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UX RESEARCH PORTFOLIO | 2017

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PERSONAL STATEMENT

I am a UX Design Researcher with nearly a decade of experience exploring how people engage with technology. I employ methods from surveys and interviews to natural language processing and statistical analysis to surface design requirements and provide useful insights into user attitudes, values and behaviors. My design work has had impact in industry and academia, resulting in patents for new technologies, a smartphone application, peer reviewed publications and even a new design technique.

My work has touched on a breadth of topics, but is unified by a desire to allow users to express themselves through technology. I am looking for opportunities that put my research experience to use, developing systems that require an appreciation for the complexity of human behavior and the technology that supports it. I thrive in environments that allow me to employ a variety of approaches when exploring people's behavior, mental models, and values. I hope to challenge myself and want to be in an environment where creativity and diligence are rewarded.



HARMONIZER

Context-Aware Music Recommender

HARMONIZER

WITH SO MUCH MUSIC NOW
AVAILABLE, HOW CAN YOU
FIND THE RIGHT SONG FOR THE
RIGHT OCCASION?

Technology has enabled a proliferation in the availability of music, making it possible to find music for any occasion. To aid users in discovering music that fits the occasion, researchers have focused on improving recommendation algorithms or leveraging user contexts to create personalized recommendations. While these approaches have improved music recommendations, how users feel about their context, and how this influences music's appropriateness for that context, has largely been overlooked. To address this challenge, my collaborator and I designed and developed a music recommender system that enables users to personalize contextual recommendations. We call this system **Harmonizer**.

To evaluate Harmonizer I conducted a two-phase study. In the first phase, I conducted an online evaluation of interface concepts with 61 participants. We then designed and developed a system that allows users to negotiate the relationship between their context and recommended music. The field evaluation found participants preferred playlists created using the system to playlists created using contextual or traditional recommendation techniques alone. Harmonizer therefore offers a new opportunity to create playlists that accommodate people's tastes for changing contexts.

HARMONIZER

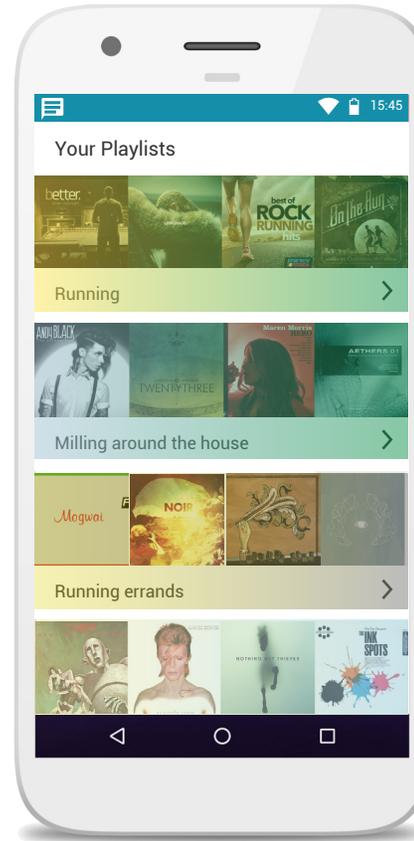
Solution Overview

MUSIC AND CONTEXT LOGGING INTERFACE



GENERATE PERSONAL,
CONTEXTUAL PLAYLISTS

RECOMMENDER INTERFACE



TRACK YOUR MUSIC AND CONTEXT

Harmonic automatically tracks the music that users listen to and then allows them to log their location and mood when then listened to the songs. They can also add labels, which are used to create playlists.

CONTEXT-AWARE RECOMMENDATION

Based on the user's listening history, the system creates playlists that are connected to where, how, and how they felt when they listened to the music.

DYNAMIC PERSONALIZATION

Once the playlists are created, Harmonizer will suggest playlists for users based on music they listened for a similar context.

HARMONIZER

User Research

HOW DO PEOPLE VIEW THE RELATIONSHIP BETWEEN MUSIC AND THEIR CONTEXT?

To investigate how people view the relationship between music and context we asked 10 groups of two participants to discuss how they would decide what music was appropriate for two different contexts, a party and a quiet evening with friends. We then analyzed the participants conversations and discovered the following key findings. (All names used are pseudonyms from the study).



Conceptual blending or “generating”

Participants combine familiar genres or features of music to generate appropriate music for their context.

Bonnie: “probably beats that aren’t too hard, not too many wubs lol”



Music and activity co-create context

Participants used their activities to establish their context and the fit to music.

Dan: “ok well specifics aren’t super important. we can mix in Sinatra or Ella Fitzgerald too. The important thing is what are we going to be drinking”



Location is more than where you are

Participants drew on location to suggest the ambiance and styles of music that they liked when suggesting music.

Ian: “yeah like [a local club]. I went to a few clubs downtown and they play stuff that”

HARMONIZER

Secondary Research

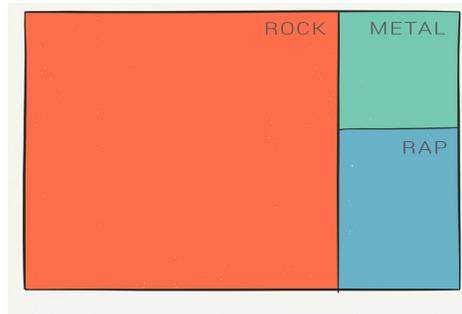
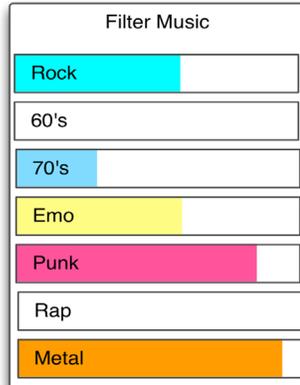
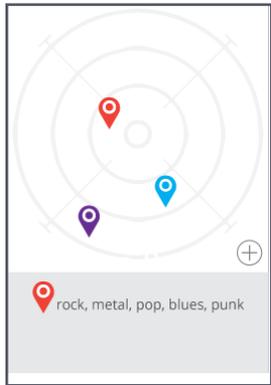
HOW CAN WE IMPROVE THE DESIGN OF CURRENT MUSIC RECOMMENDER SYSTEMS?

In addition to user research, we conducted a comprehensive review of current recommender systems in industry and academia. While a variety of systems exists, most use a similar set of techniques to produce recommendations. Furthermore, we found that, none allow users to negotiate the relationship between music and their context. Below is a table that summarizes these techniques.

