University of Cincinnati

Date: 3/12/2014

I, Kin Yi Jenny Chan, hereby submit this original work as part of the requirements for the degree of Master of Design in Design.

It is entitled:

A Study and Design Proposal for Social News Reading Experience

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Committee chair: Heekyoung Jung, Ph.D.

Committee member: Craig Vogel, M.I.D.



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A Study and Design Proposal for Social News Reading Experience

A thesis submitted to the

Graduate School

of the University of Cincinnati

in partial fulfillment of the

requirements for the degree of

Master of Design

in the School of Design

of the College of Design, Architecture, Art and Planning

by

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May 2010

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ABSTRACT

This thesis begins by studying how people acquire news information. Acquiring news information has different definitions from users with different genders, age groups and backgrounds. The channels range from in-person communication, news reading to social networking. With the availability of emerging digital technologies, it has provided users with multiple usages with all the devices and software application options. The existing news reading patterns suggest that the experience varies based on personal, social and technological influences. Based on the insights from user interviews and overview of existing news applications, new design concepts were explored through codesign sessions. A new design application is proposed with a focus on social connections among readers as a filter to populate news content.

Keywords:

digital product, interaction design, news reading, social media, social communication

ACKNOWLEDGEMENTS

I would like to express my sincere thanks and appreciation to my thesis committee, advisor, and all the professors that I have had the chance to learn from and work with in the past 2 years in UC. And all my MDes classmates, my mother and friends to accompany me through this unforgettable journey.

Thank you Heekyoung Jung, for your expertise, enthusiasm and encouragement along my thesis development. You have taught me more than I can ever ask for and I am excited to take what I have learnt here to seek my new career path.

Thank you Craig Vogel, for your inspirations since day one. You have motivated me in every one of our conversations.

Thank you Gerry Michaud, for your guidance and patience this year. You have helped me so much in shaping my thesis, and I have learnt to widen my perspective as a design thinker.

Thank you Mike Zender, for the knowledge and wisdom that you shared.

And finally, thanks to my mother, who is the most important and influential person of my life. You have supported me in every possible way and have always believed that education is well worth the investment for a lifetime. In the past 30 years, you have made me a better person. And now, a better designer.

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Chapter 1: INTRODUCTION

1.1 Background

Traditional ways to obtain news information are rather straightforward. The most common channels include prints such as newspaper and magazines, media such as television and radio. However, not everyone has the accessibility to these channels. Especially with digital media, it can be restrictive to some who are not so familiar with technological devices. Now, with the emerging and massive availability of online resources, information we are able to obtain has become much more diversified, global and rapid. Readers are no longer in need to actively search for information, however automatic newsfeeds that we are exposed to daily can be convenient but repetitive. We commonly receive recurring newsfeed from a variety of online sources.

Digital technology has slowly changed the way we acquire news information. Among all platforms, social media has evolved into one of the most common ways in news sharing. Although in-person conversation is the most native way to communicate, social media has become a regular platform for people to express opinions, exchange ideas, as well as obtain and interchange daily news across the globe. Danah Boyd suggests that social network sites have provided a platform for people to connect with their friends. It has changed the online community by getting people together by interests and made friendship (Boyd, 2014). According to Henry Jenkins, the cyberspace has broadens the sphere of social interactions, and it has become more important in order to be able to talk with people who we have something to share in common (Jenkins, 2008). This way of acquiring information seems to be very commonly shared among people

with varying age, gender, cultural and location differences. Social media services are providing teens with new opportunities to participate in public life (Boyd, 2014). It seemed to have grown itself into an extensive instrument where people can easily circulate information and serves as a place to go when people are searching for the latest happenings surrounding them.

The motivation for the thesis study is to look into how people acquire news on a daily basis. This is based on the hypothesis that everyone has different habits and patterns in acquiring news, and in the process of seeking news information we are being exposed to an excessive amount of data and information. People tend to use online news sharing to voice their opinions in subjects that are of interest to them. It is also common to use social media as a communication tool to connect with those who share similar values in these subject matters.

First, it is important to understand the communication pattern between people and their surrounding circles based on their behavior in news acquiring activities. According to Nathan Shedroff, the future of communication is unfolding with endless possibilities of technology applications. In a world full of accessible information around us, everyone shall create valuable, compelling, empowering information and experiences for others in the next decade and beyond (Shedroff, 1994). By comparing current news and social media offerings, we can see how news reading activities differ between the two. There is an overlap between news reading and social networking activities because the way news information is being presented are transforming. It has become more interactive, and this has affected how users behave when acquiring news. Information interaction designs include learning existing ways to organize and presenting data and information and develop new ones (Shedroff, 1994). And this applies across all types of media and

experiences, because they directly address the phenomena of information overload, information anxiety, media literacy, media immersion, and technological overload--all which need better solutions. All of these reasons are used to initiate research and user interviews. Findings are then generated to help discover new products or applications to improve the overall news reading experience, in a more personal, organized and productive way.

1.2 Primary Research Objective

In order to understand how people acquire news, we must look into the ways and reasons behind this activity. By using interviews as a form of initial research study, this is to look at any kind of behavioral patterns established from participants of all genders, age groups, and any cultural and professional backgrounds.

The topic of acquiring news will then be extended to social communication by looking at how and who people respond to with the news information they collected. People form relationships through social networks, based on how they tend to bond with one another if share any similarities. The social interaction involved in news acquiring activities is a main subject in this thesis. General interviews are being used as an essential method of research. One of the forms in research studies is social research, it is to identify general patterns and relationships (Ragin, 2011). Other than behavioral patterns, associations with connections, media and technology will also be examined in order to understand how people exchange information and communicate on a larger extent.

In the next chapter, the study approaches include an overview of the different phrases in the thesis development. The research process includes user interviews and analysis. Concept development process includes user journey mapping, wireframes sketches, prototypes and co-creation session with participants. The concluding design phrase is focused on digital screen mock-ups with some highlighted features from the proposed design application.

Chapter 2: STUDY APPROACHES

2.1 Overview

This study begins with user interviews as the basis of initiating research studies, primarily on news reading activities to collect initial background information and interest findings on acquiring news. Users are a big part of the study, a small sample size will help shape the pattern of news acquiring and communication activities. Below highlights the overall study process in order.

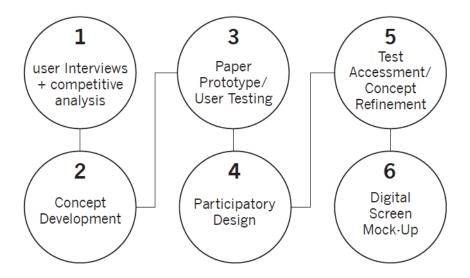


Figure 1: Overall Study Approach

The overall study begins and grows with research. By defining the problem through user interviews, then progresses through concept development, and circles between different stages of prototyping and concept refinement to finalize the design solution. By applying research methods or data in multiple phases of the design process helps to redefine prelimary assumptions (Grady, 2006). Multiple iterations are made during the

development, and potential outcomes of the design can be tracked by the assessment of prototypes that will be covered in Chapter 4.

In the 1st, 2nd and 3rd stage of the process during user interviews, wireframes development and participatory design section are based on assigned activities. These activities varied between each stage and are selected based on commonly shared news reading activities. Activity-centered design is one out of the four major interaction design approaches. The users are considered the performers of the activities where the designer creates the tools for actions (Saffer, 2010). 3 main tasks are assigned to analyze news reading activities, which will be explained further in the following chapters.

2.2 Interviews on News Reading Activities

The objective of user interviews is to map out user behavioral patterns of social communication through the activities of news reading. 9 participants are recruited based on their age, gender, background, location and availability. The study will be divided into 3 groups, with 3 users in each group. The A group is consists of students who are under 20 years old; the B group is consists of working professionals who are from late 20s to 30s years old; the C group is consists of retired citizens who are over 50 years old. Each interview lasts about 30-40 minutes. The interviews are conducted at the participants' home, university campus or coffee shops. The primary purpose of this study is to understand how people acquire and share news information regularly.

Here are the 9 participants selected, 3 per group (A, B, C) according to their ages:

Participant A_01) 24years old, Female, University of Cincinnati Graduate Student

Participant A_02) 19years old, Male, Military member and PT History Teacher

Participant A_03) 19 years old, Male, University of Cincinnati Undergraduate Student

Participant B_04) 29years old, Female, Marketing Manager

Participant B_05) 23years old, Male, Apartment Leasing Manager

Participant B_06) 31years old, Male, Dentist

Participant C_07) 68years old, Male, University of Cincinnati Professor

Participant C_08) 65years old, Male, Retired Professional

Participant C_09) 65years old, Male, University of Cincinnati PHD student

With an overall mixed method approach (Creswell, 2003), the interview outline is created based on conversational open-ended questions, highlighted keywords, and a drawn out relationship between the elements. This is to find out how users obtain information and perform news reading activities on a daily basis. (See Appendix 1)

The first part of the interview with open questions is intended to let people express their opinions freely on the subject. First, to define the terms news reading. Then, by relating it to their personal experiences, they are asked to describe their most recent news reading activity. The objective is to find out their step-by-step process including sourcing information, how they approach the content, what are their responses during the overall experience.

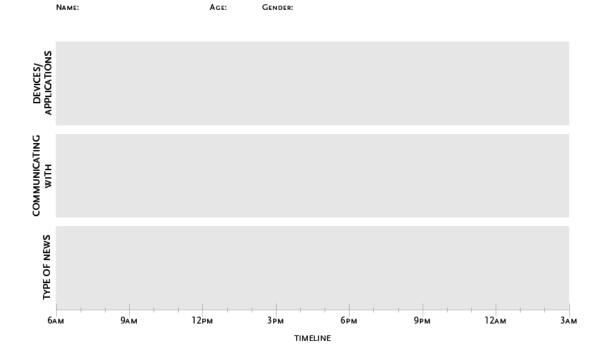


Figure 2: Visual Mapping Tool

The second part of the interview is to invite participants to name and write down the major keywords of the types of news they are interested in, people they regularly communicate and share news with, and the tools or devices to obtain news information. They are asked write the keywords on the post-it notes, and place them on a work sheet provided. The worksheet is a visual mapping tool that will help record news reading activities mentioned based on a timeline from 6am to 3am.

Then, similar to card sorting (Martin, Bella and Bruce, 2012) where participants are asked to sort given cards with concepts, terms or features, they are asked to sort the color post-its by forming a relationship between the categorized notes. They are allowed to cluster the post-it notes based on the 5 factors: location, interests, alphabetical, time, category and hierarchy. The LATCH approach is a way to organize information by

Richard Saul Wurman. (Wurman, 1997). Based on the timeline listed, the post-it notes are mapped out in 3 sections. Going from top to bottom in the order of "Devices/ Applications", "Communicating With" and "Types Of News".

The last part of the interview is to simply ask users to rank the keywords by numbers based on their favorites/ frequency of use from the worksheet. For example, they can rank their most interested topics, people they most communicated with and the most used devices from the order of 1 to 3. They will also be asked to describe some favorites activities and possible challenges during news reading to conclude the interview.

2.3 Interview Analysis: Coded Transcripts and Visual Mappings

The 9 interviews were voice recorded with the consent of the participants. Coding the transcript is the first part of translating the interview into documented data. (See Appendix 2)

The coding is based on the following keys:

- Definition of news reading
- When to read
- Where to read (and the reasons if any)
- News sources
- Reading topics or priorities
- Quotes
- Electronic devices and their features

Activities after news reading, such as sharing or bookmarking (and the reasons if any)

Other than the recorded interviews, the visual mapping tool (See Figure. 2) also plays an important part in analyzing interview data and consolidating findings. A total of 9 visual maps are collected. (See Appendix 3) By matching the keywords from the visual maps with the coded transcripts, the next phrase of interview analysis is to summarize the content by using the mind mapping technique (Martin, Bella and Bruce, 2012). Out of the above coding keys, mind maps are conducted on the topics on new sources and reasons for news reading activities. The association within these categories will then be used to help understand the overall user experience in news reading activities.

The 9 interviews are then summarized based on the coded transcripts and visual maps. (See Appendix 4)

2.4 Initial Value Matrix

From the interviews, it was found that participants tend to absorb news information from a variety of sources. There is an emerging trend with social networking as a source of acquiring news. By doing a value matrix (Martin, Bella and Bruce, 2012) according to news type and relativeness, below is an overview of 4 distinctive services that lie between news and social networking site. On the x-axis, it shows the range from local (left) to international (right) news types. On the y-axis, it is estimation of how relevant the news information is with the users. It shows the range of personal relevance from high (top) to low (bottom).

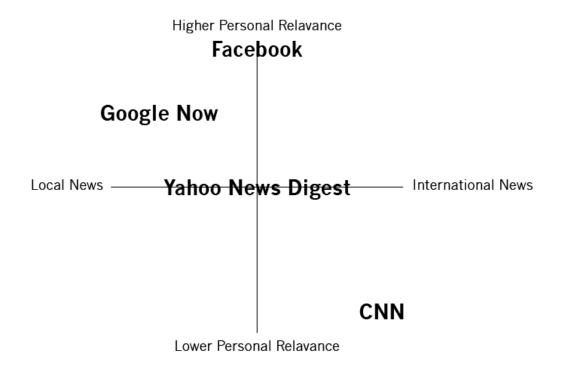


Figure 3: Value Matrix of CNN, Yahoo News Digest, Google Now and Facebook

CNN (Cable News Network) is an American basic cable and satellite television channel that is owned by the Turner Broadcasting System division of Time Warner. The 24-hour cable news channel was founded in 1980 by American media proprietor Ted Turner (http://en.wikipedia.org/wiki/CNN).

