

Call to Order: User Experience and User Interface Design for  
Robert's Rules of Order

by

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A THESIS


Presented to the Department of Product Design  
and the Robert D. Clark Honors College  
in partial fulfillment of the requirements for the degree of  
Bachelor of Science

June 2016

## An Abstract of the Thesis of

Sam M. Selbie for the degree of Bachelor of Science  
in the Department of Product Design to be taken June 2016

Title: Call to Order: User Experience and User Interface Design for Robert's Rules of Order

Approved:   
Trygve Faste

The following document is an account of the research, development, and design of the user interface for a mobile application intended to educate users about Robert's Rules of Order, and facilitate its use within the context of a group meeting.

The author introduces his interest in the field as it stems from personal experience before recounting the initial research conducted to better understand the context of the problem, the users, and the difficulties with Robert's Rules of Order as it currently occurs. After initial research was conducted the design process began, wherein user personas were developed and ideation occurred. This was followed by design development and an initial usability study, the feedback from which was used to create a new design. Subsequently, two more rounds of usability study and design development occurred; the product of the final round of usability testing is the final product of this project.

After describing the final design of this product, the author reviews the research and design processes, recounting those procedures which were successful, and describing some of the project's difficulties and how to avoid them in future projects.

## **Acknowledgements**

Firstly, I'd like to thank my parents for their constant encouragement and support. Without them, I wouldn't have discovered Product Design, and I wouldn't be here today. Thank you to Professor Trygve Faste for his continued support and advice throughout this process. His calm, collected demeanor is infectious and has been invaluable these past few months. Thank you to Kirstin Hierholzer for her expertise and encouragement; I wouldn't have known the first thing about usability studies or how to run them if it hadn't been for her wisdom. Thank you to Professor Ocean Howell for helping me navigate the dark waters of Honors College thesis and graduation requirements. I know we didn't meet much, but when we did he gave me helpful answers.

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## Chapter 1: Introduction

### Robert's Rules:

It is often enough that one finds oneself in a meeting going poorly; perhaps people are speaking over each other, or the one in charge of the meeting isn't keeping discussion on topic. These issues occur so frequently that there have been a number of systems developed to combat them; Robert's Rules of Order is one such system.

Developed in the late 19<sup>th</sup> century by US Army Engineer Henry Robert as a way to run effective meetings, Robert's Rules have been adopted by many organizations as their official way to run meetings.<sup>1</sup> Based on the British parliamentary system of debate, Robert's Rules is intended for use within deliberative bodies including not for profit organizations and boards of directors.<sup>2</sup> Widely used in the US for non-profit board meetings, Robert's Rules is accepted by some as "an efficient and professional" way to run meetings that "ensures that everyone has an opportunity to speak on a topic."<sup>3</sup>

While many parts of Robert's Rules proceedings can be complex, both the instructional manual and other sources note that "80% of the time, users will only need to know 20% of the proceedings" and that users "don't have to know [the] whole book's worth, just a few key concepts."<sup>4</sup>

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<sup>1</sup> William J. Evans. Daniel H. Honemann. Thomas J. Balch. Henry M. Robert III. *Robert's Rules of Order, Newly Revised, In Brief*. Da Capo, 2004. p7

<sup>2</sup> Evans, Honemann, and Balch. p8

<sup>3</sup> Steve. "Five Reasons to Use Robert's Rules." Non-Profit Ally. March 17, 2016.

<sup>4</sup> Evans, Honemann, and Balch. p8,

Forhan, Christy. "Robert's Rules: What You Should Know - PTO Today." PTO Today. Accessed May 11, 2016.

I was first exposed to this system my freshman year of college after joining a fraternity, and have since then come to know the process and its difficulties fairly well. Throughout my three and a half years of experience with Robert's Rules I have played the roles of Member, Secretary, Officer, and Chair, and have observed others do the same. During this time I noticed that there were rarely more than a handful of people that fully understood the process, which became especially apparent during meetings we had to amend or vote on even simple motions. By the time I began thinking about a thesis topic, I was serving as the Chair and member for two separate deliberative bodies, both using Robert's Rules, and in both contexts I saw people having the same issues. It was around then that I decided that I would like to combine my studies as a designer and my experience with this process to see if I could help people better understand the process, and maybe provide a way to augment it.

### **UX / UI Design:**

While the term "User Experience" wasn't coined until 1995, the profession itself is far older. (One article asserts that Leonardo DaVinci may have been the first UX designer, as seen through his efficiency conveyor belt kitchen design commissioned by the Duke of Milan around 1430.)<sup>5</sup> Although a concrete description of what a user experience (UX) designer does is still a hotly debated topic, the general consensus among professionals is that UX designers are "primarily concerned with how the product feels...[and] ensure that the product logically flows from one step to the next."<sup>6</sup>

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<sup>5</sup> Tariq, Ali Rushdan. "A Brief History of User Experience." InvisionApp. February 26, 2015. Accessed May 4, 2016. <http://blog.invisionapp.com/abriefhistoryofuserexperience/>.

<sup>6</sup> Ming, Lo Min. "UI, UX: Who Does What? A Designer's Guide To The Tech Industry." FastCo.Design. July 7, 2014.



While UX professionals are generally associated with working in the realm of digital products, their purpose hasn't much changed from DaVinci's day; user experience designers are still concerned with products and systems and ensuring that they are designed and order to flow logically, ensuring ease of use for the end user. Like DaVinci, who would have played the role of designer, engineer, craftsman, and manager, all under the umbrella of user experience designer, modern day UX professionals wear many hats. While in large teams these roles may be split among individuals, it is not uncommon for a UX designer to also be in charge of how a product is laid out (interface design), how a product looks (visual design) and finding and testing how users interact with products (user research).<sup>7</sup> The modern day user experience designer is a jack of all trades and is user focused, they make products (mostly digital) that flow logically, and their jobs are becoming more demanding.

Despite UX's twenty year history, it is really only in the last few years that the profession has come into the limelight, and that is mainly due to the near ubiquity of digital interfaces we see in our daily lives.<sup>8</sup> As more and more platforms are being moved online and onto mobile devices, there now exists a generation of digital natives who are no longer content with mediocre digital experiences. In the US alone, more than two thirds of the adult population own smartphones, and this is predicted to rise within the coming years.<sup>9</sup> Given the prevalence of these devices, companies have begun to evaluate the costs and benefits of improving or ignoring their digital platforms;

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<sup>7</sup> Ming, Lo Min. "UI, UX: Who Does What? A Designer's Guide To The Tech Industry."

<sup>8</sup> Tariq, Ali Rushdan. "A Brief History of User Experience."

<sup>9</sup> Smith, Aaron. "U.S. Smartphone Use in 2015." Pew Research Center Internet Science Tech RSS. 2015. Accessed May 11, 2016.

“companies with highly effective UX have [been able to] increase their revenue by [up to] 37%...[while] problems with [an app’s] functionality will cause 87% of users to uninstall it.” An additional “90% of users report they stop using an app due to poor performance...and 86% of users believe an exceptional user experience is worth paying extra.”<sup>10</sup> Given how integrated into our daily lives these interfaces are, it is no wonder that our expectations of their performance have grown as well. In this day and age, UX design can cost or make businesses their fortunes and investing in user focused, logical user experience design and innovation has never been so important.

### **UX Design in Educational Applications:**

In addition to the growth of the industry and rising consumer expectations of quality, the fields that UX design are being employed in are also growing, and once such field is in education. In recent years “mobile learning” technologies have been “an expanding field of educational research” and in a recent survey “76% of respondents said they would be interested in mobile applications that would allow them to access to university information systems and learning materials.”<sup>11</sup> Mobile education tools are now being used in physical education classes, in university classrooms, and special education programs among other things.<sup>12</sup> In another recent study, “81% of college-age students believe tablets will transform how college students learn in the future;” not

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<sup>10</sup> Anic, Ines. "The Business Value of UX Design." UX Passion. December 02, 2015. Accessed May 4, 2016. <http://www.uxpassion.com/blog/business-value-of-ux-design/>.

<sup>11</sup> Fojtik, Rostislav. "Ebooks and Mobile Devices in Education." *Procedia - Social and Behavioral Sciences* 182 (2015): 742-45. doi:10.1016/j.sbspro.2015.04.824.

<sup>12</sup> Gallup, J., S. N. Lamothe, and A. Gallup. "Enhancing Transportation Education Using Mobile Devices and Applications." *TEACHING Exceptional Children* 48, no. 1 (2015): 54-61.  
Rosenthal, Maura B., and Susan K. Eliason. "'I Have an iPad. Now What?'" Using Mobile Devices in University Physical Education Programs." *Journal of Physical Education, Recreation & Dance* 86, no. 6 (2015):

only are these technologies currently being adopted, but the expectation among digital natives is that their use will continue to grow in the coming years.<sup>13</sup>

One such mobile educational technology that has been particularly successful is Duolingo. With over 120 million total users, it was named Apple's best iPhone app of the year in 2013 and received Google's Best of the Best Award for two years running.<sup>14</sup> It's mobile and online platforms allow users to access Duolingo both in homes and in classrooms. Not only does Duolingo's technology work by taking traditional, classroom oriented teaching goals (like language learning) and successfully make them interactive educational tools, this application indicates that educational interfaces can be used in both structured and unstructured settings. With such a broad user base and its adoption in class rooms internationally, Duolingo demonstrates that there are very large groups of people willing to use educational technologies like this.<sup>15</sup> While they make up only a small portion of the overall volume, there are more than 80,000 educational apps on the Apple App Store alone, which suggests that there is in fact a broad market for them.

Given the prevalence of mobile devices, especially among my peers, and the increase in use of educational technology, this project was an opportunity to combine my interest in user experience design and my exposure to Robert's Rules of Order. As research already suggests, we are living in a rapidly digitizing world, and this would be a way to contribute in an area in which I already had expertise. Bringing Robert's Rules of Order onto a digital platform like a mobile application would follow the same,

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<sup>13</sup> Rosenthal, Maura B., and Susan K. Eliason. "I Have an iPad. Now What?"

<sup>14</sup> "Duolingo: Learn Spanish, French and Other Languages for Free." Duolingo: Learn Spanish, French and Other Languages for Free.

<sup>15</sup> "Duolingo: Learn Spanish, French and Other Languages for Free."

tried and tested model as Duolingo where a traditionally analog method of learning is translated into an interactive digital experience. Given both of these facts, it was clear to me that developing a mobile application would be an appropriate solution to the observed issue.

Entering into the research phase of this project, I had a broad idea in mind of the scope of this project. I would like to design a mobile application that would have both educational and task based elements. The app would communicate the key elements of Robert's Rules of Order so that novice users could run meetings correctly while simultaneously providing functionality for use during a meeting. Given this very broad framework, my next step was to better understand my users and the specific issues they were having with Robert's Rules of Order.

## Chapter 2: Initial Research

### *Confirming the Problem:*

Having established the existence of a problem within my own experience, the next step was to confirm other people were having similar issues. Beginning this project, I was reminded of a quote I heard at a design lecture by Paul Backett (a University of Oregon teacher and practicing designer) that often “designers will try to tackle a problem that just doesn’t exist.” Therefore I wanted to explicitly note that part of my initial research was to confirm the existence of a problem within others’ experience of Robert’s Rules of Order.

In addition to confirming the problem, another goal of the initial research was to frame the problem, or to find a broad view of the issues and a detailed view of the specific things going wrong.<sup>16</sup> Personal experience and research both indicated that design problems are rarely as they seem, so the more information one gathers at the outset, the better prepared one is to deal with unexpected issues later on.<sup>17</sup>

### *Establishing Inquiry & Methods:*

With these goals in mind, the following step was to decide what question needed to be answered. As the focus of the problems stemmed from Robert’s Rules, it was determined that using an Activity Centered Design approach would be the most

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<sup>16</sup> Saffer, Dan. *Designing for Interaction: Creating Smart Applications and Clever Devices*, Second Edition. Berkeley CA: New Riders, 2007 p. 55

<sup>17</sup> Saffer, Dan p. 53

appropriate, as it caters to “behaviors surrounding particular tasks”.<sup>18</sup> Questions asking users to describe the task flows are a result of this approach. Additionally, the questions were informed by a User Centered Design approach, in which the “user knows best” and whose needs are placed at the highest priority.<sup>19</sup> Questions about the challenges the user faces within this process are a result of this approach. Finally there were a number of general questions aimed at discovering the demographics of the users; these questions concerned metrics like experience level and familiarity and were used to build user personas later on.

The following questions were used:

1. How familiar are you with Robert’s Rules of Order?
2. How did you learn Robert’s Rules of Order?
3. How long has it been since you first learned how to use Robert’s Rules of Order?
4. In what setting(s) do you use Robert’s Rules of Order?
5. What role do you play within your group meetings?
6. What aspects of Robert’s Rules of Order do you find confusing or unclear?
7. Think back to when you first learned Robert’s Rules of Order, what did you find most confusing or most difficult to learn?
8. Think back to the last time an amendment was made to a motion or resolution. Please describe that process.

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<sup>18</sup> Saffer, Dan p. 35

<sup>19</sup> Saffer, Dan p. 33

9. Was there anything confusing about that process? If so, please describe it.
10. Why do you think your organization uses Robert's Rules of Order?
11. How closely do you stick to Robert's Rules of Order?
12. What mobile or online applications do you use to learn or improve skills?

After establishing the questions I needed answering, the decision was made to administer them via online survey. Of the six common user research techniques covered in "A Project Guide to UX Design", a survey seemed the most appropriate fit for preliminary research gathering as the questions were mostly closed-ended and surface level therefore having little need to interview in person.<sup>20</sup> Furthermore, as the primary goals were to establish the existence of a problem across a wide range of users, and to understand the nature of those problems it wouldn't have been an efficient use of time to conduct research methods that require face to face contact (like user interviews or contextual inquiry).<sup>21</sup>

The survey was shared through Google Forms among members of my fraternity and members of the Board of Directors of the University of Oregon Duck Store as both groups use Robert's Rules of Order as standard meeting procedure. The survey was left open for ten days for responses.

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<sup>20</sup> Unger, Russ, and Carolyn Chandler. A Project Guide to UX Design: For User Experience Designers in the Field or in the Making. Berkeley, Ca.: New Riders, p. 92

<sup>21</sup> Unger, Russ, Chandler Carolyn p. 93-4

*Survey Results:*

The survey received fifteen responses from users who had utilized Robert's Rules of Order within fraternities, group meetings, university senate meetings, businesses, or other professional settings. Of the users who answered the survey, more than ten had been using Robert's Rules of Order for more than two years, with only one participant having used it less than six months. Therefore, unsurprisingly, all participants self-identified as being "somewhat familiar", "familiar", or "very familiar" with Robert's Rules of Order (other options were "not very familiar" and "not at all familiar"). However, despite all survey participants considering themselves at least somewhat familiar with Robert's Rules, eleven of them found at least one aspect of the process "confusing or unclear", and just under half found two or more items "confusing or unclear". Of the eleven users who had difficulty with one or more parts of the process, seven found amending a motion confusing or unclear. This same confusion was reflected in participant's responses on what they found most unclear when they first learned Robert's Rules of Order. Seven of the fifteen respondents noted that they found amending a motion unclear or confusing while they were learning, and an additional seven noted the same about making a motion. A further six of the fifteen participants selected that they had difficulty in speaking from the floor when they first began using Robert's Rules of Order.

To further understand how users view the process of amending motions (one of the pain points I had observed for a while), users were asked to think back to "the last time an amendment was made to a motion or resolution" and to describe that process. The question was more open-ended to yield a variety of responses and fully one third of



respondents noted some form of “confusion” or a “chaotic” atmosphere during the process. In the following questions three individuals further described others as being confused whether the amendment was a new resolution or part of the same motion.

