Assignment 5

Low-fi Prototyping & Pilot Usability Testing

The DeBias Team:

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Designer	Software Engineer	Team Manager	Quality Tester

**Mission Statement/Value Proposition**

DeBias yourself with diverse news sources!

Problem/Solution Overview

People tend to get news from a small number of sources; unfortunately, these sources are often slanted towards a particular point of view, contributing to the rapid polarization of our society.[1] The DeBias app seeks to close this civil divide through visual feedback and friendly competition that motivates users to understand their biases and consume news from a variety of diverse sources.
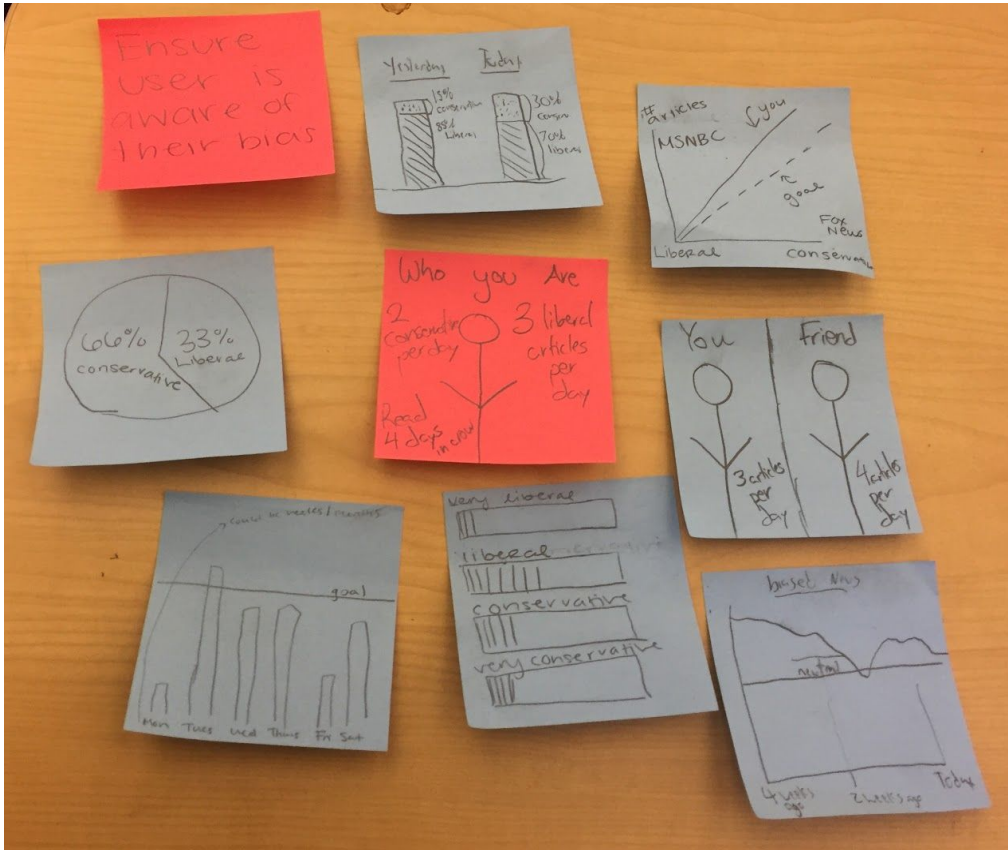
Concept and UI Exploration: Sketches and Storyboards
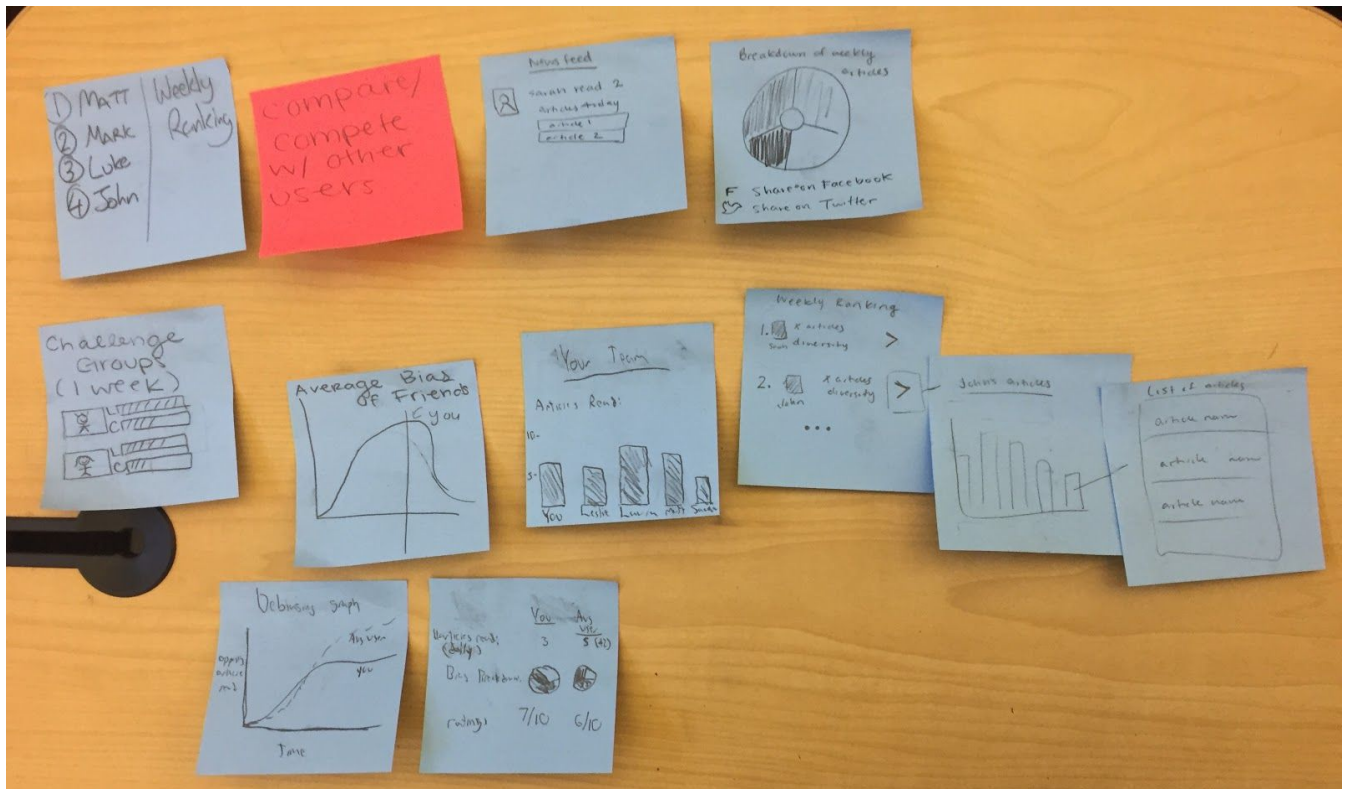
Concept Sketches:
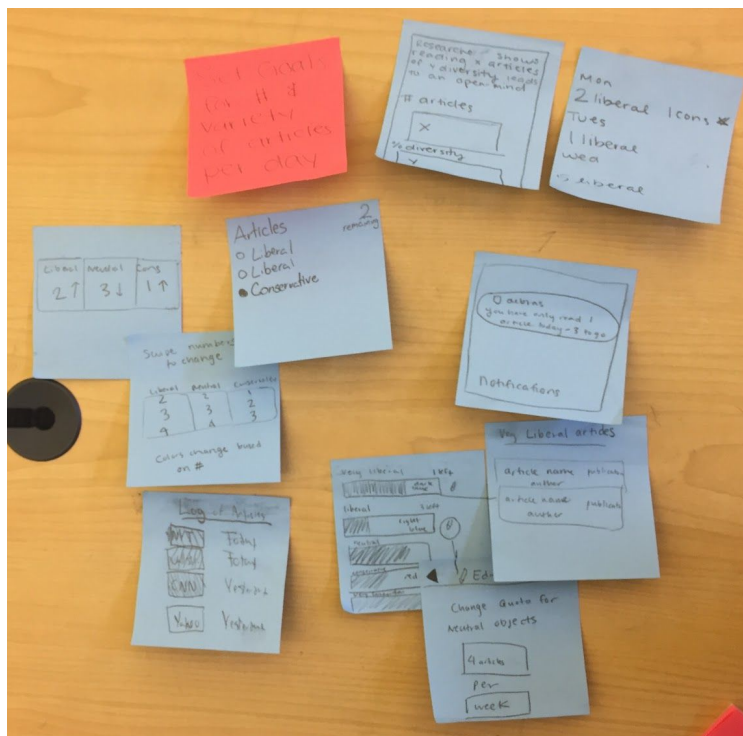
Concept Sketch 1: User Sets Goal Number of Articles to Read Per Day

