

Enhancing Mobile Information Services

ChaCha Text Service (www.chacha.com)

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Executive Summary Statement

During his lecture (viewed as a podcast by this study's authors) "Designing for the Paradox of Choice," Barry Schwartz opines that the challenge of the past decade was to get information to the masses. Now, the task has become filtering that information. There are many web-based models for filtering, but as the web migrates from desktop and laptop computers to handheld devices and smart phones, search engines must also be adaptable to mobile devices.

The concept of the ChaCha mobile service is to employ humans to act as search engines. Customer users ask free (but not unlimited) questions to the ChaCha service, and ChaCha 'guides' respond via an Short Message System (SMS) text message to a user's mobile device. Our investigation reviewed the ChaCha texting model to see if the user experience could be improved.

For the pre-requirements fieldwork study, our team concentrated on surveying a demographic (18-22 years old) comfortable with text messaging on mobile devices. We asked four people to text at least one question each day to ChaCha for one week. Participants were asked to complete an online diary study questionnaire each day about their experience texting to and receiving responses from ChaCha. Review of the diary data shaped the interviews that completed the initial research.

The team members completed work models based on the diary and interview data, and created consolidated models: flow, sequence and cultural. What didn't work for the users -- the breakdowns -- were listed on the models. The design team used those breakdowns to develop ChaCha enhancement requirements. One interesting notion revealed was that the 28 questions our participants asked could be divided into two categories:

Infotainment: the questioner was using the ChaCha service for entertainment purposes, including trivia, personal questions for the guides and philosophical/rhetorical questions.

Information: the questioner wanted hard facts, such as movie times, recipes and weather reports.

Infotainment questions may require accurate responses, but there is also a desire for speed and a jovial tone to the exchange. One of our users even mentioned ChaCha could be used by a lonely person who had no one else to text. Information questions required accurate answers. Although in today's fast-paced world, users expect speed, when they wanted the answer to be absolutely correct, optimum speed could be sacrificed. By ChaCha stressing speed, incorrect responses were being given.

The requirements included letting users indicate whether speed or accuracy was most important to them, and being able to change the setting based on the context of use. Along with the accuracy issue, other requirements were designed around the SMS limit of 160 characters, which users identified as a problem for longer questions and answers, and also that users didn't want ChaCha imposing a limit on their use, which is the current situation. We looked to the user profile that is completed online to register with ChaCha as a way to deal with these requirements. And since ChaCha is a mobile search engine, another requirement is that the users be able to control these areas via mobile devices also.

Our team developed two interactive prototypes, one for the online registration, the second for the mobile device. Team members returned to original study participants for preliminary enhancement feedback. The data from the original fieldwork was reviewed for the participants to give them some context for the requirements that guided the prototypes' development, and a walkthrough of the prototypes demonstrated

the enhancements. We concluded the study with a final interview about those enhancements – were they understood, and did they address users’ concerns about ChaCha?

The feedback was mixed. An important idea that was revealed in the feedback interviews is that users really like the human filtering element of the service. One focus of future study must be how to balance the tradeoff of more control for the user while maintaining the fulfilling aspect of talking to a real person.

Fieldwork Activity and Data Collected

See Appendix A for diary study response summary

See Appendix B for the interview questionnaire

See Appendix I for the diary study form used by test participants

For our pre-requirements fieldwork study, our team concentrated on surveying a young demographic (18-22 years of age), who are very comfortable with text messaging on mobile devices. We asked four (4) people in this demographic to use ChaCha for one week. For every question asked to the ChaCha service, we instructed participants to fill out & submit an online diary study questionnaire about their experience with the service. By performing our data gathering via a diary study, we could ask vital questions for our study, while requiring only a minimal amount of time to submit diary responses without the presence of an evaluator. At the end of the week-long trial, our team followed up with each participant with a brief, semi-structured interview.

Diary Study

The targeted population of this study was people from 18 to 22 years of age. We focused on this group because they were very comfortable with sending and receiving text messages.

Our investigation asked four users to text a minimum of one question per day to ChaCha (242 242) between March 25, 2009 to April 2, 2009. The participants were: 1 female high school senior, age 18; 2 male high school seniors, age 18; 1 female graduate student, age 22.

Users were asked to make diary entries daily using online survey tool Google Docs. It was noted that not all participants made daily entries; at least one participant made multiple entries on several days.

The survey gathered information on twenty-eight questions texted to ChaCha.

Types of questions

Asking the guide a personal question: 3

Asking for needed information: 19

Asking just for fun (philosophical or rhetorical questions): 7

Participant-reported answer accuracy

Accurate: 20

Not accurate: 4

No response at all: 1

Incomplete answer: 2

Other: 1 (answer was ‘hilarious’)

Participants' follow-up attempts for get more information:

Asked friends to verify ChaCha's answer: 2
Not important enough to follow up: 4
Searched internet via computer: 5
Too busy to follow up: 4

Context of question submission

Location when texting question:

Home: 14
Work: 5
School: 4
Out-and-about: 4

Time of the day for question submission:

7 pm to midnight: 8
1 pm to 5 pm: 5
5 pm to 7 pm: 5
11 am to 1 pm: 4
6 am to 11 am: 4

Analysis of data

An overview of the four study participants' experiences using ChaCha's text message service revealed the following observations:

Overall observations from data in diary entries

- Most answers were judged to be accurate
- For most questions, participants did not seek the information beyond asking ChaCha
- Participants enjoyed the answers ChaCha gave to questions that were more open to interpretation
- When an answer did not fit into one text message, the accuracy rating suffered

Overall observations from data gathered in interview questions

On the concept of ChaCha as a human search engine that will answer questions submitted and answered via text message:

- The three younger, non-smart phone users were enthusiastic about the text message service and said they would continue to use the service. The one smart phone user was more apt to use the internet to search for information.
- None of our participants were interested in using ChaCha online. If they were in front of a computer, they would search for an answer themselves with other search engines such as Google.
- Users liked that ChaCha was free. There was very little interest in a pay-for-play model, and only then if the answers were provided by actual experts in the field in question.

On the ChaCha mobile texting model user experience:

- Overall, participants enjoyed using ChaCha's mobile texting service.
- The context of use is what makes ChaCha enjoyable and valuable. It's good for settling bar bets and for entertainment, and to find information such as movie times when other options are unavailable.
- Advertisements didn't bother users too much, but they didn't want more.
- The 'More...' designation for answers that required multiple text messages aggravated users. It was confusing because the subsequent message didn't always arrive, leaving users wondering if they had all the information.
- Users didn't like being limited on how many questions they could ask.

On the quality of the answers ChaCha provided:

- Participants did not believe that experts were answering their questions. To clarify – they believed the guides were experts in using the internet, not in the subject matter of the question.
- Questions were sometimes for entertainment, sometimes for information. When information was required, accuracy was important to the users.

Work and Activity Models

See Appendix C for consolidated work models

This section seeks to model the data from the diary study and the interviews to identify breakdowns – what didn't work for the users – in the ChaCha user experience. Those breakdowns formed the basis for the team's design enhancements to ChaCha.

The team members completed work models for each interview, and created consolidated models: flow, sequence and cultural. The breakdowns noted for each are listed below:

Flow Model

- Breakdown when User sends ambiguous or confusing question
- Breakdown when User has reached their limit
- Breakdown when Guide doesn't look at the User's message thread
- Breakdown when Guide misunderstands User's question
- Breakdown between Guide and how they gather information

Sequence Model

- Breakdown when User submits a question and has reached their limit

This point is of central importance and led to a design requirement. One user suggested that if this one breakdown could be solved, she would be satisfied with the ChaCha experience. We devised a way for ChaCha to fund more texting from users – market sponsorships to advertisers based on enhanced demographic collection during the registration process.

- Breakdown when User does not receive a confirmation text message

Design enhancement: We changed the registration process to allow users to create a user name and password without entering phone number or email. Users can then text ChaCha to confirm registration, thereby registering the mobile number, changing verification from passive to active.

- Breakdown when a Guide sends an incorrect answer back to use
- Breakdown when a Guide sends an incomplete answer
- Breakdown when there is a longer answer but the SMS is limited to 160 characters

The flow, sequence and cultural models all identified breakdowns between the user posing a question and the guide answering. Those breakdowns included the guide misunderstanding the question, the guide providing an incomplete or incorrect answer and the user being unable to craft an explicit enough question within 160 characters.

The point led to a design requirement. An enhanced feature is the ability of the user to use email as a way to craft longer questions and receive longer answers. There is a tradeoff in that three of our four users didn't have an interest in ChaCha email since they don't use smart phones. In future studies of our enhanced design, we need to look at both smart phone users and feature phone users. Additionally, users who don't want to use email for a long answer can specify in their registration profile that they are willing to receive multiple texts to get the complete answer. The need to choose 'More' is eliminated for these users.

Cultural Model

- Breakdown when the User receives no answer
- Breakdown when the User receives the wrong answer

Some user questions are obviously seeking hard facts, whereas some questions are more entertainment-driven. Our team considered ways to separate these two different types of questions for ChaCha so the guides would know when to spend more time to ensure an accurate answer versus a speedy answer for questions that were more for entertainment of the users. This became a speed vs. accuracy scale users can set in their registration profile. This default setting can be overridden at any time via text messaging command. Additionally, a 'retry' text command allows users to cue the guides that the answer is incorrect.

- Breakdown when the User receives an incomplete answer
- Breakdown with the 4 messages in any 72-hour period
- Breakdown with the limit of features that ChaCha provides

Physical Model

Since the study was an online diary we were unable to physically view how users used their phones. This limited us to discovering any breakdowns in the physical model.

Requirement and Goals

After reviewing all questionnaire submissions and compiling interview notes from our test subjects, several ChaCha enhancement requirements came to the forefront. After reviewing all the questions we discovered they could be placed into two categories: Infotainment and Information.

Infotainment is a question that is more for entertainment purposes (e.g. “How do I prove I exist?”). With these types of questions the user wasn’t concerned about accuracy as they were with speed of response.