To better understand the users end goals, the survey asked why users believe their organization uses Robert’s Rules of Order. Users were asked to select as many or as few of the five options that were given (there was also the option of not choosing any, or selecting “Other”). Nine of fifteen participants selected “to reduce repetitive comments”, and seven of fifteen selected “to reduce personal conflict in meetings.” In addition, one third of participants selected “to speed up voting,” and one third of participants selected “to increase membership participation.”

The survey also asked users how they learned Robert’s Rules to which the majority responded “through Observation and Participation”, though one fifth selected “through an educational resource (book, website, etc.)”. In addition, the survey asked for other apps or websites users utilize to learn or improve skills, and which apps they like the look of. This served as a platform to inspire some of the layout, and functionality of the final design.

#### *Analysis:*

After having reviewed the results, there were a few clear patterns that stood out, both expected and unexpected. From the preliminary questions, it was clear that the majority of survey participants were well exposed to Robert’s Rules, and considered themselves familiar with it. Yet despite their apparent familiarity a large number of users found amending motions either unclear or confusing, both when they first

learned the process, and in their present experience. These responses confirmed the first part of the initial observations, that the process around amending motions and voting on amendments confuses people. Furthermore, the survey results suggest that this may be the result of a flaw in the learning process of many of the participants, namely, that observing the process and participating in it is not enough to fully understand it. While there is not enough evidence for conclusive findings, two of the three survey participants that learned Robert's Rules from an educational resource reported not having any difficulty with its processes. This further corroborates the possibility that an unstructured education of Robert's Rules is not as comprehensive as observation and participation.

One unexpected result of the survey data was the list of reasons why participants believed their organizations used Robert's Rules. The majority of participants included that they believed it was used to "reduce repetitive comments," yet if this were a high priority, one would expect the number of repetitive comments to be small. However, personal experience illustrates otherwise. Similarly, another unexpected result was the number of users who had some difficulty in the opening procedures of meetings, and of the number of users who had difficulty in speaking from the floor when they were first learning Robert's Rules (six of fifteen). Another seven users also had trouble with making a motion when they first learned Robert's Rules; this was also surprising.

The insights provided by the survey were as follows: users have difficulty speaking from the floor, making motions, and amending motions when they first learn Robert's Rules. Additionally that amending motions and voting on amendments

remains unclear or confusing even after a year or more of experience. These insights directed the goals of this project and all subsequent steps.

*Structured Insights:*

Project goals were established using insights from the survey and criteria from the User Centered Design and Activity Centered Design approaches. The User Centered Design criteria lead to a broad statement of goals, while the Activity Centered Design led to a list of tasks that the user must be able to accomplish.

The broad goal of the project was established to be “to create a tool educating users how to utilize Robert’s Rules of Order within a group meeting. In addition, it is desirable for that tool to help facilitate the process.” This breadth of this statement was informed by the range of issues individuals reported, and the addition to augment the process was borne from a personal desire to see systems like voting, attendance, and minutes digitized and made more efficient.

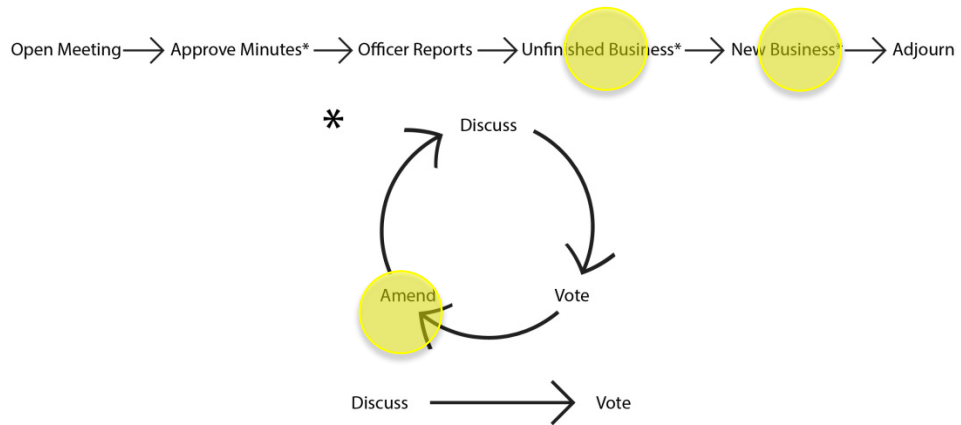


Figure 1: Simplified Task Analysis

Above is a simplified task analysis detailing the basic steps of a meeting run through Robert’s Rules of Order. The sections with asterisks indicate the additional tasks involved with those steps, illustrated by the circular diagram below. Highlighted sections illustrate pain points. A complete task analysis can be found in Appendix 1.

The weaknesses (pain points) of the current task system seemed were focused around the “Unfinished Business and “New Business” sections of the Robert’s Rules process (Figure 1). Therefore, the task based goal of the project was that “users must be able to understand the process of *all* sections of the meeting (join, approve minutes, officer reports, unfinished business, new business, adjourn) and be able to actively participate, and understand where they are within the process”.

With those established, the next step was to generate ideas.

## Chapter 3: Ideation and Development

### *Ideation*

Returning to Dan Saffer's model of the design process, after establishing project goals comes ideation which he defines as a means "not to find the one perfect design... [but] to generate many concepts as rapidly as possible."<sup>22</sup> Our processes differed here as I generated a number of ideas within a fairly short period (two or so hours), however my ideas were all centered on a single theme. While the formats of the designs were fairly widespread, my approach to the problem was always focused within the framework of a mobile app interface. As mentioned previously, I had been observing this issue for a while, and well before deciding on a thesis topic I had thought an app might be an appropriate solution for a more efficient meeting. There already exist technologies such as the IClicker that allow electronic voting, and interconnected apps like Spaceteam allow users to interact with each other in real time. I imagined using these technologies within the meeting framework, though before the ideation phase, I hadn't thought how. (Whether my predetermined focus helped or hindered the process will be discussed later.)

With regards to the ideas themselves and the process, I spent two hours over the course of one day sketching out various forms the interface could take, paying special attention to the pain points around making and amending motions.

Some ideas generated in the ideation phase were: a simple interface where users would click through each section, receive a general description of what would happen in

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<sup>22</sup> Saffer - 114

this section with a screen for additional information if necessary. There was also a real-time interactive app with interfaces for a secretary, Chair, and member where all smartphones would interact with each other on voting, motions and amendments, and a single user app that essentially digitized and organized a simplified Robert's Rules manual to have on one's smartphone.



Figure 2: Ideation Sketches

Above are sketches done during ideation.

The final idea settled on was two separate interfaces within the same app, one for the Chair, and one for the Members. The Chair would have the ability to run the meeting, send out voting screens, and transition through sections of the meeting. The Member interface was designed so users would be able to see where they were in the meeting and follow along, vote on motions, and access additional information about Robert's Rules if they needed. This app also included an interface for a secretary to assist the Chair and take notes, however, this was a low priority function so a visual interface was never realized. This app was chosen as it was a middle ground of many of the previous ideas generated, and incorporated the most important features, like voting, instructional elements, and a navigation bar, without the addition of complex features

like note taking interfaces for the Chair and Members, or the ability for members to directly affect a motion from their phone.

*Development:*

At this point I wanted to receive feedback from both of my advisors on the initial interface and to get suggestions on how to go about testing it.

I met with each advisor individually and presented the concept, and received similar feedback from both. With Kirstin we discussed the language used with each of the different functions and how it might be tailored and tested to ensure proper communication of purpose. For example, one of the buttons we discussed was a vote button. If it were to be labeled “begin voting” that may convey the message that pressing the button begins a procedure, whereas a button labeled “vote” may be viewed as an isolated step in the voting process.

Additionally, other questions were raised as to the experience of the individuals engaging in the process. For example, does there need to be a way to compensate for a scenario in which the Chair of the meeting is new to learning the process?

When discussing the app with Trygve we mainly discussed the layout of the app and if additional functionality was necessary. One of our points of discussion was the possibility of adding a side bar so users would be able to navigate between sections of the interface directly. We also discussed the possibility of an FAQ, and briefly touched on how the app might indicate things like items coming up next or the current motion being discussed?

Both advisors' feedback was taken into account when designing the first prototype, as is evident from the existence of a sidebar and "begin voting" buttons among other things.

After having presented the initial process to my primary and secondary advisors for feedback and making changes, I decided to develop a persona for my two established user groups. In user experience design, as in product design, personas are used "to focus on representative users" and to "empathize with the users" as a way to better design and develop a product or service.<sup>23</sup> I wanted to have these tools to refer back to during the design development stage, so I used data from the survey and points of personal experience to come up with my personas: Laura and Jeremiah (Figure 3).

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<sup>23</sup> Unger, Russ, and Chandler, Carolyn. p. 112



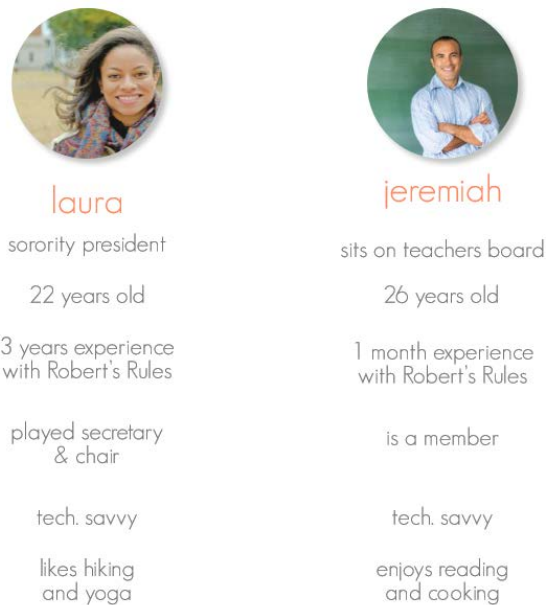


Figure 3: Personas

User Personas are fictional users created using data and / or personal experience and intuition that represent the user groups. Often they are referred back to throughout the design process as a way of maintaining the focus of the design.

Laura, the twenty-two year old sorority president uses Robert's Rules in her chapter and understands the process very well, though recognizes that it's not always easy to learn and lots of people struggle with it. Jeremiah, the twenty-six year old teacher has been using Robert's Rules for a just one month on the local board of teacher. He struggles with understanding where the group is within the greater meeting process, and finds the amendment process confusing. For a more detailed user persona see Appendix 3.

After having received feedback and developing personas, the next step was to create a prototype to test and refine.

## Chapter 4: Building and Testing the First Prototype

### *Prototype:*

The first prototype was realized using Adobe Illustrator and was based off of the final ideation concept and the feedback from my primary and secondary advisors. The prototype consisted of various “screens” (images of what the screen would look like on a smartphone) printed onto sheets of paper approximately two inches wide and three and a half inches tall (about the size of an iPhone 5). Each of these screens was intended to illustrate how each function on the app would work and could be switched during the testing process to simulate real-time interaction with a phone.

This type of model was used as it is considered a good early stage tool for a number of reasons. Paper prototyping is fast and cheap, which makes testing basic concepts like this one fairly easy. Additionally, paper prototypes can still be used interactively, which makes it as versatile as an online prototyping tool like MarvelApp or Invision without having to take the time to input button responses and link screens.<sup>24</sup>

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<sup>24</sup> Warfel, Todd Zaki. *Prototyping: A Practitioner's Guide*. Brooklyn, NY: Rosenfeld Media, 2009. p. 61

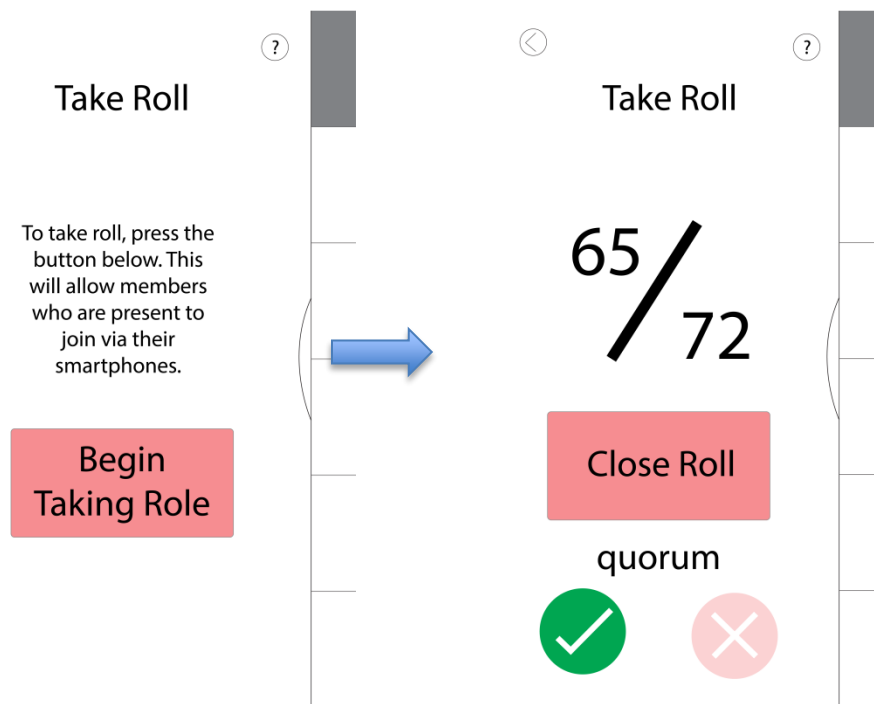


Figure 4: First Prototype Screens

The above figure shows the first two screens of the Chair interface. When the “Begin Taking Role” button on the left hand screen is pressed, it takes the user to the right hand screen, which indicates the number of meeting attendees and if that number constitutes quorum.

The whole prototype consisted of nineteen independent screens for the Chair interface, and an additional twenty-eight screens for the Member interface. Within each audience interface, users had the ability to perform the following actions:

Chair:

- Begin a meeting
- Begin approval of minutes
- Give reports and view officer points
- Begin each section of old and new business
- View votes in real time
- Table Motions

- Begin voting procedures by sending out voting screens to other users
- Adjourn a meeting
- Navigate between screens
- Access additional information regarding the Robert's Rules process if needed

Members:

- Join a meeting
- Vote (to approve minutes, on motions, on amendments)
- View additional information regarding the Robert's Rules process
- View Minutes
- View Motions
- View Officer Reports
- Navigate between sections

*Usability Testing*

In order to test the efficacy of the app, the next step was to have users interact with it, observe their reactions, and then solicit their feedback in order to further refine the product. This first usability study was intended to gauge how the first interface design supported moving through the meeting process, and to solicit feedback on additional functions needed.

The method of usability testing was largely based off of usability studies in which I had participated during my work as a research assistant at the Department of User Experience. In the departmental tests, as in my own, the participant was brought

into a controlled environment with three researchers (though in this case I was the only researcher). The researcher(s) read from a script (Appendix 4) informing the participant of the study's purpose, and what they would be doing. Then the participant was asked to sign a consent form (Appendix 5) allowing the researchers to record video and audio of the session in order to revisit it. The participant was then asked to fill out a brief background questionnaire (Appendix 6) detailing their previous experience with Robert's Rules of Order.

At this point the session began and the user was asked to think back to the last time they were in a meeting that used Robert's Rules of Order and to describe how that meeting was run, if there was a process and what it was, and if there were any important members and who they were. Next they were asked to go through the app from the point of view of a member. It was explained that the app was in its early stages, so the phone will be simulated by pictures of screens and that they should tap on the icons as they would a regular screen. They were asked to go through the app, and as they came across a new screen to describe what they imagine its function to be and what the buttons might do. Then participants were asked to navigate back to the "Approval of Minutes" section. After they had done so, they were asked to find how to amend a motion and the reasons why one might do so. At this point they were told that they were going to be switching to being the Chair of the meeting, and they were presented with a different set of screens. Again they were asked to go through the app and describe each screen and its buttons. Then they were asked to find the fifth item of business that happens during a meeting. Finally they were asked where they would go if they wanted to find more information on how to run a discussion.

