

Analysis: Xbox Live Instant Messaging System

- I. Briefly describe the users for whom the application is designed and its basic functionality.

Xbox Live is Microsoft's online multiplayer gaming network service, which currently services the Xbox 360 and Xbox One S and X consoles. Xbox Live connects 59 million users located in 42 countries and territories. Though the gamer stereotype is typically depicted by loudly conversing with others using headsets with microphones, there are a good amount of those who choose to remain anonymous. The Xbox Live instant messaging system allows for this to happen. For those users, communication via text is the preferred method of reaching out to other players, whether to talk game strategy or make friends. Without externally attached devices, the controller's joystick or directional pad (Figure 1) are the sole means to select characters to write your text through a full screen virtual keyboard.

A user is automatically signed into Xbox Live, as long as their console is connected to the Internet through a Wi-Fi network. The Xbox Live interface allows users to access the messaging system whether they are in-game or accessing non-gaming applications on their Xbox. From the Xbox console homepage, they can access messages by pressing the Home button on the Xbox controller indicated in Figure 1. Afterwards, they need to select the Communications tab on the top horizontal navigation. This tab displays three options as shown in

Figure 2: Conversations, New conversation, and Messages from Xbox Live. Conversations displays any previously held messages with other Live users. New conversation shows users you can send messages to, such as your Live friends or recent users you have played with. Messages from Xbox Live contains information from the Xbox developers to the Live community or personal account information.



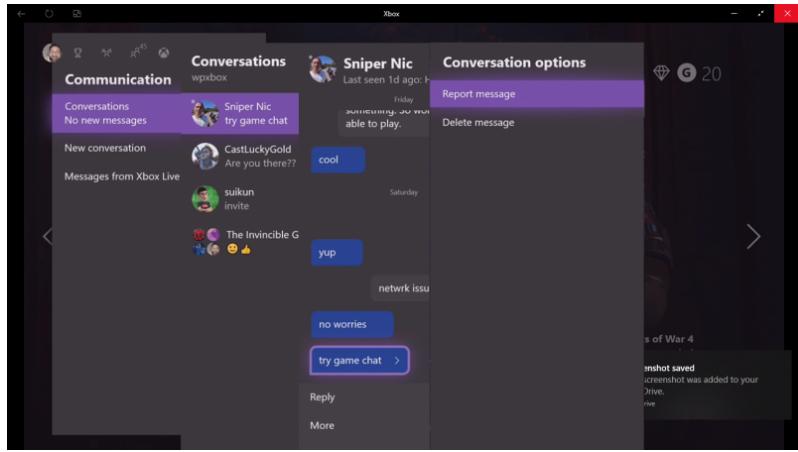


Figure 2. Screenshot of Xbox Live messaging platform. Retrieved from <https://www.thewindowsclub.com/report-block-gamertag-content-messages-xbox-one>.

- II. Perform a heuristic evaluation or **cognitive walkthrough** of the application. Write a short report stating the conclusions. Comment on the applicability of the heuristics – (what were the pros and cons of this type of evaluation) or a cognitive walkthrough of the system. Report the findings and comment on the evaluation technique – what were the pros and cons of this type of evaluation?

A cognitive walkthrough would be especially useful for determining potential issues about an application focusing on specific types of users. I decided to use this method of evaluation in order to explore more aspects of the Xbox Live messaging system for users with disabilities. On the following page, I created the following template (Figure 4) before the evaluation, in order to guide my analysis. I designed the walkthrough to focus on typical online gamer tasks to include changing accessibility options. The following tasks and their steps will be analyzed during the walkthrough:

- Add a friend
- Send new message to a user
- Delete a message
- Mute a player
- Open message in-game
- Get help on messaging
- Enlarge text on screen
- Get help using magnifier
- Turn on high contrast

I decided to focus my cognitive walkthrough on the experience of a user with below average vision. The user does not wear glasses but has difficulties reading from the distance of their couch to their 40-inch television screen.

Therefore, they often find themselves straining to read text on the television screen. Other details of the user include: age range of 18-24, new Xbox user, and new gaming console player. With this new gamer profile, one can assume that they would not immediately know where to find the functions as they have not done them before. However, given that they are in the age range of 18-24, one can assume that they are accustomed to navigating the digital realm and should have less issues completing the tasks. Nevertheless, we must not let this assumption overpower our expert analysis of the Xbox Live platform.