Questions where the user wanted much more accurate responses fell under the Information category (e.g. “What is Pj’s Beauty College’s Number?”). After interviewing the users of our diary study we noticed that when asking these types of questions they were looking for a more accurate response and were less focused on the speed with which it was sent.

User Experience

Of our four study participants, two had used ChaCha before the study, and both indicated they would continue to use it. Both said that they used it to settle friendly arguments – “[ChaCha] is a good third voice.” A third participant liked that he could use the service surreptitiously to win bar bets. Thus, the ChaCha user experience, for them, is enjoyable, satisfying, rewarding, fun, provocative – to borrow some criteria from “Interaction Design, Beyond Human-Computer Interaction, 2nd Edition”. These criteria apply to using ChaCha as ‘infotainment.’ One user also thought it was fun to have personal interactions with the guides, and that someone who was lonely could find companionship with the service. Thus, user experience criteria such as emotionally fulfilling and enhancing sociability could also be applicable. In these instances, the accuracy of the answers is less crucial, and the tone and flow of the interactions is more crucial.

The other main usage for the service is to get information. Some users asked for movie times, and some asked historical information. In these cases, accuracy was more important than the tone of the interaction. So, some phrases to describe this user experience (also from “Interaction Design, Beyond Human-Computer Interaction, 2nd Edition”) are satisfying, rewarding, helpful, frustrating, and annoying.

One initial thought in envisioning enhancements to the service is to establish different paths for these different types of questions. For the user who is texting ChaCha for infotainment purposes, criteria are different than for those seeking accurate information. A way to identify and direct these queries for the best user experience is an idea worth pursuing. Perhaps enhanced user profiles could be part of a solution for this challenge.

1. Ability to ask longer questions and receive longer responses.

Our test subjects mentioned that it can be tedious to ask a complex question within the current 160 characters SMS Texting allows. There are times where a brief response (within 160 characters) may not be able to fully answer a user’s question. ChaCha texting interaction should allow adjustments for such question/response conversation.

Effectiveness – in asking more complete question

Efficiency – in getting response

Safety – in getting response

2. Increase user confidence that the information being received is accurate.

There were several instances where our test subjects received erroneous or ambiguous responses that did not fully answer their question. There was concern that their questions were not being answered by someone with expert knowledge, but rather someone who is skilled using the internet.

Utility – no need to check for accuracy of information with another source

Safety – won't doubt accuracy of information

3. Ability to maintain a conversation with one guide when clarifying questions or answer.

Users sometimes need to provide clarification of their question for ChaCha guides. The users indicated that sometimes they thought the same guide would give another reply, but sometimes it seemed that a different guide was answering, and that that guide was not following the thread of the exchange. The users wanted the same guide to handle the whole exchange, or at the very least, to be able to see the whole exchange.

Effectiveness – to be able to accurately respond to follow-up questions

Efficiency – in responding to follow-up questions without needing to go back and explain context

Safety – reduce misunderstanding of questions

4. Provide more profile control

Our study found that study participants were willing to provide more personal information upon registering. ChaCha could allow for users to create a profile that is more extensive than what they are currently doing. Then users who wish could set parameters allowing for longer character counts, dedicated threads, expert answers, etc. Many of these profile features would be accessible via SMS from the user's mobile phone. This would allow users to update their profile out-and-about.

Efficiency – able to maintain profile with up-to-date information

Utility – can add and remove devices, view history

Safety – don't need to input phone number or email address to register

Learnability – give users some help/tutorial to show them how to manage profile online and from mobile device

5. Always provide a response.

There were times during our study when our users failed to receive any answer from ChaCha. That issue needs to be studied on ChaCha's end to find out if the texts were never received, or if guides neglected to answer. Are there questions that ChaCha purposely refuses to answer?

Efficiency – users won't need to resubmit due to uncertainty about question being received by ChaCha

Safety – users know their questions were received by ChaCha

6. Increase the limit for usage within a 72-hour window.

One user consistently hit the limit of 4 questions within 72 hours. That user indicated a willingness to pay some fee for a higher limit, but the other users did not want to pay at all.

Effectiveness – Users can get more information from the service

7. Speed of response.

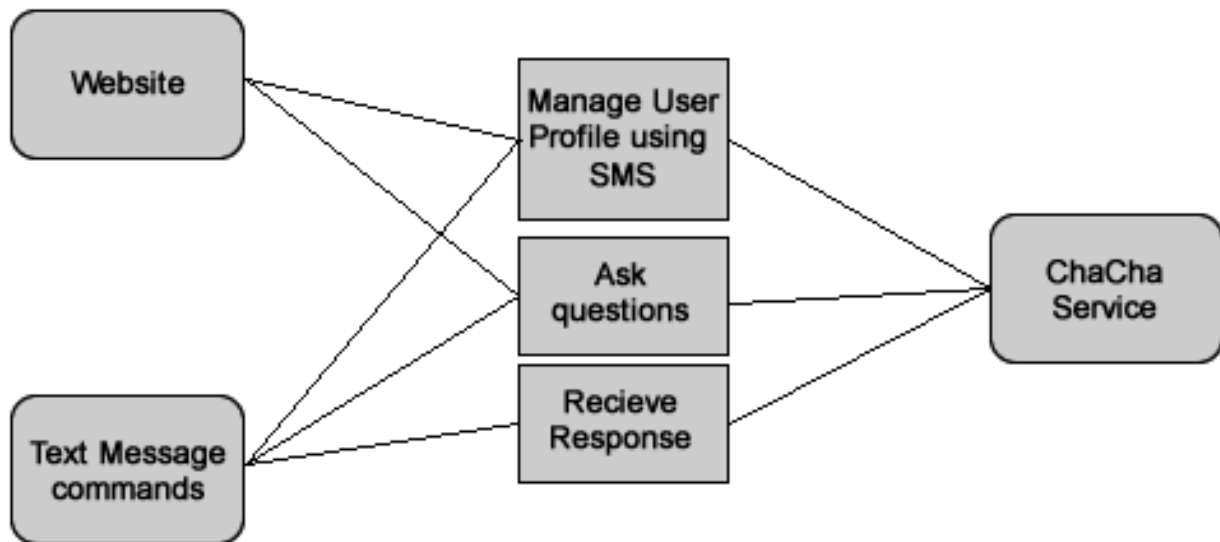
A quick initial response is needed so user knows question was received. Then the answer needs to come quickly, though accuracy is more important on information-seeking queries.

Effectiveness – Users don't have to wait too long for an answer

Efficiency – Questions get answered faster

Conceptual Model

See Appendices F and G for scenarios and personas – basis for our conceptual model



The system will allow users of ChaCha to customize their on-line profile, giving users the ability to add multiple mobile phones as well as email addresses. The key feature of the system would allow users to make quick changes to their profile via text messages.

The online profile would be created when the user signs up for ChaCha. They would be able to submit just username and password to create the account, but would have the ability to add as much information as the system would allow. This allows them to quickly setup ChaCha, but if they have more time they can tailor their settings.

With ChaCha being a mobile search company the system should allow for profile customizing on the go. A user could, via text message, change certain settings to fit their current situation, allowing for a more personal response.

System Architecture

The system will use ChaCha's current technological system architecture. However, it would modify how the questions are handled by the guides.

The guides would be split up into two groups: infotainment and information. These two groups would differ in the amount of processing time each question would receive. Infotainment would deal with much less complex questions, essentially spending less time on each question, while the Information would handle the more time consuming questions. Every question sent to the system would go through the Infotainment group. Upon determining the type of question it could be sent to the Information group if it requires more time.

Navigation / Interaction

While there is a more robust online profile, the main form of interaction from the user will be via text messages. They will have the ability to modify their profile using instructional commands to the system.

The profile screen on the web will allow users to access more information than they can through text message.

Interaction types

Instructional

- Update profile using text message
- Saving profile setting
- Text message "Thumb Savers"

Exploration & Browsing

- Viewing all the search history

Manipulation & Navigation

- Changing profile settings
- Message feedback/rating
- Profile navigation

Conversing

- Asking questions to guide
- Asking follow-up questions
- Send clarification information to guide