Throughout this process the users were asked to think aloud as a way to understand their impressions of the interface. After all of the tasks had been completed, users were asked to recount their experience using the app, and whether they had any feedback or questions. After they had said all they wished to say, they were thanked for their time and the usability study was concluded.

*Results:*

For the first round of usability studies, three individuals were tested, with an average test time of approximately twenty-three minutes. Each individual's background questionnaire responses varied considerably. One user claimed never to have used Robert's Rules of Order before and as such only answered the final question ("Do you own a smartphone?")<sup>25</sup> The other two reported weekly use of Robert's Rules and that they were "somewhat familiar" and "familiar" with the process, both having been exposed through their fraternity. These same two participants both indicated having experience with the process as members and officers, and one user also indicated that having been a Secretary and the Chair. All three participants owned smartphones.

Generally, the first round of usability testing was successful. While neither the interface nor the testing format was flawless, both stood up to a proof of concept test and gave clear indications as to where they could be improved.

For the member side of the test, there were a few features all participants were successful with. All three were able to join the meeting when prompted, vote when given the voting screens, and were able to navigate between each section of the

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<sup>25</sup> This participant was a personal friend and member of my fraternity. He has used the Robert's Rules procedures before, though perhaps without knowing the name.

meeting. However, there were also a number of consistent issues between the users. For instance, each had trouble determining the use of the side bar (Figure 5), and while a two came to understand it after a few clicks and could then navigate easily, it was not intuitive enough to grasp straight away.

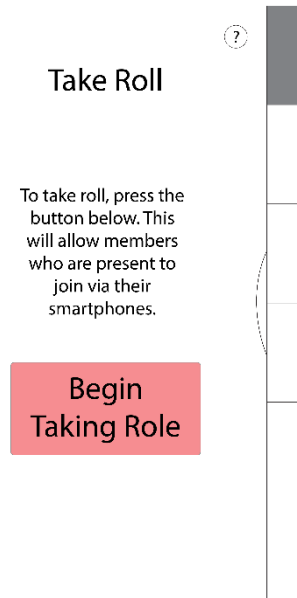


Figure 5: Sidebar

The above screen has a sidebar on the right hand side. The top grey box indicates the app is in the first stage of the meeting (it moves down as the meeting progresses). Users can move through the app by clicking on any of the white rectangles beneath it.

Similarly, all three users noted that at one point or another during the session, there was a button whose function they were unsure of, such as the “how to amend” and “begin voting” buttons (Figure 6).

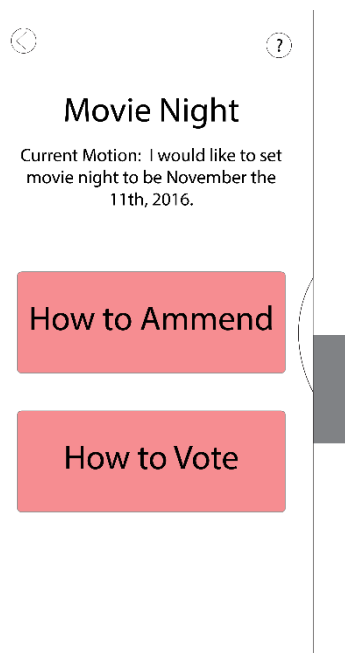


Figure 6: Member Interface – Current Motion Screen

The above screen shows the current motion and the two actions a member could take. The “How to Amend” and “How to Vote” buttons would bring members to separate screens with instructions on how to amend and how to vote on the motions respectively.

While the confusion here may have been resulted from an inconsistency of language (“how to” versus “begin”), or to do with the formatting of the buttons in various sizes, this was another difficulty that needed to be fixed.

On the Chair interface, again there were things that worked well and things that didn't. Similar to the Member side, beginning meetings worked well and none of the participants had issues. Also, each of the participants was able to adjourn the meeting successfully and navigate through the minutes without difficulty. The issues on the Chair interface were more prevalent than on the members, and had to do with navigation and receiving feedback from actions. All three participants suggested the addition of some kind of “next” button as a way to move between meeting sections and to ensure that other participants would be able to follow along. Similarly each



participant had issues understanding what happened when pushing certain buttons like “begin voting” and would ask questions to clarify what happened to other participants phones when they did one thing or another (Figure 7).

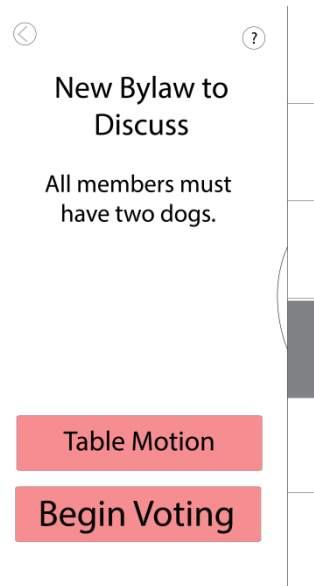


Figure 7: Current Motion Screen – Chair

The screen above shows the current business screen of the Chair interface. It gives two options, “Table Motion” and “Begin Voting.” If either is pressed, a voting screen is sent out to the Members to either table the motion, or vote on the motion.

Lastly, across both the member interface and the Chair interfaces, participants had a tendency to avoid areas where there was more text on the screen and would hit “back” without reading certain sections. This made the using the Help / FAQ section very difficult as participants would arrive at the page and then hit back within a second of looking at it (Figure 8).

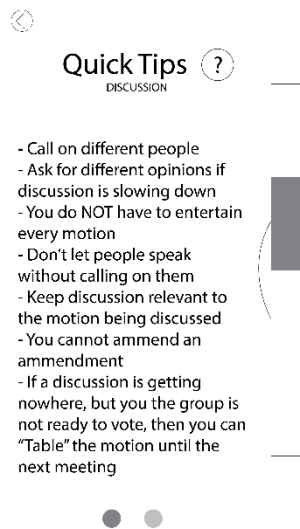


Figure 8: Quick Tips

The above screen lists tips on how to run a discussion for the Chair.

With regards to the testing process, there were successful and unsuccessful elements. Having a script, consent forms, and a voice recording allowed for a fairly professional, controlled environment that kept each study consistent. Furthermore, the voice recording allowed for review of the session after completion for more comprehensive note taking.

However, there were some difficulties with the questions and instruction specificity. Firstly, in addition to the script and a brief introduction of the scenario, that the participants may have benefitted more from an explanation of a more specific setting. For example, “You are part of a fictional board of directors, of which you are the Chair...etc.” Providing this additional detail may have helped users understand the intended context of the prototype which might have led to more specific feedback.

Additionally, there could have been more questions specifically for the Chair interface so as to better understand what users want to know about how they are

interacting with other people in meetings. In future tests, perhaps having one or two tasks that require the Chair to interact with the tester as if they were a participant in the meeting might better clarify processes like motions, amendments, and calls to vote.

Despite some difficulties with the testing process, the feedback received from the users was extremely useful in focusing efforts in the next round of design and refinement, and in providing suggestions for additional features.

## Chapter 4: Second Prototype and Testing

### *The Second Prototype:*

The second prototype, much like the first was developed using Adobe Illustrator, and was based off of the first prototype and feedback from the usability tests. Unlike the first prototype, which was tested using pieces of paper, the second was hosted on an online platform called MarvelApp that was built to assist designers in the early stage of prototyping their interfaces.

After having developed the screens for the second prototype, it was important to be able to test them in a more realistic manner, in this case that meant putting those screens on a smartphone. MarvelApp is an online hosting and prototyping program that allows you to do this. This program allowed for each of the screens to be uploaded to the internet, and then linked to each other through hotspots on the screens. In this way, users would be able to press buttons on the online app, and have those screens simulate the app progressing through Robert's Rules. MarvelApp also allows you to pull up these screens on a smartphone browser, such that they act as a regular app on any smartphone. The result of this technology meant that participants in the second round of testing had a smartphone in their hands and were able to interact with a more realistic version of an app, rather than pieces of paper.

Some of the most significant changes to both sides of the app include: changes to the side bar global navigation to include symbols and the ability to hide it, a change in button color after an item has been completed, and a change in the layout of the FAQ section, as well as its placement on the pages throughout the app (Figures 4-6).

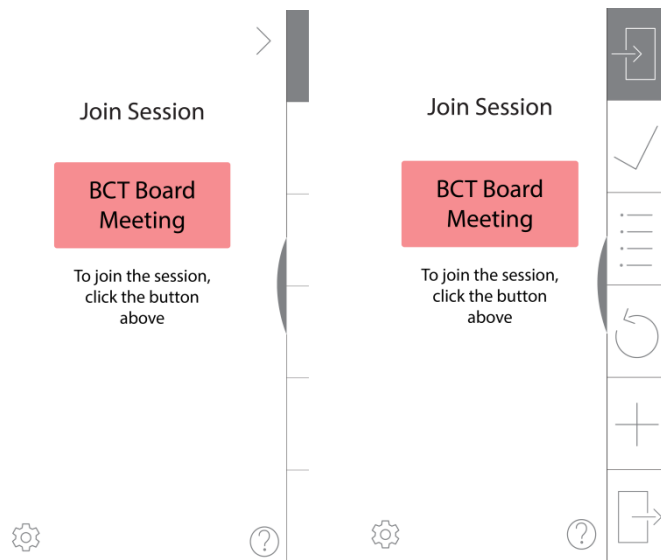


Figure 9: Changes to Global Navigation Panel

The two above screens show the additional features of the global navigation. Using a swipe motion users can open or dismiss the panel as they need; the panel also includes symbols, meant to indicate each of the sections of the app.

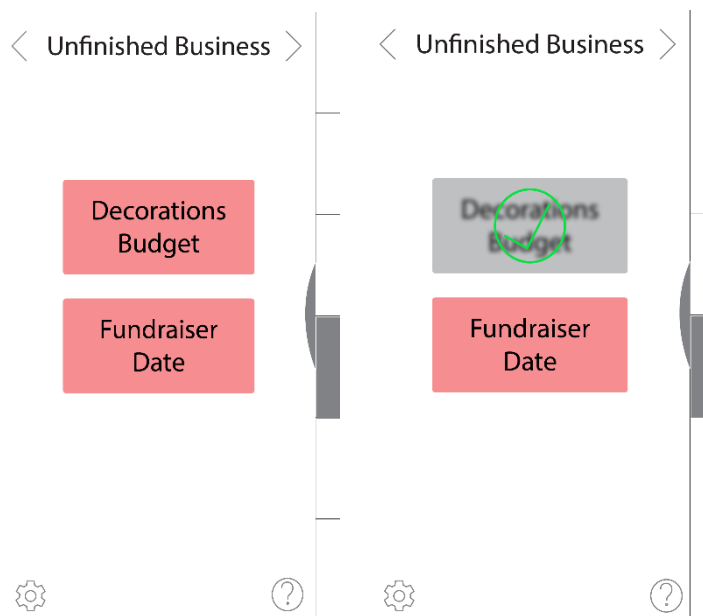


Figure 10: Indication of Task Completion

Above are two screens as they would appear before and after the completion of a task. The right screen shows the addition of a green check mark above the item of business, indicating that it has been finished.

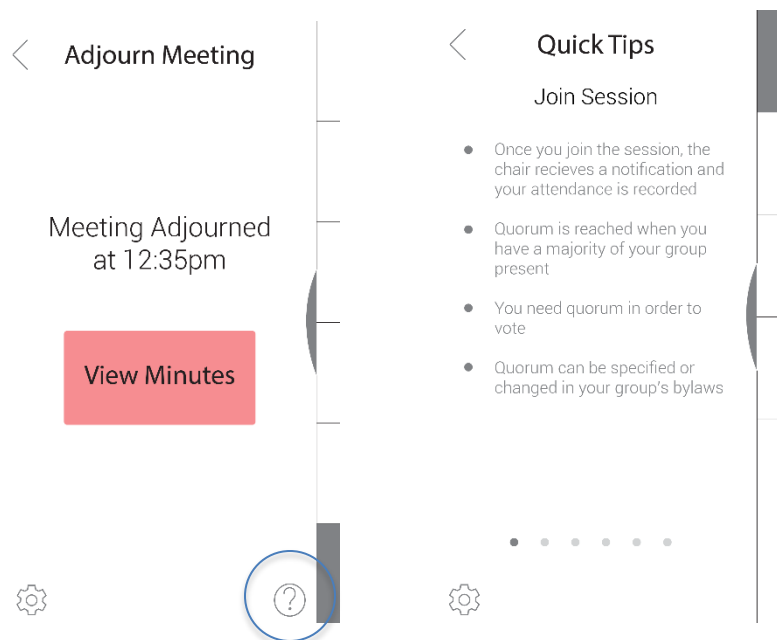


Figure 11: Changes to the FAQ

The figure above illustrates the new Quick Tips section, as well as the new location of the Quick Tips Icon on the pages of the app.

In addition to general changes, there were a number of changes specific to each interface. Changes to the Member side include: changing the visual language of the voting screens to keep a consistent visual language, a visual feedback element while votes are being counted, and a change in the way voting procedures are described in order to minimize movement between screens (Figures 7-9).

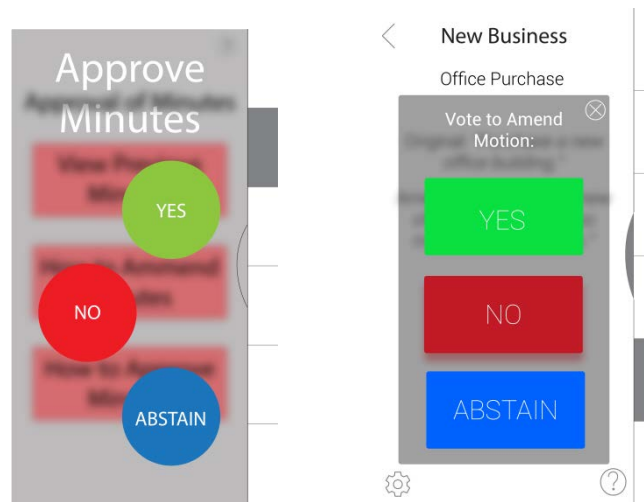


Figure 12: Changes to Voting Screen

The above screens show the changes to the voting screen specifically from circular to rectangular buttons. This was to maintain visual cohesion between the other buttons, which are also rectangular.

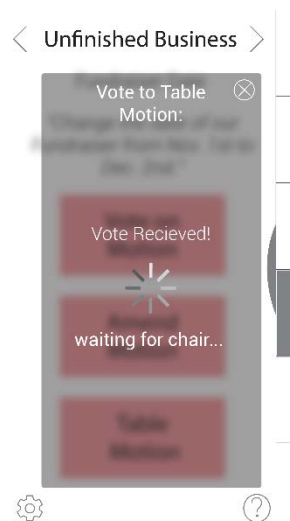


Figure 13: Feedback while Voting Occurs

This figure shows the addition of a waiting page for users while votes are counted as a means of indicating an ongoing process when they may not otherwise be aware of it. This is to maintain the user's attention on the app rather than on other apps, and to ensure they do not exit the app assuming it has frozen as one participant noted.

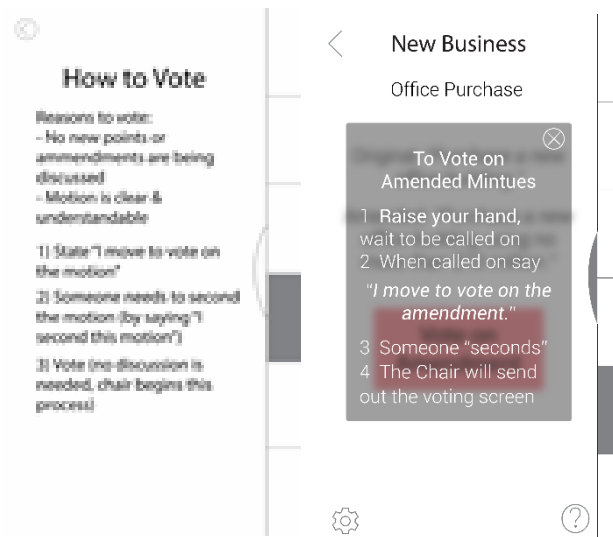


Figure 14: Change in Voting Interface

The above screens show the change of visual interface from a second screen in the previous version to a pop up screen in this version. This was to minimize the need to move between screens, and to contextualize the instructions within the current process (How to Vote within Voting).