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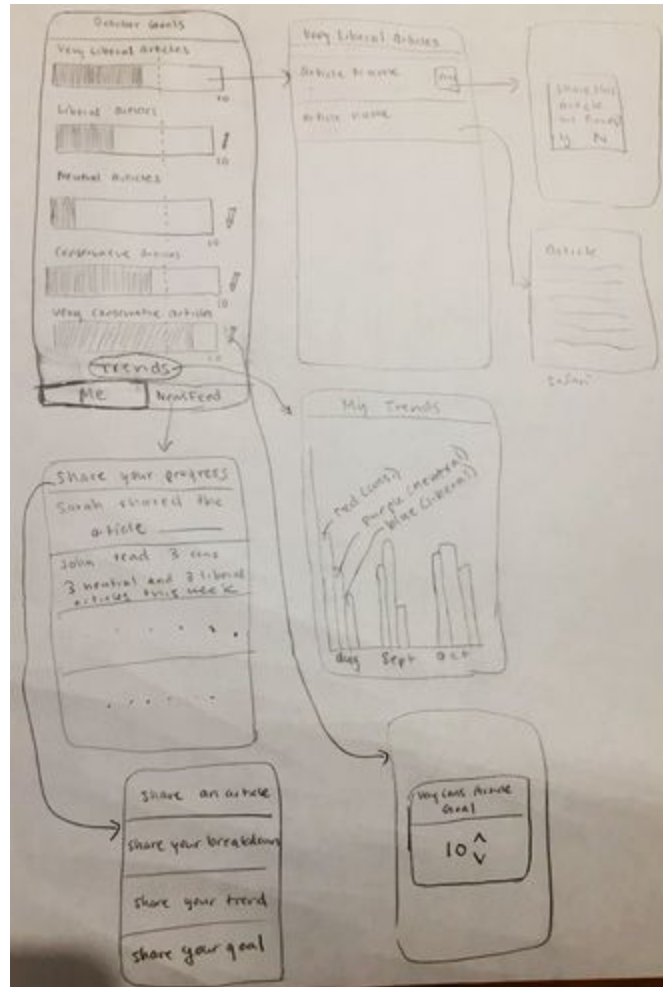[1] Based on multiple in-person interviews.