	LISTENING HISTORY	MUSICAL FEATURES	SONG METADATA	USER LOCATION	LISTENER CO-PRESENCE	USER MOOD
SPOTIFY	X					
APPLE MUSIC	X					
GOOGLE MUSIC	X			X	X	
PANDORA	X	X				
LAST.FM	X		X			
MUSICFX					X	
JUKOLA				X	X	
BLUETUNA						
MOODMUSIC	X		X		X	X
PERSONAL DJ		X				X
POCKETSONG	X			X	X	

HARMONIZER

Ideation

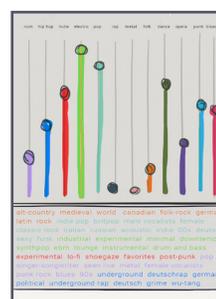
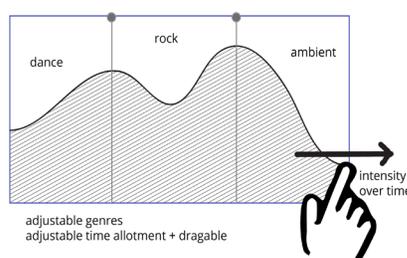
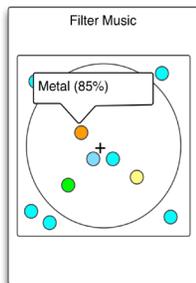
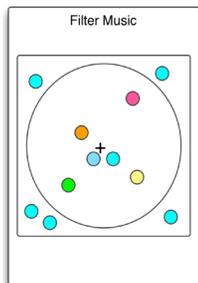
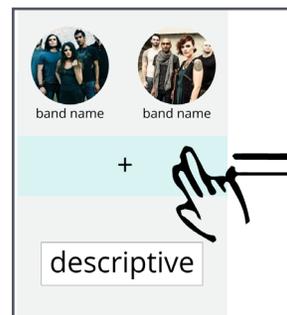
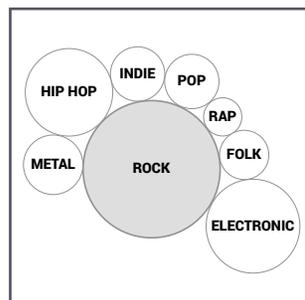
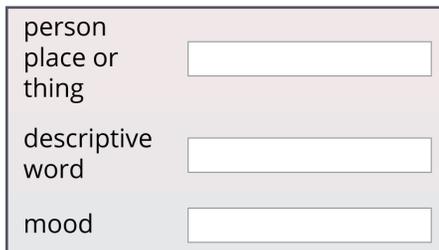


DIRECTED SKETCHING

Based on the principles developed through our research, we sketched dozens of interfaces that best captured the strategies participants use to communicate the relationship between music and context.

CONCEPT REFINEMENT

We then informally discussed the sketches to determine how well they aligned with the design principles. Ideas that we felt were better aligned we conducting additional rounds of iteration with.

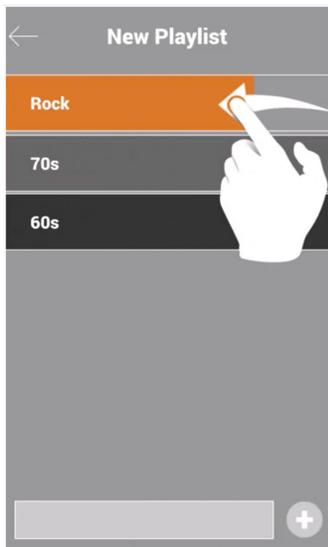


HARMONIZER

Online Feedback

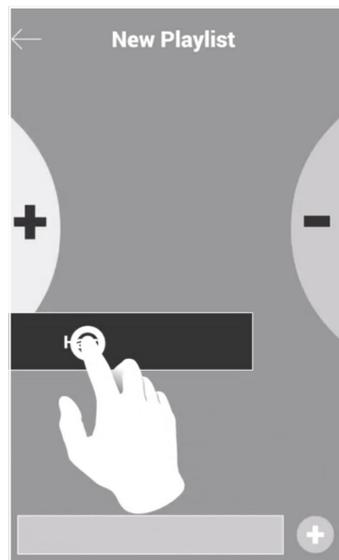
WHICH INTERFACE DESIGN DO USERS PREFER?

After ideation, we created mockups of three of the most promising interfaces and 30-second videos of how each interface operated. We then created an online survey and asked participants to rate each interface and choose their favorite. Below are mockups of each interface evaluated.



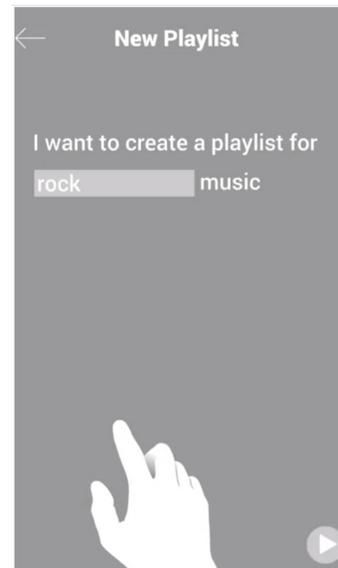
Graded

Users can adjust the weighting of tags to refine the playlists produced.



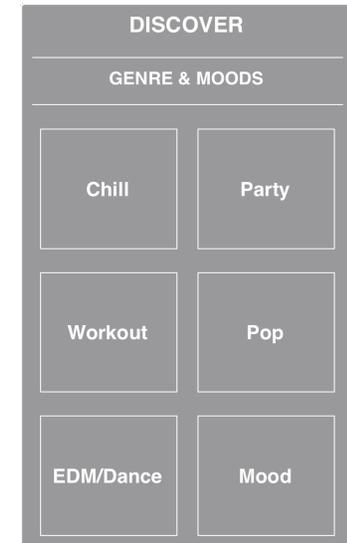
Generator

Allows users to add and subtract tags to create playlists.



Scenarios

Users can create scenarios with tags to generate playlists.

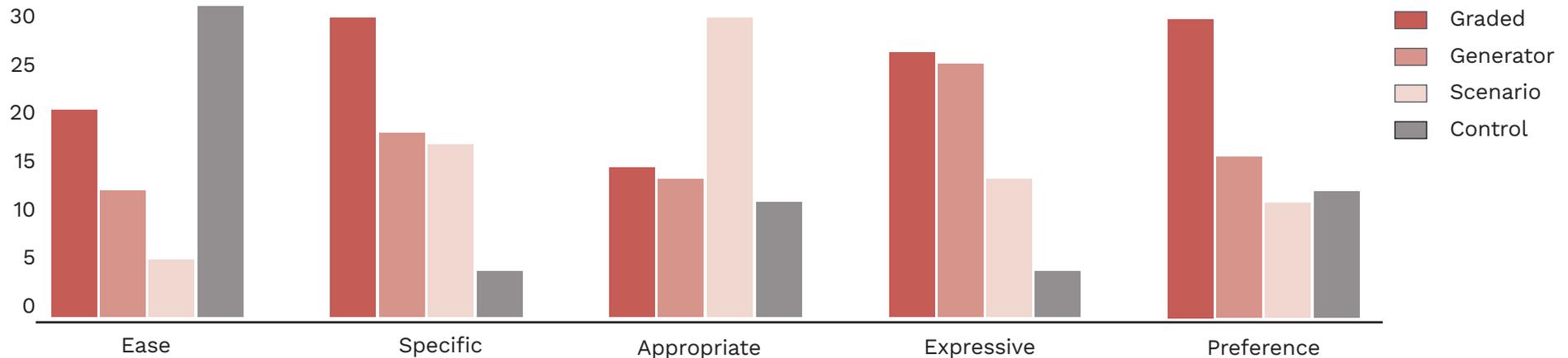


Control

We also created a mock-up of an interface based on the current Spotify mobile interface.