I filled in the information in the cognitive walkthrough guideline, answering “yes” or “no” to the analysis questions for evaluation that I gave for each step of a task. I then jotted down notes on the experience of completing those tasks with the user profile in mind.

Task Steps	Will users understand how to start the task?	Are the controls noticeable?	Will the users know the control is the correct one?	Was there feedback to indicate the task was complete or incomplete?	Were you able to complete the task?	Notes
<i>Add a Friend</i>						
Open Xbox Live Sidebar	No	Yes	Yes	Yes	Yes	No sign that Xbox Home button opens the sidebar
Go to “People”	No	Yes	Yes	Yes	Yes	LB button or left button is intuitive for exploration, but no changing of color of the tabs to mark current position
Find “Recent players”	Yes	Yes	No	Yes	Yes	Might go to “Friends in games” first instead of “Recent players”
Open selected player’s Live page	Yes	Yes	Yes	Yes	Yes	Can click either user photo or “See full profile”
OR						
Add selected player as friend	Yes	Yes	Yes	Yes	Yes	Can immediately select “See full profile”
<i>Send New Message to New Friend</i>						
Open Xbox Live Sidebar	No	Yes	Yes	Yes	Yes	No sign that Xbox Home button opens the sidebar
Open “Communication”	No	Yes	No	Yes	Yes	Again, no changing of color of the tabs to mark current position; message icon isn’t typical image of letter
Select “New conversation”	Yes	Yes	No	Yes	Yes	Might select “Conversations” first instead; icon for new message might help
Choose player to message	Yes	Yes	Yes	No	Yes	Checkmark still needs to press “Done” afterwards which might be forgotten
Type message	Yes	Yes	Yes	Yes	Yes	Text appears as you are typing; text is very small however. The color contrast of text and background needs to be more prominent
OR						
Record audio message	No	Yes	Yes	Yes	Yes	Might not understand that mic needs to be plugged in first
Send message	No	No	No	Yes	Yes	Icon for send is “enter” symbol instead of right arrow which usually means send

<i>Delete a Message</i>						
Open "Conversations"	Yes	Yes	Yes	Yes	Yes	
Delete a message	Yes	Yes	Yes	Yes	Yes	Delete is the only option
<i>Mute a Player</i>						
Open Xbox Live Sidebar	No	Yes	Yes	Yes	Yes	No sign that Xbox Home button opens the sidebar
Go to "People"	No	Yes	Yes	Yes	Yes	LB button or left button is intuitive for exploration, but no changing of color of the tabs to mark current position
Find "Recent players"	Yes	Yes	No	Yes	Yes	Might go to "Friends in games" first instead of "Recent players"
Open selected player's Live page	Yes	Yes	Yes	Yes	Yes	Can click either user photo or "See full profile"
Mute player	Yes	Yes	Yes	Yes	Yes	Select "Mute"
OR						
Mute player	Yes	Yes	Yes	Yes	Yes	Can immediately select "See full profile"
<i>Open Message in-game</i>						
Open message	Yes	Yes	No	Yes	Yes	Might not know how to hold down Xbox Home button; prompt will disappear, making user pause game and take longer to open message
<i>Get Help on Messaging</i>						
Open Xbox Live Sidebar	No	Yes	Yes	Yes	Yes	No sign that Xbox Home button opens the sidebar
Go to "System"	No	Yes	No	Yes	Yes	Not obvious that help would be in settings-like gear icon
Open "Xbox Assist"	Yes	Yes	Yes	Yes	Yes	May not know Xbox Assist is the help directory
Go to "Help"	Yes	Yes	Yes	Yes	Yes	
Go to "Social... Parties, clubs, Mixer"	No	Yes	No	Yes	Yes	Area only says "Xbox One" and doesn't indicate buttons are help subtopics to explore
Open "Send text messages"	Yes	Yes	Yes	Yes	Yes	
If issue not resolved, click "No"	Yes	Yes	Yes	Yes	Yes	
Send feedback to Microsoft	Yes	Yes	Yes	Yes	Yes	Survey isn't specific to topic of issue
<i>Enlarge Text on Screen</i>						
Hold down "Home" button	No	No	No	No	No	Only when first consulting help did I realize how to perform this accessibility options shortcut
Press "View" button	No	No	No	No	No	"Magnifier" and "Narrator" options show; icons are ironically very small
<i>Get Help on Using Magnifier</i>						
Open Xbox Live Sidebar	No	Yes	Yes	Yes	Yes	No sign that Xbox Home button opens the sidebar
Go to "System"	No	Yes	No	Yes	Yes	Not obvious that help would be in settings-like gear icon
Open "Xbox Assist"	Yes	Yes	Yes	Yes	Yes	May not know Xbox Assist is the help directory
Go to "Help"	Yes	Yes	Yes	Yes	Yes	
Go to "Ease of Access"	Yes	Yes	Yes	Yes	Yes	Word "Access" gives clue to Accessibility options; icon of a clock has unclear meaning
Open "Magnifier"	Yes	Yes	Yes	Yes	Yes	
Click "Using Magnifier"	Yes	Yes	Yes	Yes	Yes	Extra step unnecessary
If issue not resolved, click "No"	Yes	Yes	Yes	Yes	Yes	
Send feedback to Microsoft	Yes	Yes	Yes	Yes	Yes	Survey isn't specific to topic of issue
<i>Turn On High Contrast</i>						
Open Xbox Live Sidebar	No	Yes	Yes	Yes	Yes	No sign that Xbox Home button opens the sidebar
Go to "System"	Yes	Yes	Yes	Yes	Yes	Gear icon for settings is standard