Concept Sketch 2: User Views Reports to Gain Insight into Biases of User's News Sources

Concept Sketch 3: User Competes, or Compares User's Performance, with Other Users

Top two UI Sketches:

UI Sketch 1: Goal-Centric iPhone Interface

Our first interface (UI Sketch 1) is based on a *tab-bar interface*: the primary tab allows the user to easily set goals (task 1) and view her historical performance (task 2), while the secondary tab lets the user easily compare her progress to that of her peers (task 3).

Clicking on a goal in the primary *me* tab, which is displayed as a horizontal bar to be filled in, allows the user to see the articles she has consumed towards achieving that goal. The choice of a horizontal bar indicating goal progress is ideal because it allows users to easily see if they are close to achieving their goals for reading from a variety of news sources. In addition, the *me* tab also leads to the *Trends* view, allowing the user to gain insight into her performance over the past few months.

The secondary *News Feed* tab allows the user to share her progress towards her goals in the form of a post, as well as viewing what her peers have achieved. This tab's view has the user's friend's posts displayed horizontally, allowing the user to easily scroll up and down to quickly view many different posts by many different friends.
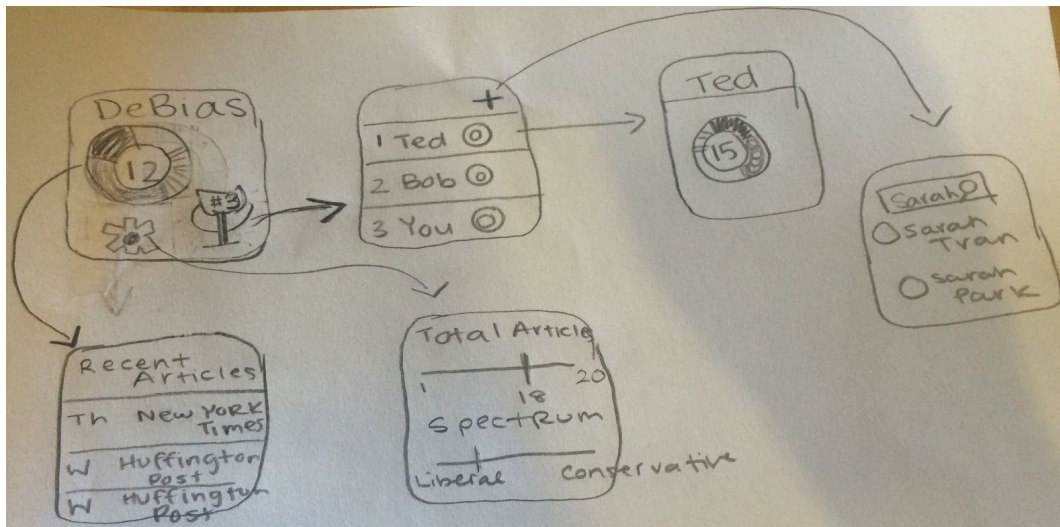
UI Sketch 2: Space-Optimized Apple Watch Interface

Our second interface (UI Sketch 2) is based around the idea of minimizing screen space, since it was designed for the small Apple Watch screen. Hence, icons are used to indicate clickable areas and word usage is minimized.

The primary screen has a color-coded expanded pie chart where the user can immediately see the number of articles read over the past seven days. The pie's different regions show where sources of news and articles fall on the partisan spectrum, and clicking on the pie allows the user to see which articles contributed to the various sections of the pie (task 2.)

In addition, the primary screen also has a gear icon for setting a diversity goal through means of a slider interface (task 1.) There is also a trophy icon which indicates the user's ranking among her peers, allowing her to compete within her friend group to read the most news from the widest variety of sources (task 3.)