HARMONIZER

Online Feedback



The Graded interface was widely preferred

Participants overwhelmingly preferred the Graded interface as their overall choice.

P21: *“To me it just seems like the best. Perhaps not the simplest option - but I personally love giving weight to each category and adding or subtracting percentages of what I’d like from each tag/genre/subgenre”*

Make it specific and expressive, but easy

The reason the Graded interface was preferred overall was likely because it was best at balancing ease, specificity, and expressiveness. This sentiment is best summarized by a participant who stated:

P60: *“The [Graded] is the most unique - and I think it would be the most effective at making playlists I’d want without sacrificing simplicity or spending too much time.”*

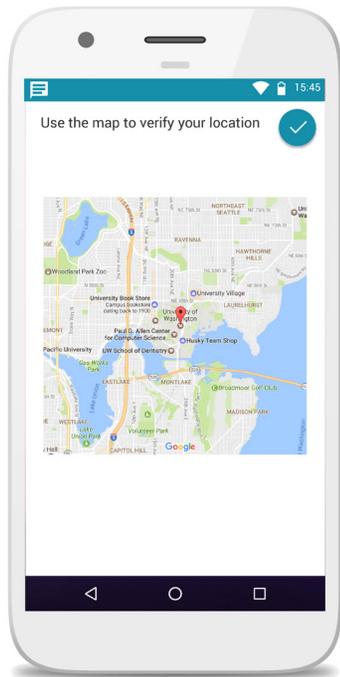
Specificity matters, but not to everyone

Participants felt that having a high degree of specificity matters, but not everyone shared this sentiment. In general it seems that being more specific should be possible, but shouldn’t be mandatory.

P28: *“I like the ability to make known what I dislike. A lot of genres overlap or are similar - but I might want to exclude triphop but keep hiphop - for example. In the other interfaces I think I would be stuck with both”*

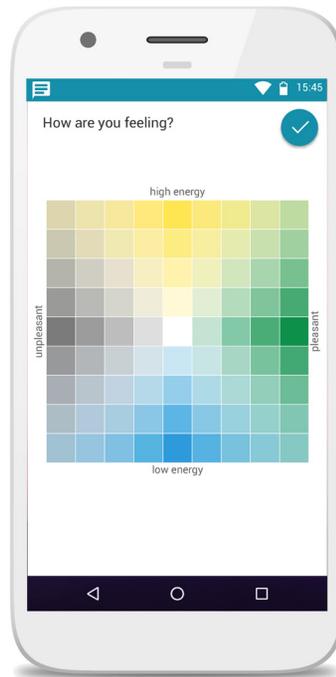
HARMONIZER

System Design



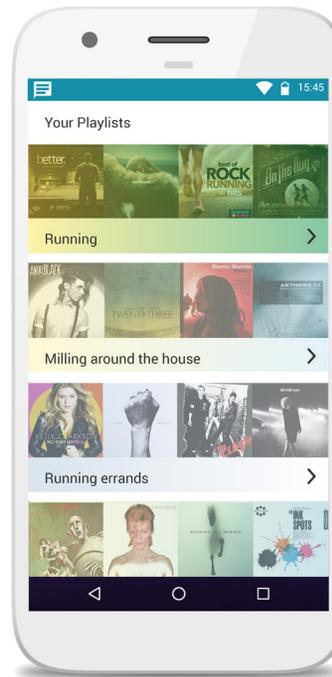
Map

The map page uses GPS to determine the user's locations.



Mood

On the mood page, the participant can quickly report their mood with just one click, using a modified version of Affect Grid.



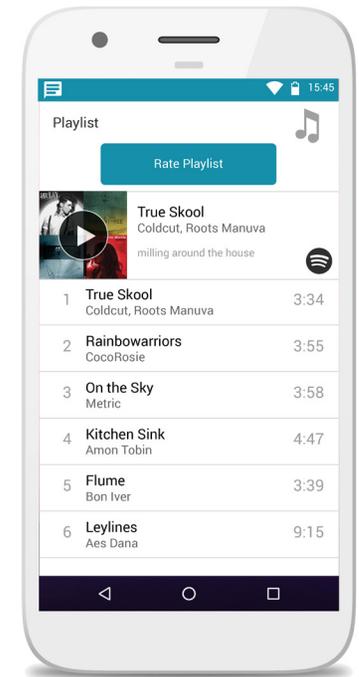
Context playlists

Based on their location and mood, the system will suggest a playlist, but they can pick whichever playlist they'd like. These playlists are generated using their prior listening and contextual history.



Refinement

After the participants select a playlist, the top songs from that playlist can be used to weight the songs that will appear in the final playlist.



Playlist

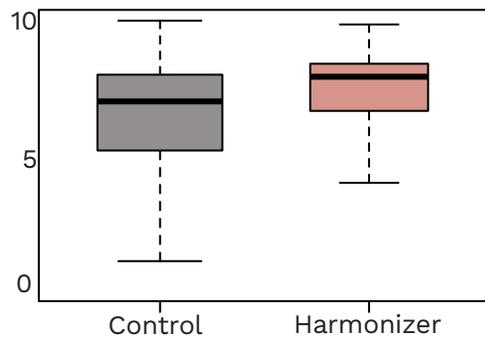
The system then generates a playlist for the user based on the context they suggested and their additional weighting. The playlist is also added to their Spotify account.

HARMONIZER

Evaluation Findings

DOES HARMONIZER IMPROVE MUSIC RECOMMENDATIONS?

To evaluate Harmonizer we conducted a three week long user study with 12 participants (nine males, three females, ages 18-29). The participants were all University of Washington students that listened to more than 3 hours of music daily. During the evaluation the participants were asked to listen to music normally for two weeks to generate their personalized playlists. Then in the final week they listened to and rated the playlists we created. During the final week of the study, they were randomly shown a control interface for our evaluation. The main findings are listed below.



Participant preferred Harmonizer playlist

Participants rated the playlists created using Harmonizer as significantly more enjoyable than those from a control interface ($p=0.018$). However, there was no significant difference between contextual and non-contextual playlists.

Participants liked using the interface

Based on interviews conducted after the study, the participants felt that the system was fun and satisfying to use.