Visual/Interactive Prototypes

Low-fidelity prototypes

See Appendix D for additional low-fidelity prototype diagrams

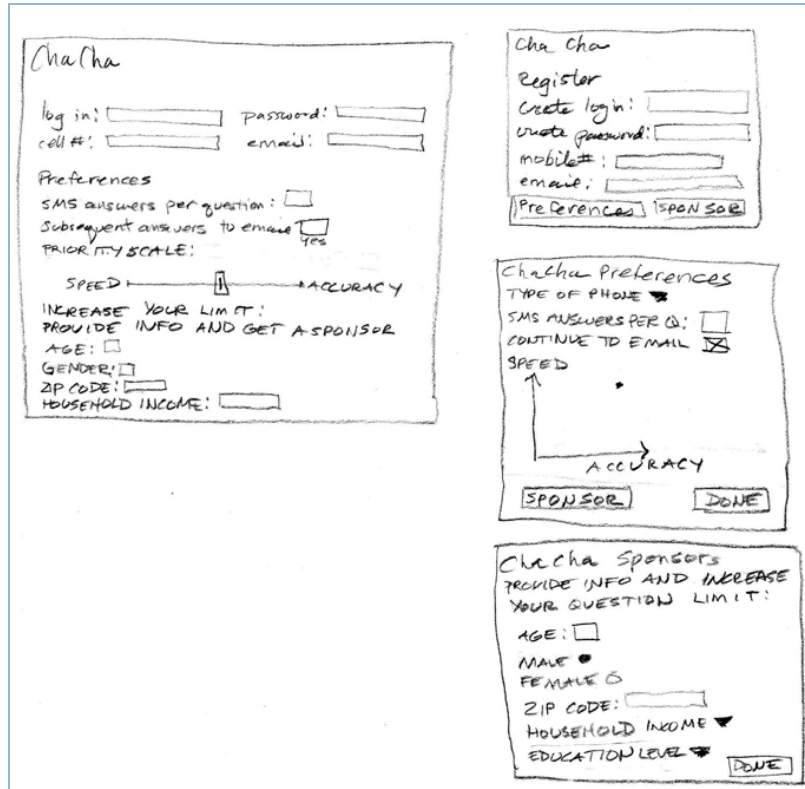


Diagram 1: Low-Fidelity Web Prototype

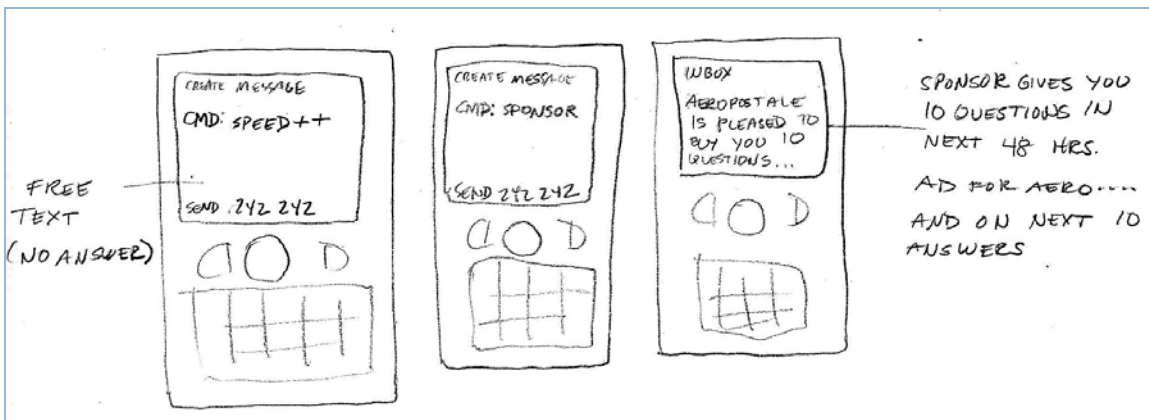


Diagram 2: Low-Fidelity Mobile Phone Prototype

High-fidelity prototype

See Appendix E for additional high-fidelity prototype images

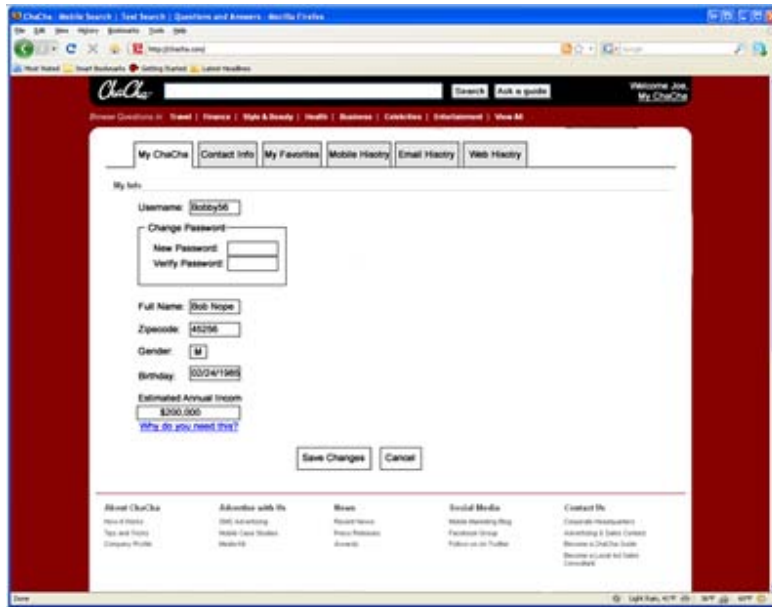


Diagram 3: High-Fidelity Web Prototype



Diagram 4: High-Fidelity Mobile Phone Prototype

Preliminary User Feedback

See Appendix H for complete list of preliminary feedback questions and answers.

Our team returned to original diary study participants for preliminary feedback on the requirements and prototypes, reviewing the observations culled from the diary study and interview data, and explaining how those observations led to perceived enhancement requirements for the ChaCha user experience. Members did a walkthrough of the high-fidelity prototypes, to which users were re-interviewed to see if they understood the enhancements, and if the enhancements addressed their concerns about ChaCha.

Favorable prototype features

- Accuracy vs. speed scale to be set in the online profile
- Sponsorship for higher question limit

Non-favorable prototype features

- Income question
- Ability to route answers to email, or even use email.
- Overriding profile defaults on the phone

Improvements and future direction

- Customize sponsorship
- Study differences between users with smart phones and users with feature phones

Parting Thought

In response to the final question in the user feedback study (“Anything else you want to add?”), one user gave the following response:

“The ingenuity of ChaCha is having humans do it. I think saying “accurate” is redundant – they already [try to] do it.”

This points out that the original concept for ChaCha as a human search engine perhaps holds the greatest appeal or charm for users. In enhancing the user profile and providing more text commands, we don't want to lose sight of the human-to-human contact. The trade-off in increasing the level of technical interaction and possibly lessening the human element could be some loss - even in just the novelty of incorrect answers that may prompt a re-submission of the question, but still provide a humorous or quirky interaction between user and guide. We don't want to turn ChaCha into a Google clone.

One of the team members texted a question to ChaCha: “What river runs through Flowing Well Park in Carmel, Indiana?” (ChaCha headquarters and hometown of ChaCha founder Steve Jones). The answer was: “The White River goes through the flowing well park. It is by my grandparents house, the spring used to be called something else.” The answer was wrong, but demonstrates a much more personal answer than what a user might receive from other search engines. Thus, the trade-off: sometimes it's nice to know that someone is out there...

With additional user testing, the issue of how much more non-human interaction users want with ChaCha (manipulating the profile, using the commands) vs. direct interaction with guides will be imperative to investigate. Similarly, improving ChaCha may be as simple as charging advertisers for sponsoring more questions for users, and then hiring enough guides to get to all questions quickly.

Appendix A: Diary Study Information

Project Consent Form Example

I state that I am over 18 years of age and agree to participate in a contextual inquiry project studying the use of the text messaging search business Cha Cha for graduate students at IUPUI.

The purpose of the inquiry is to gather data about how young adults use the Cha Cha search via mobile devices using text messaging. The data will be used by the students to complete a class project on improving and/or expanding the Cha Cha model.

I will be provided with a written overview of the study, including requirements and expectations for participation. I will also be asked to provide demographic information.

All information collected for the study will be kept confidential. I will be assigned a number by the design team and my identity will remain anonymous in the results.

I understand that I may withdraw from the testing at any time with no penalty.

Electronic signature: Emily J. Craske

Date: March 26, 2009

(Adapted from Interaction Design: Beyond Human-Computer Interaction, 2nd Edition)

Study Overview

ChaCha is a mobile answering service. It allows people to submit questions via a desktop computer, SMS or voice service. Once the question is submitted a team of people will quickly find answers to your questions. The answer is then submitted back in an SMS format. Their website is "<http://www.chacha.com/>". The number to text is: **242242**.

Our team is trying to understand how one uses the ChaCha Mobile Search service. The purpose of this study is to ascertain how and why people use the service. We will be focusing on improving the overall user experience of ChaCha Mobile Search.

This study will require test subjects to sign up and use the ChaCha service and send SMS messages to ChaCha to find answers to any questions that you might have.

It will last one week and will require questions be submitted to ChaCha using the SMS feature. Each test subject will need to sign up using the ChaCha website and set up their mobile device, so that they can receive answers.

Test subjects will be required to submit one message per day for the study (the service will limit you to up to four messages in a 72 hour period). Sometime after receiving an answer back from ChaCha test subjects will need to fill out a short survey. The survey can be found at "<http://tinyurl.com/czl6dg>".

At the end of the week someone from our team will contact each test subject to answer questions about the overall experience of using ChaCha.

Time Frame of Study

3/25/2009 20:27:19 to 4/2/2009 14:23:59

Question types

Asking the person a personal question: 3
Asking for needed information: 19
Asking for fun: 7

Question Accuracy

Yes: 21
No: 4
Received no response: 1

Question Follow-ups

Asked friends: 2
Not important enough to follow up: 4
Internet/Computer: 5
Too busy to follow up: 4
Didn't need to/Assumed correct/Was correct: 6
Used the question as the follow to something (double checking): 2

Question Locations

Home: 14
Work: 5
Out-and-about: 4
School: 3

Question time

7p to Midnight: 8
1p – 5p: 5
5p – 7p: 5
11a – 1p: 4
6a – 11a: 4

Appendix B: Interview Question/Answer Data

For our study, what kind of mobile phone did you use? What phone is your next projected mobile phone? When do you expect to purchase a new mobile phone?

- XXX used the newest iPhone (with 3G). She just purchased the iPhone about 2 months ago, so she'll have it a while. Her next phone will probably be an upgraded iPhone, but not in the next 2 years.
- Used a Verizon wireless NV2. No idea what my next mobile phone would be, but I'll probably purchase one next year
- CR: Flip phone. Have no plans to get new phone.
- JMS: AT&T Motorola. Planning on getting iPhone in a couple of months.

Did you use the ChaCha text service before participating in our survey?

- XXX had not used ChaCha before the survey.
- No
- CR: Yes.
- JMS: Yes.

Had you heard of ChaCha before participating? If so, how?

- XXX had not heard of ChaCha before the survey, though she had seen KGB on TV commercials.
- Yes, Friends, but didn't know exactly what it was.
- CR: People at school were talking about it, from about a month after it started.
- JMS: Yes. Heard about it from coworker.

What were your initial impressions using the ChaCha text service?

- Seemed like a simple plan. Ask a question, get a response. Relatively easy to use. Little thought process for her to use
- I thought it was really neat, useful. Like using it when arguing with friends.
- CR: It was amazing. Cool concept when I first started. You could ask anything.
- JMS: It was alright.