Selected Interface Design
Pros and Cons for the Goal-Centric iPhone Interface (UI Sketch 1):
- The iPhone interface allows more space for the UI and a more intuitive flow (Pro)
- There are multiple intuitive ways of visualizing data about previously read articles (Pro)
- More people read news on iPhones than on the Apple Watch (Pro)
- Information is spread throughout multiple screens (Con)
- The newsfeed interface is not innovative and does not inspire social competition (Con)

Pros and Cons for the Space-Optimized Apple Watch Interface (UI Sketch 2):
- The color and icons draw in users, improving the experience for non-native language users (Pro)
- The Apple Watch enables interesting user interactions, like vibrating notifications to remind users to read (Pro)
- The slider view (for goal-setting) is difficult to manipulate precisely using an Apple Watch touch screen (Con)
- Apple Watches are relatively unpopular devices, especially for reading the news (Con)
- The small screen and limited interactions of the watch interface limit the design (Con)

Based on this analysis, we decided to use the iPhone interface as the base for our final design, enhancing it with an element from the Apple Watch Interface by replacing the Newsfeed with a ranking.
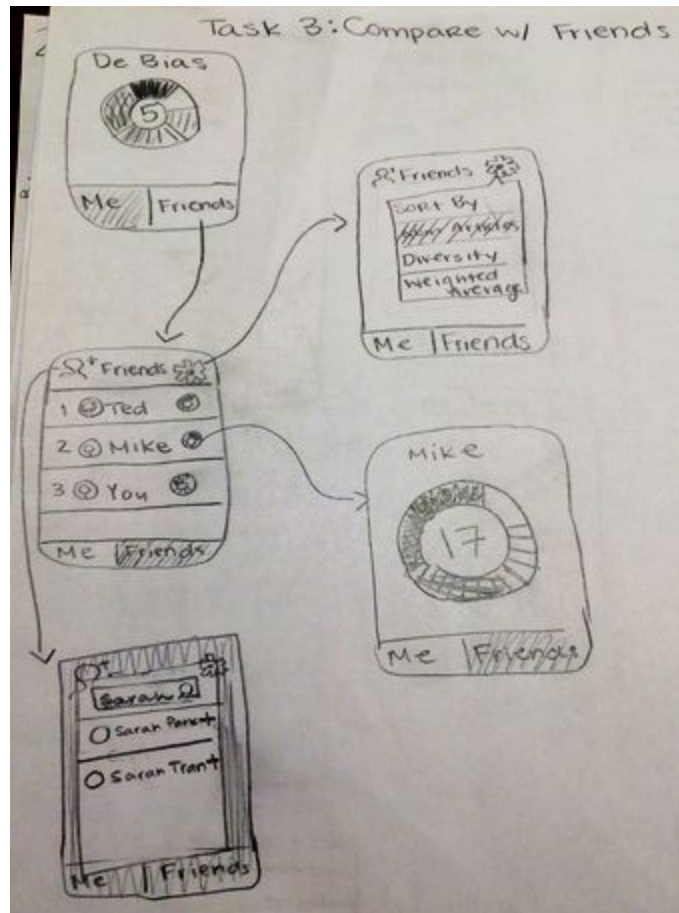
Task Storyboards
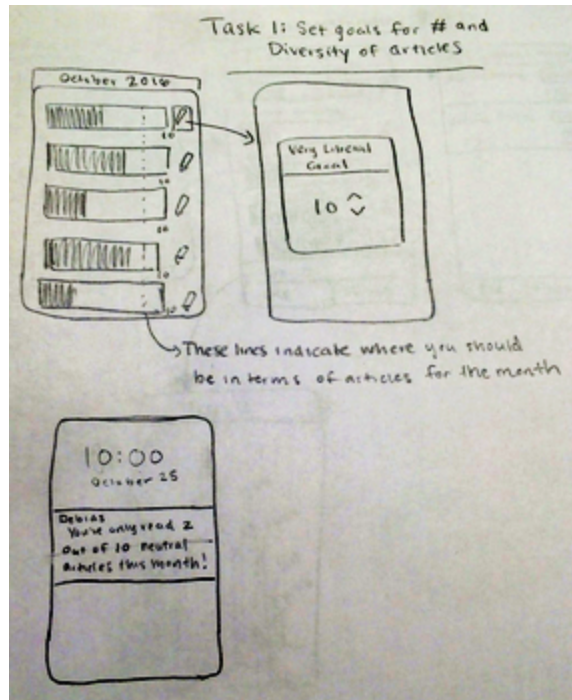
*Task Storyboard 1:* Set goals for the number and diversity of articles to read
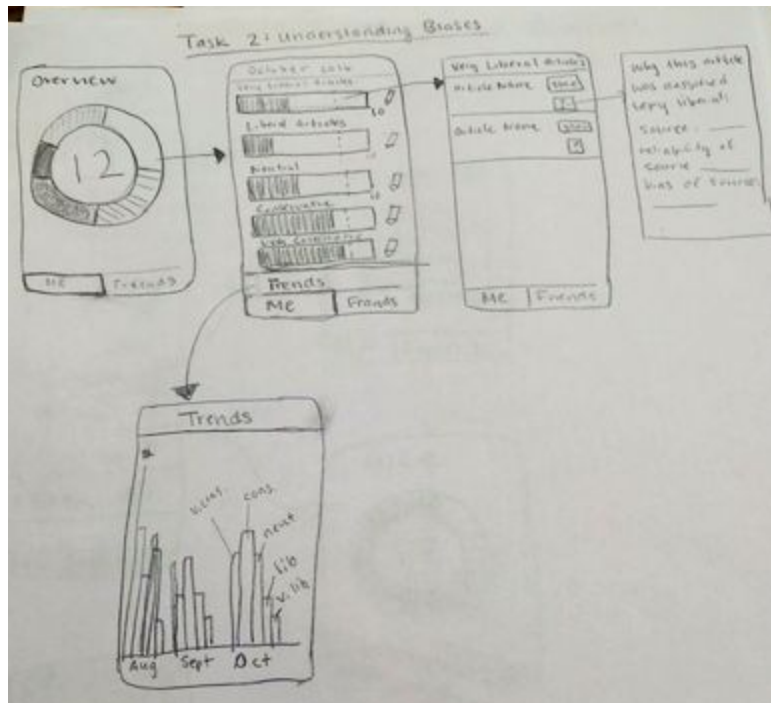
Task Storyboard 2: Ensure that the user is aware of her biases