P11: *“It was kind of satisfying to be able to smoothly scroll... it seemed very fluid. There weren’t check marks saying ‘do you want this song or not!’ It was on this scale, so I like this aspect of it”*

The interface was useful for discovery

The participants stated that while the system was useful to create refined playlists, it also was helpful for discovering new music.

P12: *“It pushed for a lot of older music that I had never listened to before that was all in the same ball park and I really really enjoyed it. I think like, a whole bunch of Cool ‘N the Gang. I had never listened to it before, but because I was listening to Stevie Wonder and it was like, “maybe you’ll like this” and I loved it.”*

HARMONIZER

CONCLUSION

The design and evaluation of Harmonizer suggests that the interface was useful in improving participants' enjoyment of the recommended songs more than songs for their context alone. Participants also found the interface to be useful for refining and discovering music for their context. These findings indicate that providing participants with an interface to personalize their recommendations for their context is a promising technique to improve the design of future context-aware recommender systems. However, accomplishing this relies on carefully choosing the technique employed by the interface such that it is easily interpreted by user. Thereby providing a language to negotiate the relationship between their context and the recommendations.

TRIA

Dynamic Personalization for Intelligent Agents

TRIA

HOW CAN USERS' MEANING BE CONVEYED TO THE TECHNOLOGIES WE DESIGN?

The increased prevalence of technology in our lives has encouraged a rethinking of how technology is designed and developed. Where the focus of human-computer interaction was once on improving efficiency, there is growing awareness that the focus should shift to the user's relationship with technology.

This shift has also emphasized the importance of understanding the situated nature of meaning and meaning making. This reorientation toward our relationship with technology and meaning making leaves open an important question, "how can the user's meaning be conveyed to the technologies we design?" To explore this question I conducted a series of interviews with individuals about their use of computer mediated communication with members of their social circle and with intelligent agents. I then developed a prototype intelligent agent called TRIA as part of an ongoing study of interfaces to communicate situated meaning.

HOW DO PEOPLE PROVIDE RECOMMENDATIONS TO MEM- BERS OF THEIR SOCIAL CIRCLE?

To begin this project we were interested in investigating how people understand and use intelligent agents. Furthermore, we wanted to see if we could deconstruct users' interaction through technology to understand what an intelligent agent might need to know to relate to its user. To begin this study, I conducted eight interviews (four females and four males, age 25-55). The interviews lasted 60-90 minutes. Participants provided four examples from the previous two months where they used computer mediated communication (CMC) with friends or family members. Below is a summary of the main findings.

Personality is multifaceted

In each of the interviews the participant emphasized that their personality is multifaceted. Recommendations that drew on prior searches, or narrowly focused on the specific aspects of their behavior, were viewed as missing the “bigger picture” of the participant’s life.

P06: *“I have all of these different spheres in my life and if you focus on only one you miss the bigger picture.”*

Context influences decisions

The majority of participants felt that recommendation systems also failed to recognize how changes in their context influenced what recommendations would be helpful or useful.

P04: *“I change a lot, sometimes I want to work out other times I want to go to the pubs.”*

Recommendations should be transparent

The final theme we encountered was the importance of understanding and influencing how recommendations were produced.

P01: *“I think if you could plug parameters into a recommendation system that would be nice.... I mean maybe there are parameters for searches. I’m sure that there are, but they’re just not necessarily accessible to those of us that aren’t particularly familiar with it.”*

TRIA

Interface Design



MOOD BOARDS

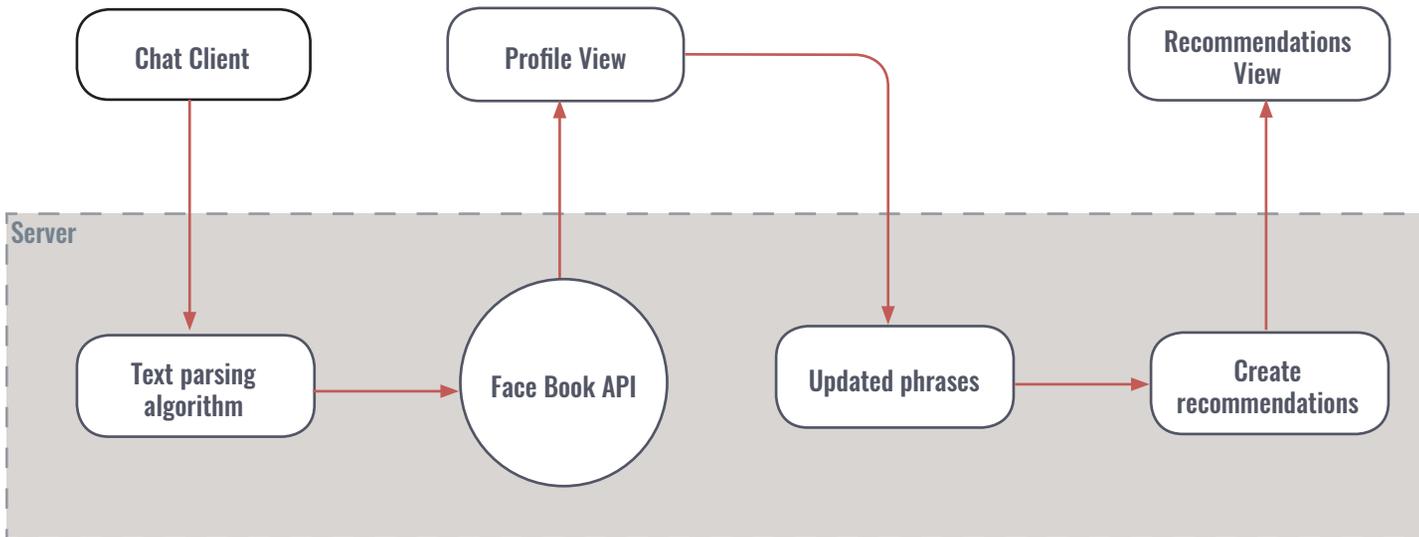
While iterating on designs to address the themes surfaced by the user research, I became interested in a common design artifact: the mood board. Mood boards are a useful tool to communicate multifaceted concepts. Unfortunately, the image does not have any inherent meaning to a computer, but the image's metadata could. To account for this I created dynamic mood boards by searching the facebook API for phrases and then taking the images from the corresponding pages. Doing this provides a set of curated images with consistent metadata. Searching Facebook for pages also allowed me to filter out useless phrases.

I mocked up mood boards using JQuery, Python, and some light-weight language processing techniques. I used Python to parse my chat log for important phrases. I searched the Facebook API for corresponding pages and scraped the images from the page. I then used JQuery to dynamically generate the mood boards.