Did you share or mention the ChaCha text service to, or did you ask any questions to ChaCha on behalf of, a friend or colleague?

- She mentioned the service to a friend, but did not ask a question on behalf of the friend. All questions were hers.
- CR: I talked about it.
- ChaCha on behalf of, a friend or colleague? Yeah shared the service.
- JMS: No.

If you were in front of a computer would you find a better / quicker answer than what ChaCha provided?

- Yes. She would probably perform a Google search for most things. Regarding weather conditions, she'd probably go to Weather.com (Weather Channel).
- Not quicker. Google gives you thousands of results, maybe more accurate.
- CR: Some answers were hard to find, some were easy – hit or miss depending on the question.
- JMS: Yes. If I'm in front of computer, there's no reason to text. I wouldn't go to ChaCha on computer. The web site is difficult to use. It's not specific enough. It only gives 10 generic questions – no filtering. Just shows you other questions, not a page of information about what you want to know.

Do you believe your questions were answered by an expert? If not, whom do you believe your question was answered by?

- She did not believe her questions were answered by an expert, as the answers were mediocre and not too complex. She guesses her responses came from a regular person with general knowledge or good Internet lookup skills.
- No, definitely not. I thought they were just Googling it.
- CR: Yes, but I know that's how they word answer. I know they knew how to use a computer well, but not expert in subject.
- JMS: Sometimes. Just someone who was being funny. (Math question yielded correct answer. Philosophical question yielded a stupid poem.)

In general, would you pay for using the ChaCha text service?

- She would NOT pay for this service.
- No
- CR: No.
- JMS: No. Since it is limited anyway, I know I can live without it.

Would you pay for using the ChaCha text service, if you were allowed to ask more questions in a given period than what you currently can ask (4 questions in any 72 hr. period)?

- She would NOT pay for the ability to ask more questions.
- CR: No.
- Probably not
- JMS: Maybe.

Would you pay for using the ChaCha text service, if you had knowledge your questions were being answered by a certified field or subject expert?

- She would NOT pay for knowing her answers were being sent by subject experts.
- Yeah if I knew they were accurate, maybe
- CR: No.
- JMS: Yes.

Would you pay for using the ChaCha text service specific to a particular subject or category of subjects (ie, Entertainment & Music, Sports, etc.)?

- She would pay for getting directions/maps to find her way around a city (or a city she is visiting). Otherwise, she would NOT pay for any other subjects.
- Yeah probably
- CR: Probably not. I like it free. Don't want to pay
- JMS: Yes.

Would you be OK with ChaCha sending you more advertisements in conjunction with their responses?

- She was OK with the advertisement text messages she received, as she has unlimited texting in her calling plan. She stated if advertisements were sent instead of her paying for the service, which would be fine.
- No. Not texting to get an advertisement. One was fine, more would be annoying
- CR: Maybe one more, but anything beyond that is pushing it. Small amount more.
- JMS: No.

Would you be willing to provide ChaCha additional user information?

- She was fine with supplying ChaCha with additional demographic information (Name, age, gender, current location, etc.). She would like to know what additional information may be requested before submitting.
- Yeah
- CR: Yes.
- JMS: Depends on what they want. OK with demographics info, but not personal info such as SSN or address. Yes to zip code.

Was ChaCha enjoyable to use? Was it fulfilling to use?

- She thought the service was OK for the majority of times. She mentioned she did receive a few wrong answers, though.
- Yeah it was fun. Yeah based on all the questions that I asked
- CR: Yes. I like using it. I like asking them random questions – makes it fun. Fulfilling – yes, I guess. I got everything I needed – they answered my questions.
- JMS: Yes, enjoyable. No, fulfilling. It's funny when they give silly answer.

Was ChaCha efficient to providing prompt responses to your questions?

- She believed ChaCha provided her with rather prompt responses except for one time, to which she received no response whatsoever (and it counted against her as an asked question, in regards to the 4 questions / 72-hour rule)
- It was pretty quick
- CR: Yes. I didn't run into problems during study. In the past, I have had problems about 10 times when I get the 'I'm working on it message,' but no answer. But that didn't make me stop using it. I'll resend question about an hour later and they'll answer.
- JMS: 4 out of 7 times. Takes longer for complicated questions.

Were there any times you were frustrated with the ChaCha text service?

- There were two (2) instances. One of her questions was a completely wrong answer, and another question she asked did not receive a response. She also mentioned a third response that came with a "MORE..." at the end, and she didn't know if that was meaning another text message was coming or not. That answer was incomplete.
- No not at all
- CR: See answer above.
- JMS: Yes. When it seemed to change the limit for users to even less questions. And one question about hairdos gave a bad answer. Wanted to be able to say "That's not what I mean." One time it didn't count threads as separate questions toward limit, but one time it did.

What is your favorite part of using the ChaCha text service? What is your least favorite part of using the ChaCha text service?

- Her favorite part from ChaCha is that she received a text message response stating they have received her question and would be sending her a response shortly. It made her feel like her question was being concentrated on. Her least favorite part was the negative start she got when signing up with ChaCha and her first question (which she received no response on). She signed up, gave her e-mail address and cell phone number. ChaCha sent her a confirmation e-mail for her to confirm, but she was never able to confirm her account (even though ChaCha had her cell phone number, and she could ask/receive question/responses through her phone). The experience left a bad taste for her to start the investigation.
- Favorite Part: No one knew I was using it to win an argument. Least Favorite Part: Really didn't have anything.
- CR: Favorite is sending personal questions to guides and their answers. Least – sometimes it takes like 5 minutes or so to get answer.
- JMS: Favorite – it's a good tie-breaker. That's when it's most fun – to settle a friendly dispute. Least – limit (combined with when an answer doesn't fit in one text message).

Will you continue to use the service, now that the study is concluded? If so, why? If not, why not?

- She will NOT continue to use the ChaCha service, because her iPhone has internet access with it, and she can probably find most questions she'd have as quick, if not quicker, than ChaCha.
- Yeah, it is handy if I'm not by a computer or other source of information
- CR: Yes. It's efficient – they give you answers. Only had 2 or 3 that I know are wrong. For the most part, they are right. Or obviously way off. I never feel unsure if they're right or wrong.
- JMS: Yes, if I don't have the answer right in front of me it's a good resource.

If you were asked by ChaCha, would you have any interest in answering questions?

- She stated it would seem fun to try for a while, so long as she didn't get stupid questions. She questioned what ChaCha's payment structure was like for answerers, and wondered if compensation via sponsorship has been considered (ie, gift cards). She didn't know if people did this full-time – she couldn't see anyone doing it full-time, but in the economic situation now, it's possible.
- Yeah, if I wasn't so busy.
- CR: Sure.
- JMS: Would be fun.

In your opinion, do you think there is a true use for the ChaCha text service? If so, how? If not, why not?

- She thinks there IS a true use. A lot of people don't have Internet connectivity on their phones. Unlimited texting is becoming more prevalent, and it is still evolving. More people (young and old) are using it and/or are becoming more comfortable using it, as it is fairly straight-forward to adapt to. If people continue to feel comfortable with SMS Texting, then yes, ChaCha should still be able to work with those users.
- There are more ways to get information such as the internet on your phone. It is good for a quick easy response.
- CR: Yes. I have used it for school stuff before, but most of the time it's for personal information. Haven't needed it for official stuff. Good for settling friendly argument.
- JMS: Some think so. For people who need to find movie times or locations. Like yellow pages on phone. Those seemed the most useful from what I saw online. Could be for someone who is lonely, has no one to text. Or for funny stuff. But most useful is for yellow pages. Like if you're on interstate and need exit number.

Do you like ChaCha's idea of sending text responses to your phone? Do you think there may be alternative response methods that may be better suited for your needs? If so, how?

- She did like the idea of receiving text responses from ChaCha. She thinks more and more people would prefer text messages, and wouldn't necessarily need follow-up or dedicated e-mail messages, though she could see the option if allowed.
- Yeah. No I always have my phone with me.
- CR: Like text.
- JMS: Subliminal messages? Maybe voice messages. But I'm happy with text messages.

Overall, did you enjoy using the ChaCha text service?

- Yes, it was kinda fun to use.
- Yeah
- CR: Yes.
- JMS: Yes.

Based on your interaction experience with the ChaCha text service, what would you like to see ChaCha improve upon?

- She had a couple of ideas. First, could ChaCha explain the “MORE...” functionality better? Does “MORE...” mean additional text messages are going to be sent to her, or would she be required to access her ChaCha account (which she may or may not be able to do at the time) to see the full response. If more text messages were coming, then give an estimate number of text messages to be received (knowing 160 characters are max) in the first message, and begin sending them all to her sequentially. Second, she was not able to fully set up and verify her ChaCha account. ChaCha had her e-mail address and cell phone number, but there was no luck (and she tried a few times, though she never contacted ChaCha directly for assistance). She thought that even though it was a texting function, the user should set up the cell phone *after* verifying the ChaCha account. That way, she can add her demographic information accordingly, and, if needed, change cell phone numbers easily for her e-mail address (or vice-versa).
- Not really. Some of the questions are more opinionated responses; you don't know where the facts are coming from. More of a cited responses
- CR: Making sure all questions are answered.
- JMS: If you ask a question and they don't understand it, and you want to correct it, they don't necessarily have the same person handling it. If you click 'More...' you should get same person. And the limit should be increased. And better matching of answer person to certain topics. I think they have gotten better, but could still improve.