Task Storyboard 3: Compare and compete with other users

Prototype Description

Our Lo-Fi prototype was created on paper and notecards, and detailed using colored sharpies, crayons, and pencils; some removable elements were created with clear tape. We used letter-size paper to make the interface larger-than-life, and 5x3" cards and tape for popover menus, as recommended in Snyder's *Paper Prototyping*. The interface is designed to be manipulated physically through the use of fingers applied to the visual screen; push notifications are also an aspect of the interface.
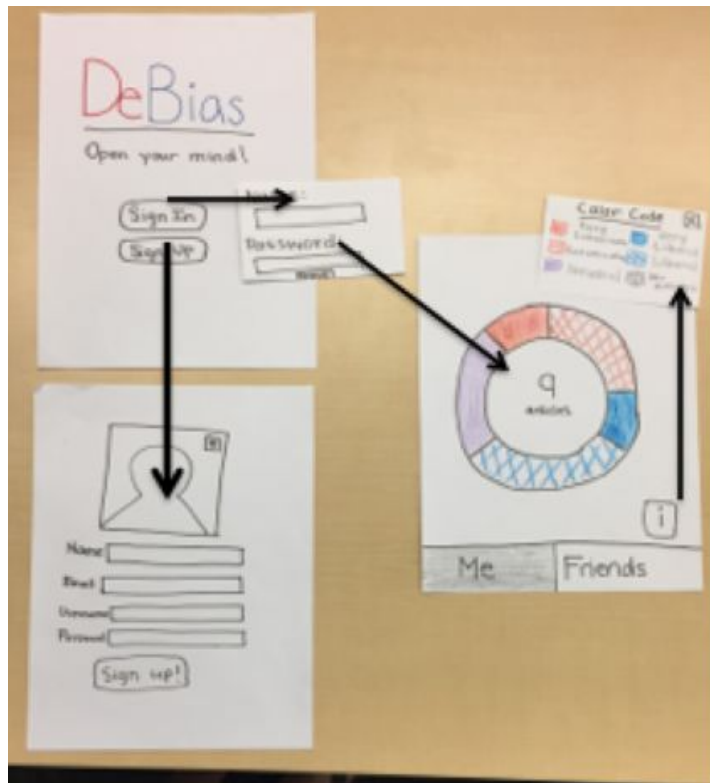
Prototype Image 1: Sign-Up and Sign-In views, leading to the *Me* view.
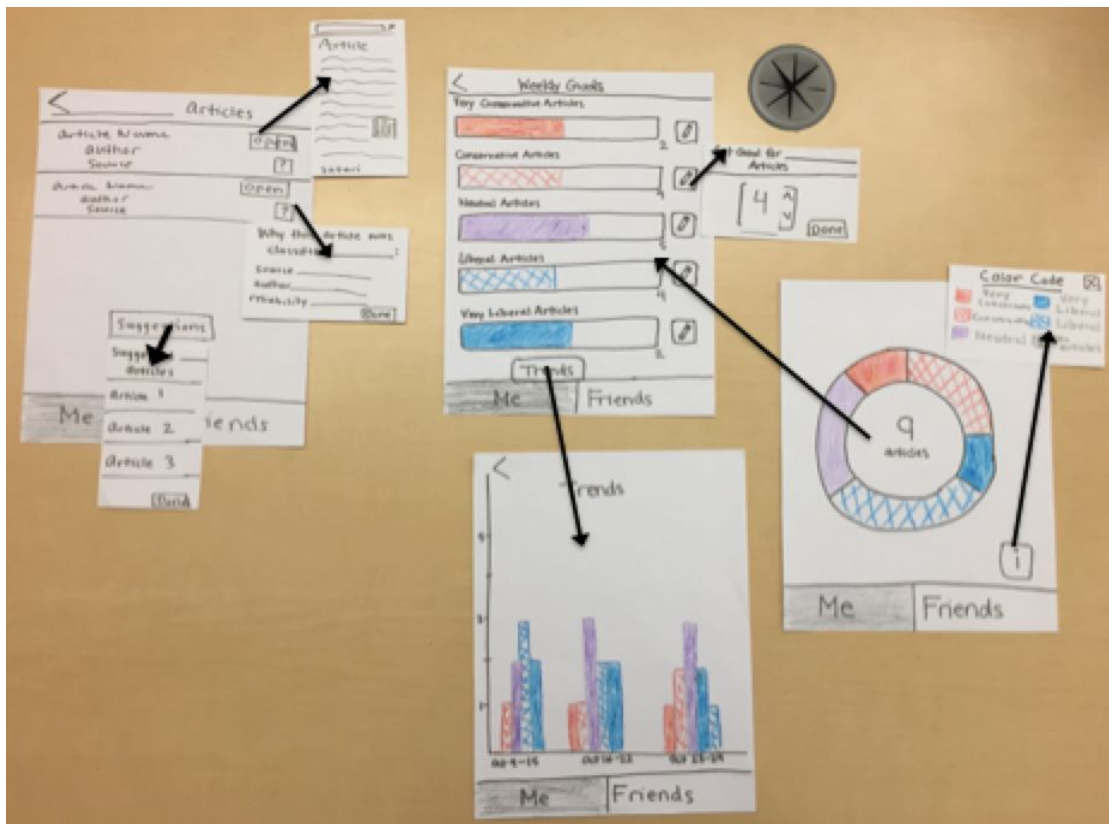