HARMONIZER

System Overview

Application



INTERACTION MODEL

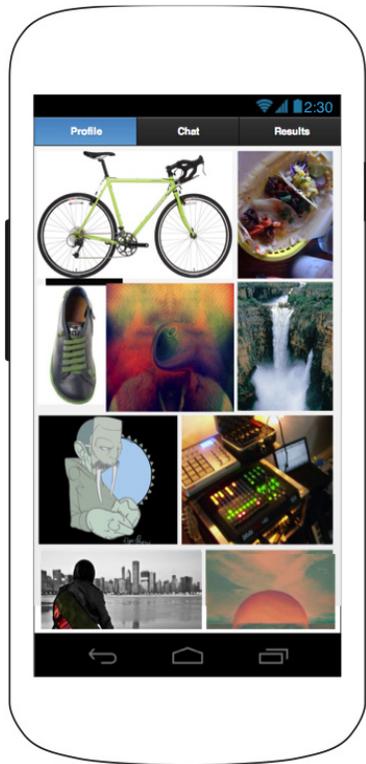
With mood boards as an organizing design metaphor for how interfaces could reflect users' multifaceted views, we explored several options to facilitate the creation of the mood boards including scraping user's social media for images or keywords. Ultimately, we opted to focus on user conversations. This approach was appealing because language is such a rich resource for contextual meaning-making. It also allowed us to clearly scope the context to the user's conversation.

At this point, we felt that the concept for the system began to unify:

A recommender system that allowed users to chat with members of their social circle. Using text parsing and filtering through social media we could then choose key words and passively visualize the conversation.

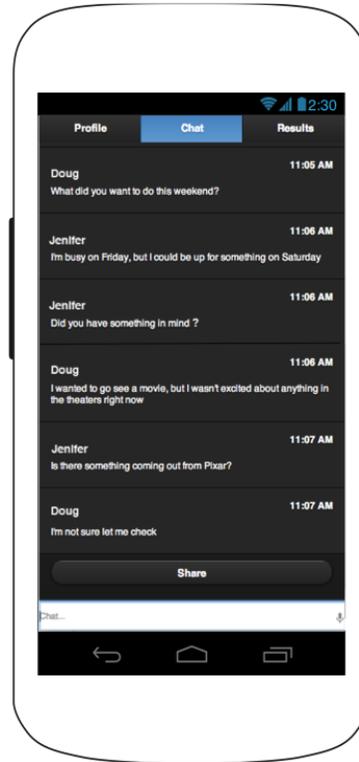
TRIA

System Design



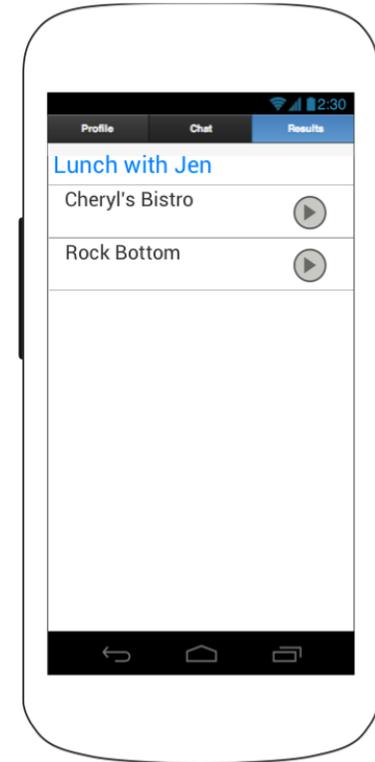
Profile view

After the initial round of creating mood boards, I set out to create an interactive prototype to further evaluate the idea. I worked with a developer to prototype an application that had a dynamic mood board interface I called the profile. Information in the profile came from text the user entered into the integrated chat client.



Chat client view

The main component of the application was a websocket based chat client. While users chatted, their conversation was parsed for keywords in real time. The phrases that were selected were added automatically but could be updated by the user.



Recommendations view

The system then provides recommendation for restaurants based on the user keywords. To create the association between the restaurant types and keywords, I used Mechanical Turk to collect hundreds of responses associating restaurant types from Yelp and keywords.

TRIA

User Evaluation

HOW DOES THIS MODEL FOR AGENT INTERACTION RESONATE WITH USERS?

To investigate I conducted a lab evaluation with 16 participants (eight groups of two). The groups were recruited as dyads and thus knew each other prior to the study. The participants had an open-ended 30-minute chat conversation using the application. At the end of their conversation, the application made restaurant recommendations, which they rated. Below are some of the key findings.



Not too invasive

Several of the participants felt that the systems was useful without feeling too invasive.

P05: *“I would really enjoy that. Knowing that it’s generating things based on what you’re writing, but it’s not popping up.”*



Transparency was helpful

Some participants saw utility in the mood board interface.

P04: *“I use Google Now and it’s really hard to tell it to ‘Stop!’. So seeing the profile and being able to say ‘No not that’ to train it is a nice feature.”*



Provided some unexpected options

Several participants liked that the system surfaced unexpected options.

P01: *“I could especially in reference to restaurants... Talking about different ideas that you have and having it pop up different things around you would be really beneficial. Because it could give you a lot of new options as well!”*

TRIA

CONCLUSION

TRIA offers an interesting opportunity to visualize and communicate how intelligent agents use user data to create recommendations. From our evaluation we learned that users are open to this interface design as a mechanism in principle. However, even though the initial positive reception was encouraging, a longer deployment is needed to evaluate the system in naturalistic settings. Future work should also explore how the terms are gathered and visualized.

IMPACT AND OUTCOME

The concept behind TRIA was patented by Intel in 2014:

System for adaptive selection and presentation of context-based media in communications

<https://www.google.com/patents/WO2014149520A1?cl=en>

The application was also featured on Geekwire:

This app studies your text messages to recommend restaurants

<https://www.geekwire.com/2013/this-app-uses-your-text-messages-to-recommend-restaurants/>