Go to "Settings"	Yes	Yes	Yes	Yes	Yes	
Click "Ease of Access"	Yes	Yes	Yes	Yes	Yes	Accessibility options are all the way to the bottom; implies lack of importance
Select "High contrast"	Yes	Yes	Yes	Yes	Yes	
Turn on Dark theme or Light theme	Yes	Yes	Yes	Yes	Yes	Immediate feedback and changes

Figure 4. Cognitive walkthrough guideline.

After completing the cognitive walkthrough, I found that there were multiple cases of icons not being standardized to other applications in semantic meaning. The implementation of standard industry icons (letter for messages, plus sign for create new message, etc) could help the new user navigate through and learn the Xbox Live interface much faster. Some areas of the interface could have also benefited from the use of more symbols and different colors for different areas of the Xbox Live sidebar. Overall, for a person with visual issues, the text and icons are surprisingly small. The ability to have the option to turn on the Magnifier isn't obvious to the new gaming console user. The zooming in and out of the screen could also use having the ability to change sizes of the actual text and icons in the user interface overall. In conclusion, while there are options available to perform a variety of functions and alter the Xbox Live interface's appearance, the system does a below average job of making these functions obvious to the new Xbox user, especially with accessibility issues.

Conducting a cognitive walkthrough is relatively easy to accomplish. However, the focus of the analysis is pretty narrow, as each one is done "through the eyes" of one type of user – in my case, a user with visual issues. While this can highlight important issues regarding your application, it can simultaneously hide others. In order to provide insightful analysis of your application overall, this must be done multiple times with different types of users. Given that a cognitive walkthrough goes through each task step-by-step with multiple questions for each step, this can be time-consuming. Additionally, simply taking on the perspective and mentality of your user does not mean that you are the user. The walkthrough can take in the expert evaluator's biases and assumptions. Regardless, it is an evaluation method that is easy to learn and can be cheap, given that it doesn't require actual users to be recruited and involved. Cognitive walkthroughs can be a great addition to other evaluation methods you can employ.

- III. Design and perform a user test to evaluate the application. Report the findings and comment on the evaluation technique – what were the pros and cons of this type of evaluation?