Yahoo News Digest is a sleek, highly visual app that presents you with 10 or so algorithmically generated news stories from Yahoo's network, twice a day: once in the morning, and once in the evening, in a rhythm that mimics the way people once read morning and afternoon newspapers (Newton, 2014).

Google Now is an intelligent personal assistant developed by Google. It is available within the Google Search mobile application for Android, and iOS, as well as the Google Chrome web browser on personal computers. (http://en.wikipedia.org/wiki/Google_Now)

Facebook is a popular free social networking website that allows registered users to create profiles, upload photos and video, send messages and keep in touch with friends, family and colleagues. (Rouse, 2014)

Overall, CNN, which is considered to be the most formal news site among all covers the most diversified news sources internationally, but have the lowest personal relevance to users. The news topics are generally popular, broad and impersonalized. Yahoo News Digest, a mobile application associated with Yahoo News, has a good balance between local and international news topics. It also allows users to prioritize their reading based on interests and time, therefore is considered halfway between low and high personal relevance. Google Now allows users to personalize their newsfeed and send out notifications based on their locations. Therefore it is local and has high personal relevance. Facebook has the highest personal relevance because friends connections determine users' news information, it includes both local and international news depends on where the connections are located and what they are sharing online.

Chapter 3: STUDY FINDINGS

3.1 Highlighted Insights

Some insights from gathering the overall interest of the types of news are primarily based on users' interests, background and occupation. Among all the topics mentioned, subjects related to professional career development take up a big part in the news reading topics. Users generally only actively seek out readings that only apply to topics that draw interests to themselves, their friends, families, or any interest groups they are part of (eg. Religious, sports). Overall, the reasons for acquiring news are primarily personal, work or social related.

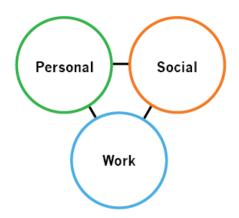


Figure 4: Primary Reasons For Acquiring News I

Here are some overall key insights based on the above 3 primary reasons:

1. Personalized and Local News Sharing

Local news and events are a common thread in conversations, it usually gets extended to a more personal discussion. Based on the value matrix, services such as Facebook and Google Now have a high emphasize on local news coverage. They are also the 2 services among 4 that have the highest personal relevance to users. From the interviews, users have mentioned that simply screening from headlines to full articles is typically good enough to trigger personal conversations. The news sharing and life updates with acquaintances and even strangers have made the news reading experience personal.

Therefore, news sharing can enhance the connection between strangers, and even better if is used to enhance relationships between close connections.

2. Social Communication Through News Sharing

During news reading, the communicating relationship between people are built depends on distance apart and availability networks between connections. Social apps are acting as main communication tools for overseas connections, despite language and time differences. As news reading is considered a daily routine, specific times and locations are part of the reading habits as well. Users have compare news reading as similar experience with talking with family and friends on a daily basis, due to how news reading might naturally lead to shared conversations between family and friends. Users have suggested exclusive sharing is preferred between connections based on how tight the relationships are. Other forms of communications (text, phone calls, emails) are commonly used but limited because of technological limitations.

 Between Personal, Work and Social Lives
 Also, users have the tendency to switch between personal and work social accounts frequently to ensure privacy but social activities might be required due to work nature.

It is obvious that participants define news in various media context, the main channels to acquire news information from television to the print media including newspaper, magazines and books. Digital devices were considered as important, medias such as phones, computers, tablets and e-books have allow them to access to voicemails, calls, texts, emails, websites and social media applications online.

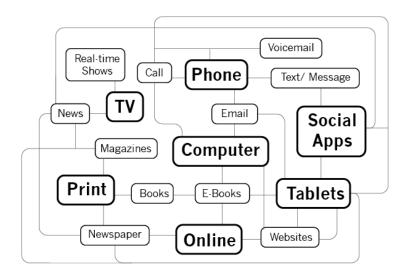


Figure 5: Types of News Sources Overview

Specific news sources have been repeatedly mentioned in the user interviews, from international news sites (CNN) to local Cincinnati news site (The Enquirer). Users are generally concerned with the original of news sources, a few news sites have been continuously mentioned in the interviews that are commonly used such as The

Economist, CNN, Yahoo News, The Enquirer etc. News sourced from third party sites (Newser.com) is popular as well because they are condensed and allow quick reads and references. Users felt that they have the option to source the original sources if desired from third party sites. And social networking applications such as Facebook, Snapchat, Whatsapp are very commonly used to acquire news information from closer connections.

Users have mentioned some pros and cons of news reading experience, here are some highlighted key points:

- Users have expressed positive feedbacks such as sharing primary information
 has acted as the basis of more collaboration and exchange of ideas to come,
 based on the various interest of users involved.
- 2. The ability to remain focused while multi-tasking might be an important need, especially while there is always an overlap between personal and work time.
- Some technical limitations drive users to seek alternative ways to find new
 devices and applications to achieve the same goal, especially when it comes to
 long-distance communication with location and time differences.
- The need to verify online resources to ensure consistency has shown that users are still used to being informed in-person.
- 5. Most users tend to be overwhelmed with news information going to them instead of actively looking for news. Although this slightly varies within each interview

group. Users seemed to have different comfort zones in what, where and who to share information with.

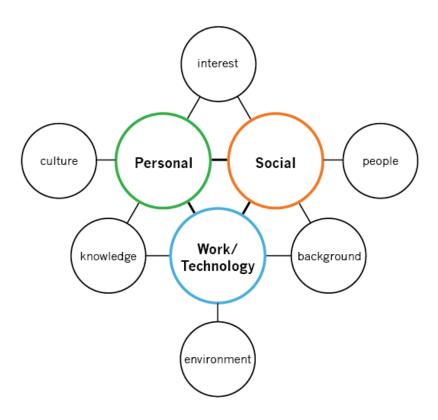


Figure 6: Primary Reasons For Acquiring News II

From the list of news reading reasons mentioned in the interviews, the type of information sharing varies primarily on the interest level built from personal influences such as age, background, profession and knowledge. These factors help determine how we interact socially with people within different circles. Social and technology also play an important role when it comes to social communication. Therefore, three main influences are identified as the reasons for news reading for most users: *personal, social* and *technological*.

3.2 Personal, Social and Technological Influences

From personal, social to technological influences, the importance on this chapter is to capture how people see their information needs and ultimately on how they go about searching information to meet those needs. By using a concept mapping technique (Martin, Bella and Bruce, 2012), it is a graphical method for organizing and representing knowledge, used to document and connect related data from the user interviews in order to demonstrate the drivers and influences from the personal, social and technological categories (Allen, 1996).

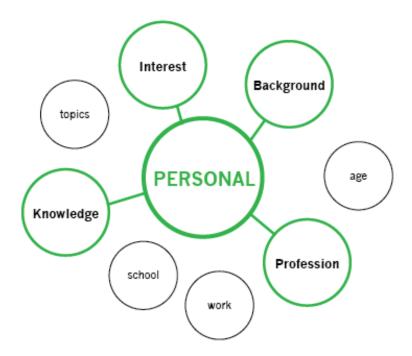


Figure 7: Personal Influences

Personal influences include age, background, profession and knowledge. Personal interest is based on the diversity of personal background, it strengthens if they are of topics of personal interest that then adds values and credits to the information sharing

process. By exchanging conversations that are of common interest in a public venue such as Starbucks, users have shown a strong bond between the physical space and the frequent visitors. Personal also include work related reasons that were mentioned in the interviews include technical readings, PHD dissertations, just by staying informed due to work etc. Users will seek out information by switching between looking for additional resources by talking to someone, search for digital references and attachments, take notes.

Individual knowledge structures are derived from experiences, but that experience necessarily occurs in society (Allen, 1996). That leads us to the social influence next. People who share experiences will therefore share knowledge structures. This social reality makes communication possible.



Figure 8: Social Influences

In social influences, other people surround the individual, and how these how these other behave will influence how the individual perceives the situation (Allen, 1996). For example, participants consider entertainment sources, social interaction both inperson and online, including being actively posting updates on social apps or passively receiving incoming newsfeed as social activities. Connections are built from different level circle from strangers, acquaintances, friends and family. Cultural factors such as languages, religions, nationalities also play a big part. Environmental factors mean social interaction can happen whether in private or public context.

Social settings also influence information needs situation as the news information content varies in the users interviews based on the group types (Allen, 1996), Communities share the background, experience, and ultimately the languages that enables communication. The 3 different age groups with a mix of background, with cultural differences, and the interviews are conducted in different social setting environment. When teens make connections online, they focus on engaging with people who shares their interest, tastes and cultural background (Boyd, 2014).

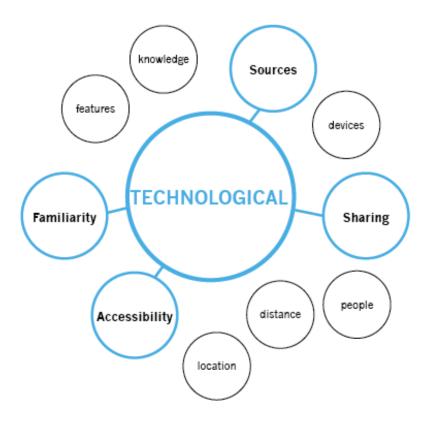


Figure 9: Technological Influences

With the variety of technology applications mentioned in the interviews, different devices are designed to suit the needs for accessing content depending on where you are – your situated context. "What we see now is the hardware diverging while the content converges." (Jenkins, *Convergence Culture*, 15). The variety of devices available doesn't necessarily help shape or make the reading experience any different. They all have different applications and operating systems, participants have expressed how they tend to separate work and personal phone, while they would run different applications to communicate. For example, local and overseas friends tend to have different applications and there are technological limitations to run them on the same phone. Technology might enable communication but at the same time might limit the flexibility as well. In the book Trillions, authors mentioned that devices represent

information in such a way that humans can interact with it or simply be informed by it.

They form ecology when they all share, trade in, consume, and transform some common information (Lucas, 2012).

Technological influences include sources of materials, media type, sharing platforms, familiarity and accessibility of technological tools. Time differences, global locations, features, prices, efficiency and accessibility of tools are influential factors as well.

Technology has introduced new social possibilities, and these have challenged how people assume their daily interactions would be (Boyd, 2014).

3.3 User Journey Mapping on News Reading

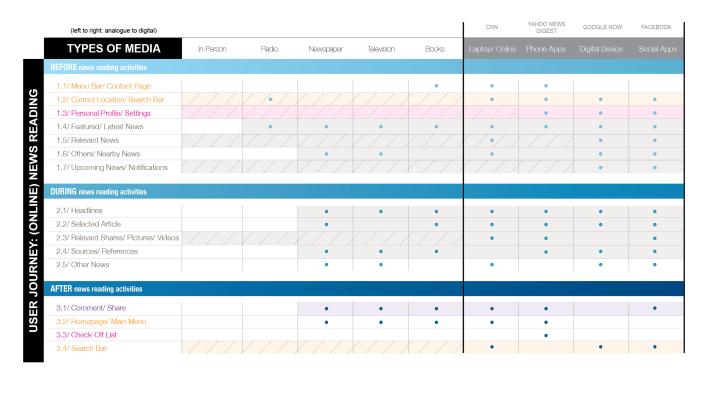


Figure 11: User Journey Map of News Reading

Keys to Categorized Features:

In order to understand the news reading experience, it is important to map out a user journey based on the activities *before*, *during* and *after* news reading. These 3 tasks are the major dividers of the listed activities on the y-axis. The lists of activities included are based on what is provided on the 4 news and social media services from the value matrix. The 4 services are mentioned in the previous Chapter 2.4, and the value matrix will be further explained in Chapter 3.4.

The list of activities on the x-axis as follow:

- 1. Before news reading activities:
 - 1.1/ Menu Bar/ Content Page
 - 1.2/ Current Location/ Search Bar
 - 1.3/ Personal Profile/ Setting
 - 1.4/ Featured/ Latest News
 - 1.5/ Relevant News
 - 1.6/ Others/ Nearby News
 - 1.7/ Upcoming News/ Notifications
- 2. During news reading activities:
 - 2.1/ Headlines
 - 2.2/ Selected Articles
 - 2.3/ Relevant Shares/ Pictures/ Videos
 - 2.4/ Sources/ References
 - 2.5/ Other News

- 3. After news reading activities:
 - 3.1/ Comment/ Share
 - 3.2/ Homepage/ Main Menu
 - 3.3/ Check-off List
 - 3.4/ Search Bar

This map is mainly to look at the mixed type of media that is involved in the news reading experience, listed from analogue (left) to digital (right) formats on the x-axis. From the x and y-axis, we can see how the list of news reading activities overlaps with the types of media. The overlapping varies largely based on the types of media from analogue to digital formats.

On the y-axis, the type of media is listed from analogue (left) to digital (right). The list from left to right consists of In-Person, Radio, Newspaper, Television, Books, Laptop/ Online, Phone Apps, Digital Device and Social Apps. Overall, this is intend to look at any patterns of similarities or differences that may have formed between each media during the different steps in the news reading process. Insights from this chart include how digital news reading enables users for a more complete user journey, compared to analog news reading. Some definitions of features are unclear eg. Main menu might or might not apply to newspaper and television channels. Some features are overlapped between various types of media. Social circle services such as Google now and Facebook do not provide menu options for news reading, newsfeed are pre-filtered automatically or pre-selected for users based on profile settings. Digital medias have encouraged social sharing with one-click buttons, but do not circulate the site navigation back to the main menu like a traditional news site (eg. CNN).