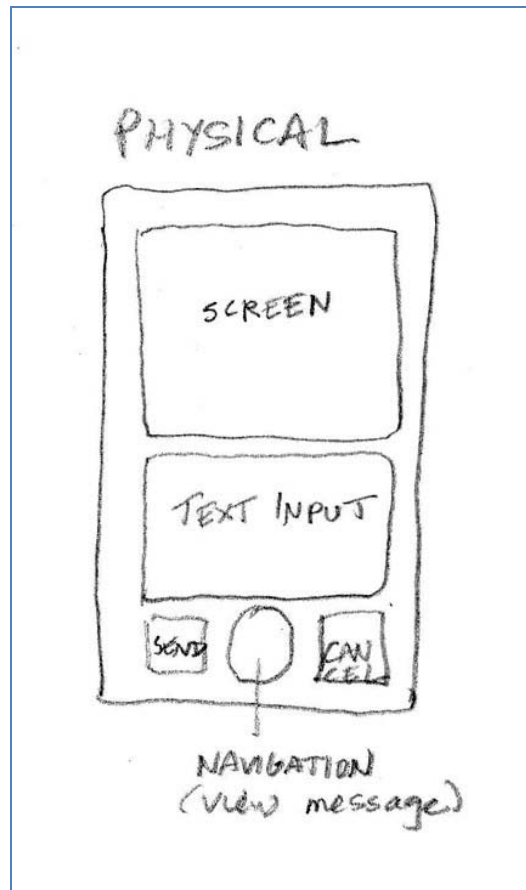
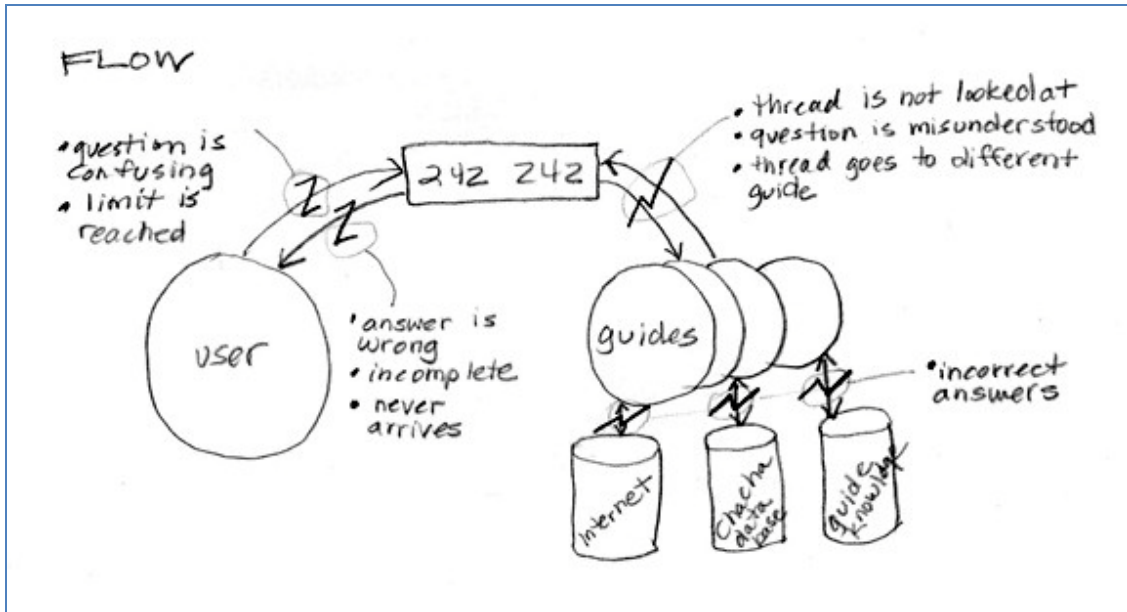
Do you see the ChaCha text service as a form of entertainment, as a form of information gathering, or both? If both, choose the best form and explain.

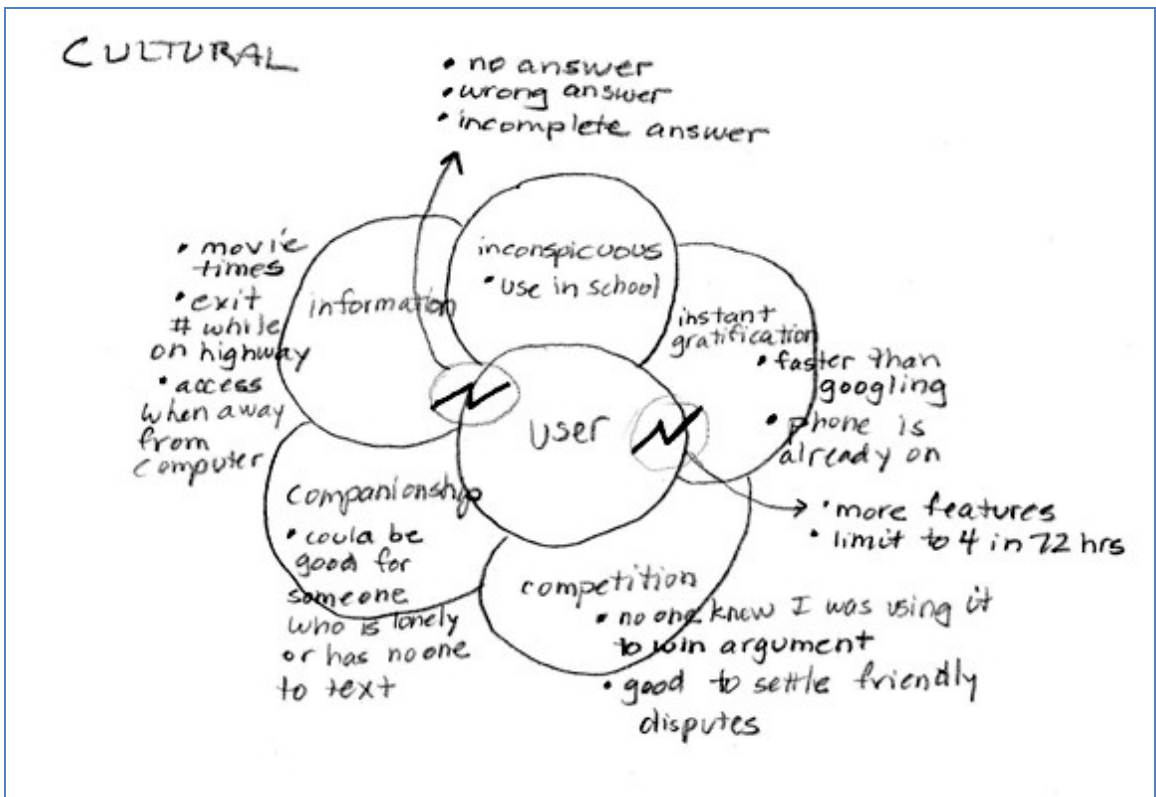
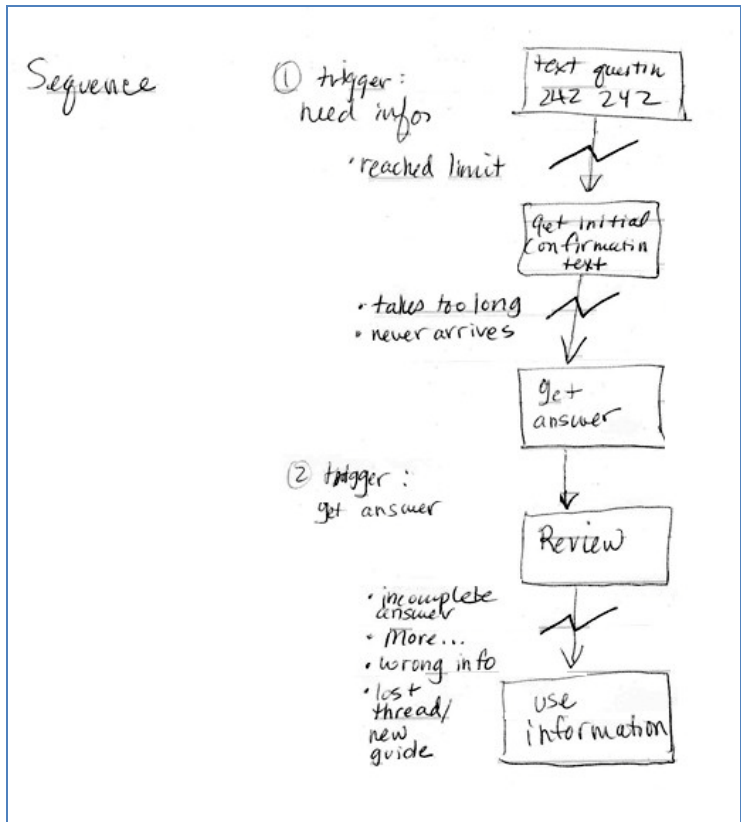
- She thought it was more information gathering than entertainment. She didn't necessarily use it for entertainment purposes, though she could see that angle, too.
- Both. More information for me.
- CR: Both. I used it for entertaining information.
- JMS: Both. Probably entertainment – because they're not really experts. Only have as much information as you do.

Recall the questions you asked. What type of responses were you looking for: entertainment or information gathering?