Prototype Image 2: The *Me* view (far right) leads to views where the user can set goals, view historical trends, and identify the biases of the articles she's been reading. Suggestions and clarifications are available as pop-up views.
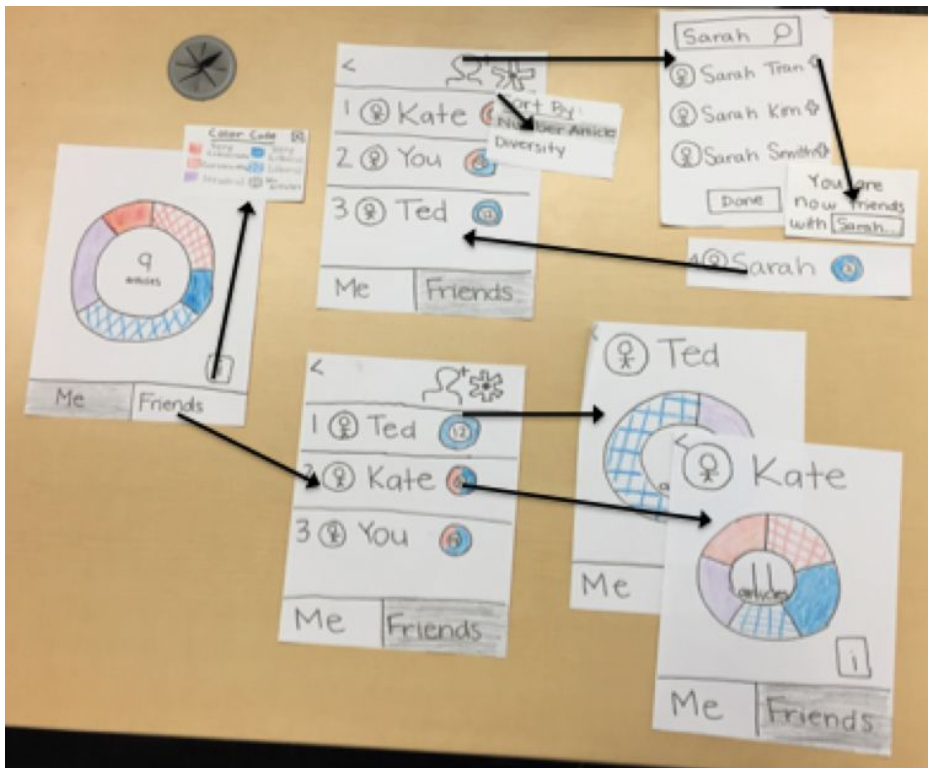
Prototype Image 3: The *Me* view (far left) can also lead to the *Friends* view, where the user sees her ranking (within her self-chosen peer group) and can view the data contributing to her friends' rankings. She can change the ranking algorithm by use of a pop-up view and add friends to her peer group by use of another pop-up view.
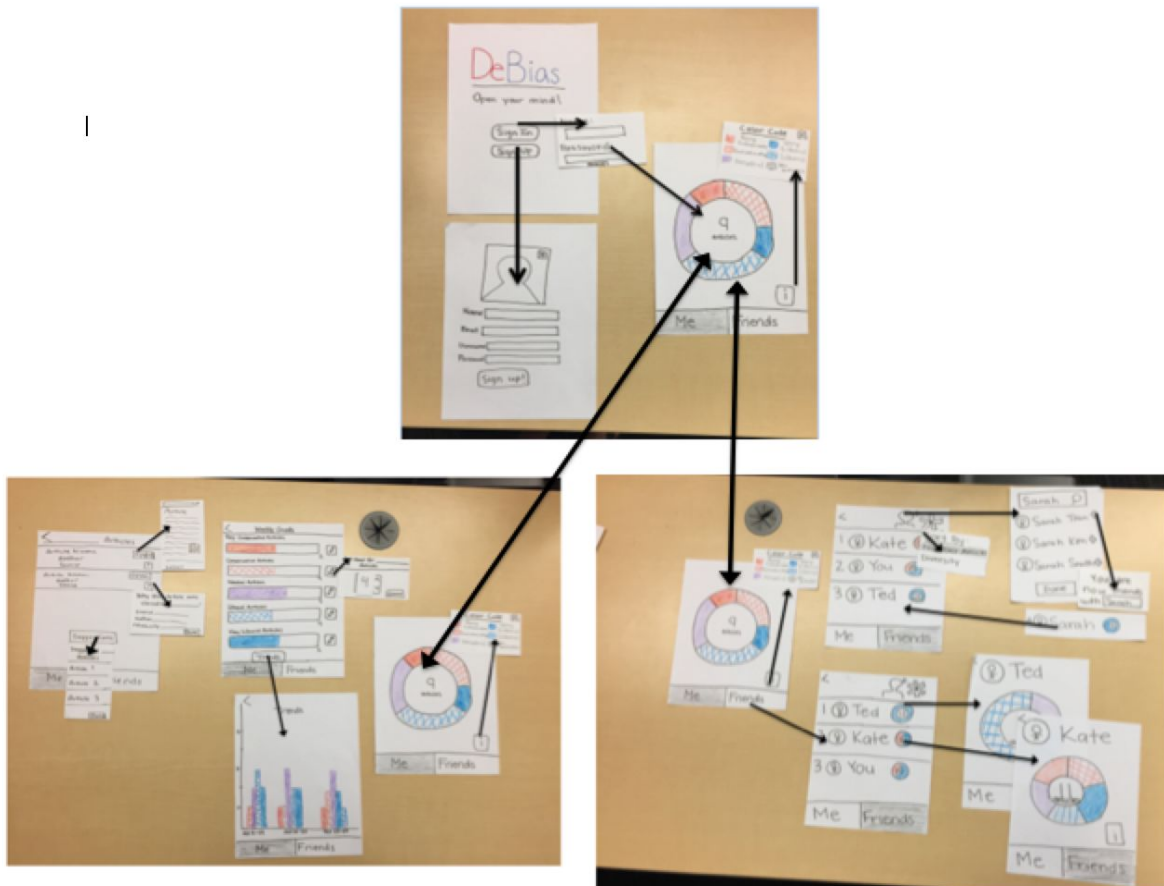
Prototype Image 4: All twenty views created for the DeBias Lo-Fi Prototype.