Some commonly used features are essential for news reading activities. Before activities include 1.2 current location/ search bar,1.3 personal profile/ setting, 1.4 featured/ latest news, 1.5 relevant news, 1.6 others/ nearby news and 1.7 upcoming news/ notifications. During activities include 2.1 headlines, 2.2 selected articles, 2.3 relevant shares/ pictures/ videos, 2.4 sources/ references and 2.5 other news. After activities include 3.1 comment/ share and 3.4 search bar. And also some potential features that can be extended to traditional online news reading sites. Before activities include 1.2 current location/ search bar, 1.3 personal profile/ setting, 1.5 relevant news, 1.7 upcoming news/ notifications, During activity such as 2.3 relevant shares/ pictures/ videos, After activity such as 3.4 search bar.

The user journey list of the x-axis is color-coded into 4 key features including navigation, customization, content and responding activities. Multiple items can be listed within each key feature. The 3 tasks in online news reading (Before, During, After) is then each filtered with one key features. This is to look at how users approach the reading journey starting from Navigation (how users navigate the news site from the beginning, in between news articles, or after news reading). Customization (any features that allow users to filter or customize their news reading experience). Content (activities that involve the core news reading activity). Responding Activities (activities that are triggered from news reading, including sharing, quoting sources etc). The objective for the below chart is to understand the patterns of tasks flows and to find design opportunities to simply and improve the experience.



Figure 12: Current User Journey Map Based on 4 Key Features



Figure 13: Keys for User Journey Map

In *Navigation*, lots of circulation between each phrases and steps, users are jumping back and forth in order to navigate between articles. Some features are repeated in the 3 tasks. By starting from the main menu or content page, there are options to look at news based on the most time-sensitive, popular, nearby or relevant factors. In *Customization*, personal profile/ settings help to determine what users at looking at for certain sites, they tend to have the option to select news reading prior to each experience. Notifications are set based on customized settings. Relevance and location are important factors in customization. In *Content*, users tend to circulate between *Before* and *During* news reading activities, equal amount of connections go between the list of activities between 1.4 and 2.5. In *Responding* Activities, it means the ability to comment or share. From the

user journey map in Figure 12, it only applies in *After* news reading activities and tends to direct users back to the previous activities on the list.

In summary, users tend to navigate the sites before news reading activities, and this is continuously being carried out in the user journey. The menu bar or content page is the main feature of the site that determines the beginning of the user experience. There is an opportunity to improve the efficiency to navigate through by reducing the number of options to get to the article page. Personal customization only applies to some services from the value matrix, whether to select preferred news topic or to set up personal profiles. Users tend to browse content back and forth between Before and During news reading activities, this can include browsing between titles and the full article. However, there is no interaction between the action of browsing and responding activities. This can be a disconnection in the overall journey since responding activities such as comment and sharing are closely connected to the article content. The following chapter will analyze the value matrix based on the user journey map and its tasks and activities.

3.4 Value Matrix: CNN, Yahoos News Digest, Google Now, Facebook

Among the types of media form the user journey map (See Figure.11), 4 digital media (laptop/ online, phone apps, digital device and social apps) are selected to further research on how news reading activities may vary within each. These media types are paired with the 4 case studies that were defined earlier in the paper from the competitive analysis. These 4 news services (CNN, Yahoo News Digest, Google Now and Facebook) are examined based on their navigation layout and site features.

This chapter is to look further into existing services and applications from the value matrix, with the use of the user journey map. The map includes the list of activities involved before, during and after news reading activities. Referring to these activities, each of these services are analyzed based on the layout of the homepage of their site.

As a cable news channel, CNN is considered a reliable source providing comprehensive news sources covering local and international topics. Based on the user journey list of elements of news reading activities, the home page and articles page are well defined with the categorized features. Some of the features from *After* activities are included in the articles page. The featured or selected article is always the first read, acting as the dominant of the site for both home and articles page. The secondary reads include features such as the relevant, nearby or other news. The overall structure of the site is clear and logical with consistent tabs. However, there are inconsistent sections for similar features over the site, with a mix of text and images representation of news selection, it can be overwhelming visually that viewers are seeing multiple articles with different level of information. For example, to choose between thumbnails, list of headlines and a combination of both when selecting a specific article to look at. And to choose between latest news, relevant topics and highlights after looking at the main article. (See Appendix 5)

As a news application, Yahoo News Digest pre-selected significant morning and evening news for daily reads. It is a condensed version of a full news service with a list of news headlines as a simple home menu. Most of the navigation is focused on selecting an article and mostly scrolling through the articles page. The articles page is loaded with multiple features from the list of *During* and *After* news activity user journey map, users can easily browse through relevant news sharing and sources/ references.

The service is clearly divided into homepage, articles page and an overall checklist page highlighting if users have read the provided morning and evening news for the week. As a reminder to read news, it also shows the amount of time left to the next newsfeed available. (See Appendix 5)

As a mobile/ web intelligent personal assistant, Google Now is operated based on users' location and the happenings around them. Based on a card feature, user can preselect topics that are interesting to them therefore it is not a full service based news application. Instead of news articles, it covers more of daily happenings such as weather, nearby places and events, past or upcoming activities that match with the topics users preferred. These populated feeds are all based on Google search results. Unlike a traditional news service with local and international happenings, this is a service highlighting news based on users' location, most news are smaller in scale and based on interests type. Overall, it has limited content but highly customizable based on location and interests. Almost no *After* activities are available. (See Appendix 5)

As a social application, Facebook has evolved into the standard among social networking sites. The site navigation is mostly divided into 4 parts with a top menu and 3 columns for main content. On the left column is a personal section with profile, pages and o information. On the right is filled with updates such as friends' activities, upcoming events and latest trends. The main content is the newsfeed section in the middle, each news feed is consists of name of contact that made the post, the post and the option to comment or share. Based on the list from the user journey map, most activities are surrounding *Before* and *After* news reading activities. Because the nature of the site is social networking, news feed occupies the most on the home page. The overall navigation of the site is equipped with a lot of personal profile and sharing features.

Facebook is considered a main form of new source based on the initial news interview, where users are informed with news from personal and subjective news to global and objective news. (See Appendix 5)

In summary, by looking at these existing services and applications, there are potentials in bridging the news reading and social networking services. According to an increasing trend of news filtering system, either by news topic, interests or location, this has shown a demand to narrow down the amount of incoming news. The filters in general news service are primarily based on location or news category. And the filters for social networking sites are mostly based on location, and very often how depends on how news are circulated between connections. From these understandings of current offerings, the focus for this study is to simplify news feed by using the filter of locations of both the users and their social connections. Also, the focus is to cover a good range of newsfeed from local to international disregard of where the users are located. From the value matrix, the social networking services tend to have a higher personal relevance but these news feed are mostly local and only cover what's around the user's location. From the initial user interviews, users have expressed the desire to be well informed with global news happenings, and local news happenings as well because they help to connect and trigger conversations with one another in the community. In Chapter 4, the opportunity and framework for better news reading experiences will be more explained and supported with visuals of the interface development.

Chapter 4: A DESIGN PROPOSAL

4.1 An Opportunity and Framework For Better News Reading Experiences

In order to improve the current news reading experience as a digital product, the proposed news service will focus on simplifying the features and highlighting tools that will help connect and increase social interactivity between users. The idea of using filtered news feed based on social connection is to merge the activities of news reading and social networking. "By taking a technology that was meant for one thing and making it do something else, or finding one that does not yet have a clear use and putting it in real-world contexts, it is possible to come up with innovations beyond the obvious.

Furthermore, an innovation can often come out of the combination of two or more technologies" (Holmguist, Grounded Innovation, Chapter 1).

With the idea of sharing what everyone knows to extend knowledge, Pierre Levy argues that no one knows everyhting, everyone knows something, all knowledge resides in humanity (Vy, 1997). News information is considered as a form of informing one another. This proposed framework is to connect news happening around users based on where they and their family and friends are located. Being connected with their contact list and their chosen circle of friends, users can choose to view or share news with their friends based on their location as well. This new way to approach news reading will enable people to keep track of news happening around their closed ones.

Overall, this is to create an application that provides news information based on users current location and proximity. Going from local to a global scale, users will be updated with news happening that is most urgent and time sensitive. Out of the five properties of the nature of digital products (information processing, interaction, networking, sensing, and proactivity) (Holmguist, 2012). The proposed service aims to boost interaction between users by using the principles in networking, by sharing news feed and using each other's network as the basis of news content.

USER JOURNEY: ONLINE NEWS READING (CURRENT) (PROPOSED) 1.1/ Friends/ Connections Circles 1.1/ Menu Bar/ Content Page 1.2/ Current Location/ Search Bar 1.2/ Nearby News/ Notifications 1.3/ Personal Profile/ Settings 1.3/ Shares/ Pictures/ Videos 1.4/ Featured Keywords 1.4/ Featured/ Latest News 1.5/ Relevant News **DURING** news reading activities 1.6/ Others/ Nearby News 1.7/ Upcoming News/ Notifications 2.1/ Filtered Headlines 2.2/ Selected Article **DURING** news reading activities 2.1/ Headlines AFTER news reading activities 2.2/ Selected Article 3.1/ Sources/ References 2.3/ Relevant Shares/ Pictures/ Videos 3.2/ Bookmark/ Archive/ Search 2.4/ Sources/ References 3.3/ Comment/ Share 2.5/ Other News AFTER news reading activities 3.1/ Comment/ Share 3.2/ Homepage/ Main Menu 3 3/ Check-Off List 3.4/ Search Bar

Figure 14: Comparison of Current and Proposed User Journey Map

Key Features:

1) Filter News By Social Contacts

By importing family and friends contacts from social media, the primary news information will be circulated around these connections. News topics selected for users will be based on where they are located as well as their interests and preferences on subject matters.

2) Location-Based Newsfeed

As location and time differences are a common challenge for long-distance communication, this is to enable users to be notified of up-to-date significant happenings based on where they are. Ranging from local to international news, users will be provided with articles that are most important or closest to their current location.

3) Bookmark/ Sharing Management System

In order to allow users to read news more efficiently, this system will enable them to quickly build up a bookmark library to archive news articles. This will let them to browse and look through articles post daily reading activities, or easily share it with their contacts through various media options.

To summarize the above key features, these are all aimed to simplify the overall news reading user journey. They are listed in the order of how users will approach the proposed news service, from setting up and adding social connections to their profile, going through the location-based filter to receive the filtered newsfeed, to the ability to share of bookmark news article post reading. These key features are the 3 main tasks in the next chapter of wireframes development.

4.2 Wireframes Development

Among the proposed features from the new concept, wireframes are developed based on 3 tasks: 1) Select and add friends to your profile, 2) Filter newsfeed for news browsing, 3) Share or bookmark news post-reading. The first 2 rounds of wireframes development are focused on the above tasks, the last round of wireframes are focused on the overall experience highlighting a holistic news reading experience with the above highlighted features. (See Appendix 6)

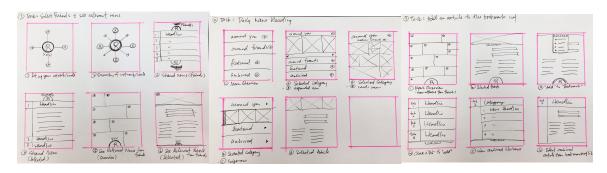


Figure 15: Wireframes Development I

In the first round of wireframes exploration, the wireframes are created based on the 3 primary tasks given. The wireframes from Figure 15 are based on these objectives: select friends and see relevant news (left), daily News Reading Task (middle), add article to bookmarked list (right). Without considering too much technological limitation and guidelines, they are sketched out in order to present the highlighted information in the most innovative and intuitive way. Task flows and how each action transitions to one another are the main focus at this first round of development.

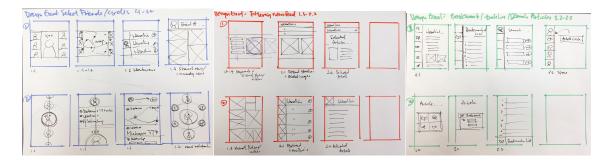


Figure 16: Wireframes Development II

In the second round of wireframes exploration, ways to navigate and function are explored in terms of layouts, shapes, key buttons based on basic interface principles. The wireframes from Figure 16 are based on these objectives: select friends and circle (left), filtering newsfeed (middle), bookmark/ archive/ search articles (right). Some fundamental theories are applied, such as dropdown and accordion menus, thumbnail, tag and card content. (http://ui-patterns.com/patterns/navigation/list)

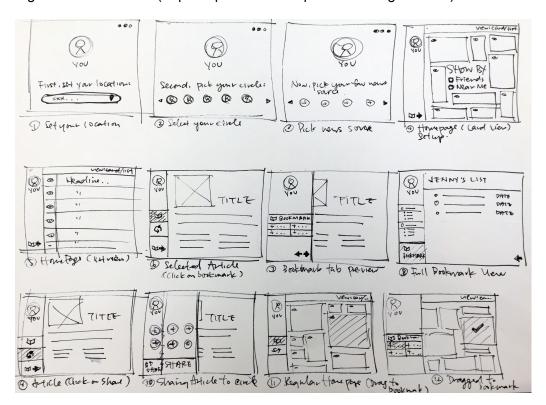


Figure 17: Wireframes Development III

In the last round of wireframes exploration, the 3 tasks: 1) Setting up a profile, 2)

Browsing news, 3) Share or bookmark article are developed along with the overall news reading experience. Here's the overall user flow:

- 1) Set your location
- 2) Select your circle
- 3) Select your news source
- 4) News Homepage (card view)
- 5) News Homepage (list view)
- 6) Selected Article Page
- 7) Bookmark preview through expanded tab
- 8) Full Bookmark Menu
- 9) Selected Article Page
- 10) Sharing Article
- 11) Drag to Bookmark on News Homepage
- 12) Bookmark Added

Overall, there are 3 tasks: 1) Setting up a profile, 2) Browsing news, 3) Share or bookmark article. As the main proposed features of the news service, this will help to simplify and personalize the news reading experience by eliminating irrelevant news topic. Also to help users on browsing news more effectively by giving them the shortcuts to document or share the news to themselves or others. By implementing elements of the social networking service to this proposal, a personal profile is intend to help filter news as well as to build up a network connection of close friends. They keep each other informed of news happening around them.