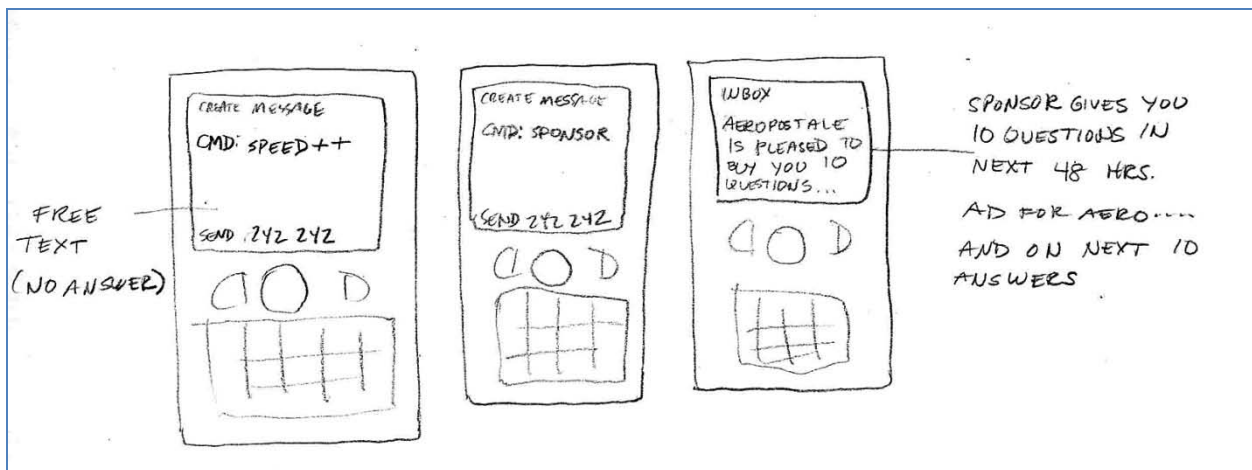
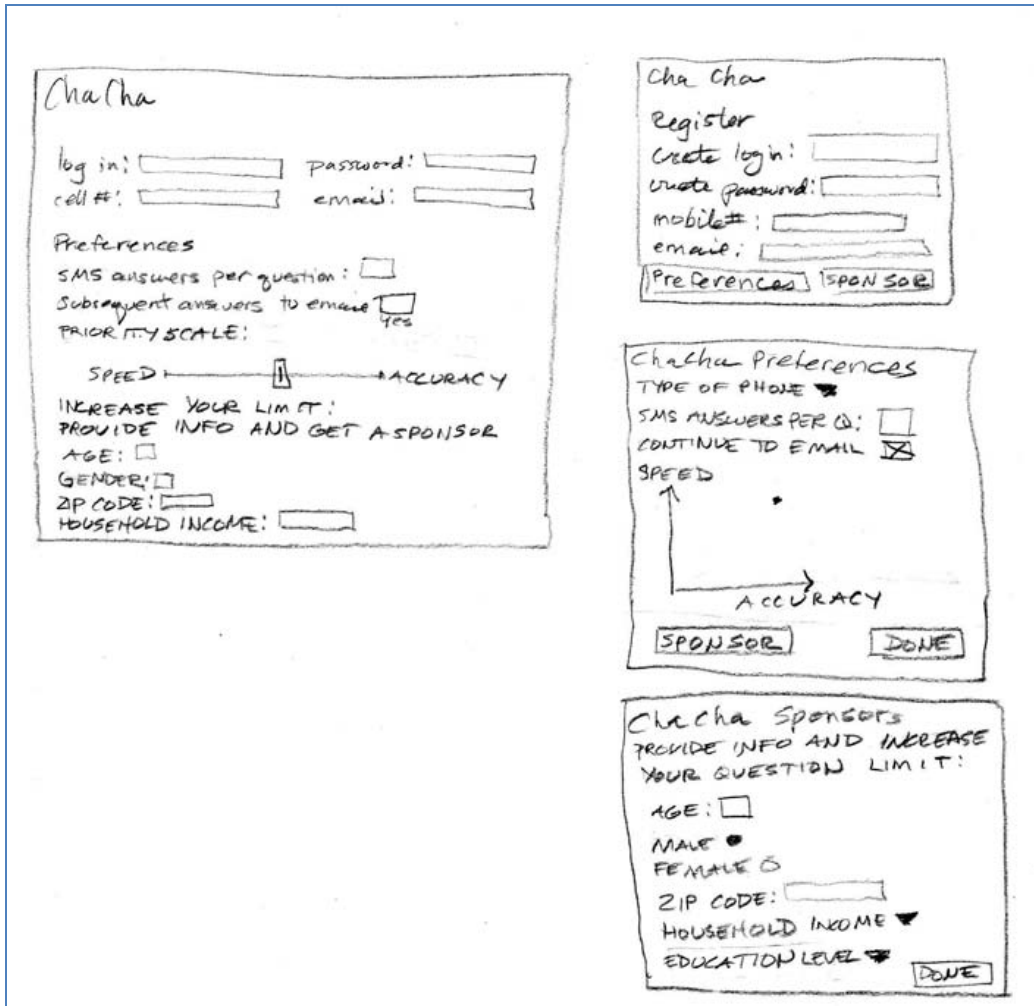
- All of her questions were more for information gathering purposes, even though the responses would be used for entertainment purposes, based on her activities. For example, she wanted to find out when a movie was being shown one evening. ChaCha gave her a proper response. The response was information gathering, but the purpose was for entertainment.
- Informational responses
- CR: Entertaining information. I've used it a good chunk, haven't had many problems with it. One thing – if they need more information to answer and I send clarification, is it the same person? I would prefer to know that I was conversing with the same person through whole thread. I feel that sometimes it's the same person, but sometimes not. And that's confusing or weird feeling.
- JMS: Some of both.

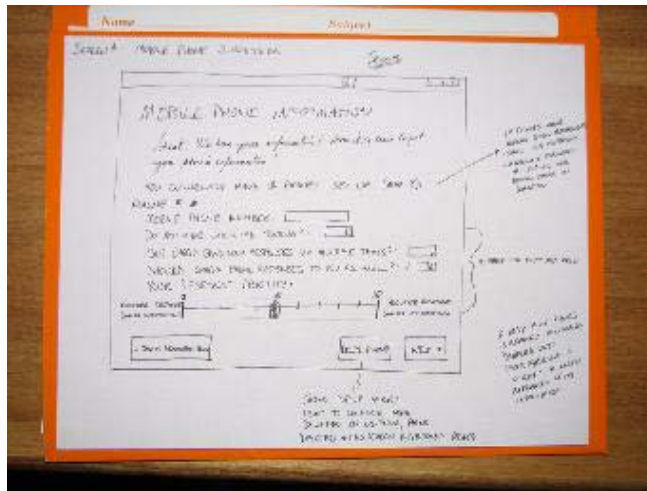
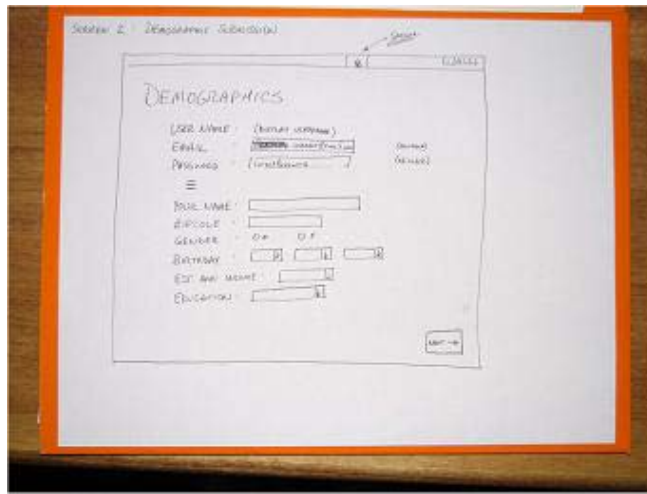
Appendix C: Consolidated Models



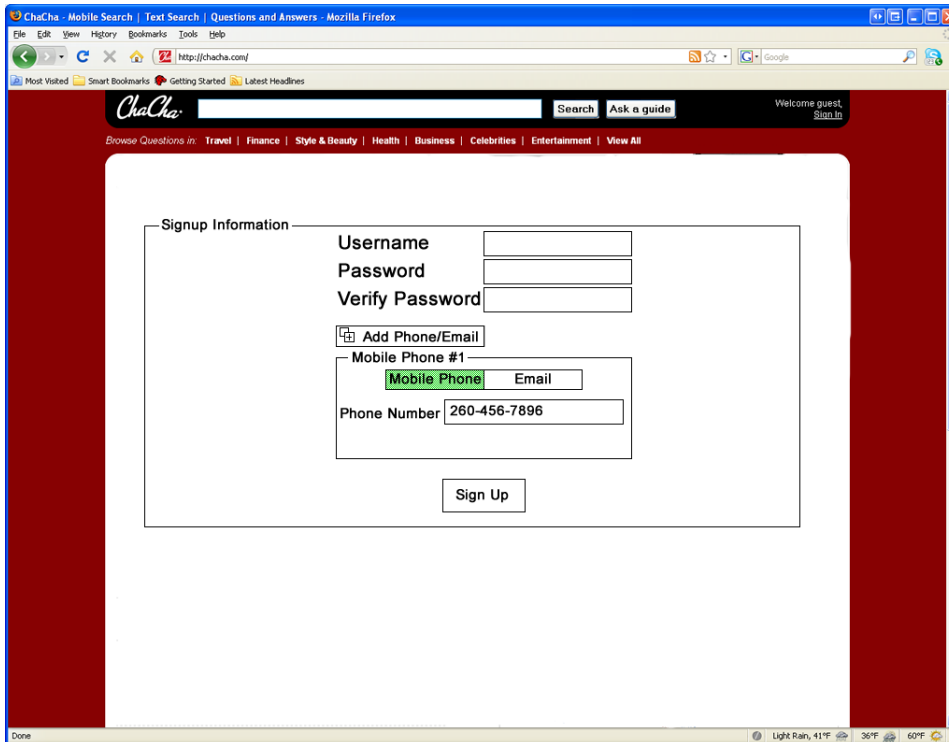
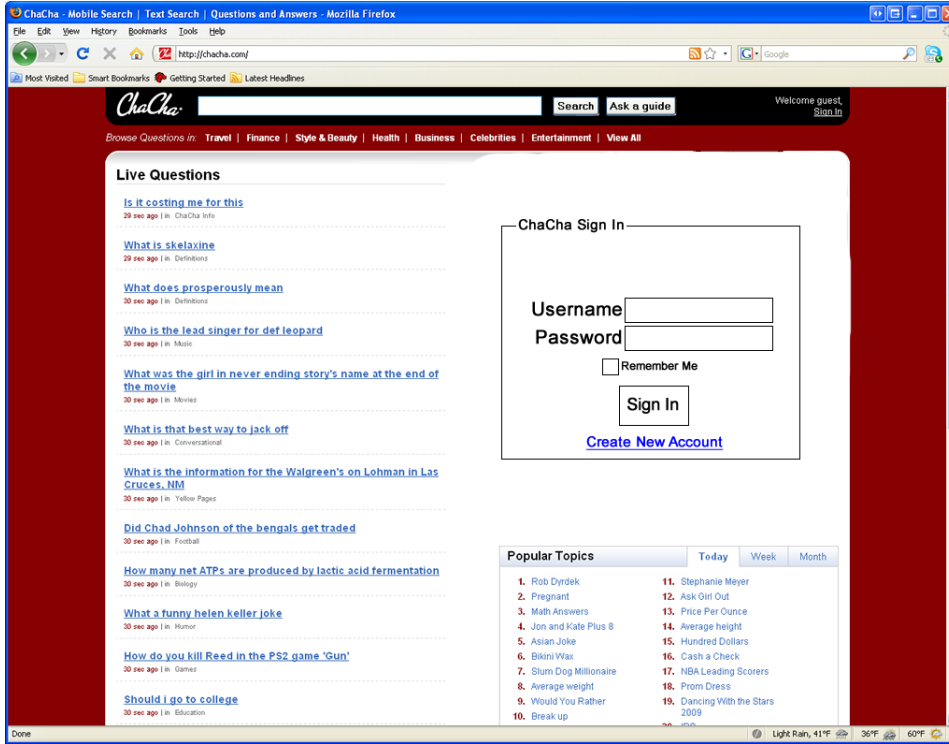