Prototype Method

Participants/ Environment

We beta-tested our prototype with non-friend Stanford students, with the aim of getting quick, constructive feedback. We edited our script based on that experience, then went to Palo Alto for real-world testing. We recruited participants at Pizza My Heart and T4, ranging in age from teens to mid-30s. Compensation (a $4 slice of pizza) was offered to incentivize participation, which one participant accepted.

Prototype Test Image 1: Beta-Testing in Arrillaga Family Dining Commons

Tasks/Procedure

Every experiment started with the user signing a consent form; subsequently, the narrator would read the script, which asked the user to complete certain tasks. These tasks included registering as a new user, updating goals, comparing progress with friends, and viewing progress trends. During the testing process, one person (Saamon/Laura) would read the script and record the user's behaviors, while the other (Matt/Leslie) would manipulate the paper views displayed to the user as she interacted with the prototype.

Test Measures

We observed the following variables, among others:

- *Intuitiveness*: When given a task, did the user understand how to execute it?
- *Simplicity:* How long did the user take to identify the correct view for a given task?
- *User engagement*: What did the user do immediately after logging in? When they went to a new view?
- *User interest:* Was the user intrigued by the displayed information?
- *Confusion*: How often did a user click a button that acted unexpectedly? Was she confused by a given screen?

Results and Discussion

All five participants considered the interface intuitive and accomplished the given tasks without difficulty; in particular, none asked for help during the given tasks. Users typically identified the correct view for a given task in less than five seconds.