4.3 Building Paper Prototypes, User Testing and Co-Creation

The purpose of doing a user test is to collect initial feedback from participants and generate ideas to further develop the design concept. It is mainly to focus on how functional, efficient and desirable the proposed service is to the user (Kuniavsky, 2003). The approach is to have open questions/ options regarding the features and let participants choose their preferred form and ask them to explain the reasons. The main ideas that are put into testing are the 3 main tasks mentioned previously, including setting up the profile page, setting up filters for the news homepage, options to bookmark/ share on the articles page.

There are 3 phrases of the user testing, to start by looking at the navigation options for a few main features, a co-creation session for an ideal news homepage, and a few questions to evaluate the news service to end the test. Figure 18 shows the materials that are used for the tests, the paper prototypes are created in hand sketches. They are intentionally rough and not too polished, to not distract participants on the design details but to focus on the highlighted features and task flows.

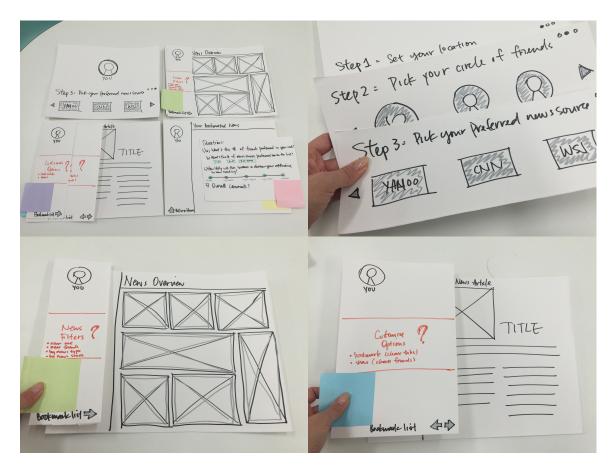


Figure 18: Paper Prototype Test Materials

The first part of the test is to go through the setup profile page, news homepage and articles page one by one. Users are given paper prototypes with rough outlines of the site structure (in black color) highlighting potentially clickable buttons (in silver color). They will be given a feature and some options that will best achieve the purpose, they will then express their preference and explain the reasons.

On the setup page, they go through selecting their locations, friends and news source. On the news homepage, they are given some options to filter their news feed eg. location, sources etc. On the articles page, they will be asked their desire to bookmark or share the articles.

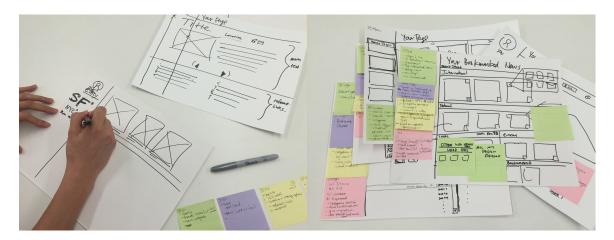


Figure 19: Participatory Design Session

The second part of the test involves a participatory design session (Martin, Bella and Bruce, 2012) where users are given paper and markers to draw up their desire page for news reading. It is a process from mutual learning, where designers and users learn from and about each other (Wgren, 2004). This is open to any ideas for the news homepage, articles page or personal profile page. Users can add any preferred features at this stage. By drawing out the experience, participants are given drawing materials and paper and are asked to draw their experience with a product or service (Saffer, 2010). They will have to explain their choices after they are done.

The last part of the user test is to ask participants to rate the proposed news service in likert scale (http://en.wikipedia.org/wiki/Likert_scale). From the scale of 1 to 5, they were asked 3 questions:

- 1) What is the ideal number of friends within circle?
- 2) What is the ideal number of new sources selected?
- 3) Will this news service increase of decrease efficiency in reading?

These numbers from the scale of 1 to 5 are crucial when determining the right amount of filters in the application. At the end the interview, they are asked to comment on the overall proposal and provide any suggestions on improving the design concept.

4.4 User Feedbacks and Refined User Flow

7 participants are recruited for the user testing session. Based on users' feedback from the test and combining the overall comments, below are the summarized insights for the main features to filter, bookmark and sharing news.

In terms of news filtering, it can be mainly categorized into location, content, media type and popularity based. Location-based includes from user's current location (one or more if traveling), hometown, friends' locations (one or more). Content-based includes local to international news and a variety of news topic. Media-based include text, images, videos or all of the above. Popularity-based means news that friends have read, shared or followed. A few other preferences include crossover options such as filters with location and news topic; randomized filters according on mood along with personal interests; suggestive reads based on "others have viewed this". Overall, these filter options have equal importance.

In terms of bookmarking news, some users prefer individual folders for organization.

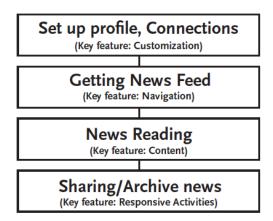
Bookmark options include both homepage and news page, or icons of folders on multiple pages. A few suggestions regarding bookmarks such as a way to identify and check off read or bookmark articles; list bookmarked articles based on year and time,

similar to the idea of a back-up drive; referencing color post-its and the ability to drag, drop and name bookmark tabs with color indications.

In terms of sharing, users express opinions in either sharing a photo, an article, the entire category of news, or the whole folder of bookmarked articles. And the option to share with the number of people might vary from one-self, groups of friends or family, a professionally affiliated group, or everyone. The option to stay on share or not sharing mode to ensure privacy. The ways of sharing can be as simple as dragging, similar to bookmark.

Overall, the idea of using locations and social contacts to pre-select news is approach news reading, enabling users to receive the most relevant news information among others. Some references are mentioned such as news reading from Flipboard, photos sharing from CNN mobile app, filtering to shop options from Amazon. Participants have also expressed concerns regarding using friends to generate filters might largely reduce their current newsfeed content, based on the limited number of friends or where they are located at. The ideal number of friends within their circle ranges from 3-5, 50-100 or more by including everyone from their social contacts. The exact number or type of news sources are not too much of a concern, as long as they can be more personalized based on their reading preferences. Therefore the idea of designing a new filter system can provide different newsfeed based on what users would like to read. The amount of time spent on online news reading highly depends on users' habit of whether they prefer to read through the articles at once, browse through the titles quickly, or simply bookmark and save for later reads. The proposed sharing and bookmarking system will be able to increase flexibility on this by adding quick links to sharing and bookmark folders in before, during or after news reading activities.

Based on the user feedback and comments, here is the site map highlighting the features of a filter system for news reading and bookmarking/ sharing news. A site map is a high-level diagram showing the overall structure of a site. It is used primarily to reflect an understanding of the information structure or architecture of the site as it is being built and, to a limited extent, the navigation structure, or flow through the site. (Duyne, 2003) The 3 tasks are mapped into interface components in the map.



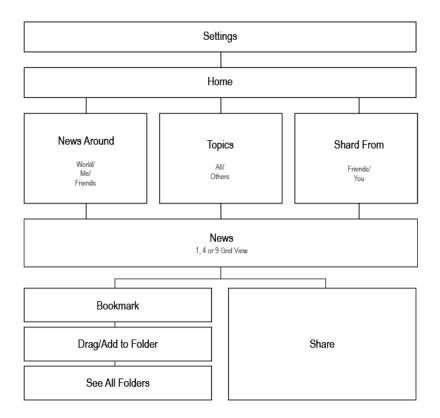


Figure 20: Site Map

4.5 Digital Screen Mock-Up

Based on the above site map, both web-based and mobile-based digital applications have been developed. (See Appendix 9) The first round of screen mock-up is created on the 4 main tasks of setting up profile/ connections, getting news feed, news reading, and share/ archive news.

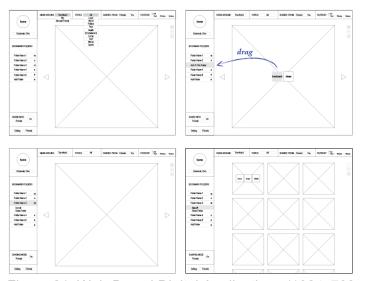


Figure 21: Web-Based Digital Applications (1024x768px)

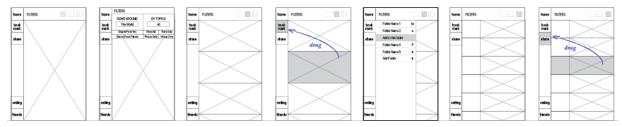


Figure 22: Mobile-Based Digital Applications (320x480px)

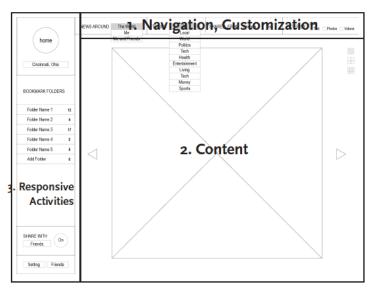


Figure 23: Site Structure 1

Figure 23 shows the how 4 key features *Navigation, Customization, Content* and *Responding Activities* are being categorized on the digital screen mock-up. The user journey starts from the top before news reading activities, the middle for the main content, then the left column for any activities after news reading. After the initial layout development, the digital screen mock up has been revised, polished and actual news content have been implemented (Figure 24). The refined site structure 2 (Figure 24) has a more detailed category for the 4 key features.

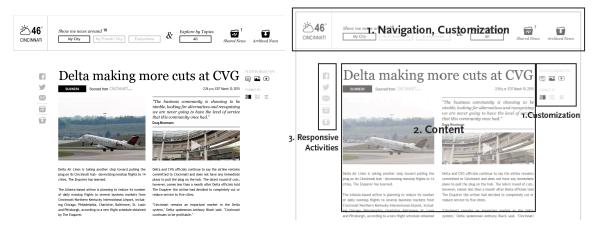


Figure 24: Proposed Homepage and Site Structure 2

Overall, the refined user journey consists of 3 main components: *acquiring news*, *news reading* and *sharing news*. As first time users, they have to first set up their profile page. That includes customizing their location, social connections and preferred topics. (Figure 25)



Figure 25: Profile Set-Up Screens

1. Acquiring News

With an enlarged menu bar on top for Navigation and Customization, the design objective is to have a clear showing of the filtering system. Users have the option to filter by My City, My Friends' City, or Everywhere (Figure 26). The newsfeed is location-based, around the user, their friends and all around the world covering news from local to a global scale. Users can also explore by topics, on top of the location-based filters to acquire news.



Figure 26: News Filter

2. News Reading

In terms of content (See Appendix 10), a site content analysis is conducted to understand all the possibilities for news display in the content area. As the proposed main feature, the viewing of news content are personalized by *media types* (include text, photos and videos) and *viewing format* (include full article, thumbnails or a list). See Appendix 11 for the varying formats of layouts resulted from the different combinations of both filters (Figure 27).

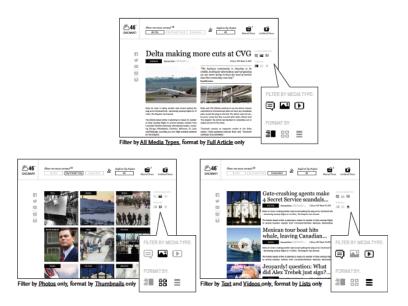


Figure 27: Content Viewing Options Based on Display Preferences

3. Sharing News

On top of acquiring news and news reading, the last key feature of the service is sharing news. As part of the responding activities, user can share selective news to either social media channels, or their selected social connections. They also have the

option to save news articles to the archive folder. Here is an example of how they can share a news article. (Figure 28)



Figure 28: "Share" News Article

In summary, the overall news reading experience consists of acquiring news, news reading and sharing news. The design focus is to simplify the experience so news reading activities are only relevant the most to the users and their surrounding circles. The overall user journey flows from setting up profile, getting news feed, news reading and sharing or archive news. To acquire news, users can customize by where they are and where their social connections are located. In addition, by preferred topics. These customization options can be set up at the beginning. The first key feature is to filter news by the location of the users and their social connections. The second key feature is to personalize the viewing of news content by either media types or viewing format, these will populate the content layout differently. The third key feature is to share selective news to social media channels or to selected social connections. Users will have the option to save news articles to the archive folder.

Chapter 5: CONCLUSION

5.1 Summarized Findings and Implications

The study explored new design and service opportunities around news reading experience based on interviews about news reading and sharing patterns. The service proposed in the previous chapter puts an emphasis on personalized news feed filtered/populated by the user's social connections. The content from the feed is organized in consideration of streamlined navigation across articles.

This subject of studying news reading is important because it is a commonly shared activity between people regardless of their age, background and culture. It is a conversation that brings people closer to each other. By knowing the news happening around family and friends, it is an alternative to stay connected socially. By focusing on the primary features of news reading, the social aspect of the service wont be likely to distract users like other social applications. And lastly, with an emerging trend in custom and personalized newsfeed, the priority is to provide readers with news they are most interested about.