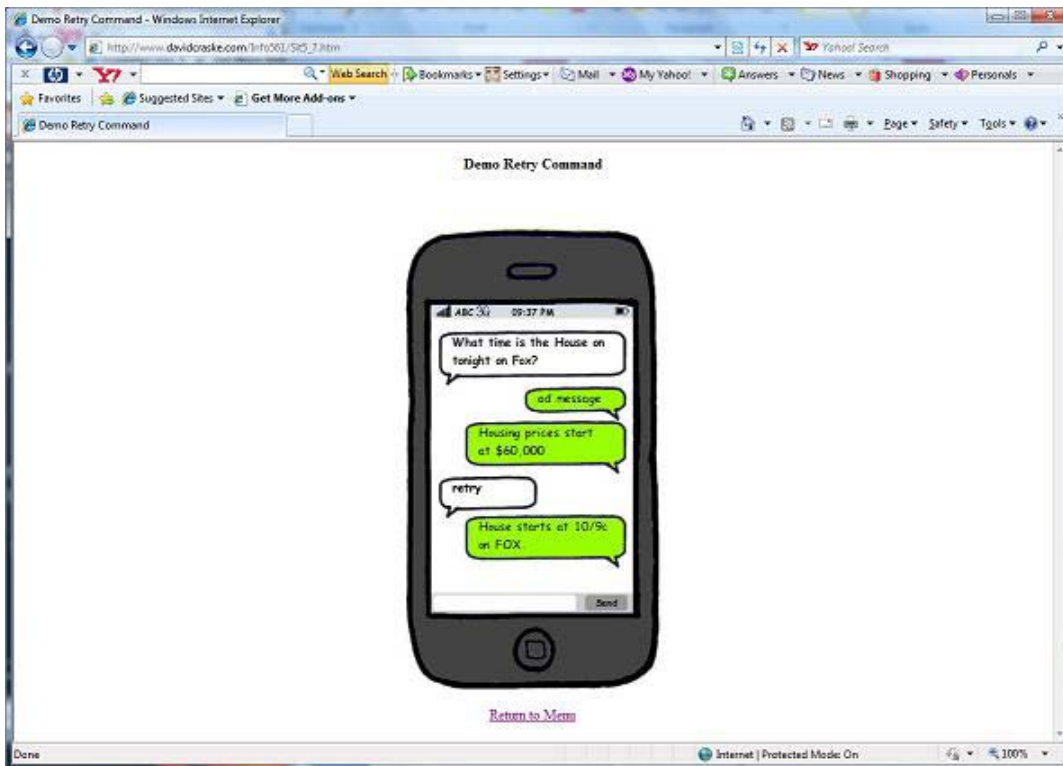
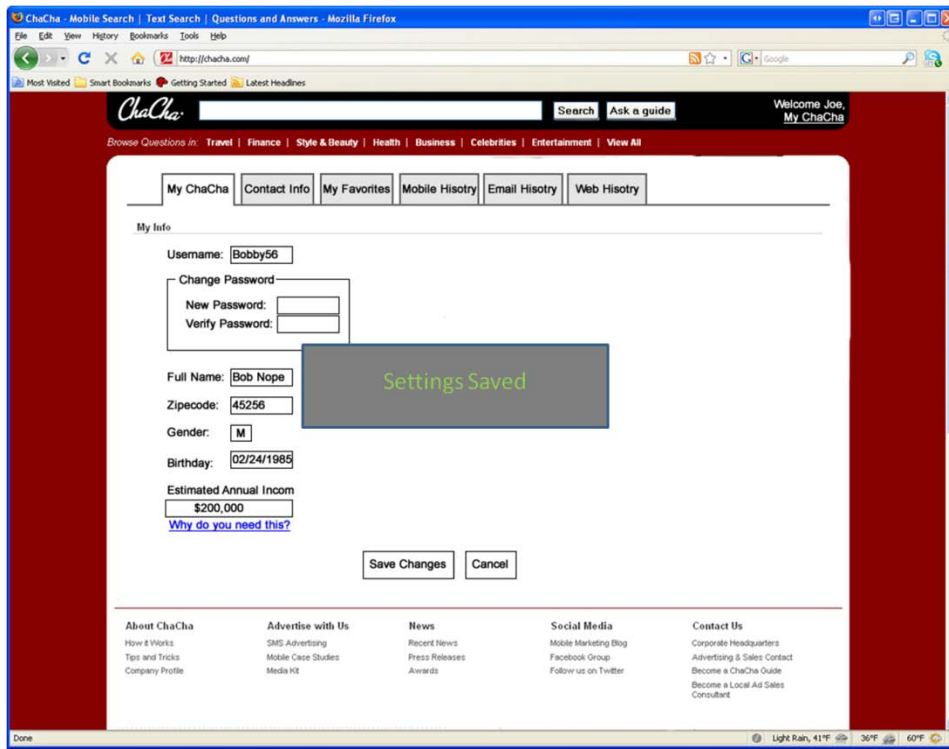
Appendix D: Low Fidelity Screenshot Examples

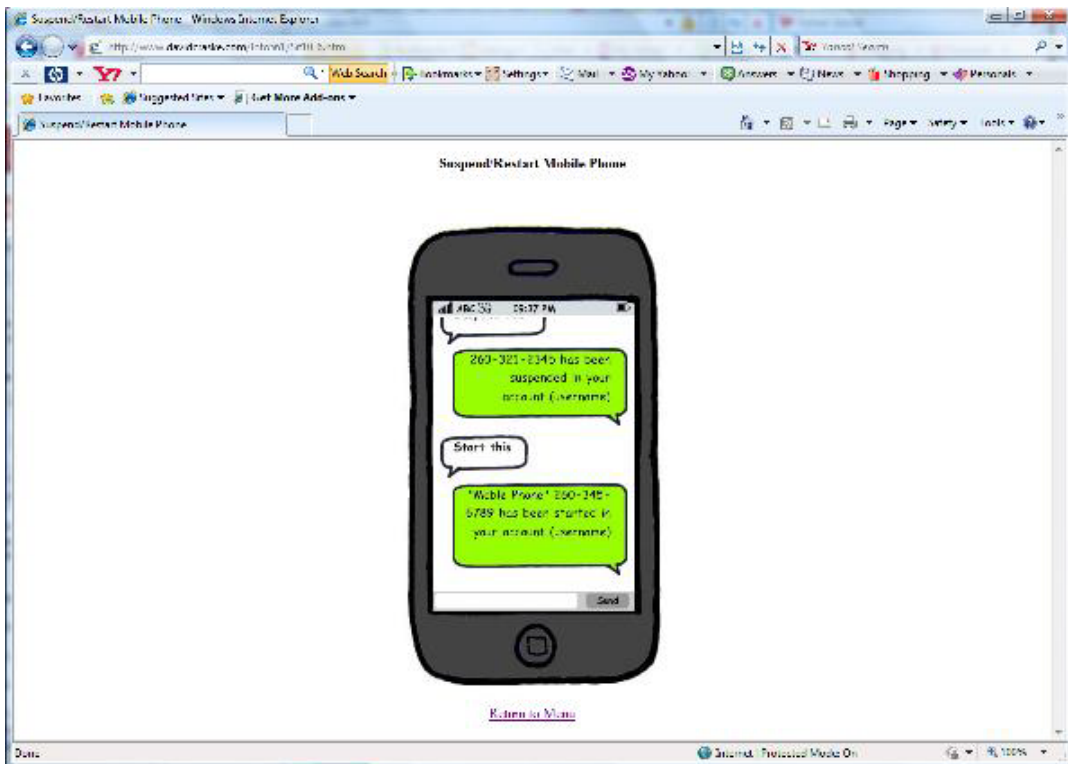
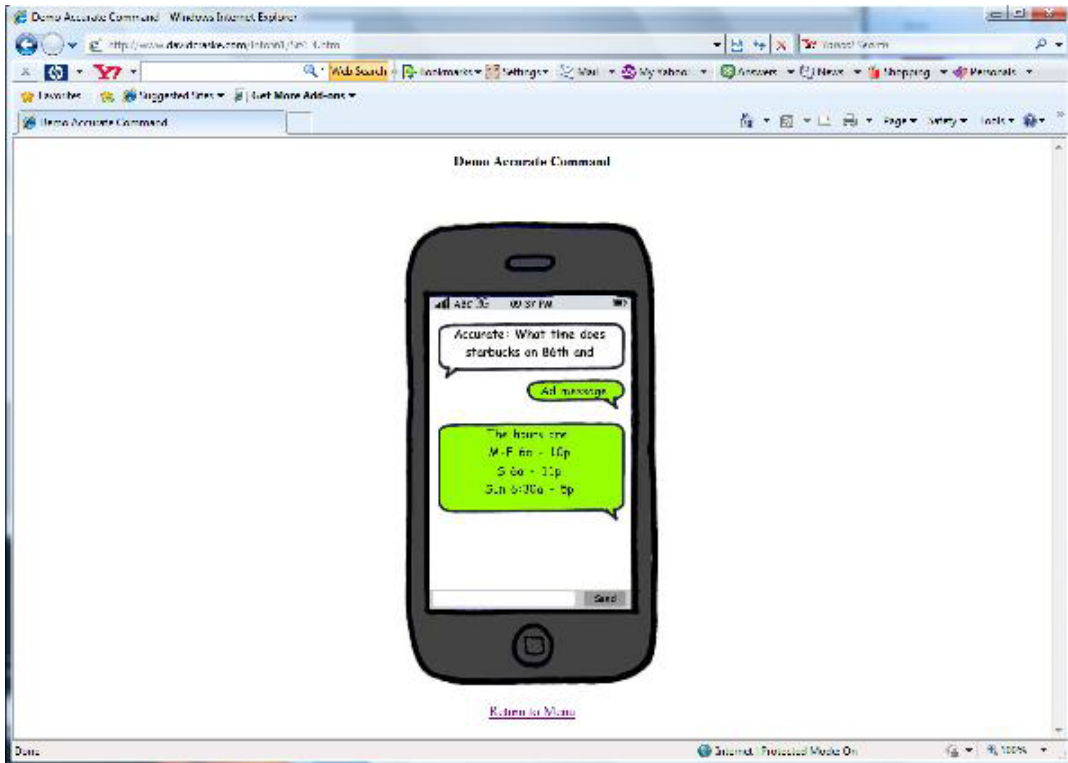




