

What's the history of the 12 days of Christmas song? It sounds so 19th century, and yet the images -- the lords a leaping and ladies dancing -- are clearly older. And where co...

Read More

?

What do I remember about the question I was asking a little while ago? Virtually nothing. Really, really nothing at all...

Read More

?

How long will it be before I've finished all the work I have to do before the end of the semester? I guess it will be the end of the semester. It had better not be longer than...

Read More

?

How about now? What should I get my niece for Christmas? How can I make my cat...

Read More

NO QUESTIONS ASKED

Above is the “answer a question” page, listing all the questions in the system, with the most recent questions at the top of the list. Questions are always displayed with the most recent entries at the top, based on the premise that users are more interested in the recent entries than the older ones.

Q

What was the name of that really good about about teaching? The one that was geared toward elementary school teachers, but it looked like so much fun that I thought there must be a way to apply it to high school classes? I guess I gave that book away when I moved to Maryland.

Tags

books

Date

10 Dec 12

Asked by

Kindle Girl

Interesting question, Kindle Girl!

The “ask a question” page includes input fields for the question itself and two different ways of tagging the question – choosing from a drop-down menu of previously used tags, or entering a new tag or combination of tags. This form also includes space for user feedback. Above, the form after the

question has been submitted. It shows the question in full, with tags and other relevant information, as well as a simple – and relentlessly cheerful - message to the user. Right, the screen following submission of an answer. This screen includes the full question text and all the answers associated with the question, along with brief feedback to the user.

Q

What was the name of that really good about about teaching? The one that was geared toward elementary school teachers, but it looked like so much fun that I thought there must be a way to apply it to high school classes? I guess I gave that book away when I moved to Maryland.

Tags

books

Date

10 Dec 12

Asked by

Kindle Girl

A

I believe the book you're thinking about is The First Day of School, but I can't remember the author's name. It was a big hit in the 90s - just the kind of book that everyone was giving to their sister who had just become a first grade teacher. Yes - that kind of book.

Date

10 Dec 12

Answered by

Kindle Girl

Thanks for your answer, Kindle Girl!

Users can search the site content through the tags associated with the questions, though plans are underway to provide full-text searching. This screen is generated by first producing a list of all the separate tags that have been used, and then stepping through that list and counting the number of questions associated with each tag. See a partial example, left. Clicking on the tag produces a list of

TAGS IN USE...		
t	administration	1 question tagged
t	appearance	1 question tagged
t	beginning	2 questions tagged
t	books	2 questions tagged
t	christmas	1 question tagged
t	class size	1 question tagged

all the questions that have that tag. This listing produces the extra step that I wasn't able to come up with last year – the function that selects all the questions associated with a particular tag returns an array rather than a query. ColdFusion does impose certain irritating constraints on accessing multiple queries simultaneously, but there are no such constraints on accessing multiple arrays. The sky's the limit – or one's system is.

USABILITY: REFINING THE PROTOTYPE

Section 2. Methodology

Three subjects were selected for this usability test, based on their teaching experience. While all subjects were women, and two were from the same institution, one is a tenure-track professor, one is a non-tenure track lecturer with a full-time appointment, and the third is an adjunct at a community college. One of the subjects has a formally assigned mentor, while the other two have had informal mentoring relationships at various times in their careers. Each subject completed a pre-test questionnaire that gathered baseline information about her level of computer experience, browsing habits, and information seeking with regard to mentoring questions. Following the test, subjects completed a post-test questionnaire which evaluated their attitudes toward the website. Subjects were also interviewed. Each subject used her personal computer to complete the test; two used Macs and one used a PC.

As the subjects were being asked to comment on a prototype of the site, each used a hybrid of silent and think-aloud while completing the tasks, and all tests were audio recorded. Following or during each task, the subject was asked to comment on the appearance and behavior of the screens, as well as to suggest what might make the procedure or task simpler.

2.1 Task List

The tasks for this usability study focus on the basic elements of the system: creating a system identity, asking a question, answering a question, and searching for questions and answers. Again, because the system is a prototype, the tasks are somewhat simplistic, but the subjects were asked to go into greater detail with their comments as they completed the tasks.

1. Create an online identity and sign in. *This is an integral part of becoming an active participant in a discussion forum, as anonymous questions don't seem to get much response, and anonymous answers cannot earn the trust of other participants.*
2. Post a question. *Though there is much to read on a discussion forum site, users must also be able to post their own questions, or they will not be participants in the community.*
3. Answer a question. *Users must be able to easily answer questions on the site, which is predicated on the concept that the crowd has the answer, or at least an answer.*
4. Search for a question by its tag. *At present, tags are the primary means of organizing questions and their answers. Therefore, the user should be able to find questions in this way.*
5. Add a tag to a question. *Though this functionality is not available in the prototype, except as users create a question, it is an important part of user interaction, a way for users to comment on each other's questions without actually being able to answer them.*

Pre- and post-test questionnaires are included in the appendix.