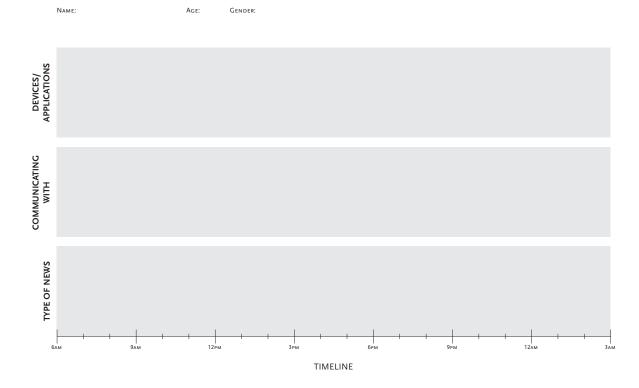
5.2 Future Work

The next step of this thesis is to apply visual design elements to the digital web and mobile-based layouts. Visual design elements such as fonts, colors, icons will help to further define the look and feel of the proposed application. The proportions of the main structural elements from the application such as filter, menu bar and the main content also need to be defined further.

After the above refinements, the next step is to create an on-screen prototype for participants to test the product, gather feedback and make necessary adjustments.

Appendix 1: User Interview Questions

- 1) Open-ended questions (define and describe):
 - 1.1 Can you define what news reading means to you?
 - 1.2 What is your most recent news reading experience?
 - 1.3 Do you take action if the news is worth spreading? Do you communicate this information with others?
 - 1.4 How would you do that?
- 2) Visualize the relationship (refer to Image 1)
 - 2.1 Can you write down the keywords on the post-its provided?
 - 2.2 Can you create connections based on the stories you just told me? Feel free to create and arrange a map based on categories, hierarchies, locations, alphabetical or time.



- 3) Wrapping up
 - 3.1 Can you rate (by numbers, #1 being highest) each element within the 3 categories based on how frequent you use/ communicate with?
 - 3.2 What is something that you like or dislike? Do you find problems or challenges in the news reading experience?
 - 3.3 Can you use 3 words to describe the overall news reading experience?

Appendix 2: User Interview Coded Transcripts Samples

Bernie 65years old Male UC PHD Student

Can you tell more what news reading mean to you?

Hmm for me news reading is just what the general topics are, locally found out what the political atmosphere is, to see what, happening in various communities. When I say communities, im talking more about social, racial and ethnic groups. And a great, way to step on some world events. And a little bit of sports.

I do most of my reading online, The Enquirer, Times, Huffington Post, National Geographic, the Week etc. and just some general news apps. Almost everything I read is digital. Well I am at Starbucks everyday, but most of them im working on my dissertation. Right now I just read when I got time to read. But I try to look things fairly often, I look at the Huffington fairly often, I look at the Enquirer fairly often.

What do you generally read about?

I use news sources to indicate where my dissertation fits in, not so much that I find sources specifically. My dissertation is focused on citizen involvement in policy development, and healthcare. And right now implooking at restructure and information and sometimes it help me, get new ideas relative to that.

Can you tell what you like or not like about news reading in general?

Well, it turns to apps because I like that it is compact so I don't have carry a whole lot of stuff. And I have been, eg something im not familiar about, I can easily look up a word or find references. To see things that are consistent across different media quickly. And plus the varieties, is juts wide open what I can look at.

It depends on whats the particular topic is at the time, I might take notes, might look for additional resources or look at the original source of the material Just common things you know general information, if I talk to someone about it you, know when someone is talking about something, and I am __thot I like to share within the scope of the conversation. Or if its affecting the relationship of my dissertation. I used it as a reference and discussion.

Can you tell me something about your experience here at Starbucks?

Well this particular one, I go to a lot of coffee houses, but this one I have gone to, the staff is pretty open, hmm this particular Starbucks is pretty diverse. You know people that walk through, in terms of education, race, culture, social contact, perspective, goes from very progressive to conservative. And the conversation is pretty good, you know you get a fair amount of cultural diversity in terms of African, Caucasian, Asian, European, you know coming through this particular one. This one is one of the friendliest one, I mean im here all the time. I speak to a lot of people, we talk about common things, just pretty general things you know... hmm im 65, 66 in dec. so somebody had conversation with a baby and young child might talk about

Definition of news reading (define for each interview)

When to read

Where to read the reason

specific news sources from (location)

reading topics/ priorities

quotes

electronics features

taking an action as follow up the reason

Appendix 3: Summarized User Interviews

A_01) 24years old, Female, University of Cincinnati Graduate Student

Car radio, laptop and phone apps are the main source of information. Reading topics are closely related school studies and professional career development. News reading is done in both personal and work time; TED talks are good options to listen on a phone app while at work. More comfortable to share with family members but is limited with the long distance between them. Will post online with ideas that are worth spreading.

A_02) 19years old, Male, Military Member and PT History Teacher

Picking up magazines from newsstand is the most preferred form of news source, especially with interests that are related to his occupation. Very organized daily schedule in communicating with his connections, based on their distance apart and availability. Preferred to have in-person conversations related to religious matters. Online are considered an alternative to print resources.

A 03) 19 years old, Male, University of Cincinnati Undergraduate Student

Comic books are the top source of obtaining information because it is not as serious. Philosophical readings are inspiring. Social media is preferred as well in free time while not occupied with the above two, mostly within the topics of history and entertainment. Specific topics are discussed with different connections only

B 04) 29 years old, Female, Marketing Manager

Social apps serve as the main form of communication and information source between user and her closest circles that are mostly overseas. Her definition of social communication includes exchanging texts, Facebook posts, pictures and videos. Switching personal and work phone is a challenging task by limiting herself to certain features for each phone to avoid any overlapping in accounts. She prefers information comes to her, only seek out readings that interest her such as novel and fashion in both physical and electronic book formats.

B_05) 23years old, Male, Apartment Leasing Manager

Most information came from third party news sources such as Newser and Aljazeera because they are condensed, objective and not biased. Vice news is personal and risk taking. Work nature requires frequent activities in social media, he switches between the two but keep them separately. He also actively posts on social media and shares pictures.

B 06) 31 years old, Male, Dentist

Screening from headlines to full articles and exchange conversations mainly with patients at work. Local news and events are a common thread, the conversation usually extends to a more personal level. Building work and extending personal relationships through information sharing. Smaller websites such as Daily Mail are less credible but with some weirdly interesting stories that don't get reported in others

C_07) 68years old, Male, University of Cincinnati Professor

News reading is a daily activity, specific time and location as part of the reading habit. Starting with local and going to global news. Only newspaper and online reading are considered the official news acquiring forms, other forms of communication include texts, phone calls and emails but limited due to technological limitations.

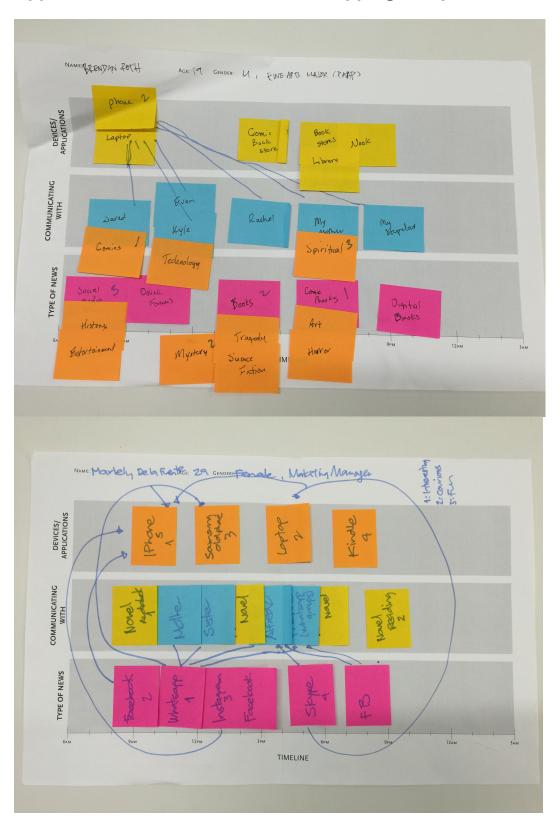
C 08) 65 years old, Male, Retired

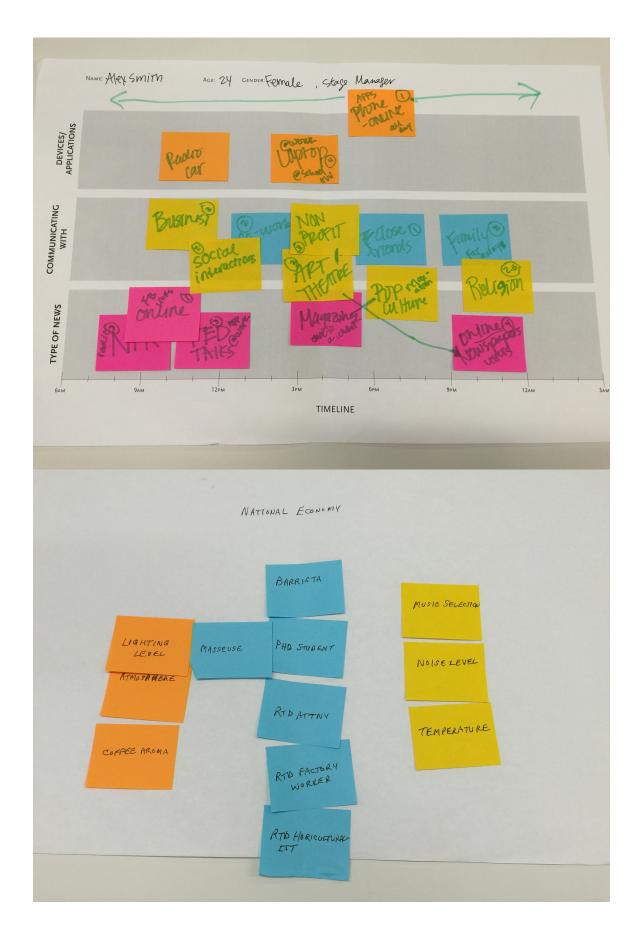
With a set time and location for news reading, it is a habit the user has developed over years. Atmosphere within Starbucks makes a difference but not as important as the people he interacts with on a regular base. The news sharing and life updates with acquaintances and even strangers have made the repeating news reading experience personal.

C_09) 65years old, Male, University of Cincinnati PHD student

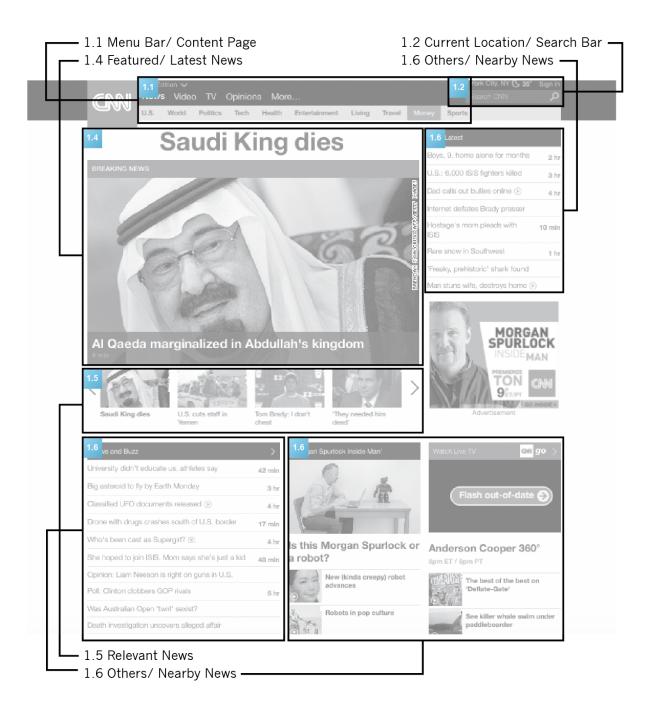
Most information acquired is related to his PHD studies around the topic of education. Information acquired is typically shared between various devices from the laptop, tablet and cell phone. On and off campus access are required for the data transfer and has made his work much more efficient this way. He has the habit of working in Starbucks all day everyday, being familiar with the location, interior space, staff and regular customers have made it a more personal experience for him. While mostly focusing on work, he is open to have conversations with regulars and walk-ins from Starbucks.