Changes to the Chair side include: changes to the visual layout of the quorum screen, a new method of carrying out votes and amendment, and the ability to check off officers as they give their reports (Figures 10-12).



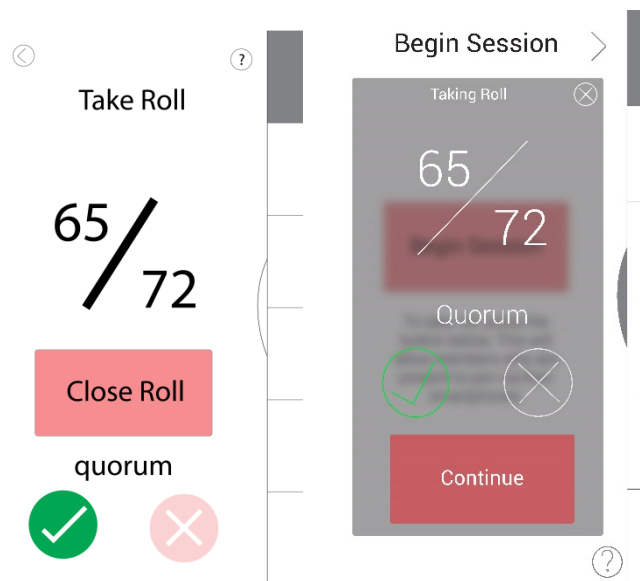


Figure 15: Quorum Screen

The “Close Role” button changed to a “Continue” button after some confusion with functionality. Also the screen was made into a pop up rather than a separate screen to maintain continuity of the app.

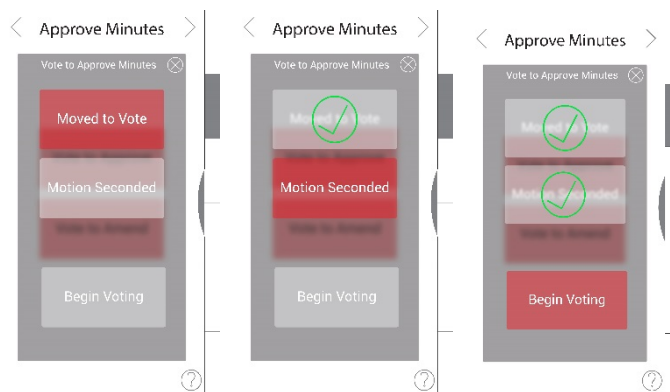


Figure 16: Voting Screen Changes

The above screens are the new Chair’s voting interface. There are now three buttons that must be pressed before voting can begin. This change was made to hopefully direct the Chair to call for each motion and then hit it button as it occurred.

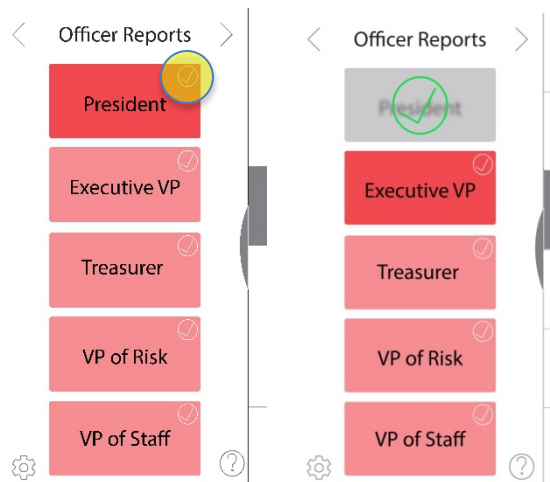


Figure 17: Officer Reports Screen Changes

The above figure shows the screens before and after an officer has given their report. The check boxes in the top right hand corner of each screen allow the Chair to indicate who has given their reports.

### *Usability Testing - Round Two:*

The testing itself was much the same as the first round of testing; there was a script with a task list (Appendices 7 & 8), a background questionnaire and consent form (the same ones used in the first round of testing), and a controlled environment for the tests. Each test was voice recorded, exactly as in the first round. However, the questions in this round were more task oriented, and were intended to gauge whether users could move through the app, and complete all the tasks necessary to be active and engaged.

In addition to the change in format of the app, another of the differences in this round of testing was the separation of participants into members and Chairs. This decision was made for two reasons, the first being that as the user groups for members and Chairs tended to differ in experience, it intuitively followed that the participants in

the tests should reflect that. Secondly, by reducing the number of overall tasks, and tailoring the remaining tasks specifically to be either for Chairs, or for Members, the data received would be more focused.

For this round of testing, two users tested the Chair interface, and three users tested the member interface. Both Chair testers described themselves as being “familiar” with Robert’s Rules, and having played the roles of Chair and member. Of the three participants who tested the Member interface, two reported being “not very familiar” with Robert’s Rules and one reported as “somewhat familiar.” Two of the three indicated they had used Robert’s Rules as members, and one reported experience as an officer.

As in the first usability study, each user was asked to sign a consent form and to fill out a background questionnaire, after which they were asked to complete a series of tasks (see Appendix 7 & 8 for a complete list) including the following:

Chair:

- Begin the meeting
- Call for a motion to approve minutes
- What are the points of the VP of Risk?
- Tell me what a few tips are on how to run a discussion on a bylaw?
- What do you think happens after an amendment has been voted down?
- Adjourn the meeting

Member:

- Join the meeting

- Motion to approve last week's minutes
- Please motion to amend your previous motion
- What does it mean to "table" a motion, and why might you do that?
- Please second a motion
- Please move to adjourn the meeting

After each participant had complete all of the tasks, they were then asked to discuss their experience, and give any additional feedback. As in the previous study, after they had given any additional feedback, they were thanked for their time, and the interview was concluded.

*Results:*

The results of the second round of testing indicated that a number of the improvements had been very successful, whereas others had not. Overall, the member interface proved to be easier to use and with a few minor tweaks, would be ready for development. However, the usability study for the Chair interface indicated that there was at least one major issue that would need to be solved prior to use.

The participants testing the member interface tested consistently in both the tasks in which they succeeded, and those in which they had difficulty. Those that were complete successfully were: voting, making motions, amending motions, tabling motions, moving through the interface, and reading officer reports. While there were some minor technical difficulties with the way a few of the screens were linked, the only significant issue brought up consistently was inability to access, use, or see the Quick Tips section of the app (Figure 18).

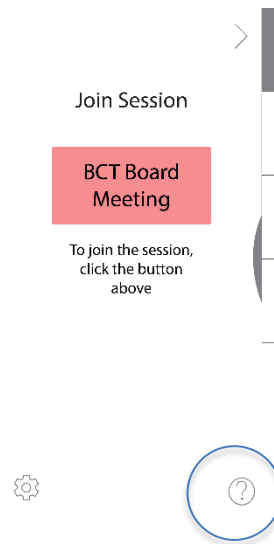


Figure 18: Quick Tips

The question mark icon in the bottom right hand corner of the screen brings users to the Quick Tips section of the interface.

When prompted to find more information about a running discussions participants recounted from their own memory, or were unsure where to look. One participant asked whether or not there was “a help section or summary of Robert’s Rules” somewhere within the app, despite the fact that he had been looking at it a few moments earlier. With the exception of a seemingly invisible Quick Tips menu, the member interface functioned very well, and the participants were able to accomplish their tasks.

However, on the Chair interface despite continued success beginning meetings, navigating through each section of the app, and adding new business, there were a number of issues both with feedback the app was providing, and on the voting procedure screen.

One of the two main issues with this version of the app was the number of questions both participants asked during the study about the consequences of pushing

certain buttons. For example, both participants asked to clarify what would happen when beginning the approval of minutes process, and how that would affect the other users. Similarly, when trying to amend the motion during the Unfinished Business section of the meeting, both participants required further explanation as to what they needed to do when a member tries to amend a motion. This suggested that the app was not providing enough feedback to the user about the consequences of their actions.

In addition to issue with feedback, both participants had difficulty understanding what the buttons on the voting procedure screen were meant for (Figure 19).

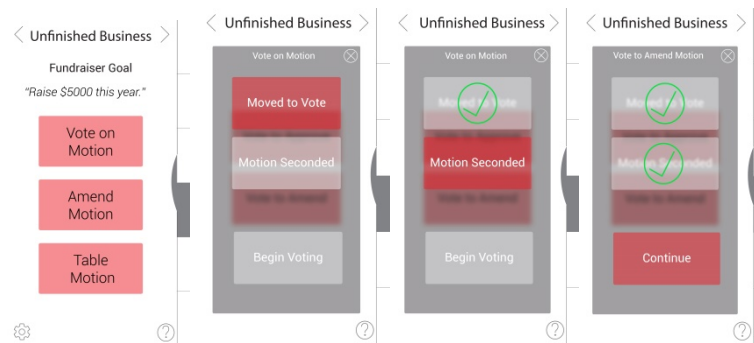


Figure 19: Voting Procedure – Prototype Two

The four screens show the voting procedure for the Chair in the second prototype. Chairs were supposed to press “Vote on Motion” when a Member made a motion to vote, and were then supposed to press “Moved to Vote”, “Motion Seconded” and “Continue” in order to send out the voting screens.

When first presented with this screen in the Approval of Minutes section of the app, both users asked to have the buttons explained. Knowing this, they were able to navigate through the rest of the app where this screen popped up. However, as a large portion of the Chair’s role in a meeting is to facilitate voting, this section of the app should be reworked before finalization. The combination of the need for more user

feedback and continued difficulty with the voting procedures led me to believe that one more round of prototyping and user testing was necessary.

With regards to the interview process itself, the changes to the format to increase question specificity, and using MarvelApp as a means of hosting the interface both proved to be useful. By splitting the user groups into two subsets and testing them individually, more subject material was able to be covered which led to a more comprehensive understanding of the strengths and weaknesses of the app. While using MarvelApp was useful in providing a more realistic “mobile experience” (indicated by the fact some users thought the interface was a real app), the technical difficulties linking the screens proved to be an issue. However, this could most likely have been fixed with more time spent learning the various features of MarvelApp and other UX prototyping software.

While the addition of the scenario that users were taking part in a “fictitious Broadway Charitable Trust” board of directors meeting may have provided some intangible benefit to the testers, no observable difference in behavior was noted, nor did any participants refer back to it during their tests. However, providing specific context in future is probably still advisable as it takes little additional effort to mention, and specificity may provide the user with better context in which to base their feedback.

Before realizing a final design the results of the tests indicated the need for: minor tweaks to the size and location of the Quick Tips icons, additional feedback built in to the Chair interface where other users are being affected, and additional design and testing of the voting screen interface on the Chair side. Additionally, the visual elements of the interface up to this point were minimally designed so as to direct

participant attention towards the functionality of the app, rather than the aesthetics. However, before release of the app, a redesign of the visually elements to be more cohesive and visually pleasing was also necessary.



## Chapter 5: Third Prototype and Testing

### *Third Prototype:*

As mentioned at the end of the fourth chapter, the Chair interface presented a few problems that required revised solutions and testing before being able to move on to a final design. These three sections were the Officer Reports section, the Unfinished Business section, and the New Business section. Each had minor difficulties with functionality that required minimal testing, therefore paper prototypes were deemed to be an appropriate solution due to the minimal time required to make them, and the ability to modify them during the tests.<sup>26</sup>

There were three paper prototypes, each corresponding to one of the sections that required adjustment. The Officer Report prototype was composed of four screens: the landing page of the officer reports screen, two pages indicating the reports of two different officers, and a page showing what would occur when an officer had concluded their report. The Unfinished business section contained a number of screens detailing the process of choosing a motion to discuss, choosing to amend the motion, voting on the amendment, and voting to end discussion and conclude discussion of the amendment. Finally, the New Business screen composed of two screens: a landing page for the New Business section and New Business Page.

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<sup>26</sup> Warfel, Todd Zaki. *Prototyping: A Practitioner's Guide*. Brooklyn, NY: Rosenfeld Media, 2009. p.61

### *The Usability Study:*

The third usability study took much the same form as the first two. Participants were welcomed, and asked to sign a consent form, after which they filled out a brief background questionnaire, and were read an introductory script explaining what they would be doing (Appendix 9).

At this point the participant was shown the Officer Reports section from the second usability study and asked to describe the screen and what functions it might provide. After which they would be taken through each of the various screens in the Officer Report sequence and then asked to do the same thing. After they had gone through all of the screens, they were shown the Officer Reports sequence on the paper prototypes and asked the same questions. Finally they were asked to compare the two respective sequences, describe which features they like of each and which they didn't. This same process was then repeated for the other two sections.

Participants were asked more general questions in this final study so as not to limit the scope of their answers. The hope was that by giving users the opportunity to answer more broadly, they might give more insight on why they were having difficulty with certain areas.

### *The Results:*

Overall, this study was highly successful and indicated that the paper prototype solutions, with aesthetic additions, could be incorporated into the final design.

The Officer Reports section (Figures 20 & 21) further confirmed the issues observed during the second round of testing, that users were unsure of how to indicate

that an officer had finished with their report. However, the paper prototype solution faired very well, and all three of the participants predicted that the “finished” button would indicate that the officer was finished, and that pressing it would cause some kind of indication on the landing screen. Similarly, participants had no difficulty identifying most of the other buttons on each of the pages and their functions.

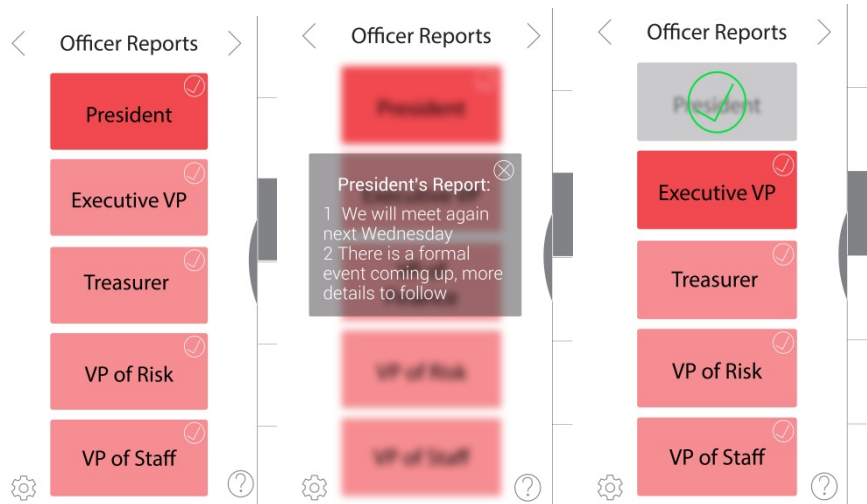


Figure 20: Officer Report - Prototype Two

The above screens illustrate the different screens in the Officer Reports Section. The Chair can click on officers to bring up their report, and press on the grey arrow in the top right hand corner of each box to indicate an officer has finished. These are the screens participants were asked to look at first.