SHUTEYE

Encouraging Reflection on Healthy Sleep Practices

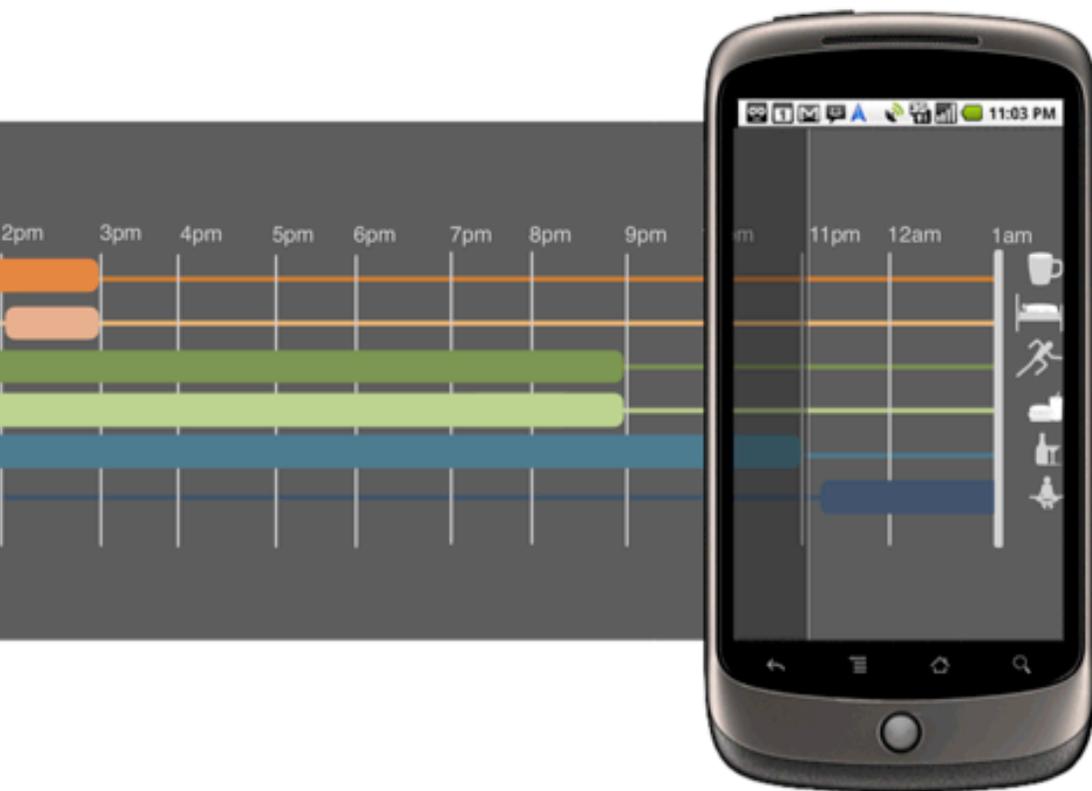
SHUTEYE

HOW CAN WE ENCOURAGE REFLECTION ON HEALTH SLEEP HABITS?

Sleep is a basic physiological process essential for good health. However, 40 million people in the U.S. are diagnosed with sleep disorders, with many more undiagnosed. To help address this problem, we developed an application, ShutEye, which provides a peripheral display on the wallpaper of the user's mobile phone to promote awareness about recommended activities that promote good sleep quality. Based on preferences about the user's desired bedtime and activities—for example, consuming caffeine or performing vigorous exercise—ShutEye displays guidance about when engaging in those activities is likely to affect sleep without requiring any explicit interaction from the user. In this paper, we describe ShutEye and results from a four-week field study with 12 participants. Results indicate that a simple, recommendation-based peripheral display can be a very low-effort but still effective method for improving awareness of healthy sleep habits. We also provide recommendations about designing peripheral displays and extend insights for designing health-based mobile applications.

SHUTEYE

Solution Overview



PERIPHERAL SLEEP AWARENESS

ShutEye's peripheral display consists of a timeline with horizontal bars representing activities that impact sleep. Thick bars indicate when an activity is unlikely to negatively affect or likely to improve sleep; thin bars represent when an activity is not recommended. The vertical bar updates automatically to indicate current time.

ShutEye's interactive application allows users to specify preferences and learn more about sleep recommendations. In the interactive application, colored icons represent activities that will be displayed on the peripheral display. The information on the display updates according to sleep specialist recommendations.

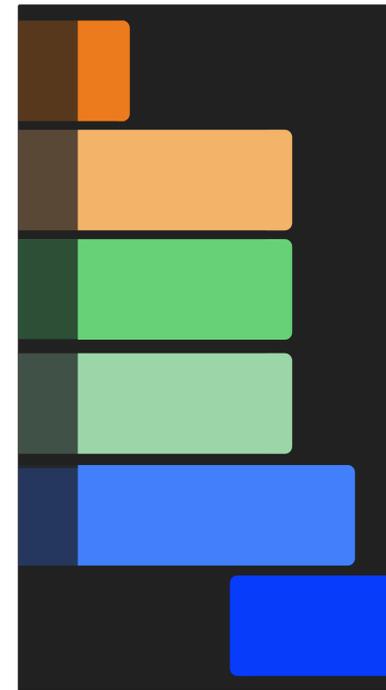
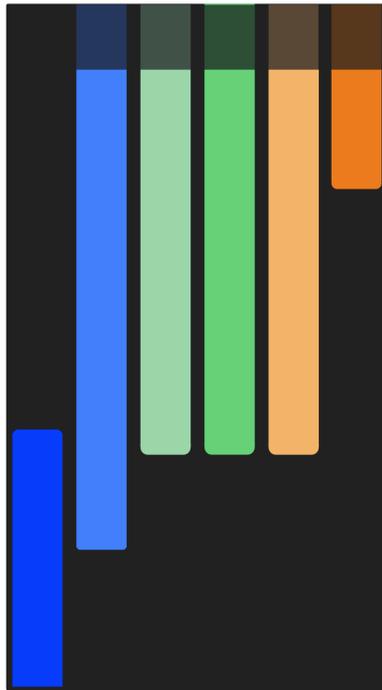
User's can customize their sleep activity recommendations and manage their desired sleep schedules. Furthermore, each sleep activity contains information from the sleep literature explaining why the application has specific settings.

SHUTEYE

Ideation

HOW CAN WE EFFECTIVELY COMMUNICATE SLEEP HABITS?

One of the major considerations when designing ShutEye was how to effectively and easily communicate when users should engage in or avoid different sleep influencing activities. Before converging on the timeline design metaphor for the peripheral display, we considered several other designs. This included other metaphors for time, such as a polar clock and an hourglass. We also created mockups for more skeuomorphic depictions for the recommendations. We conducted informal usability tests to evaluate the competing design and converged on the horizontal timeline design, because it was scalable and was found to be the easiest to quickly interpret.



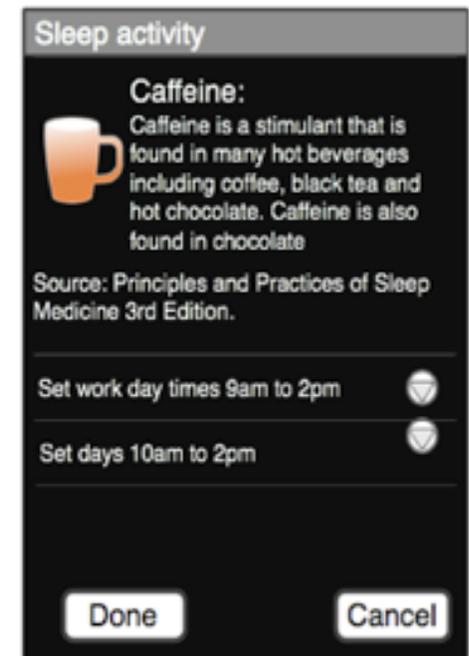
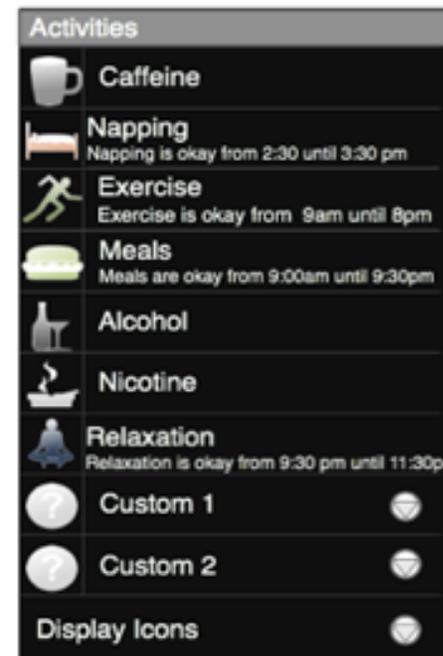
SHUTEYE

System Design



Peripheral display.