Appendix 4: User Interview Visual Mapping Samples

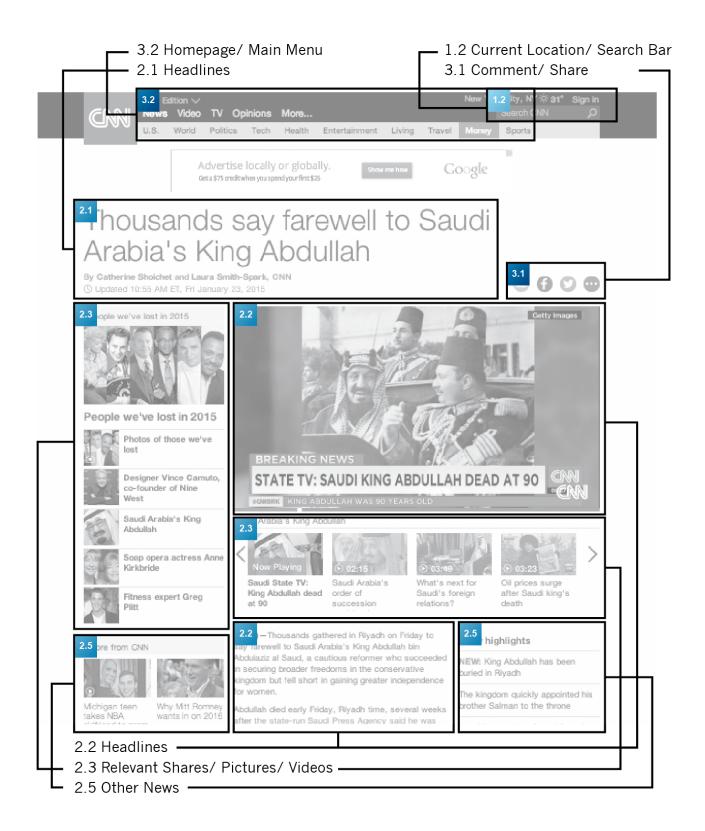




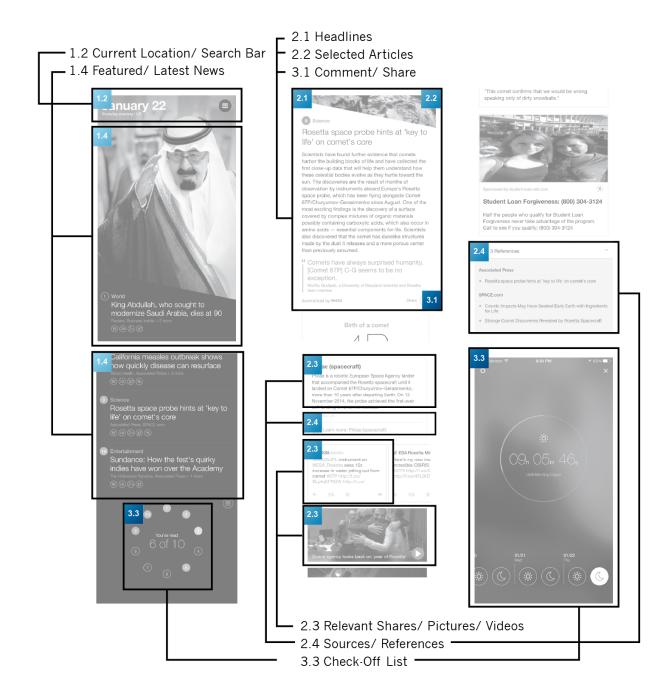
Appendix 5: Case Studies: Features Analysis



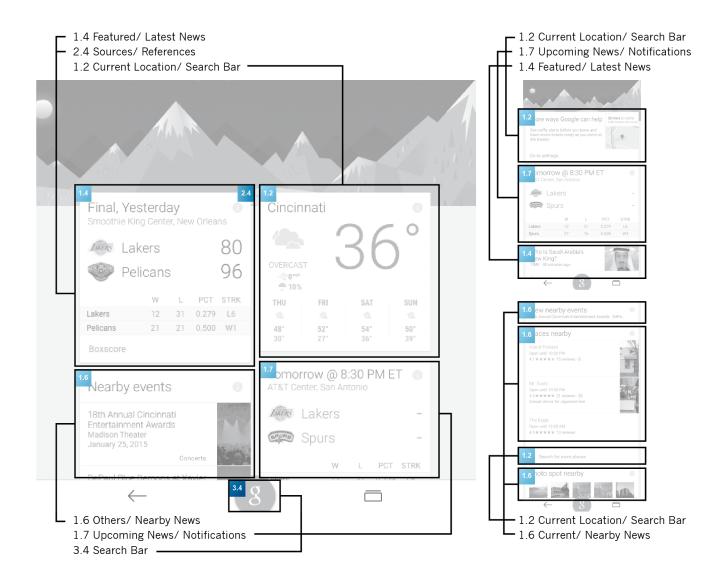
CNN Features Analysis (Home Page)



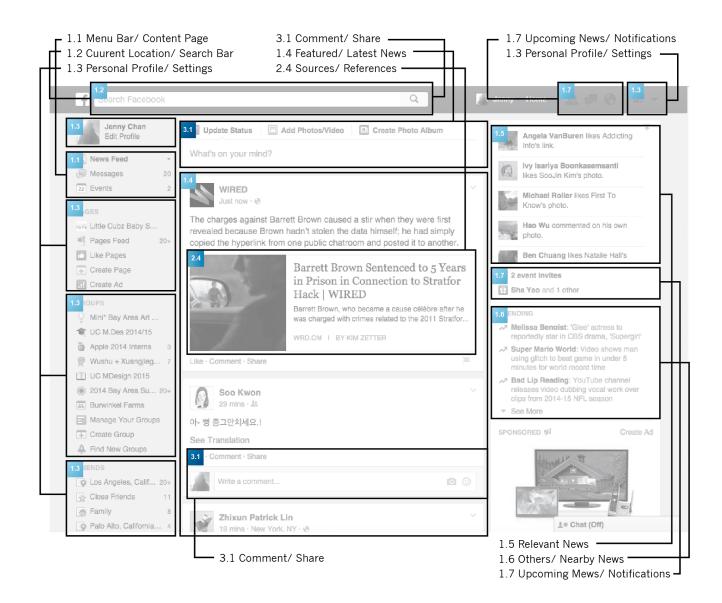
CNN Features Analysis (News Page)



Yahoo News Digest Features Analysis (From Home to News Page)

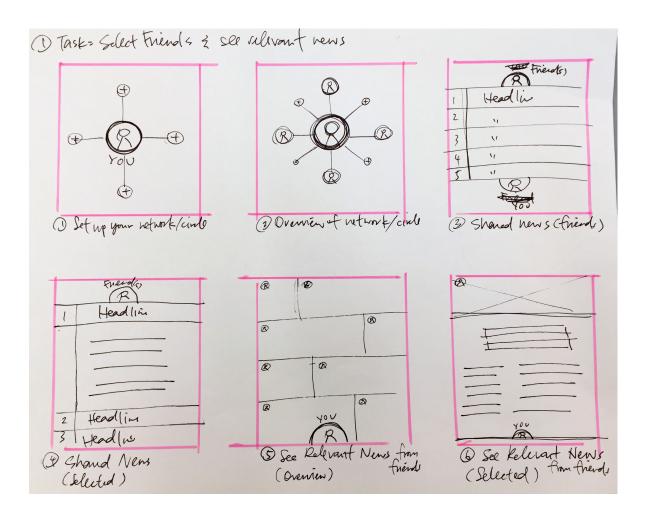


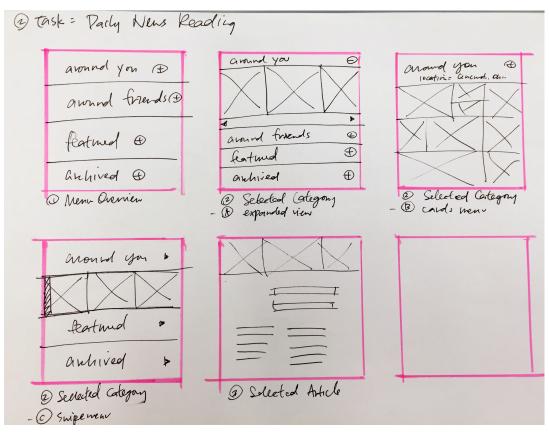
Google Now Features Analysis (Home Page)

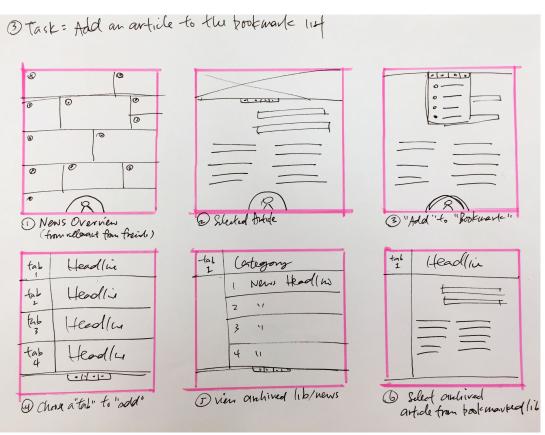


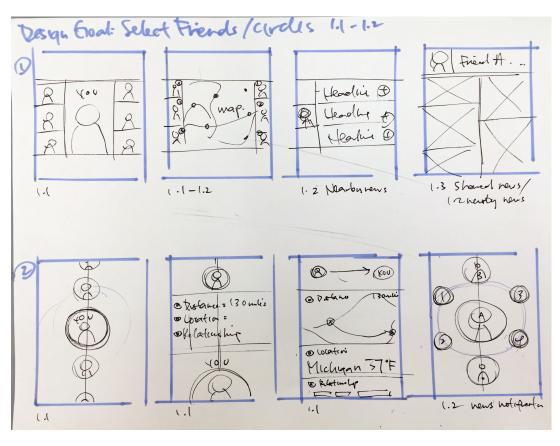
Facebook Features Analysis (Home Page)