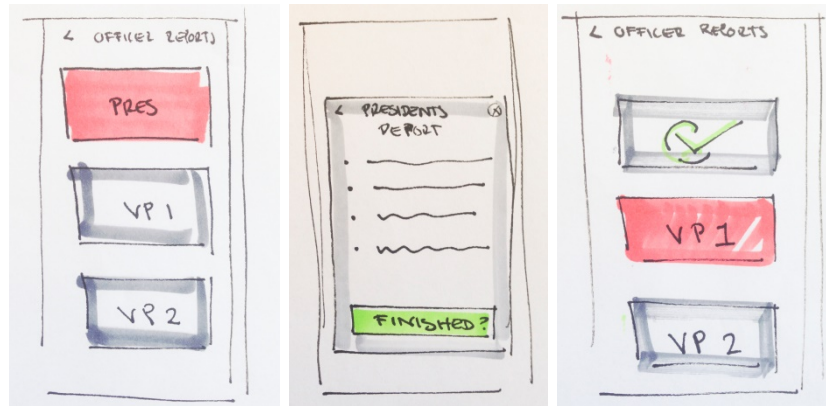


Figure 21: Officer Reports – Paper Prototype

Above are the paper prototypes for the Officer Reports section for the third round of usability studies. The key differences between these and the previous prototype are the removal of the check box in the upper right hand corner of the officer buttons, and the addition of a “Finished” button below each officer report.

While there were a few things each of the users had issues with, they were mainly additional functions they might like, or small aesthetic fixes. The two recurring themes between each of the participants were that the interface should indicate that finished reports can still be revisited by users, and that reports do not have to be given in sequential order.

Similarly with the Unfinished Business section (Figures 22 & 23), all participants were able to navigate through each of the sections without much difficulty. Participants indicated that upon receiving various motions from the floor, they would push certain buttons, and would thereafter follow the prompts on the various screens. Participants noted some of the more useful features were the “End Discussion & Vote” button because of its clarity of wording, and the voting tally screen.

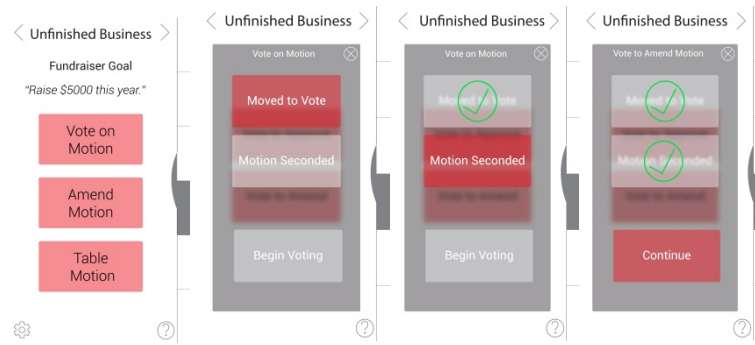


Figure 22: Unfinished Business – Prototype Two

The four screens above are from the Unfinished Business section of Prototype Two, and were among those shown to the participants in this section. These ones show how the Chair would move through the motion to end discussion and vote.



Figure 23: Unfinished Business – Paper Prototype

The above seven screens are some of a many from the Unfinished Business section of the third prototype. Key differences between the second and third prototypes are: changing the “Vote on Motion” button to “End Disc. & Vote,” changing voting process by adding screens to clarify certain steps, and allowing the Chair to open a separate window for the current motion if it is too long.

Though this section prompted more feedback than the Officer Reports section, again, the vast majority of it was to include small additional features, and to change aesthetic details. The most consistent feedback from each of the participants was that the pop-up screens should more clearly indicate whether they were asking about voting to end discussion, or voting on the current motion. Additionally, participants noted the redundancy in the back arrows, the “Cancel” buttons, and the “X” buttons within the pop-up screens.

In addition to the consistent feedback, one of the users noted that he felt there was a dichotomy within the app. He explained that as an experienced Chair, he would be more inclined “to ignore the app and just [move through the voting process] himself,” however, he also noted that for inexperienced individuals the app “would be really good.” In response to this comment I asked if he felt that having two settings on the app, (one for experienced users, and one for beginners) might be beneficial, to which he answered yes. Unfortunately this participant was the final one interviewed, so I was unable to survey the other participants, however this would be something to consider as a future feature within the app.

The New Business section of the app (Figures 24 & 25) was the most brief of all the sections and had the least feedback of the three. As with the other two sections of the app tested, users had no difficulty in navigating this section, adding new business, and identifying the various other buttons on the screens. All three users noted that “No New Business” more clearly indicated its function as a button than “Continue,” and while two of the three users noted that they would be concerned if the “Waiting for

Secretary” screen remained on their page for more than two or three seconds, they appreciated it’s addition as a means of indicating what they were waiting for.

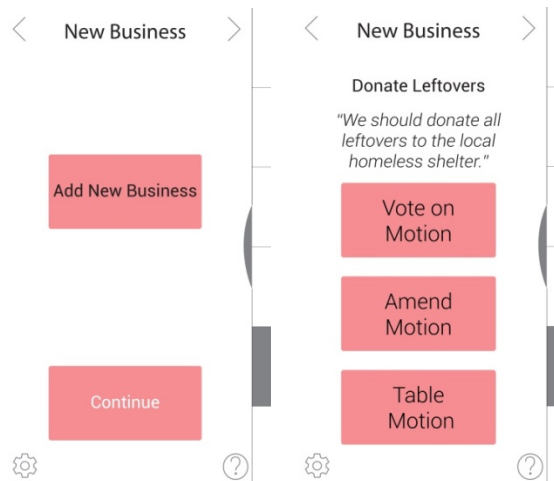


Figure 24: New Business – Prototype Two

The above two screens are the beginning of the New Business section from the second prototype. They illustrate how the Chair would add new business to the agenda at this point in the meeting.

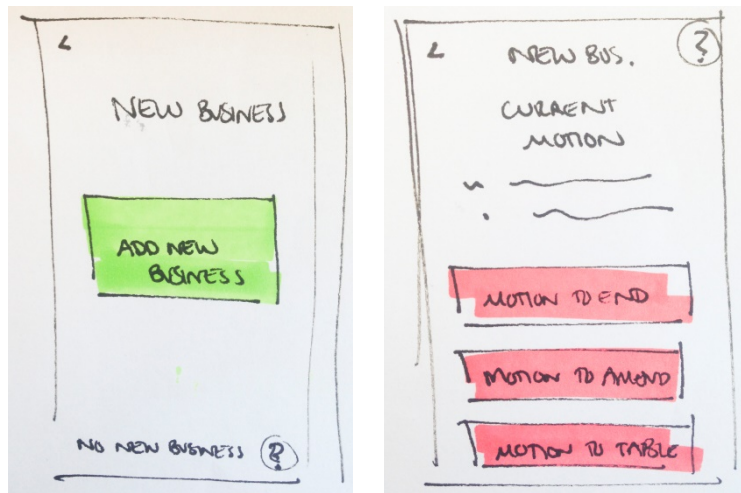


Figure 25: New Business – Paper Prototype

The above two screens show the process of adding new business in the third prototype. The key difference between this version and the last was the change in language and button type from “Continue” which looked like all the other buttons, to “No New Business” which was unframed.

While the use of paper prototypes here was successful, the general benefits they provided were no more or less beneficial than realizing the designs in Illustrator. While they were very quick to make, and their “sketchy” quality clearly indicated that they were prototypes, there was little to no adjustment made during any of the tests, so there was little purpose to keeping them so rough.

However, the addition of more open ended and comparative questions in this section of testing did prove to be very useful in providing good feedback. This is especially evident with the observation by one user about the dichotomy between an educational app and an app for running meetings which was unprompted and a little off topic.

Overall, the third usability study was extremely useful in providing quick, detailed feedback on the new interfaces that I developed.



## Chapter 7: Final Model

### *Final Model Development:*

After having tested the third prototype and analyzing the notes I had made during each of the interviews, there were a few more changes to the app that needed to be made. As mentioned in the last chapter, participants consistently mentioned: the app should indicate the ability to revisit officer notes, that officers don't have to go in a sequential order, the voting process throughout the app should clarify what it is referring to (voting to end discussion versus voting on the motion), and making sure that there are no redundancies with back arrows versus "X" buttons within the voting screens. As it was necessary to make a final model of the app, these changes were integrated into the final aesthetic design process.

With regards to the aesthetic choices I made for the final design, I based my decisions upon an inspiration board (Figure 26) I generated with images pulled from the internet. The purpose of the board, as with most inspiration boards in design projects is to focus a visual language so that the project is cohesive. I was heavily influenced by the Google Material Design, and the use of minimal color in a number of furniture designs, both of which give a minimal, yet friendly feel. I wanted to draw from other simple visual languages as a way to draw attention away from the complexity of some of the processes within the app. Similarly, the accent colors were used to balance a visually simple interface and communicate a sense of welcoming and friendliness to the user.

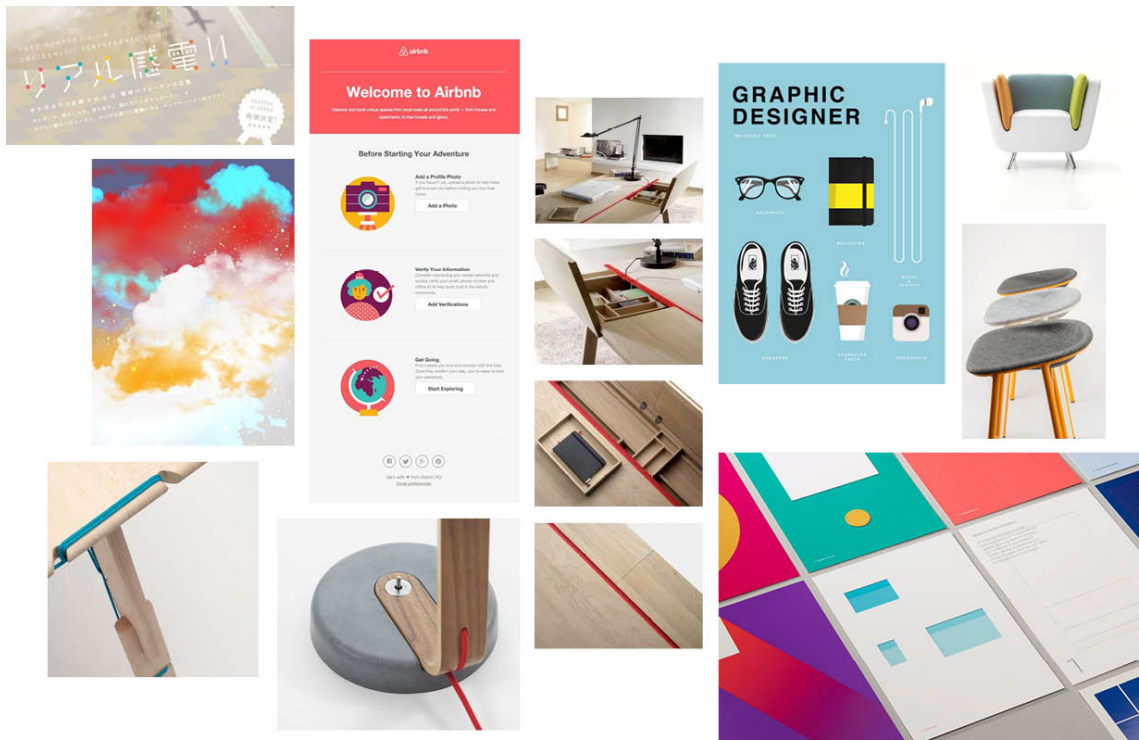


Figure 26: Inspiration Board for Final Design Aesthetics

Above is my inspiration board for the aesthetics of my final interface design. I wanted to achieve a minimalist, yet welcoming aesthetic.

*Key Features and Changes:*

There are a great number of features within this app, and they can all be seen within the App Master View, the link to which is provided under the List of Additional Materials section at the beginning of this thesis. However, the following Figures show the key features of the app's interface.

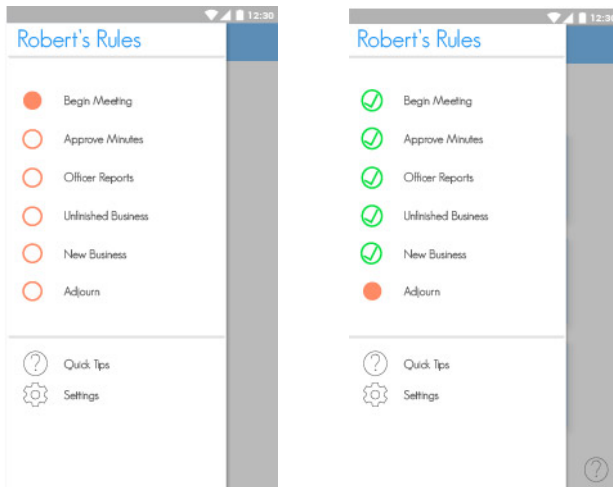


Figure 27: Sidebar – Final Model

The above images are two progressions of the sidebar for the final model on both the Chair and Member interface. The left screen shows the application during the Begin Meeting section of a session, and the right screen shows the application during the Adjourn section of a session. The green checkmarks indicate completed sections (though a user may navigate back to them at any time during the meeting with this sidebar). Additionally, the Quick Tips and Settings menu are also accessible here.

This sidebar is radically different from previous versions of the navigation for a number of reasons. The first was that a number of individuals expressed confusion during the first usability test over a sidebar that tracked progress by highlighting a different box as the app progressed. In the second prototype, this sidebar was changed so that members could open it from the sidebar using a swipe motion, and symbols would appear, indicating each different section of the meeting. However, again users expressed confusion about the meaning of the symbols. Therefore it seemed prudent to include the names of each section with the sidebar for the final model, and to indicate which sections had been completed in addition to the section that was currently in progress.

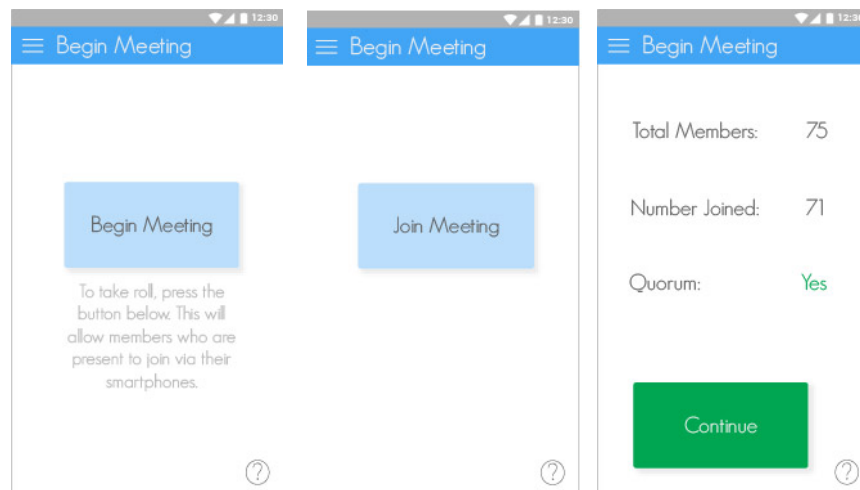


Figure 28: Begin Meeting – Final Model

The three above screens show the Chair (left) and Member (middle) interfaces, and the member tally screen (Chair) during the Begin Meeting phase. The Chair presses the “Begin Meeting” button, after which Members may join the session by pressing Join Meeting. This data is recorded automatically via a secretary interface (never realized) as part of the meeting minutes, and is updated on the Chair’s screen in real-time. The Chair may continue the meeting when Quorum is present.

Little has changed from the Begin Meeting section throughout the prototypes. The main difference here is how Quorum is indicated. Rather than a checkmark as in previous versions, the final model simply says “Yes” or “No” depending on member attendance. This change was made after participants expressed confusion in the final usability study over how they were to know if quorum was met.