ShutEye's peripheral display consists of a timeline with horizontal bars representing activities that impact sleep. Thick bars indicate when an activity is unlikely to negatively affect or likely to improve sleep; thin bars represent when an activity is not recommended. The vertical bar updates automatically to indicate current time.



Interactive sleep recommendations

ShutEye's interactive application allows users to specify preferences and learn more about sleep recommendations. The colored icons represent activities that will be displayed on the peripheral display. User's can customize their sleep activity recommendations and manage their desired sleep schedules, but contains information from the sleep literature explaining why the application has specific settings.

SHUTEYE

Evaluation Findings

CAN A PERIPHERAL DISPLAY IMPROVE REFLECTION ON HEALTHY SLEEP HABITS?

To investigate this question, we conducted a month-long field deployment with 12 participants. We recruited 12 adults, eight females and four males, with a self-reported desire to improve their sleep. We conducted pre and post interviews with the participants to discuss their sleep quality and use of technology. During the field deployment the participants used ShutEye as the wall-paper on the phone and we logged their use of the application. Below is a summary of the findings.

Adherence to recommendations

Our results indicate that ShutEye encouraged at least some short-term behavior change.

P06: *“For the first week [ShutEye] absolutely made me more aware of...keeping the caffeine earlier in the day, if I could. And then for the rest of the month it was...in the back of my mind at least, if not in the forefront of my mind about drinking coffee, like, before three. So it did something.”*

Awareness of sleep habits

Nearly all of the participants (N=11) said that it made them think more about sleep, what contributes to quality sleep, and be more cognizant in general of what affects sleep.

P08: *“I think that this particular app has definitely made me a lot more cognizant of the choices that I’m making. I mean, I’m obviously not going to always follow it to the letter because things happen. So if I’m out with my friends until two o’clock in the morning on a Saturday night, I’m out until two o’clock in the morning. But yes, I mean it definitely made me kind of think twice sometimes when I’d be like, ‘I should get a soda. No I shouldn’t.’”*

Competing sleep concerns

Several participants mentioned that their hectic schedules impacted their sleep, especially for participants who have more than one job.

P01: *“To some extent, my work schedule has helped cause problems with that, you know, because some mornings I’m up at three in the morning and some mornings I’m not in bed until three in the morning. Working security, you’re there until things shut down and clear up. And then sometimes I’ll be wired after I get done doing security. And then when I work at the law firm, I’m up at three in the morning to catch the bus to go to the law firm. So my body’s not necessarily sure what to think about that.”*

SHUTEYE

CONCLUSION

ShutEye was designed to promote mindfulness about how activities that users perform throughout the day may disrupt their sleep. ShutEye uses a glanceable peripheral display on the wallpaper of the user's mobile phone to present a timeline of temporally relevant sleep hygiene recommendations that are derived from the sleep literature and the user's preferences. The goal of ShutEye was to explore whether lower burden but lower accuracy health displays could still be effective. Results from our four-week field study indicate that ShutEye's peripheral display can increase awareness and mindfulness of healthy sleep habits.

IMPACT AND OUTCOME

ShutEye was presented at the 2011 International conference on Human-Computer interaction:

ShutEye: encouraging awareness of healthy sleep recommendations with a mobile, peripheral display

<http://dl.acm.org/citation.cfm?id=2466258>

The application is still publicly available in the Google Play store:

<https://play.google.com/store/apps/details?id=com.shut-eye&hl=en>

DESIGN LIBS

A New Method for Conducting Ideation with Remote Users

DESIGNLIBS

HOW CAN DESIGNERS ENGAGE WITH USERS TO QUICKLY GENERATE DESIGN IDEAS?

Ideation often benefits from the spontaneity of random ideas. Having potential users participate in this process can be beneficial, but is often difficult to implement. To resolve this challenge I developed a new method for generating design ideas with remotely located potential users. The method uses scenarios with missing words, which potential users fill in to generate ideas for features and attributes of new technology designs, similar to the children's game of Mad Libs. I developed three different formats of Design-Libs, including 1) "Mad Libs-style:" blanks presented before seeing the scenario, 2) "Fill-in-the-Blanks:" blanks presented within the context of the scenario, and 3) "Q&A:" blanks presented as questions and answers. We found that Design-Libs generated a number of new ideas, with the Fill-in-the-Blanks method providing the highest ratings for usefulness and feasibility All three formats provided equal ratings for creativity.

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Method Overview

DESIGN LIBS

1. A person's name:

2. An age:

3. An occupation:

4. A computing device:

5. A body part:

6. A mood word:

7. An action word:

Joe is a **42** year old **accountant** who has been struggling with a lot of job related stress. He/she decides to try a new application to relieve stress that runs on a/an **phone** to help improve his/her mood. The application senses his/her mood through a device he/she wears on his/her **wrist** . When the device senses that he/she is **angry**, it responds by **dancing**.

Design ideation is often accomplished through activities such as brainstorming, sketching, and storytelling, which tend to be driven by designers. As technology becomes increasingly personal, ideation conducted by designers in isolation can lead to faulty assumptions that can adversely impact the user experience.

By ideating with users, designers can create new technologies that embody the needs and values of their users. Unfortunately, engaging users early in the product development cycle requires significant planning and expense.

To address the need to easily engage with users early and generate novel ideas quickly at large scale, we developed a new method called DesignLibs. In this method, designer create a scenario for a new technology, remove key-words from the scenario, and then have potential users fill in the missing keywords..