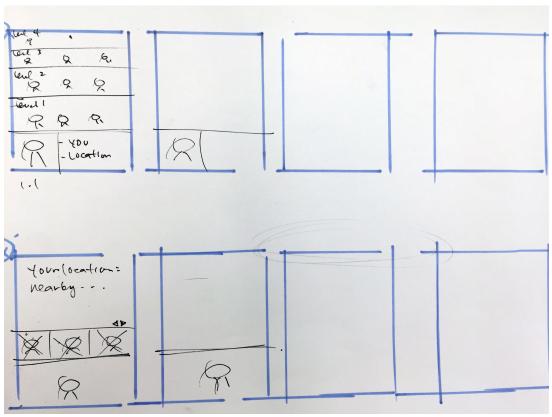
Appendix 6: Wireframes Development

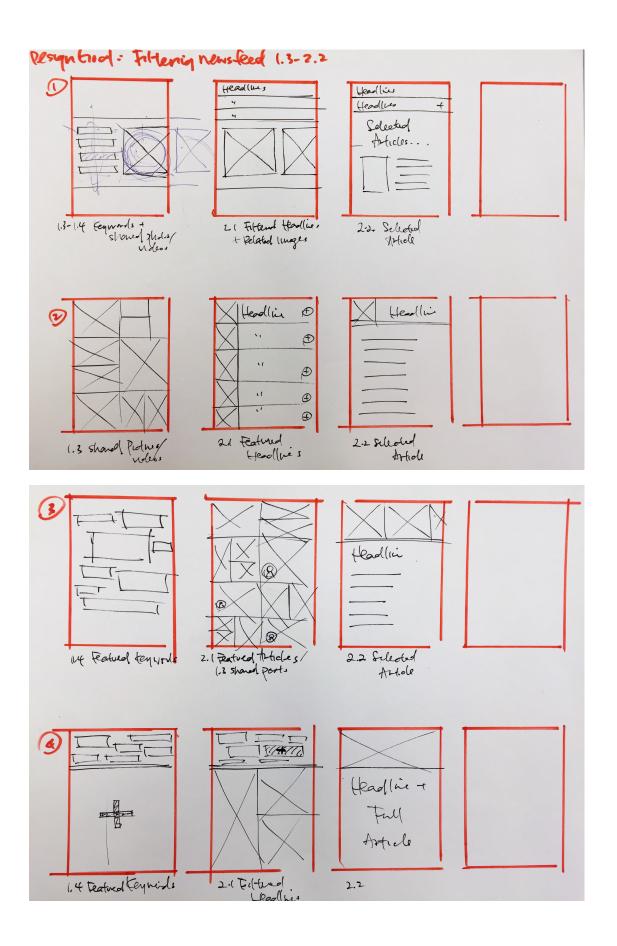


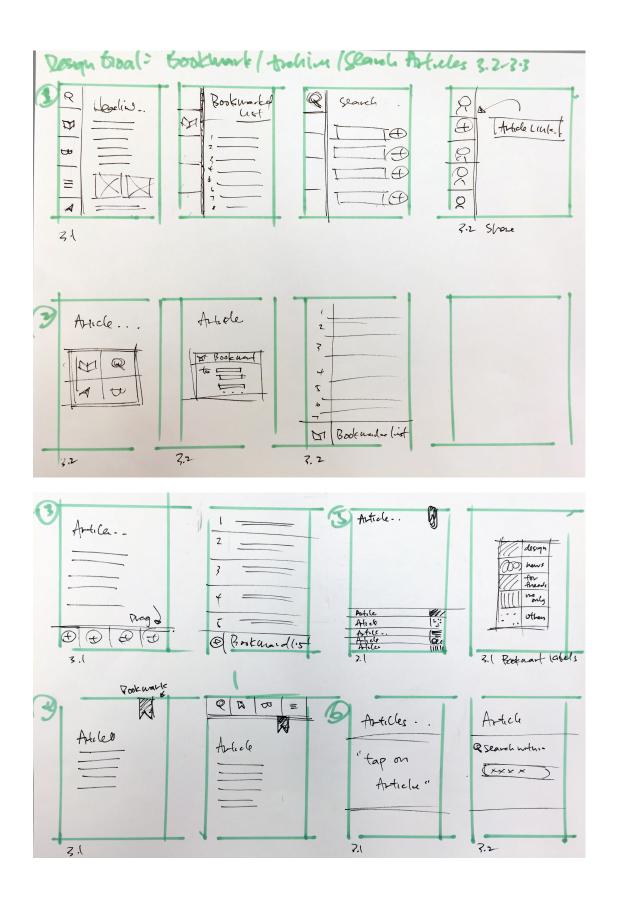


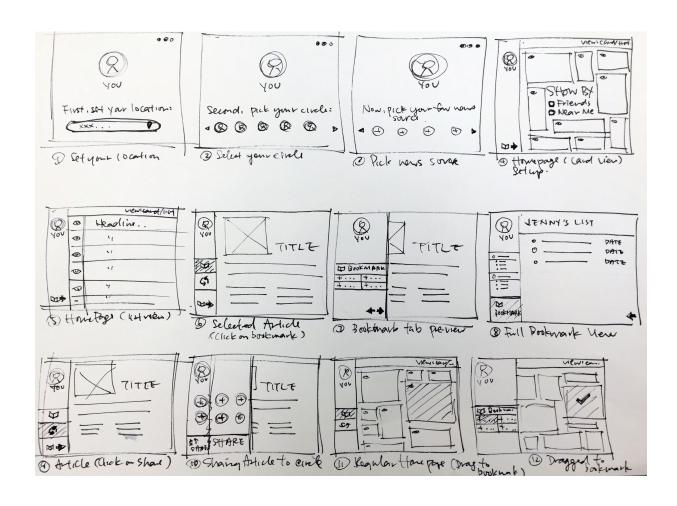




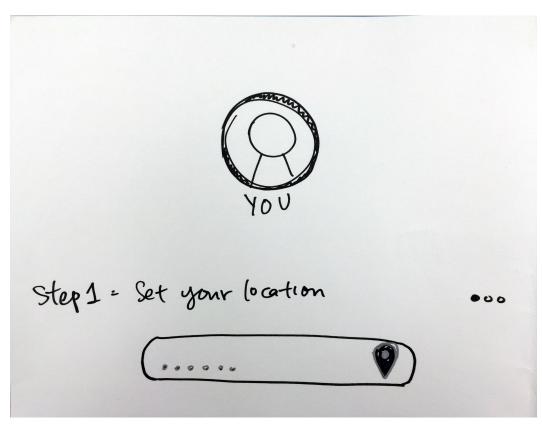


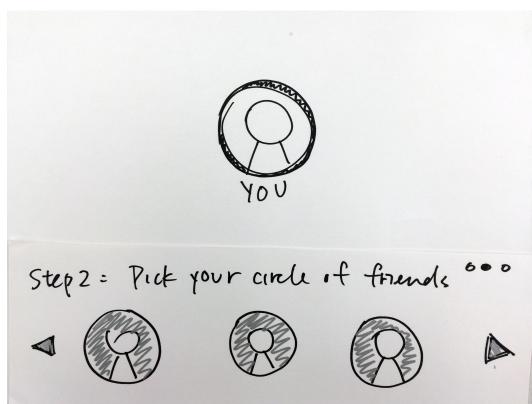


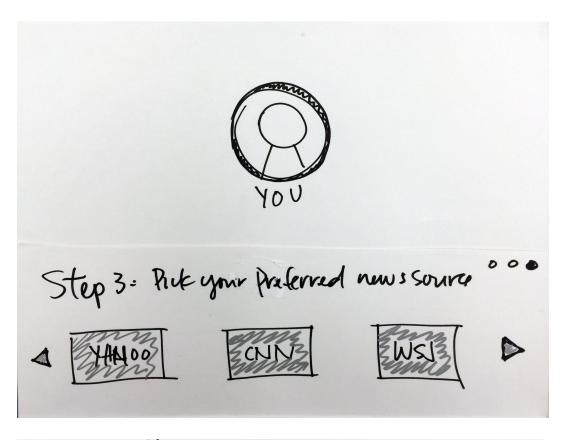


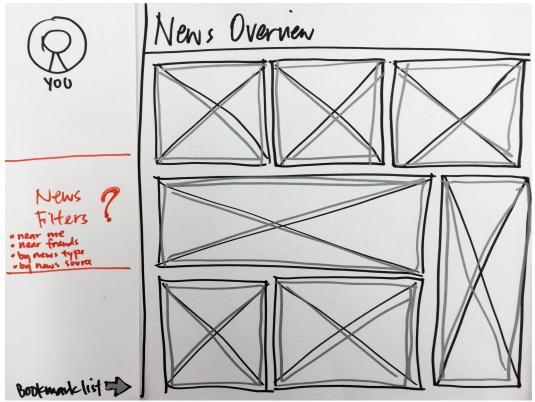


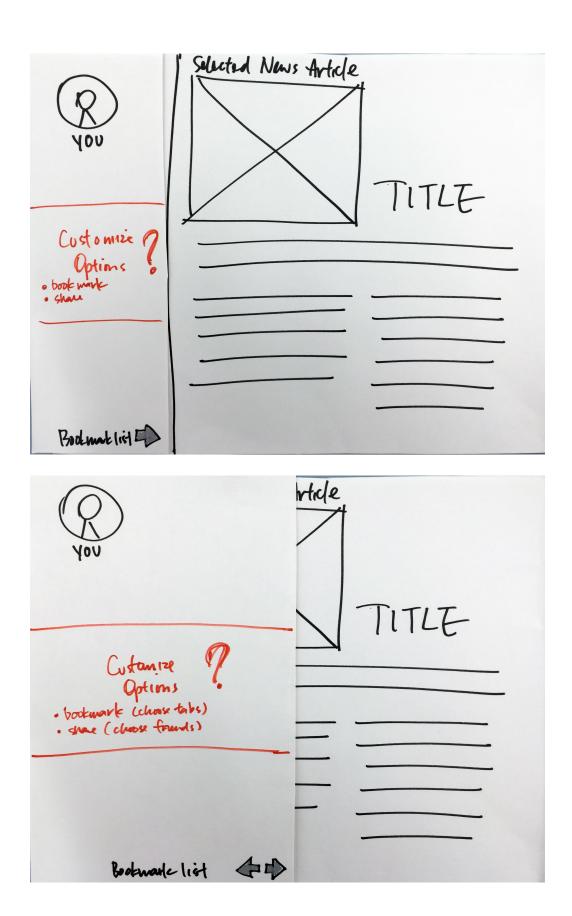
Appendix 7: Paper Prototype Test Materials

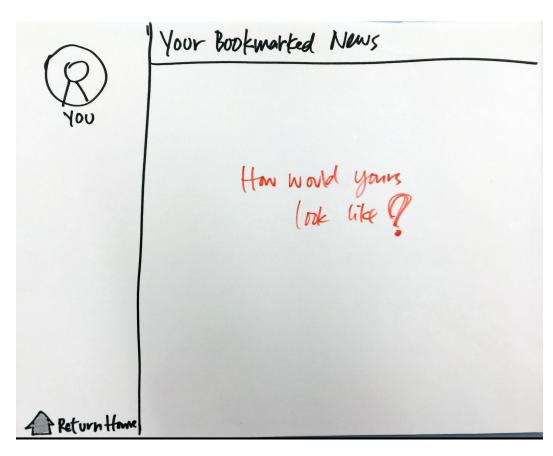


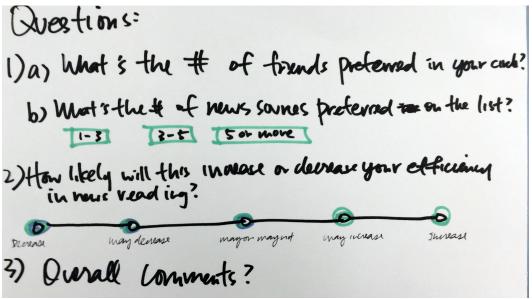




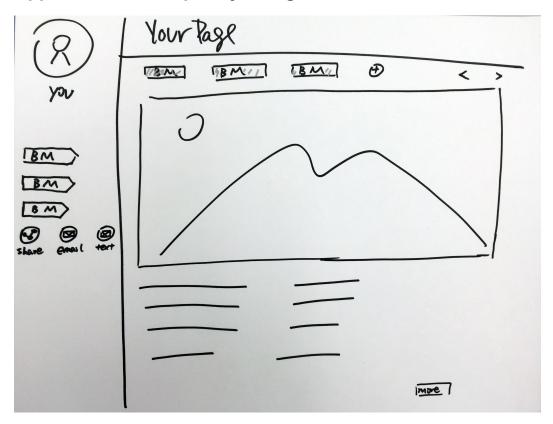


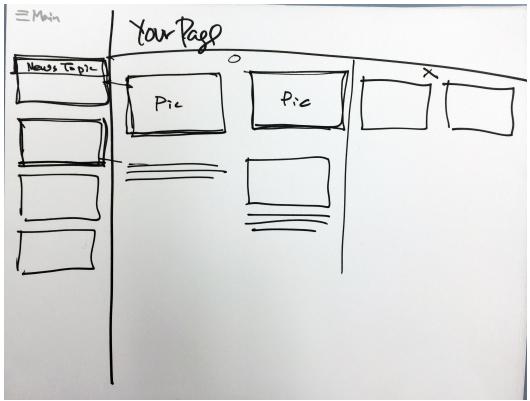


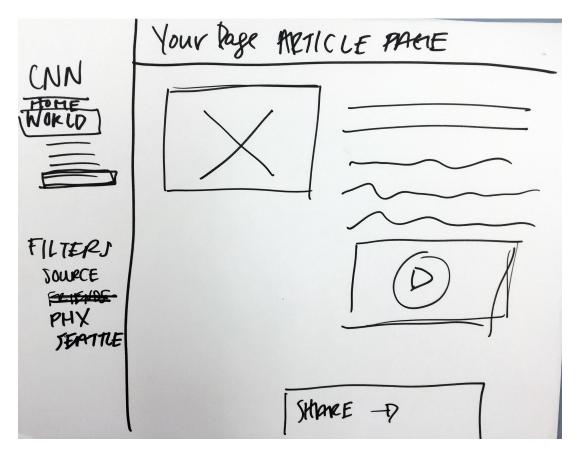


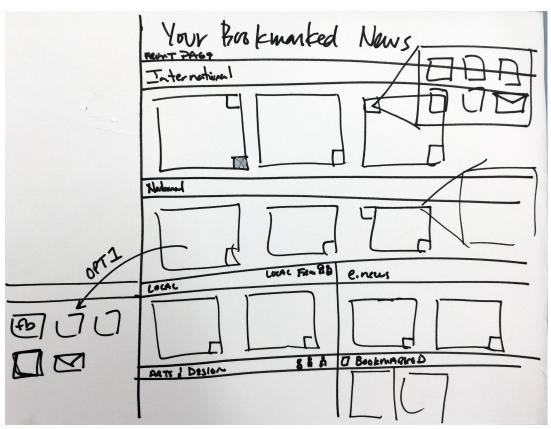


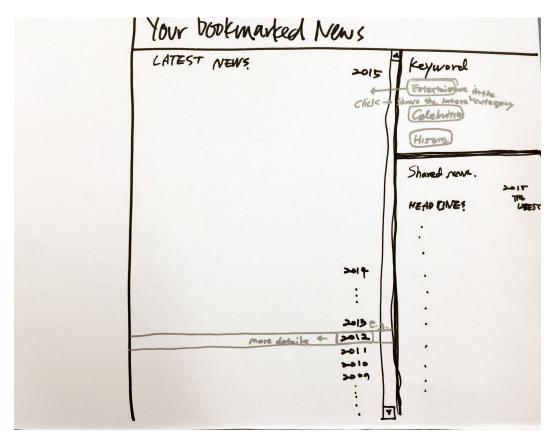
Appendix 8: Participatory Design Results