After logging in, users typically clicked the large pie chart to view goal progress; however, one user instantly clicked on the *Friends* tab despite it being unrelated to the task at hand. The social aspect also drove interest for two other users, who were competitive with their "friends" on the app, saying that they were sad to not be first in the rankings and would read more so they could win. We were excited to observe this behavior, which supported our hypothesis that social competition motivates users to read a greater quantity and diversity of news.

Users also displayed and offered negative feedback. A common source of confusion was the meaning of the large pie chart that appeared immedately after login. Once users got past that initial confusion, however, they intuitively clicked on the pie chart for more information.

Additionally, our choice of icons may need improvement. Users took longer to realize that the settings icon on the friend-ranking screen changes the ranking algorithm, and that the info icon by the pie chart yields information about its color codes.

Based on these results, we will probably add labels to the pie chart sections, create a walkthrough for first-time users, and change our choice of icons in some cases. We may also implement a user suggestion to let users see the articles their friends have read. Unfortunately, the experiment could not reveal how often users would use DeBias; an insight into this frequency may have also led to design modifications.

1499 Words

Appendix

Script for Low-Fi Prototype Experiment

Narrator: Hi _____, Thanks for downloading DeBias. Can you please sign up as a user?

Narrator: Now three weeks have passed in which you have read different newspaper articles for different sources. DeBias has been pulling information from your different news applications to track which articles you have read. Please sign into your account.

Narrator: Find out more information about this screen.

Narrator: View and explore the in-depth description of what you have read in the past three weeks.

Narrator: View your recent trends.

Narrator: Find the specific conservative or liberal articles that you have read this week.

Narrator: Set a goal for how many articles (liberal, conservative, etc) you want to read this week.

Narrator: Compare your progress with your friends!

Narrator: Change the ranking system.

Narrator: Add your friend Sarah.

Notes from Experiment Testing

Positives:

User 1:
- Loved the pie chart and various data visualization techniques
- Ranking by different things
- Suggested articles - one of the first things she did was "read" a suggested article
- Said the UI was overall very intuitive navigated with no guidance from the tester
- Said it was "fun" and "really cool" at the end
- Liked the two "sides" of the app (Friends/Me)
- Was competitive with the other users, "dang that Kate is always beating me", then clicked on Kate's profile

User 2:
- "I really like this...Is this going to be a real app? I would use this?"
- Understood the home screen - didn't need to look at the colors (she still did, said it was what she thought it would be)
- Could tell that she had improved over time
- Immediately wanted to see how she compared to friends - small pie chart on friend page was good - noticed Ted was very liberal
- Found out immediately how to set a goal
- "Read" suggested articles

User 3:
- Found the interface fairly intuitive; he didn't ask any questions about the product
- "In terms of the interaction, most of the steps seemed fairly obvious"
- Noticed that he had been reading more conservative articles

User 4:
- After logging in, went against the script and immediately clicked on "FRIENDS"
  - (This is a positive, since it supports our hypothesis that a social aspect would drive usage)
- "Easy to use"
- "I like… to add friends"

User 5:
- Stated he did not find it confusing: "Pretty straight forward to what you see in apps"
- "Intuitive"

Negatives
User 1:
- Wanted to be able to see what articles other people had read, to help her catch up to them (0)
- The pie chart as the opening screen should have some explanation (at least the first time it's opened) because she was initially confused about what it represented (2)
- Info icon on pie chart screen should maybe say what info it will tell the user (2)

User 2:
- Didn't like registering for app - "I wish I could just log in with facebook or gmail I hate making new passwords" (2)
- On suggested article popover - I might bookmark this or flag to read later or something (2)
- Settings icon might not be the right icon for sorting, she was surprised when the sort menu came up (1)
- Confused by back button on friends list (1)

User 3:
- "That felt a bit weird to me, if I clicked sign up I feel like it should have signed me in" (2)
- "It'd be nice to have an overview of what articles I read… a list of headlines or something" (2)
  - (Didn't yet realize how to access this functionality which we already had)

User 4:
- "Is there a way you can, in the app, see the description of the colors?" (1)
  - (Didn't yet realize the purpose of the *i* button which he could click on for more information.)

User 5:
- User seemed to struggle to identify the ranking system button (although he stated otherwise) (1)

Consent Form

The DeBias application is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of DeBias. Data will be collected by interview, observation and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Laura Brouckman, Matthew Chen, Leslie Kurt, Saamon Legoski) or with Professor James Landay, the instructor of CS 147:

James A. Landay
CS Department
Stanford University
650-498-8215
landay at cs.stanford.edu

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the student researchers and their supervisors/teaching staff.

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my behavior and opinions in relation to the DeBias experiment. I also give permission for images/video of me using the application to be used in presentations or publications as long as I am not personally identifiable in the images/video. I understand I may withdraw my permission at any time

Name _____

Participant Number _____

Date _____

Signature_____

Witness name _____

Witness signature_____