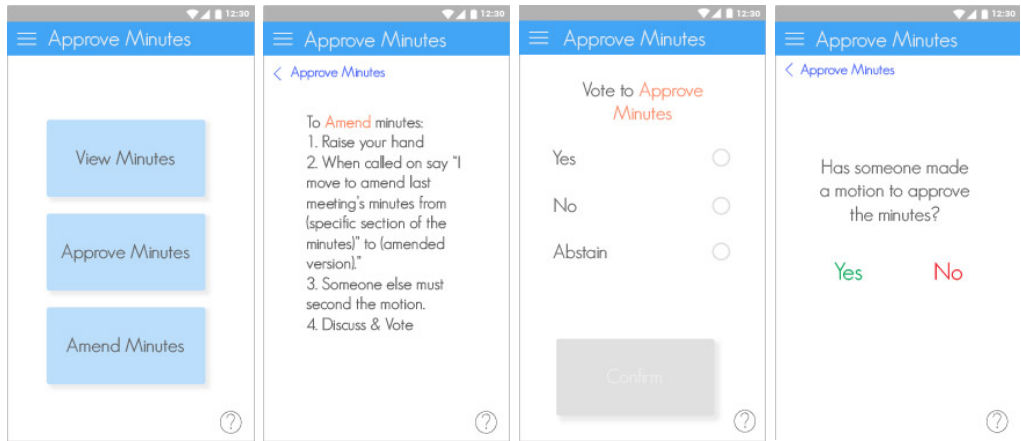


Figure 29: Approve Minutes – Final Model

The four screens above show some of the main features of the Approve Minutes Section of the app. The screen on the left is the landing screen for both the Chair and members. The screen second on the left gives instructions to Members on how they would amend minutes (they arrive there by clicking Amend Minutes). The screen second from the right shows the Member voting screen and the heading highlights this is a vote to approve the minutes. Finally, the right screen is prompting the Chair whether someone made a motion to approve the minutes, which they arrive at by pressing the “Approve Minutes” button. If the Chair answers “Yes” more screens will follow asking if someone made a second, and then if the Chair would like to send out voting screens.

The Approve Minutes section for both the Chair and Member side is the first section of the app. that reflects some of the broader changes made in the final prototype. The Member section on how to amend minutes is a result of the success of the listed instructions in the second usability study. Additionally the word “amend” is highlighted to further emphasize which action the member is taking. Similarly, prompting the Chair to answer “has someone made a motion to approve the minutes?” results from the final usability study in which the participants were able to move through the screens successfully using this template. Both the changes to the Member and Chair interface

during motion and voting stages such as in the Approve Minutes section are reflected in Unfinished Business and New Business.

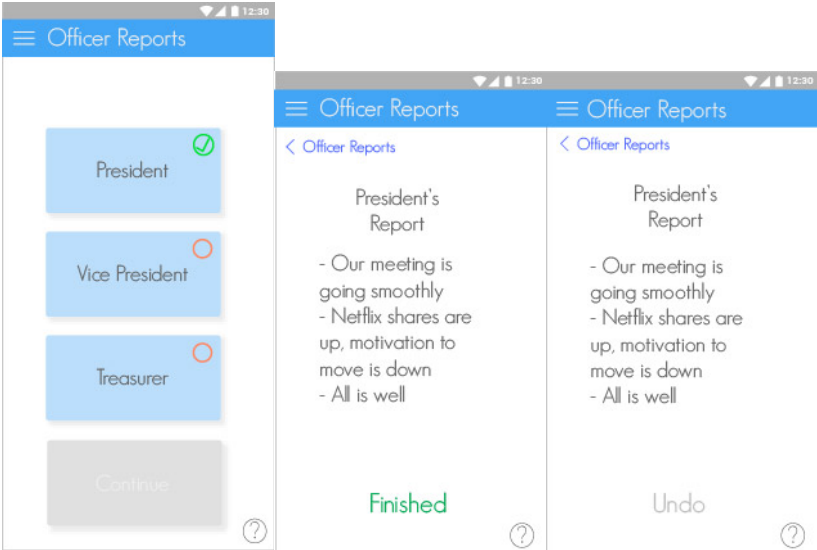


Figure 30: Officer Reports – Final Model

The above three screens show the Officer Reports section of the Final Model. The left most screen is the landing page for both the Member and Chair interface. where the user may tap on any of the officers to view their report (shown by the right two screens). (The additional height of the left hand screen indicates that users would scroll through it.) In the upper right hand corner of each officer button there is either a solid orange circle (not pictured) indicating that that officer’s report is in progress, an outlined orange circle, indicating that the officer has yet to give their report, or a green check mark, indicating that the officer has completed their report. The right two screens indicate the Chair view of an officer report where at the bottom the Chair may click “Finished” when the officer concludes speaking and “Undo” should they need to return to their points. The Member screens are identical, though they lack the “Finish” and “Undo” buttons.

The changes made to the Officer Reports section were mainly to the Chair side as a result of the third round of usability studies. The “Finished” button was added as a clearer way for the Chair to indicate that an officer had concluded their report, and the “Undo” button added so that they may re-visit points if necessary. The switch from

large check marks to smaller ones was both to keep consistent design language from the sidebar, and also as a way to indicate that users may return to an officer's points at any time during the meetings, as was noted by one of the participants during the final usability study.

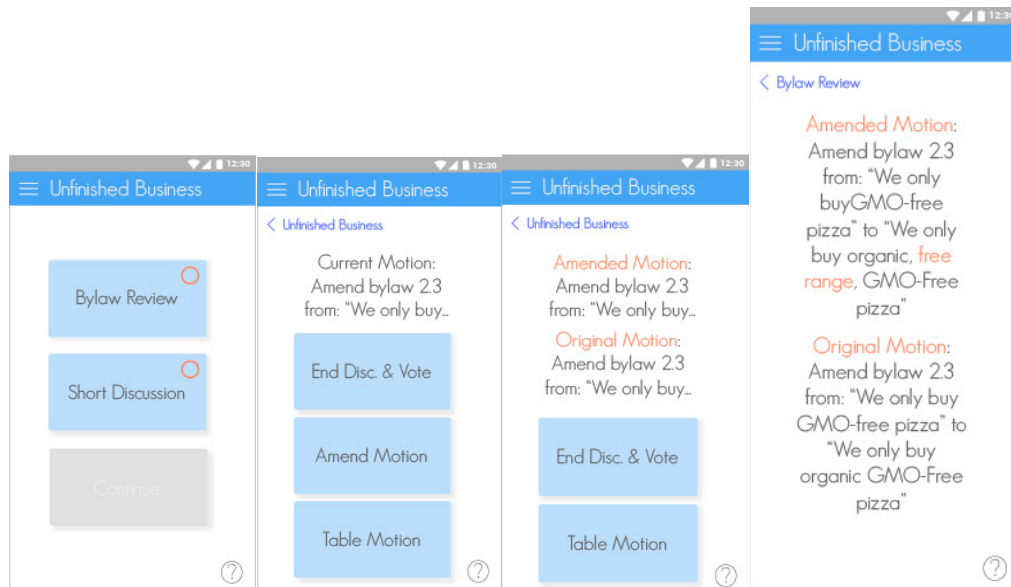


Figure 31: Unfinished Business – Final Model

The Unfinished Business section of the app changed very little throughout the whole usability testing process. The Members and Chair share the same landing screen, which repeats the same style of check boxes used in Officer Reports to indicate items to do, in-progress, and completed. Similarly both user groups have the same screens for each order of business (though the results of pressing each button differ). Users may hit the Current Motion to open a new window (shown on the right) to show the full text (important or amended points are highlighted). If users decide to amend a motion, the Members and Chair receive prompts, almost identical to those in Approve Minutes which lead them through the motion and second process. Both users then arrive at the second screen from the right which gives them the option to view the original and amended motions, table the motion, or end the discussion and vote.

Much of the content in these four screens has remained the same over the course of all the versions of the app. as users have consistently been able to navigate this

section. The only significant change to the above four screens was highlighting important pieces of text, such as the specific sections of a motion that changed.

However, users did have some issue with the various prompts they were shown as they moved through the voting process, especially during a motion to end discussion and vote. Users consistently tried to clarify if they were voting on the motion, or ending discussion. This difficulty resulted in highlighting the important wording in the voting screens below.

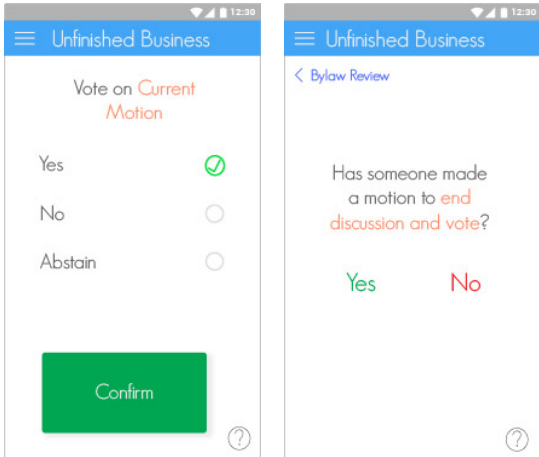


Figure 32: Voting Specification – Final Model

The above figures from the Chair (right) and Member (left) sides of the app show the highlighted text specifying the voting procedure.



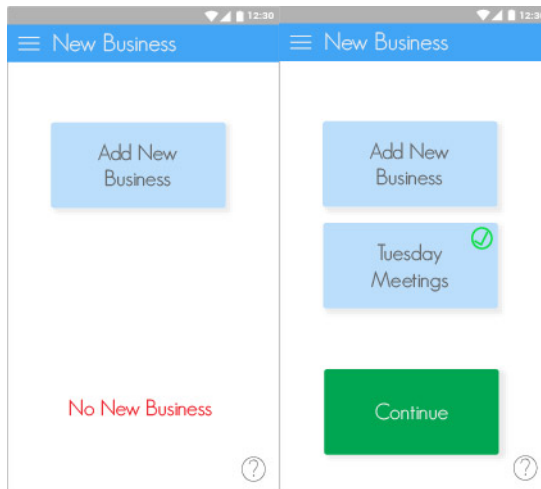


Figure 33: New Business – Final Model

Above are the two home screens for New Business: the one on the left is the landing page before new business has been added, the one on the right shows the landing page after a piece of new business has been added and completed.

As with the Unfinished Business landing page, little changed with New Business. As the third usability test indicated, a “No New Business” button was deemed clearer than a “Continue” button, so this addition was made to reflect that finding. However, after new business has been added, “No New Business” is replaced by a grey “Continue” button (not pictured) that only turns green and becomes responsive after that piece of business is complete. This choice was informed by the visual language used throughout the rest of the app, which can be seen in Officer Reports and in Unfinished Business.

Similar to both previous pages, the Adjourn landing page is almost identical to all of its predecessors (Figure 34). The only significant change made was to the prompt that pops up when Members or the Chair press the “Adjourn Meeting” button. Members, as in the rest of the app, are taken to a separate page which lists instructions on how to adjourn, and the Chair is asked if someone has moved to adjourn the meeting

and then if someone had seconded it, and so on, again reflecting the motion and voting process seen in the rest of the app.

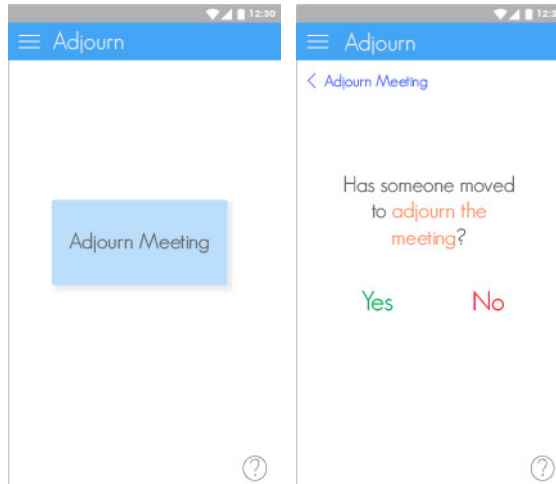


Figure 34: Adjourn – Final Model

Above are the landing pages for both Member and Chair (left) and the prompt for the Chair when they press “Adjourn Meeting.” (right)

In addition to the main, six step process for conducting a meeting via Robert’s Rules of Order, users could also access a Quick Tips section via the sidebar, and the question mark icon in the bottom right corner of each screen. Making the Quick Tips accessible in so many areas seemed logical as the app was intended to be educational. Additionally, a drop down menu in the side bar seemed the most prudent way of listing each section so that members would not have to swipe through all of them to find a specific section quickly.

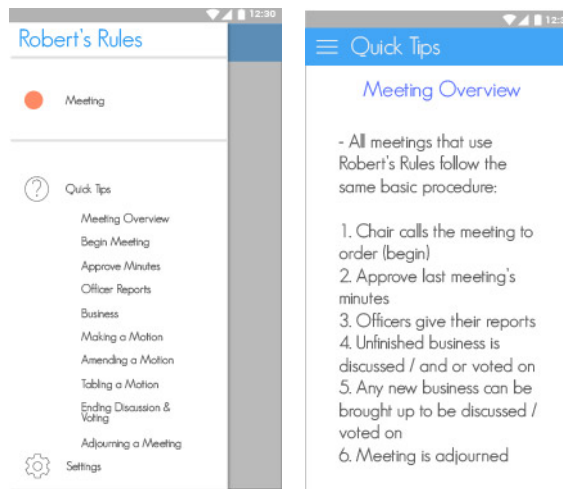


Figure 35: Quick Tips – Final Model

The Member and Chair view of the Quick Tips screens are identical, as the information therein is relevant to both of sets of users. The Quick Tips list is accessed by pressing Quick Tips in the sidebar; otherwise users are directed to specific screens depending on where they are within the meeting process. For example, if a user were to click the question mark screen within Approve Minutes, they would be directed towards the Approve Minutes screen in Quick Tips.

Finally, it is important to note that much of the live updating functionality of the app would not be possible without a third user role: the Secretary. Throughout the process, the app would rely on an additional member to make note of who makes motions, who seconds them, and the wording of new business and amendments. The interface for this person was never realized, as the additional functionality they add to the app would not directly contribute to the app's primary educational goal. Instead, their existence as a note taker was made an additional function of the app. In a fully realized app concept, a separate interface would be created to demonstrate how they interact with the main, educational component. This would potentially be created as a note taking app that receives pop-ups every time the Chair confirms someone has made

a motion or second, or indicates that an amendment has been made or new business added.

For now, the Secretary's visible influence on the app is limited to a few screens like in Figure 36 that indicate information is being loaded in the background. In this case, the "Loading Current Motion" piece indicates that the secretary is typing up the motion made for New Business, and will push it out to user screens when they finish.

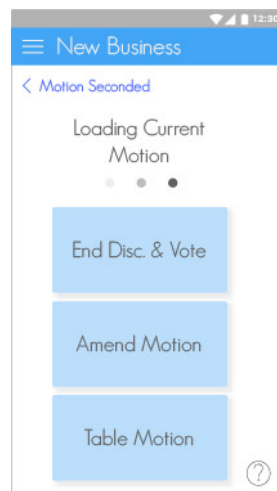


Figure 36: Loading Current Motion Example – Final Model

The above figure shows a New Business screen while the Secretary is adding the motion to their interface before they push it out to the Members and Chair.

While the app is far larger than the few figures shown in this section, these one presented give a comprehensive picture of its main functional elements and the resources it provides to its users.

## Chapter 8: Conclusions

As mentioned in the beginning of this paper, the intent of the project was to develop an app to educate people on how to use Robert's Rules of Order in a meeting setting, and to facilitate those meetings. Originally, the final product was meant to be a fully functional app available for download via Google Play or the Apple store. However, as the project progressed, the focus shifted away from a fully realized final design, to a well-researched, evidence based user interface covering a fractionally smaller scope of the initial idea. At the end of the design process, I feel that despite a few elements I would improve if undertaking this task again, the outcome of the project was successful, and the overall objectives were completed.

### *Project Analysis:*

In one of the first meetings Kirstin and I had, we outlined the aims of the project, what users needed to be able to accomplish with this app, and how I would know if I were successful in achieving the goals of the project.