Appendix E: High Fidelity Screenshot Examples







Appendix F: Scenarios

Scenario 1: Request for information from ChaCha

Julia was driving south on 465 in Indiana. She was making a visit to Indiana University – her probable choice for college in the fall. She meant to print off directions from Yahoo before she left home in Fishers, but she forgot.

As she got farther away from home, she began to wonder if she remembered the exit number she needed to take for Bloomington. Lucky for her, she had her iPhone that her mom bought her as a bribe for choosing IU.

She pulled over into the breakdown land and texted her question, “What exit do I take off 465 West for Bloomington?” She sent it to ChaCha (242-242). In less than a minute, she got a message back with the number: 4. She felt better now that she knew.

She prepared to pull back into traffic, quickly glancing absentmindedly at the gas gauge. Oh s___! Not only did she forget the map, she forgot to get gas!!

She texted ChaCha again, this time to find the closest Marathon gas station (so she could use the gas card her dad gave her). She got a text back saying ChaCha was working on it. And she could get pizza at Pizza Hut cheap...

She was still waiting for her answer and getting more upset by the minute. Finally, she got a text saying the guide needed more information. Was she on 465 North or South at exit 42? She texted back South, and waited again. This time the answer came quicker – take the next exit and the station is 1 mile south of the ramp. She hoped there was nothing else she forgot!

Scenario 2: ChaCha as entertainment

Julia and Ian were working the Starbucks coffee counter in Target. Though it had been busy earlier, as the clock ticked toward closing time, customers were few and far between. They’d been able to get most of their closing tasks out of the way, so they were killing time arguing about who was the better barista. Ian decided to settle the argument definitively – by texting ChaCha. He was disappointed when the answer came back: Julia.


Having lost that battle, Ian suggested another topic: Who’s the better superhero, Batman (Julia’s pick) or Jason Bourne (Ian’s pick)? ChaCha’s response: Bourne has better moves, but Batman is hotter!


They decided to move on to philosophy: “Why do good people do bad things?” But ChaCha’s response wasn’t very satisfying – a strange poem ...


Next they tried to settle the question of whether or not J.K Rowling knew the plot of the last Harry Potter book before she wrote the first. ChaCha said, yes, probably, since she had planned twelve books at the outset.

As a follow-up, they asked if Stephanie Meyer had all the Twilight books planned from the beginning. ChaCha texted back that they had reached their limit so could not ask anymore questions that night. Aggravated, they moved on to reading the horoscopes in the paper that someone left.

Appendix G: Personas

	<p>Stephanie Kirkland</p> <ul style="list-style-type: none"> • College Student • 20 years old • Majoring in Education • Uses technology to mainly communicate with friends and to do homework
	<p><i>"I need to find the correct answer quickly"</i></p> <p>Stephanie mainly uses technology like email, SMS, Instant messaging, Facebook and Google. She likes to find out what her friends are doing.</p>
	<p>Key Attributes</p> <ul style="list-style-type: none"> • Concerned about find the answer • Doesn't mind taking time to find the right answer

	<p>Kevin Jacobs</p> <ul style="list-style-type: none"> • High School Student • 18 years old • Can't wait to get out of high school • Likes using technology to help solve problems
	<p><i>"I like using the internet because I can tailor my searches over time."</i></p> <p>Kevin has been using his family's computer since he was 5. He usually likes searching for answers to his problems, but he finds it might take a few tries to get the right answer.</p>
	<p>Key Attributes</p> <ul style="list-style-type: none"> • Refines web searches over time • Focused • Spends a lot of time figuring out issues

	<p>Stacy Stolen</p> <ul style="list-style-type: none"> • College Student • 23 years old • Majoring in Theater and Dance • Understands how to use technology, but doesn't like to use it all the time • Accused of having A.D.D
	<p><i>"I don't like searching I like finding"</i></p> <p>Stacy uses technology for research mostly and some entertainment. She doesn't like searching for information she likes quickly finding the answer. Technology isn't a main focus in her life, it is a tool to help her with her life.</p>
	<p>Key Attributes</p> <ul style="list-style-type: none"> • Impatient when using technology • It just has to work • Hates being ignored

Appendix H: Preliminary User Feedback

After developing the high fidelity prototypes, we asked two users to review the prototypes. Then we asked the subjects the following questions.

How do you feel about the idea of advertisers sponsoring questions to up the limit?

- JMS: I think it's a good idea. But I think the problem is manpower. They changed the limits to accommodate new users. That's my perception.
- ACM: good. It allows you to use it more often.

Would you try the sponsorship?

- JMS: I'd have to know exactly the information. I'm fine with age, gender, education level, zip code, but not income. I'd try it without the income bracket questions.
- ACM: yeah if I used it more.

Would you go through the longer form for profile so you could edit it?

- JMS: Yes. But I would probably not go back to modify it because it would be boring. I would only modify it from the phone if something big changed – like age.
- ACM: Yeah so that you can edit it.

Would you change accuracy, email response, zip code features on phone?

- JMS: Probably not. You have to log on and wait for it – it takes too much time. Phone is 4 times slower than internet in my perception. It would be too slow to do these things.
- ACM: yes, it would make it easier.

Did the prototypes make sense? Were they confusing?

- JMS: Made sense, just probably wouldn't use.
- ACM: No, all pretty self explanatory.

Even with the problems you've id'd with the ChaCha experience, would you keep using it the way it is?

- JMS: The limit is what prevents people from using it. The ability to text accuracy could work if it is not counted as another question. I don't care if I have to re-ask as long as there isn't a limit on questions.
- ACM: yeah, cause I didn't have any problems.

If the limit is THE problem, why won't you give all the demographic information?

- JMS: I'll give info but not income.
- ACM: I wouldn't want to give out that information.

Is there anything we could have done to make it easier?

- JMS: Increase character allotment. I want to be less bound by limit of technology. I believe the 160 character maximum is arbitrary. I've been told that for the same cost, they could use more characters. Not ChaCha, but the overall text-message model of the mobile phone industry.
- ACM: No I found it easy to follow.

Most useful new feature?

- JMS: Accuracy thing in initial profile set up.
- ACM: Accuracy

Least useful new feature?

- JMS: Longer answer to email. I don't have smart phone, so I wouldn't use it. And overriding defaults on phone. I probably wouldn't do that anyway. It would take too long – I'd look like an idiot doing a lot of texting. I'm confused by the mobile commands.
- ACM: Email, I don't really use email that much.

Anything else?

- JMS: The ingenuity of ChaCha is having humans do it. I think saying 'Accurate' is redundant – they already do it.
- ACM: Nope

Appendix I: Diary Study Form

Below is the actual Diary Study Form test participants recorded their entries in. This online form was generated by Google Docs feature, which can be found at <http://docs.google.com>

Thank you for participating in our diary study on how users interact with ChaCha's Text Message Service (242-242). We are collecting valuable information to present to ChaCha to help them create and present to you, the user, the best user experience possible.

Required answers are in red.

Your Initials: This will anonymously identify you and your submissions
Response given via text box submission

Question Asked: What question did you ask ChaCha to answer for you?
Response given via text box submission

Question Reason: Was there any particular reason you asked this question to ChaCha?
Response given via text box submission

ChaCha's Response: What did the ChaCha service respond with?
Response given via text box submission

Accuracy: Was ChaCha's response accurate for what you were looking for?

- Yes, it was exactly the answer I needed
- Yes, but I think there was a better answer
- No, ChaCha's answer did not properly answer my question
- Other (*text box submission to explain*)

Accuracy Followup: If ChaCha didn't answer your question, did you find out on your own?

- Yes, I used the Internet on my cell phone
- Yes, I used the Internet on my computer
- Yes, I asked a friend
- No, I was too busy to find my answer
- No, my answer was not important at the time
- Other (*text box submission to explain*)

Location: Where were you located when you asked your question (work, home, school, car, store, with friends, alone, etc.)?
Response given via text box submission

Timing: Approximately what time did you ask your question?

- Pre-Morning (Midnight-6am)
- Morning (6am-11am)
- Lunchtime (11am-1pm)
- Afternoon (1pm-5pm)
- Dinnertime (5pm-7pm)
- Evening (7pm-Midnight)