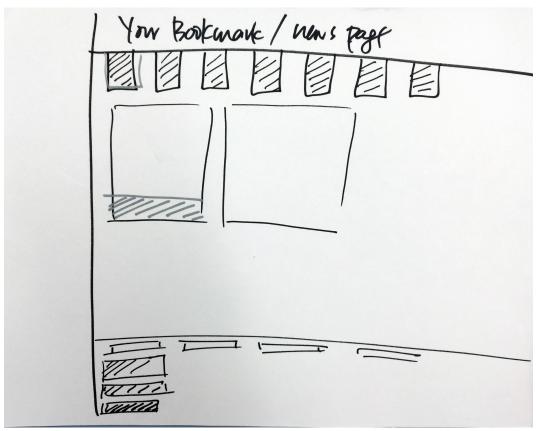


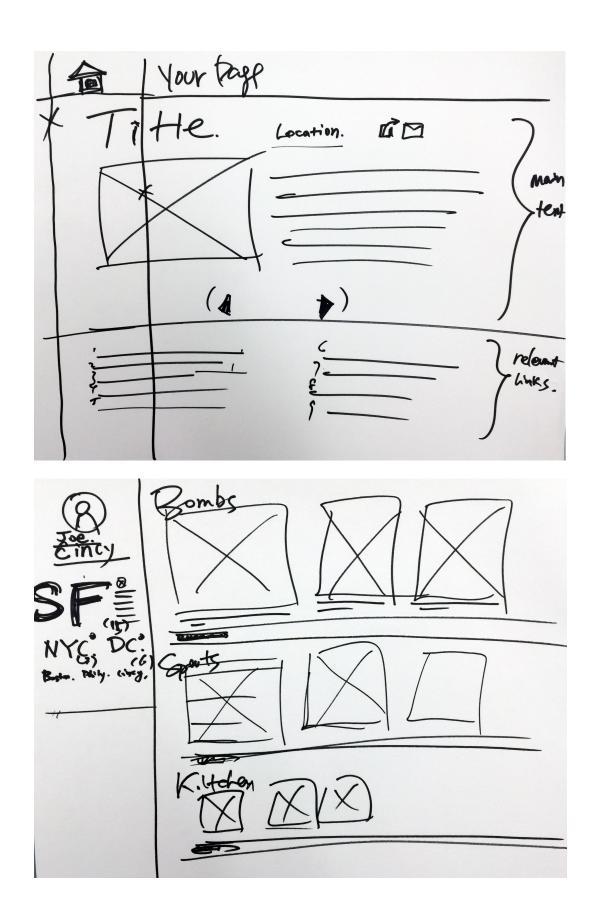




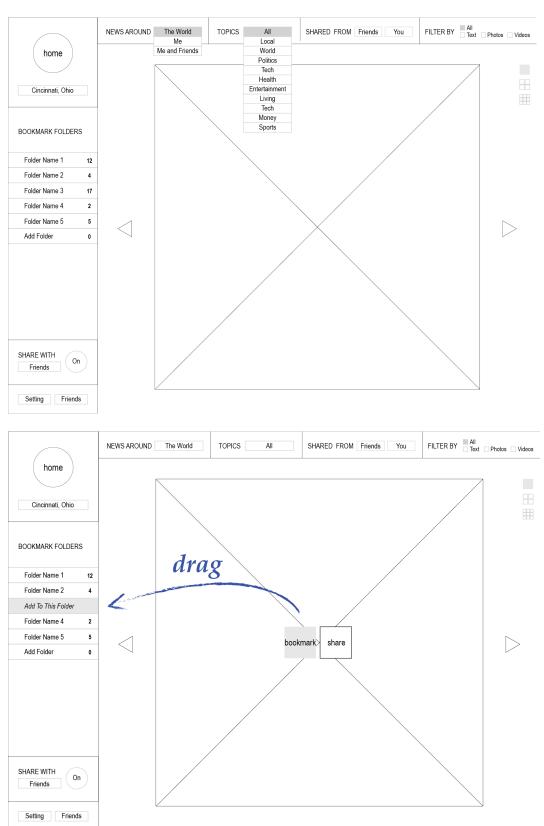


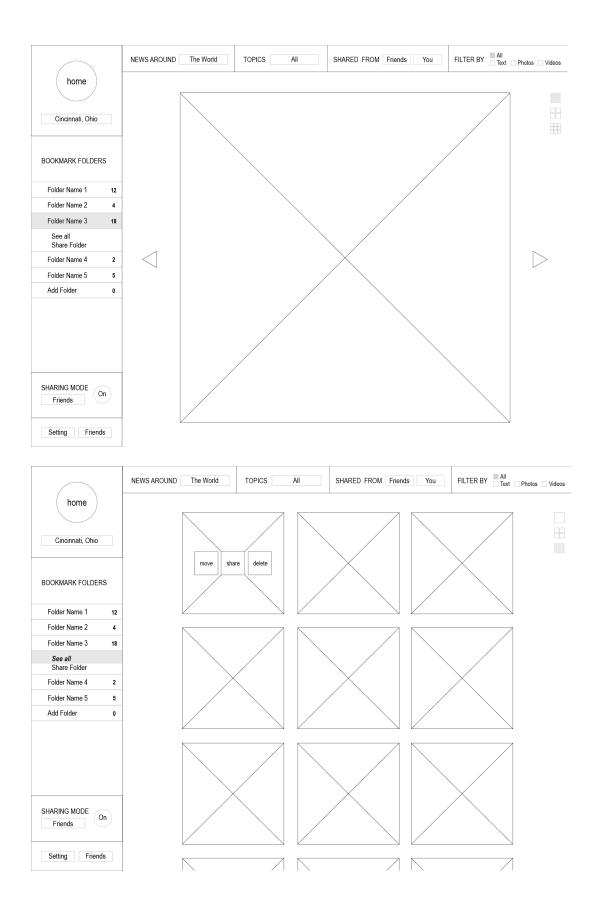


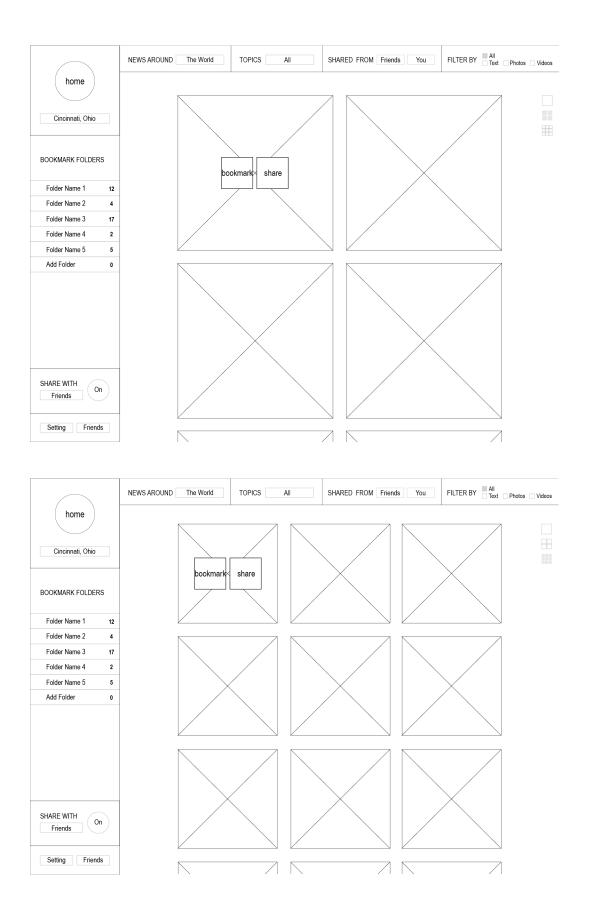


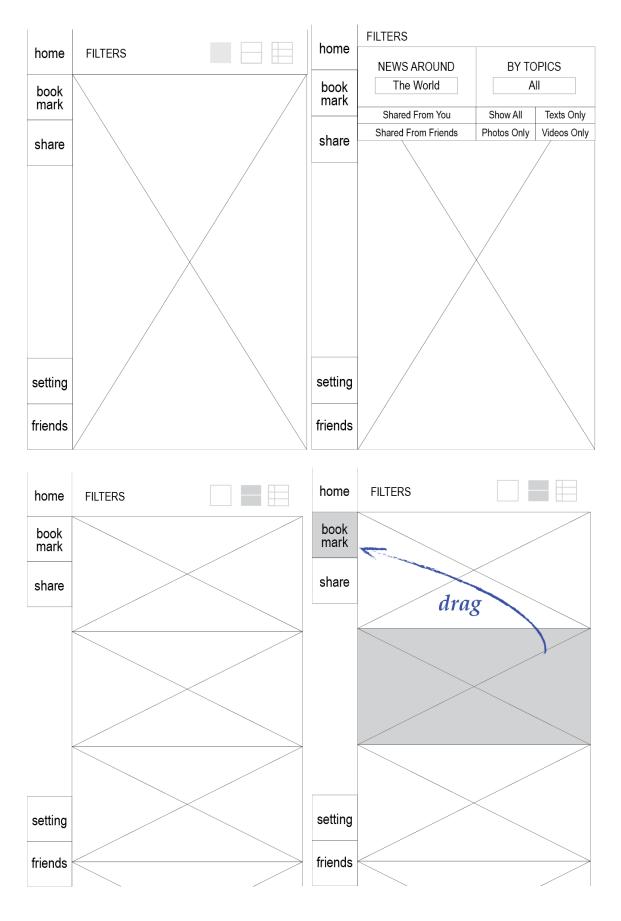


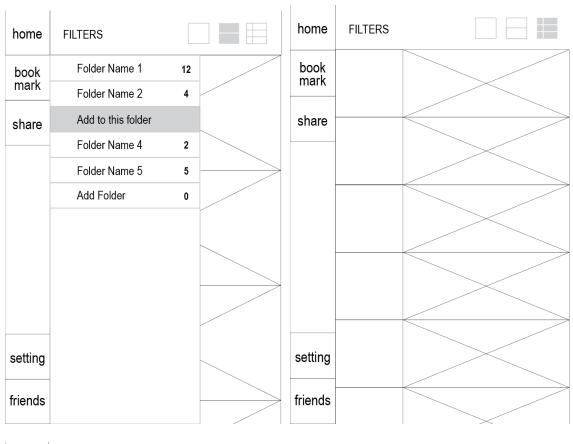
Appendix 9: Web/ Mobile-Based Digital Applications

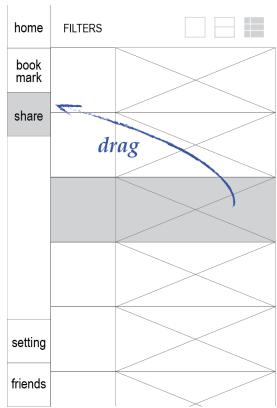












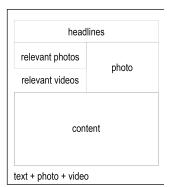
Appendix 10: Site Content Analysis

FULL ARTICLE



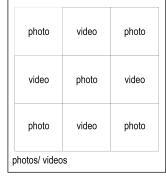
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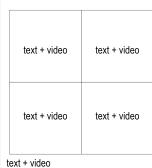
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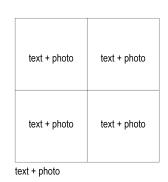


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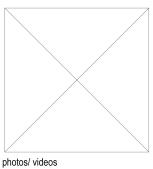




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Appendix 11: Refined Interface



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Delta making more cuts at CVG

BUSINESS Sourced from CİNCİNNATİ.com

2:24 p.m. EDT March 10, 2015

38 88 **≡**









Delta Air Lines is taking another step toward pulling the plug on its Cincinnati hub - downsizing nonstop flights to 14

The Atlanta-based airline is planning to reduce its number of daily nonstop flights to several business markets from Cincinnati/Northern Kentucky International Airport, including Chicago, Philadelphia, Charlotte, Baltimore, St. Louis and Pittsburgh, according to a new flight schedule obtained by The Enquirer.

"The business community is choosing to be nimble, looking for alternatives and recognizing we are never going to have the level of service that this community once had."



Delta and CVG officials continue to say the airline remains committed to Cincinnati and does not have any immediate plans to pull the plug on the hub. The latest round of cuts, however, comes less than a month after Delta officials told The Enquirer the airline had decided to completely cut or reduce service to five cities.

"Cincinnati remains an important market in the Delta system," Delta spokesman Anthony Black said. "Cincinnati continues to be profitable."

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Delta making more cuts at CVG

BUSINESS Sourced from CINCINNAT!com Troy Hitch MDes

> Delta Air Lines is taking another step toward pulling the plug on its Cincinnati hub - downsizing nonstop flights to 14 cities, The Enquirer has learned.

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"Cincinnati remains an important market in the Delta system," Delta spokesman Anthony Black said. "Cincinnati continues to be profitable."



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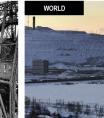
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Delta Air Lines is taking another step toward pulling the plug on its Cincinnati hub downsizing nonstop flights to 14 cities, The Enquirer has learned.

The Atlanta-based airline is planning to reduce its number of daily nonstop flights



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2. Pick your connections

. Choose your news topics



It seems like you are located in Cincinnati, Ohio, is that correct?

yes no



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. Choose your news topics



In order for us to personalize your newsfeed, we would like to import your connections for you.











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These are our popular news topics, tell us what you like.

Business Politics Technology Health Design Science Entrepreneurship Food Books Film Entertainment Stocks Dining Travel Psychology Business Politics Technology Health Design Science Entrepreneurship Food Books Film Entertainment Stocks Dinina Travel Psychology

BIBLIOGRAPHY

Jenkins, Henry. Convergence Culture: Where Old and New Media Collide. Amazon Digital Services, Inc. 2008.

Boyd, Danah. *It's Complicated: The Social Lives of Networked Teens*. New Haven: Yale University Press, 2014.

Shedroff, N. *Information Interaction Design: A Unified Field Theory of Design.* http://www.nathan.com/thoughts/unified/index.html, 1994

Ragin, Charles C., and Lisa M. Amoroso. *Constructing Social Research: The Unity and Diversity of Method*. 2nd ed. Los Angeles: SAGE Publications, 2011.

Saffer, Dan. Designing for Interaction: Creating Innovative Applications and Devices. 2nd ed. Berkeley, CA: New Riders ; 2010.

Wurman, Richard Saul. *Information Architects*. New York: Graphis, 1997.

Grady, Jennifer, and Kenneth Grady. A Designer's Research Manual: Succeed in Design by Knowing Your Clients and What They Really Need. Gloucester, Mass.: Rockport Publishers, 2006.

Creswell, John W. Research Design: Qualitative, Quantitative, and Mixed Method Approaches. 2nd ed. Thousand Oaks, Calif.: Sage Publications, 2003.

Martin, Bella, and Bruce M. Hanington. *Universal Methods of Design 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions*. Digital ed. Beverly, MA: Rockport Publishers, 2012.

http://en.wikipedia.org/wiki/CNN

Newton, Casey. http://www.theverge.com/2014/1/7/5284300/yahoos-sleek-news-digest-app-swims-against-the-stream. 2014.

http://en.wikipedia.org/wiki/Google Now

Rouse, Margaret. http://whatis.techtarget.com/definition/Facebook. 2014.

Allen, Bryce. *Information Tasks toward a User-centered Approach to Information Systems*. San Diego: Academic Press, 1996.

Lucas, Peter, and Joe Ballay. *Trillions Thriving in the Emerging Information Ecology*. Hoboken, N.J.: John Wiley, 2012.

Holmquist, Lars Erik. *Grounded Innovation: Strategies for Creating Digital Products*. Boston: Morgan Kaufmann, 2012.

Vy, Pierre. *Collective Intelligence: Mankind's Emerging World in Cyberspace*. New York: Plenum Trade, 1997.

http://ui-patterns.com/patterns/navigation/list

Kuniavsky, Mike. Observing the User Experience a Practitioner's Guide to User Research. San Francisco, Calif.: Morgan Kaufmann Publishers, 2003.

Wgren, Jonas, and Erik Stolterman. *Thoughtful Interaction Design: A Design Perspective on Information Technology*. Cambridge, Mass.: MIT Press, 2004.

http://en.wikipedia.org/wiki/Likert_scale

Duyne, Douglas K., and James A. Landay. *The Design of Sites: Patterns, Principles, and Processes for Crafting a Customer-centered Web Experience*. Boston: Addison-Wesley, 2003.