First, we established the purpose of the app was to be “an educational tool to teach anyone how to apply and follow Robert's Rules of Order.” The previous chapters illustrate the process of my research and development of the application through to this point, and I believe the final product to fulfill that purpose. User testing has demonstrated it to be successful across a range of participants with varying experience levels. While the final interface has not been tested, it is the product of repeated user tests and research, and it is composed of elements that have all proven to be successful in this purpose.

In addition to establishing the purpose, we outlined the main tasks users would have to be able to complete in order for the app to be considered a success. The users had to be able to: understand the process of each section of the meeting (join, approve minutes, officer reports, unfinished business, new business, and adjourn) and be able to actively participate, navigate between the sections, and understand where they are within the whole Robert's Rules process. Based on the results of the last two stages of user testing, the app accomplished this goal. User testing already demonstrated that users on the Member interface had almost no difficulty completing all of these processes, and those that they had issue with, such as the understanding the symbols in the side bar or figuring out voting to end discussion versus voting on the motion, were addressed in the final redesign. Similarly on the Chair side, the usability studies showed that participants were able to move through all sections of the meeting with little difficulty. While there was some feedback from participants in the last round of usability testing on what they would like to see changed, these suggestions did not affect the execution of the main tasks, and any large changes that were made were driven by patterns in participant use or error. When analyzing the success of the project in terms of task analysis, the participants were able to complete the tasks given to them and therefore the app was successful.

While all of the usability study tasks returned successful results, it is important to note that the studies were all performed independently, and this app is meant for use within a group setting. This does not prevent the app from being usable, though it should be noted that if this app were to be released, additional observation, analysis and potential refinement would be key to ensuring the app functions successfully.

However, as noted previously, the app both fulfilled its initial purpose, and demonstrated its usability through research and testing, and therefore was a success.

*Changes to the Process:*

It should be noted that while the app was successful overall, there were a number of things that stand to be improved in the app development process, and those should be noted as a way of preventing similar errors in other projects.

First, there were a number of issues to address within the research process, beginning with my demographics surveyed. While there were limitations with time, I would like to have reached a more diverse group with my initial survey. Rather than receive feedback from fraternity brothers who have experienced similar issues to me, I might have taken my initial research further by reaching out to local organizations that might use Robert's Rules as well. While a more homogenous survey pool doesn't invalidate the final product, it might have limited the scope of pain points discovered.

In addition to expanding the scope of my initial survey group, I would like to have expanded the range of possibilities I might have explored during the ideation phase. I began the process knowing that an app was the tool I wanted to use to solve this problem, however this ran in opposition to the idea that brainstorming and ideation should be completely without constraint. While I may very well have arrived at the same conclusion, that an app was the most appropriate solution, I may have missed out on other ideas that could have informed the end result. Again, this limitation doesn't directly affect the efficacy of the final product, but correcting it in future projects may produce wider ranging results.

Finally, in the last session of usability testing, two of the participants had been testers in the first usability study, and this may have influenced their ability to move through the app and complete tasks. Having had experience previously, the second-time participants already had some familiarity with the organization of the app, and therefore may have been more equipped to navigate and complete the tasks, which could have led to the false conclusion that the interface was self-explanatory for first time users. Similarly, all three users were shown the interface from the second usability study before moving on to the third one, giving them additional insight into the process before asking them to work through the third version, which may have had the same false conclusion about the apps usability. However, the users were asked to compare the two, and all three favored the third version, indicating that there was still improvement made.

As with any study, asking one question generally leads to having ten more questions one would like to ask, and there always seems to be a requirement for more testing and more data; the difficulties noted above reflect that sentiment. However, none of these issues are likely to have seriously detracted from the final outcome of the project, and therefore should be seen as things to note and improve upon in research processes.



*Contribution to the Field:*

While the Robert's Rules of Order mobile application was not realized in its final form, its development and success in usability studies demonstrates its contributions both to the specific market for parliamentary procedure mobile applications, and to the field of user experience and user interface design as a whole.

This project contributes to the existing market of mobile applications used to teach Robert's Rules of Order as it improves upon those already in existence. Since the inception of this project more than a year ago, one mobile application was released on the Apple App Store that claims to help you "learn how to start a meeting, handle motions, take votes, and find common rules" among other things. It features an almost entirely text based interface where users receive descriptions of each of the different sections of a meeting, and basic text instructions on how to carry out certain actions.

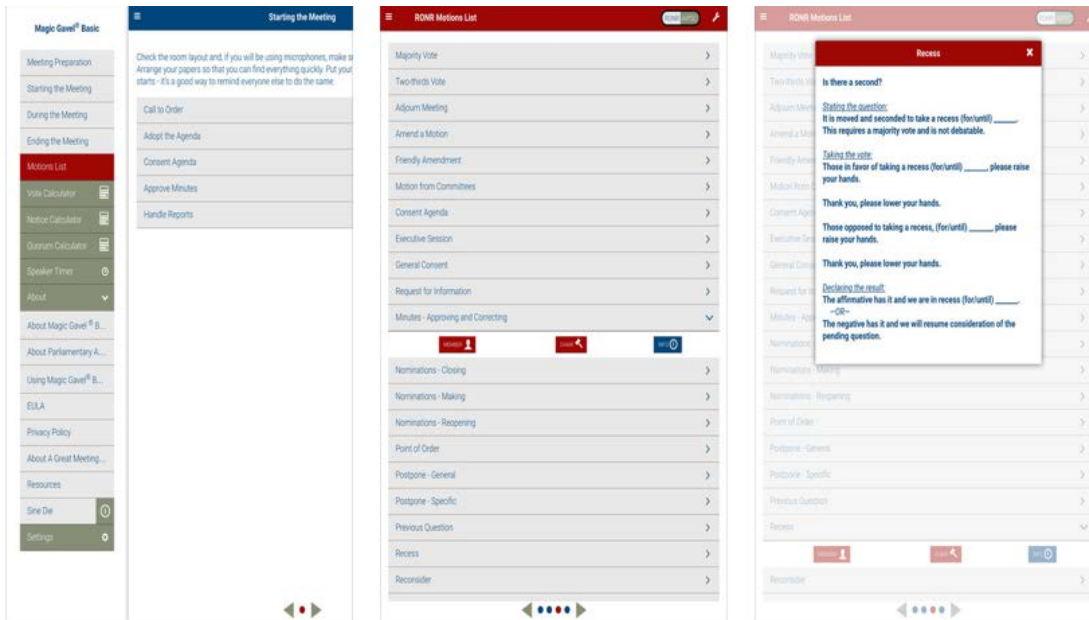


Figure 37: Magic Gavel User Interface

The Magic Gavel interface is shows a heavily text based user interface with small icons.

This product currently sells on the Apple App Store for \$9.99, has received no user reviews, and was last updated this March. On preliminary review, this application presents serious design flaws, first and foremost being its heavily text base interface. While this app is being marketed as an educational tool that will help users learn how to conduct meetings, it appears that the author of this product merely copied the Robert's Rules book onto an Iphone. If this app were being used during a meeting, users would have to scan rows of small text or look through the menu on the left hand side to find the piece of content they were looking for. Given that the alternative is a physical book, in which the user would use the index or chapter headings, this app seems to provide little benefit to the user other than the fact that it can be carried as part of one's mobile

device. Despite the fact that this application claims to help with meeting preparation and the actions associated with each section of the meeting, it is almost identical in content to the other two products on the App Store, each of which are digitized versions of the Robert's Rules of Order text.

In comparison, the Robert's Rules of Order application developed for this project provides far more in terms of functionality and educational benefit. While it too offers the same ability to help run meetings, it offers specific features for each section, each having an instructional component built in to the language, or within the Quick Tips section. The application developed for this project contributes an improved version of an existing project to the small market of applications to teach Robert's Rules of Order.

With respect to the broader fields of User Experience and User Interface design, this thesis project made contributions by illustrating the importance of user centered research within the design process, and providing another product that illustrates the ability to combine educational and task based goals within a mobile application.

As mentioned early on in this project, the field of User Experience Design is a new one, and as such, practitioners consistently have to defend their processes, to those they work for, especially when it comes to research.<sup>27</sup> Yet there is no question that crafting good user experiences that deliver what users want, and that will provide good returns on investment for clients is necessarily based on the needs of the user. This thesis project is one of many other projects, articles, and other bodies of work written

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<sup>27</sup> Schneider, Speider. "How to Survive Design by Committee." Studio by UXPin How to Survive Design by Committee Comments. 2015. Accessed May 17, 2016. <https://studio.uxpin.com/blog/how-to-survive-design-by-committee/>.

by UX and UI designers that supports the fundamental notion that user centered research is imperative to successful design. The multiple trials and continuing improvements throughout the process indicate the success of the research, and the unknowns that further need to be tested indicate that research should be ongoing all support this notion. The first contribution to the field of UX and UI design of this project is in becoming part of a body of work which supports current practitioners in designing user centric experiences and products.

In addition to the support of research as an integral part of the UX design process, this project also provides an example of a mobile application that integrates both education and task completion in the same program. As has already been shown, educational mobile applications are becoming more and more common in the classroom on university campuses as well as in K-12 education. Current students expect the use of these kinds of educational technologies to increase in the coming years and as such new, improved techniques of delivering and teaching content will most likely follow the same trend. This project follows that trend by combining task based and pedagogical goals and then consistently testing this combination to provide a unique, positive user experience. The end result of this product has in theory demonstrated the ability to provide such an experience with multiple goals, and this construct could be applied to any number of other applications. UX designers could take the model of task based education to develop applications that have users go through scenarios as they would in real life, completing tasks that further their education. Additionally, other task based procedures may now wish to include educational components into their applications to provide multifaceted benefits to their users. While this project is by no means

exhaustive or comprehensive, it does provide an argument to other UX professionals to incorporate other elements into their designs. This project demonstrates that it is possible, and beneficial to combine task based, and educational UX goals into a single application, and this may provide the groundwork for development of other applications to follow this same model.

*Conclusion:*

As a student working on projects with three month (term-long) time scales, it is not often one gets the privilege of taking the time to spend months conducting user research and usability testing to hone a product. Though I expected no less, the ability to make informed decisions based on research rather than pure intuition confirms the assertion made in every single book and article I read about UX design, that user testing is key to designing great, functional apps.<sup>28</sup> Though there were a few things that I will change the next time I design an app, the final product fulfills its purpose and I hope is considered both a functional and beautiful contribution to user interface design.

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<sup>28</sup> Saffer, Dan. *Designing for Interaction: Creating Smart Applications and Clever Devices*, Second Edition. Berkeley CA: New Riders, 2007.p.75-7

Unger, Russ, and Carolyn Chandler. *A Project Guide to UX Design: For User Experience Designers in the Field or in the Making*. Berkeley, Ca.: New Riders, 2012. p.227

Warfel, Todd Zaki. *Prototyping: A Practitioner's Guide*. Brooklyn, NY: Rosenfeld Media, 2009.p.3-7

## Appendix

### Appendix 1: Complete Task Analysis – Version 1

1. Open Meeting
2. Approval of Minutes
  - a. Motion to Amend\*\*
  - b. Discuss amendment\*\*
  - c. Vote on amendment\*\*
  - d. Discuss minutes
  - e. Motion to approve minutes
  - f. Second
  - g. Vote
3. Officer Reports
4. Unfinished Business
  - a. Discuss
  - b. Motion to Amend\*\*
  - c. Discuss Amendment\*\*
  - d. Vote on Amendment\*\*
  - e. Discuss original / amended motion
  - f. Move to Vote
  - g. Second
  - h. Vote
5. New Business
  - a. Motion made\*\*
  - b. Motion Seconded
  - c. Discuss
  - d. Motion to Amend\*\*
  - e. Discuss Amendment\*\*
  - f. Vote on Amendment\*\*
  - g. Discuss original / amended motion
  - h. Move to Vote
  - i. Second
  - j. Vote

6. Adjourn

- a. Motion to adjourn
- b. Second
- c. Vote

\*\* If needed.

- Amendments can be made as many times as necessary, may not amend and amendment.
- **Highlighted** – pain point

## Appendix 2: User Personas

### Laura:

**Age:** 22

**Occupation(s):**

- Full-time student
- Sorority president

**Salary:** none

**Location:** Seattle, WA

**Marital Status:** Relationship

**Children:** none

**Education:** B.A. – Accounting ongoing

**Technology Usage:** High (Laptop, Smartphone, Text, Email, Web, Word, Excel)

**Comfort with Technology:**

- Very comfortable with regular use (laptop, smartphone, text etc.)

**Hobbies / Interests:**

- Skiing
- Reading (Game of Thrones or political drama)
- Cooking
- Theater
- social life

**Pet Peeves:** She is always well put together, and she likes to work with people who are similarly aware of their personal appearance.

**Experience with Robert's Rules:** Medium High. She served as a Treasurer for one year before taking her position as Chair. She has been serving for six months in this role.

**How did she learn Robert's Rules?** Learned by observation and copying other students initially, though when she was elected president of her sorority, she was given a short book about it.

**Context of Robert's Rules:** Sorority

**Role(s) within Meeting:** Treasurer (Officer), Chair

**Pain Points:**

- Now – none except for the very detailed wording / specific issues has ever had an issue with them.
- General scenarios – none.



**Jeremiah:**

**Age:** 26

**Occupation:** Full-Time Teacher

**Salary:** \$46,000

**Location:** Raleigh, North Carolina

**Marital Status:** Single

**Children:** None

**Education:** B.A. History, M.A. Teaching

**Technology Usage:** Very High (Smartphones, Tablets, Laptops, Mac / PC, Twitter, Instagram, LinkedIn, Facebook etc.)

**Comfort with Technology:** Very High – Child of his generation, grew up with screens

**Hobbies / Interests:**

- Hiking
- Film / GoPro
- Homebrew Cider
- Rock Climbing
- Occasional Netflix Binge

**Pet Peeves:**

- He hates it when people talk during meetings or stare at their phones instead of paying attention

**Experience with Robert's Rules:** One month

**How did he learn Robert's Rules?**

- He is still trying to learn. He is watching other people for the moment, and he has done a little google searching

**Context of Robert's Rules:** Local Teacher board

**Role(s) within Meeting:** Member

**Pain Points:** Jeremiah joined the teacher board looking to get involved and make some friends. They use Robert's Rules in their meetings, and he learned by following along. He gets what it is for, but still struggles with amending and motions.

### **Appendix 3: Usability Study 1 Script – Introduction**

#### **Greeting**

Hello my name is Sam and I will be working with you during today’s session. I’d like to start by thanking you for taking the time to help me out. As you may know, I have asked you here because I am designing an app to educate users on Robert’s Rules of Order, and to facilitate the meeting process.

#### **Overview**

Before we start, let’s run through today’s session. Over the next forty five minutes, I will be walking you through multiple usability activities. While you are completing these activities I will be recording how you interact with the app and any comments that you share.

- The first thing I am going to ask you to do is to complete a consent form to allow us to record the session.
- Next, I’m going to ask you to complete a brief background questionnaire. This helps us know a bit about who has participated in the study.
- Next, I’m going to ask you to go through the app, as if you were in a meeting, and share your thoughts on the experience.
- Finally, we’ll take a few minutes to talk about your experience using the app, anything you particularly liked or didn’t like, and any other thoughts you may have.

#### **Consent**

In order to help review your feedback, I will be recording your voice, and image. These recordings will be kept completely confidential and will only be used to help me evaluate how the app can be improved. If this is ok with you, I’d like to ask you to complete this consent form to record your session. If you have any questions while reading this form, please feel free to ask.

*[SIGN CONSENT FORM]*

Great. I just want to reiterate that your personal information and responses will be kept confidential and will only be used by myself to make improvements to the app.

#### **Things to Remember**

Before we begin, I want to stress that we are evaluating the app and not you. You can’t say or do anything wrong, so just be honest about what you are experiencing. Any difficulties that you may encounter will help me pinpoint where I need to make improvements to the app.