Section 3. Observations

This usability study was conducted by observing the subjects as they completed the tasks, and through their responses to the post-test interview and questionnaires. All these methods provided useful data about the usability of the site.

3.1 Participant Information

As noted earlier, the participants in this study were recruited based on their experience as teachers at the post-secondary level. All the participants use computers often and are very familiar with the Internet. Two identified themselves as very confident about finding information on an unfamiliar website, while the third described herself as not very confident. All have made use of discussion forums and social media sites in the past. All use the Internet to search for specific information several times a day. Two participants said they would be more likely to search for professional information online, rather than asking a mentor. One commented that there was no mentor close at hand who was familiar with her situation, and thus she looked online for information. The third subject said that she would be more likely to ask a mentor for information because she imagined the mentor would have more of her background, and be able to tailor responses to her specific needs, in a way that wouldn't be possible with an online response.

3.2 Observational Data

While all three participants commented positively on the simplicity of the design, each had difficulty at various times with a lack of feedback from the site. The site is organized around three main screens, and for each user, those screens presented problems at various times. For example, the questions in every collection—whether organized chronologically or by tag—are represented with a brief teaser and a hyperlinked “Read More,” which brings the user to a full display of the question and a form for recording an answer. Two of the users, however, commented they weren't sure where to go from the list of teasers; the hyperlinks did not provide enough of a cue. A related problem—lack of feedback—was evident when all three users tried to create a login identity. Each presumed that any information entered on the “sign in” screen would be transferred to the “sign up” screen, but that was not the case.

STUDY DESIGN PROBLEMS. Because the site is still a prototype, there isn't enough functionality for users to really become accustomed to the site. It therefore seemed that there wasn't much substance to the actual usability testing of the site. Five tasks does not seem sufficient to produce a valid test.

SITE DESIGN PROBLEMS. As mentioned above, subjects had a problem with lack of feedback. As one user commented, “it didn't really tell me what to do... without you here, I would be wondering...” All three subjects commented on this lack in various ways. For example, the site has no real welcome or index page, and no content to explain its mission or purpose, which two of the subjects expected to find. Also, there are no shortcuts between the different pages. If the user is looking at the index page and wants to answer a specific question, it is not currently possible to jump straight to that question (unless it happens to be one of the three most recently added).

On the other hand, all three participants were positive about the website when asked to assign it a grade in the post-test questionnaire. In general, all appreciated the site's simplicity. One subject commented "all the things you can do are right there in the bar." Subjects also appreciated the color scheme and simple layout of the information.

Section 4. Interpretation

4.1 System Strengths

The concept of an online discussion forum has been familiar to us from the earliest days of the internet. As imagined here, it combines the power of crowd sourcing with the convenience of asynchronous communication. The site's design is very simple and traditional, which makes it easier for the user to locate information, but also draws the user in to concentrate on the information. There is little to distract on the site.

4.2 System Weaknesses

It is essential to provide more user feedback on the site, as all three of the test subjects commented. Users need to know that their information has been recorded. Further, the site doesn't offer much in the way of error trapping. If there is a problem with a form as the user has submitted it, the contents of the form should be retained so the user doesn't need to retype the information.

Another weakness of the system is that there is currently no way to suggest the community of people asking and answering these questions. As one subject commented, there is no sense of shared purpose in the content of the site.

Section 5. Suggested Improvements

In order of priority,

1. Add user feedback to all sections of the site. Examples are
 - a. Instructions for creating a login identity, and confirmation that the identity has been created. Explanation that the login identity is one of the tags on the questions, so users can anonymize it if they wish.
 - b. Display of a question once the question has been created.
 - c. Display of a question-answer group once an answer has been recorded.
2. Add explanatory content to index page so that it is immediately clear what sort of questions are being answered on the site.
3. Add a full-text search capability
 - a. Improve searching by tags so it is more intuitive
 - b. Order tags in the search list according to how frequently they are used
 - c. Add user ID to the tag list, so one can also view all the questions or all the answers created by a particular user

Section 6. Conclusion

As noted, the site is visually attractive and functions fairly well. However, in order to create a positive user experience, the site must provide more user feedback. Further, there are design elements which could increase the user's sense of community.