DESIGNLIBS

Method Overview

MadLibs

1. A person's name:
2. An age:
3. An occupation:
4. A computing device:
5. A body part:
6. A mood word:
7. An action word:

Fill-in the Blanks

is a year old who has
(A name) (An age) (Occupation)
been struggling with a lot of job related stress. He/she decides
to try a new application to relieve stress that runs on a/an
 to help improve his/her mood. The application
(Computing Device)
senses his/her mood through a device he/she wears on his/
her . When the device senses that he/she
(Body Part)
is , it responds by .(A mood word) (An action word)

Q & A

1. The first name of someone I know well is:
2. She or he is years old
3. She or he works as a/an:
4. He or she owns or would like to own a computing device such as:
5. He or she might be comfortable wearing a small computing device on his or her:
6. When he or she is in a/an mood, you like to do for them

MadLibs

The first variation of DesignLibs was our original idea inspired by the children's game of Mad Libs. In this format, users are presented with blanks asking them for words such as "a person's name," "a technology device," "a mood word," or "an action word." They are then prompted to enter these into blanks without being given the context for which they would be used. The goal is that by not being given the context, many of the ideas generated may not make sense, but could be considered "wild" enough to spark a new idea in either the user or the design team.

Fill-in the Blanks

Although we believed that the Mad Libs scenario might generate wild ideas, we were curious what types of ideas might result from the user knowing the actual context of the scenario. In this situation, the format would be similar to the person who is asking the questions of another person in Mad Libs, where they can view the scenario with the words missing. Essentially, the users are being asked to fill in the blanks in the scenario.

Q&A

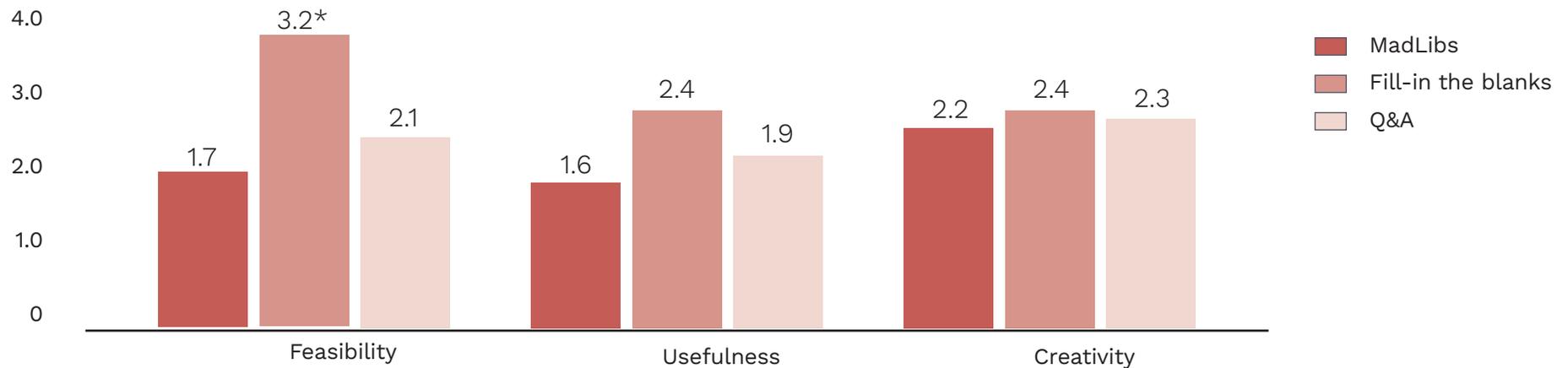
In the third variation, we wanted to explore whether users would find the task more engaging if we made the blanks more relevant to a scenario in their life. Thus, this approach asks participants to respond to a series of questions that are more like a traditional survey. This would preserve the spontaneity of the Mad Libs format, but makes the responses more specific and personal. This could result in more meaningful technology designs for the users.

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Evaluation Findings

HOW WELL DOES DESIGN LIBS PERFORM AT CREATING NOVEL, FEASIBLE, CREATIVE IDEAS?

To understand how DesignLibs performs as an ideation tool, I created a study scenario for an application that detects and responds to the user's mood. More than two hundred participants used DesignLibs through a web-based survey. Each participant was presented with one of the three DesignLibs formats, which resulted in eighty completions per format. A team of six designers who were not involved in the project rated the resulting scenarios for feasibility, usefulness, and creativity. The graph below shows designers ratings of scenarios created using each method.



Fill-in the blank was the most feasible

According to the designers' ratings, the fill-in-the-blanks method produced more feasible and useful scenarios than the Q&A or MadLibs formats. This finding wasn't unexpected since neither Q&A nor MadLibs allow users to see how the words they provide will be used. Consequently, the results can be absurd without users ever realizing it.

Contextualizing answers improved feasibility

What was surprising is that the Q&A method produced scenarios that the designers rated as more feasible and useful than the MadLibs scenarios, despite the fact that in both cases users couldn't see the context. The Q&A method must have helped users decontextualize their experiences and reflect on their behavior without being biased by expectations for how a technology should work.

Outlandish results were still thought provoking

While it may seem that the MadLibs condition was an inferior format, designers still found the scenarios it produced useful. Sometimes even outlandish scenarios can be thought-provoking.

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DESIGNLIBS IN PRACTICE

WHAT DESIGNLIBS FORMATS ARE MOST APPROPRIATE FOR DIFFERENT TYPES OF IDEATION?

The responses from the designers who participated in the study, combined with reflection on the scenarios, led me to conclude that each of the DesignLibs formats works best at generating certain types of scenarios. Below is a table that summarizes when each format is more appropriate.

Format	Outcome			When to use
	Creative	Feasible	Useful	
Fill-in the blanks	No	Yes	Yes	When exploring a new design topic.
Q&A	Yes	Yes	Yes	When trying to encourage personally relevant responses.
MadLibs	Yes	No	No	When needing inspiration after working in the same design space for some time.

Applying different formats

The fill-in-the-blanks method is best for producing a large number of feasible and useful ideas and should be used when designers are exploring a large design space that's relatively new to them. The MadLibs condition, in contrast, seems to be most suitable for generating divergent ideas, most valuable after you have worked in a space for some time. Finally, the Q&A method may be better suited to situations in which designers would like users to provide feasible ideas that aren't biased by expectations of how technology should be used.

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CONCLUSION

As technologies play a more significant role in users' personal lives, it becomes essential to include users early on in the product development process. By being quick and easy to develop and deploy, DesignLibs is a great tool for accomplishing this goal. I envision DesignLibs as a useful part of a designer's toolbox for generating ideas.

IMPACT AND OUTCOME

DesignLibs was presented at the 2013 International conference on Human-Computer interaction:

DesignLibs: A Scenario-Based Design Method for Ideation

<http://dl.acm.org/citation.cfm?id=2208600>

DesignLibs was also featured in UXMagazine:

MadLibs for Designers: Ideating Based on User-Generated Scenarios

<http://uxpamagazine.org/mad-lib-libs-for-designers/>

And was cited as a innovative ideation technique by designers at Autodesk:

Method 24 of 100: Ideation Innovation: New Takes on Brainstorming

<http://dux.typepad.com/dux/2013/08/method-24-of-100-ideation-innovation-new-takes-on-brainstorming-.html>