One thing I’d like to ask as you go through the study activities is to “think aloud.” By this I mean just say aloud what you are looking at, thinking and trying to do as you use the app. Think of this as giving a play-by-play of your thoughts and decisions. This helps me understand your experience. Please don’t worry about hurting my feelings

with anything you say. I need to hear exactly what you think so I know where to make improvements.

If you have any questions while you are going through the activities, feel free to ask. I may not answer your questions right away since I am trying to understand how you interpret the information on your own, but I will answer any remaining questions at the end of the session.

**Before we begin, do you have any questions?**

\*\*Note: Thank you to Kirstin Hierholzer in the University of Oregon Department of User Experience for allowing me base my script off of the one she uses in her usability studies.\*\*

## **Appendix 4: Usability Study Consent Form**

### **Purpose**

The purpose of this usability study is to evaluate the Robert's Rules of Order mobile app designed by Sam Selbie as part of his Honors College Thesis project. You have been invited to participate in this study because you are a member of a group seen as a primary user of this mobile app.

### **Procedure**

If you decide to participate in this study, you will be asked to perform a series of tasks and provide feedback about your experience. A moderator will lead you through the study and discussion which should take about 1 hour.

### **Recording**

To aid in our evaluation of the website, your voice, and image will be recorded. These recordings will only be seen by Sam Selbie and his thesis advising team for the purpose of improving the mobile application.

### **Breaks**

If you need a break at any time, just let us know.

### **Confidentiality**

Any information that is collected about you and your opinions during this study will be kept confidential and will only be used by the redesign team to make decisions about improvements.

### **Feedback**

It is important for you to know that this study is in no way evaluating your performance or feedback, but rather is striving to understand whether the site's navigation, content and terminology meets your needs. Please be as honest as possible with your feedback so that we can make constructive changes to the site.

### **Withdrawal**

Your participation in this study is completely voluntary. Your decision whether or not to participate will not affect your relationship with Sam Selbie or anyone on his advising team. If you do decide to participate, you are free to withdraw your consent and end this session at any time without penalty.

### **Questions**

If you have any questions, please feel free to contact Sam Selbie, Clark Honors College Student, [sselbie@uoregon.edu](mailto:sselbie@uoregon.edu), 503-332-0441

Your signature indicates that you have read and agree to the terms stated above and that you give the Sam Selbie permission to use your voice, verbal statements and recorded image for the purpose of evaluating and improving their website.

Print Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix 5: Background Questionnaire

### Robert's Rules of Order App – Sam Selbie Thesis Background Questionnaire

Please complete the following to help us understand who is participating in our usability study.

First Name, Last Initial: \_\_\_\_\_

How frequently do you use Robert's Rules of Order?

- Once a day
- Once a week
- Once a month
- Once a year
- I have never used Robert's Rules of Order.

How familiar are you with the process for Robert's Rules of Order?

- Not at all Familiar
- Not very Familiar
- Somewhat Familiar
- Familiar
- Very Familiar

How strictly do you follow Robert's Rules of Order?

- Not Strictly
- Somewhat Strictly
- Very Strictly
- I'm not sure

Please describe the setting in which you have used Robert's Rules of Order

\_\_\_\_\_

When you are in meetings, do you usually have any particular role?

- Member
- Officer
- Secretary
- Chair

Do you own a smartphone?

- Yes
- No

## **Appendix 6: Usability Study – Round 2 Script and Task List - Member**

### **Greeting**

Hello my name is Sam and I will be working with you during today's session. I'd like to start by thanking you for taking the time to help me out. As you may know, I have asked you here because I am designing an app to educate users on Robert's Rules of Order, and to facilitate the meeting process.

### **Overview**

Before we start, let's run through today's session. Over the next twenty, I will be walking you through multiple usability activities. While you are completing these activities I will be recording how you interact with the app and any comments that you share.

- The first thing I am going to ask you to do is to complete a consent form to allow us to record the session.
- Next, I'm going to ask you to complete a brief background questionnaire. This helps me know a bit about who has participated in the study.
- Next, I'm going to ask you to go through the app, as if you were in a meeting, and share your thoughts on the experience.
- Finally, we'll take a few minutes to talk about your experience using the app, anything you particularly liked or didn't like, and any other thoughts you may have.

### **Consent**

In order to help review your feedback, I will be recording your voice, and image. These recordings will be kept completely confidential and will only be used to help me evaluate how the app can be improved. If this is ok with you, I'd like to ask you to complete this consent form to record your session. If you have any questions while reading this form, please feel free to ask.

*[SIGN CONSENT FORM]*

Great. I just want to reiterate that your personal information and responses will be kept confidential and will only be used by myself to make improvements to the app.

### **Things to Remember**

Before we begin, I want to stress that we are evaluating the app and not you. You can't say or do anything wrong, so just be honest about what you are experiencing. Any difficulties that you may encounter will help me pinpoint where I need to make improvements to the app.

One thing I'd like to ask as you go through the study activities is to "think aloud." By this I mean just say aloud what you are looking at, thinking and trying to do as you use the app. Think of this as giving a play-by-play of your thoughts and decisions. This helps me understand your experience. Please don't worry about hurting my feelings

with anything you say. I need to hear exactly what you think so I know where to make improvements.

If you have any questions while you are going through the activities, feel free to ask. I may not answer your questions right away since I am trying to understand how you interpret the information on your own, but I will answer any remaining questions at the end of the session.

### **Before we begin, do you have any questions?**

For today's session, we will be conducting a mock meeting of the fictitious Broadway Charitable Trust Board of Directors in which I am going to play the role of the Chair, and you will be a member. As we go through the meeting, I will ask you to do certain things using the app to test its functionality.

### **Meeting Script:**

Chair: "I'd like to call this meeting to order at 10:31 AM, members, you should now be receiving an invite to join today's session, please do so."

(Sends out join session)

Chair: "We have quorum, so we can move on to the Approval of Minutes, I'd like to have someone begin the approval of minutes process"

To User: Please begin the approval of minutes process

Chair: "Great, the motion has been seconded, let's move on to a vote" (send out vote)  
"The motion passes and the minutes are approved unanimously. Let's move on to Officer Reports. We are doing well in all areas of business and our profit is up. Now to the Vice President's report..."

To User: Each officer would give their report and take questions. By looking at the app, is there a way to tell who is currently giving their report?

What are the first and second points of the fourth officer giving their report?

Chair: "Ok, we are finished with Officer Reports, now we will move on to Unfinished Business. We have two things to discuss and vote on. The first motion on the floor is to increase our decorations budget from \$1000 to \$1200. Let's discuss this motion."

To User: Could you tell me some tips for keeping discussion efficient?

Chair: "Great discussion, will someone please begin the voting process"

To User: Please begin the voting process



Chair: “The motion to vote has been seconded, everyone should be receiving a vote screen. Please cast your votes...The motion fails, we will not be increasing our decorations budget from \$1000 to \$1200. We have one other piece of Unfinished Business to attend to, if everyone could bring that up, that would be great. The motion is to change the date of our fundraiser from November 1<sup>st</sup> to December 2<sup>nd</sup>. Let’s discuss this motion.

[pause] To User: The discussion goes on for a while. Please tell me what it means to table a motion, and the different reasons for doing so.

Chair: We are running out of time, I’d like to entertain a motion to table this discussion....(Someone motions)...Thank you, do I have a second?”

To User: Please second this motion.

Chair: The motion has been moved and seconded, I will now send out the voting screen. This is a vote to table the motion until the next meeting.... The motion passes and we will discuss this next meeting. We are now finished with Unfinished Business and will move on to New Business. Does anyone have New Business?

To User: Please make the following motion:

\*\*hand piece of paper with motion on it\*\*

Purchase a new office building.

Chair: We have a new motion to purchase a new office building and it has been seconded. We will now discuss this motion.

To User: there is discussion, and you decide you would like to change your original motion to include a \$10 million spending limit. Please do so.

Chair: There has been a motion to amend the motion to read “To purchase a new office building using no more than \$10 million” ... It has been seconded. We will now discuss this amendment.

Chair: There has been a motion to vote and it has been seconded, we will now vote on the approval of this amendment. (vote) The amendment passes and we are back to the amended motion. The floor is again open to discussion... We have had a motion to vote and a second, we will now vote.

To User: Please find the exact wording of the motion you are voting on.

Chair: The motion passes. We will purchase a new office using no more than \$10 million dollars. Is there any more New Business? (none) I will now adjourn this meeting.

To User: What time was this meeting adjourned?

Please tell me what the fifth item of business was in this meeting, and what time we began discussing it.

Please discuss this experience in general.

Were there any parts of the meeting that were more complex?

How well did the app communicate what was going on?

## **Appendix 7: Usability Study – Round 2 Script and Task List - Chair**

### **Greeting**

Hello my name is Sam and I will be working with you during today's session. I'd like to start by thanking you for taking the time to help me out. As you may know, I have asked you here because I am designing an app to educate users on Robert's Rules of Order, and to facilitate the meeting process.

### **Overview**

Before we start, let's run through today's session. Over the next twenty, I will be walking you through multiple usability activities. While you are completing these activities I will be recording how you interact with the app and any comments that you share.

- The first thing I am going to ask you to do is to complete a consent form to allow us to record the session.
- Next, I'm going to ask you to complete a brief background questionnaire. This helps me know a bit about who has participated in the study.
- Next, I'm going to ask you to go through the app, as if you were in a meeting, and share your thoughts on the experience.
- Finally, we'll take a few minutes to talk about your experience using the app, anything you particularly liked or didn't like, and any other thoughts you may have.

### **Consent**

In order to help review your feedback, I will be recording your voice, and image. These recordings will be kept completely confidential and will only be used to help me evaluate how the app can be improved. If this is ok with you, I'd like to ask you to complete this consent form to record your session. If you have any questions while reading this form, please feel free to ask.

*[SIGN CONSENT FORM]*

Great. I just want to reiterate that your personal information and responses will be kept confidential and will only be used by myself to make improvements to the app.

### **Things to Remember**

Before we begin, I want to stress that we are evaluating the app and not you. You can't say or do anything wrong, so just be honest about what you are experiencing. Any difficulties that you may encounter will help me pinpoint where I need to make improvements to the app.

One thing I'd like to ask as you go through the study activities is to "think aloud." By this I mean just say aloud what you are looking at, thinking and trying to do as you use the app. Think of this as giving a play-by-play of your thoughts and decisions. This helps me understand your experience. Please don't worry about hurting my feelings

with anything you say. I need to hear exactly what you think so I know where to make improvements.

If you have any questions while you are going through the activities, feel free to ask. I may not answer your questions right away since I am trying to understand how you interpret the information on your own, but I will answer any remaining questions at the end of the session.

**Before we begin, do you have any questions?**

For today's session, we will be conducting a mock meeting in which I am going to play the role of the members, and you will play the role of the Chair. As we go through the meeting, I will ask you to do certain things using the app to test its functionality.

**Meeting Script:**

Using the app, please begin the meeting, and notify the members that you have done so.

- When they press the "Begin meeting" button, inform them that they have sent out a screen to their members

When you have reached quorum, please let me know, and then move on to the next step. (they move on)

So everyone has signed in, and you are ready to begin this next part of the meeting.

Please begin the approval of minutes process.

(they call for a motion + 2<sup>nd</sup>, they get it, begin voting)

You have now Approved the minutes. Where would you have looked for information if someone had wanted to amend the minutes?

Please move on to the next item of business, and give your report).

(Officer reports, they will go to the screen, and maybe the President's Report screen)

Now that you have given your report, please give the floor to the Executive VP.

(they do that)

While the Executive VP is giving her report, could you tell me what the VP of Risks? points are?

Ok, (pretend) each of the officers have gone through their points, please move to the next item of business and begin.

(they should move on to unfinished business, and click on one of the pieces of business to discuss)

(as a Member): I'd like to amend the proposed bylaw to read "We should raise \$9000 for our fundraiser this year".

Motion is 2nded –

Could you tell me a few tips on how to run a discussion on a bylaw?

Now we "discuss" the amendment.

The discussion seems to be going in circles, what can you do at this point to move the meeting forward?

(call for a vote, 2<sup>nd</sup>, vote)

Amendment has been denied, what happens now?

(discussion, vote)

You have now voted on one of the pieces of unfinished business, please navigate back to the other point of unfinished business, and begin the discussion on that.

(they do, pretend to go through this process)

You have now discussed both points of unfinished business, please navigate to the next section of the meeting.

(New business, they should call for any items of new business)

(As a member:) "I'd like to motion that we donate all leftovers to the local homeless shelter"

(2<sup>nd</sup>)

Could you explain what happens now?

(Discuss and vote)

Discussion happens, and doesn't seem to be getting anywhere. Also the board is also waiting on more information that will come in a few days' time. What might you do?

(Table – they should ask for a motion to table and a second, then have a vote, without discussion)

Now that you are finished with that piece of new business, what would be the next step?

(Call for more New Business, seeing none, move to adjourn)

Please adjourn the meeting.

Meeting done.

Please discuss this experience in general.

Were there any parts of the meeting that were more complex?

How well did the app communicate what was going on?

## **Appendix 8: Usability Study Round 3 Script**

### **Greeting**

Hello my name is Sam and I will be working with you during today's session. I'd like to start by thanking you for taking the time to help me out. As you may know, I have asked you here because I am designing an app to educate users on Robert's Rules of Order, and to facilitate the meeting process.

### **Overview**

Before we start, let's run through today's session. Over the next twenty minutes, I will be walking you through multiple usability activities. While you are completing these activities I will be recording how you interact with the app and any comments that you share.

- The first thing I am going to ask you to do is to complete a consent form to allow me to record the session.
- Next, I'm going to ask you to complete a brief background questionnaire. This helps me know a bit about who has participated in the study.
- Next, I'm going to ask you to go through a few of the tasks I have for you, and then we may work together to redesign some of the slides if they don't work
- Finally, we'll take a few minutes to talk about your experience using the app, anything you particularly liked or didn't like, and any other thoughts you may have.

### **Consent**

In order to help review your feedback, I will be recording your voice. These recordings will be kept completely confidential and will only be used to help me evaluate how the app can be improved. If this is ok with you, I'd like to ask you to complete this consent form to record your session. If you have any questions while reading this form, please feel free to ask.

*[SIGN CONSENT FORM]*

Great. I just want to reiterate that your personal information and responses will be kept confidential and will only be used by myself to make improvements to the app.

### **Things to Remember**

Before we begin, I want to stress that I am evaluating the interfaces and not you. You can't say or do anything wrong, so just be honest about what you are experiencing. Any difficulties that you may encounter will help me pinpoint where I need to make improvement.

One thing I'd like to ask as you go through the study activities is to "think aloud." By this I mean just say aloud what you are looking at, thinking and trying to do as you use the app. Think of this as giving a play-by-play of your thoughts and decisions. This helps me understand your experience. Please don't worry about hurting my feelings

with anything you say. I need to hear exactly what you think so I know where to make improvements.

If you have any questions while you are going through the activities, feel free to ask. I may not answer your questions right away since I am trying to understand how you interpret the information on your own, but I will answer any remaining questions at the end of the session.

**Before we begin, do you have any questions?**

For today's session, we will be conducting a mock meeting in which I am going to play the role of the members, and you will play the role of the Chair. As we go through the meeting, I will ask you to do certain things using the app to test its functionality.

First we will begin with the Officer Reports section.

Could you tell me what you are seeing in front of you? And what might each of the buttons do?

How would you indicate the officer had finished giving their report?

Now we will move on to Unfinished Business:

Could you tell me what you are seeing in front of you, are there buttons, what would each of those do?

What would you do if a person were to make a motion to end the discussion?

If a person were to make a motion to amend the motion?

Finally we will move on to New Business:

What do you expect to happen after you press "add new business"

What does the screen "waiting for secretary indicate"?



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