FUTURE DIRECTIONS

The discussion forum has a long history on the web, and I've no doubt it will continue to be an important mode of information exchange. Based on a review of discussion forums that have been around for a while, it seems that if the topic is useful, the forum will thrive (within certain other parameters). However, there are several improvements that could be made to this forum. Some are listed above in the Usability Test section. Other possibilities follow:

1. After a user has created an ID, offer more welcome materials about the goals and purposes of the site, to help the user feel like more of a community member.
2. Users should be able to edit their questions and answers, as well as to delete them. Social media where you can't change your mind is a recipe for careful stagnation.
3. Give users the opportunity to rate responses, as a mechanism for developing trust in community members.
4. Make the tag list searching dynamic, so the list can be sorted by most recently used tags (i.e., trending), by quantity of questions associated with a certain tag, and etc. Add user IDs to the tag list, so one could read all the questions or answers entered by a certain user.
5. On the question browsing lists – wherever this form appears – show how many answers a question has and its tags. Hyperlink the tags so one could filter even from the browsing list. Showing the number of answers will be useful if a user is trying to decide what question to answer.

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APPENDICES

Pre-Test Questionnaire: All Questions Answered

1. What is your age? ____ Gender? ____

Please circle the appropriate answer for each of the following questions:

2. How frequently do you use a computer?
 - a. Several times a day
 - b. A few times a day
 - c. A few times a week
 - d. A few times a month
3. What platform do you most commonly use?
 - a. Apple
 - b. Windows
 - c. Other
4. What kinds of software have you used? Please circle all that apply.
 - a. Word processing
 - b. Spreadsheet
 - c. Presentation
 - d. Database
 - e. Other
5. How frequently do you use the Internet to search for specific information (as opposed to scanning a newspaper or checking your facebook page)?
 - a. Several times a day
 - b. At least once a week
 - c. Several times a month
 - d. A few times a month
6. What kinds of information do you look for on the web (circle all that apply)?
 - a. Information for work
 - b. Information for school
 - c. Consumer information
 - d. Entertainment information
 - e. Other
7. If you are looking for professional information, such as assistance with grants or information about classroom management, would you be more likely to check
 - a. online
 - b. with your mentor
 - c. elsewhere

Please explain your choice:

8. Have you ever used a discussion forum site or other social media to seek information?
- a. Yes
 - b. No

Please explain the circumstances:

9. Have you ever visited the All Questions Asked website?
- a. Yes
 - b. No
 - i. If yes, how recently?
10. Rate your confidence level about finding information on an unfamiliar website:
- a. Very confident
 - b. Moderately confident
 - c. Not very confident
 - d. Unconfident

Post-Test Questionnaire

Please rate the following items using a scale of 1 to 5, where 5 is your strongest agreement and 1 is your strongest disagreement:

1. The site is attractive.
2. The site's graphics are pleasing.
3. The site has a good balance of graphics versus text.
4. The colors used throughout the site are attractive.
5. The typography (lettering, headings, titles) is attractive.
6. The homepage's content makes me want to explore the site further.
7. It is easy to find my way around the site.
8. I can get to information quickly.
9. It is easy to remember where to find things.
10. Information is layered effectively on different screens.
11. Information is easy to read.
12. Information is written in a style that suits me.
13. Screens have the right amount of information.
14. The information is relevant to my professional needs.
15. The site is well-suited to first-time visitors.
16. The site is well-suited to repeat visitors.
17. The site has a clear purpose.
18. It is clear how screen elements (e.g., pop-ups, scrolling lists, menu options, etc.) work.

Do you have any other comments about the site?

Database Structures

QUESTIONS

Q_ID	Primary key	One to many relationship with Q_Tags through Q_Tag_Map. Each question may have multiple tags.
Q_TEXT		
Q_UID	Foreign key	One to one relationship with Q_Users, as each question can have only one creator
Q_DATE		

Q_ANSWERS

A_ID	Primary key	
A_QID	Foreign key	One to one relationship with Questions, as each answer can be associated with only one question
A_TEXT		
A_UID	Foreign key	One to one relationship with Q_Users, as each answer can have only one creator
A_DATE		

Q_TAGS

T_ID	Primary key	
TAG		

Q_TAGS_MAP

M_ID	Primary key	
T_ID	Foreign key	
Q_ID	Foreign key	

Q_USERS

Q_UID	Primary key
EMAIL	
F_NAME	
L_NAME	
SCR_NAME	
PASSWORD	
TIMEZONE	

CITY	
STATE	
LAST_DATE	