A common usability testing method is the think-aloud protocol. The think-aloud method is simple in execution, in that the observer needs to just recruit representative users, assign them to do tasks, and observe and take notes of what the user says and does. As the observer, it is important to be avoid being leading with one's prompts and questions. For my user test design, I will be recording the television screen with audio to simultaneously catch what the user says and does on the Xbox Live platform. At the same time, I will be taking handwritten notes on significant thoughts the user says. The following tasks will be assigned during the think-aloud test (similar to those in cognitive walkthrough):

- Play a live online multiplayer game
- Add a teammate/player met online
- Send them a message
- Mute a player
- Get help from Xbox on any issue

I performed the user test on one player. The player is in the age range 18-24, female, technologically proficient (work profession: programmer/analyst), PC gamer, Playstation 4 (PS4) gamer, and new Xbox Live gamer. I assigned her the tasks in chronological order, so that no assumptions would be made that the user has the means to complete the tasks (explicitly, already made friends on the Xbox Live platform). I then instructed her to “think aloud” and voice her thought process as she was navigating the user interface and attempting to complete the tasks. I sat back and took handwritten notes on my notebook regarding any things I noticed during tasks. I set my laptop’s camera to record the TV screen, as I did not have the appropriate wire and software to record directly to my laptop.

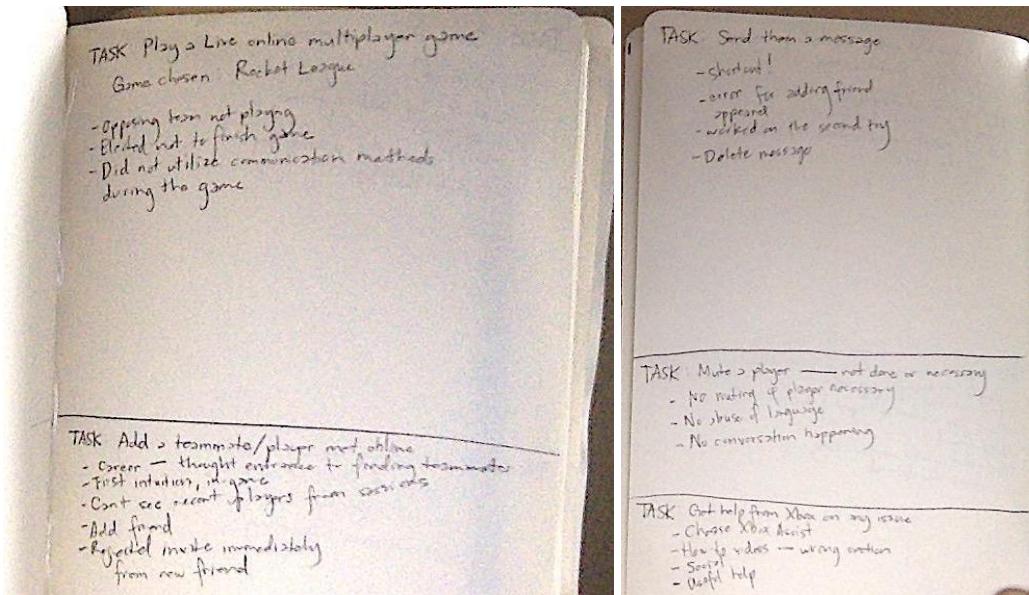


Figure 5. Handwritten notes during think-aloud user test.

Video Analysis

The user was given the choice to play a session of an online multiplayer game of their choice. They decided to go with Rocket League, which is a competitive soccer-like game using cars. She joined a 3 versus 3 game session, which she elected to leave earlier, because her team's opponents weren't participating in the game. The second task I assigned was, "If you were to add one of your teammates as an Xbox Live friend, how would you go about doing that?". She expressed hesitation at first, but her intuition was that it would be through the actual specific video game's interface. She struggled with this for a while, exploring the "Career" and "Extras" section of the game (Figure 6).



Figure 6.

After about a minute, she realized that she needed to use the Xbox Home button to explore her options. She was a new user to the Xbox Live communication features, so she had no previous idea of how to talk to other players online. She then started to navigate through the tabs, actually scrolling past the correct section she needed to explore. She said, “I need to see if I can find... a recently played game or something like that”. She saw “Recent players” and decided to add an Xbox Live user from there (Figure 7). For the first user, she was going to add them immediately until she saw that her real name would be shared (2). She changed her mind and wanted to add a different user with a more trustworthy gamertag.

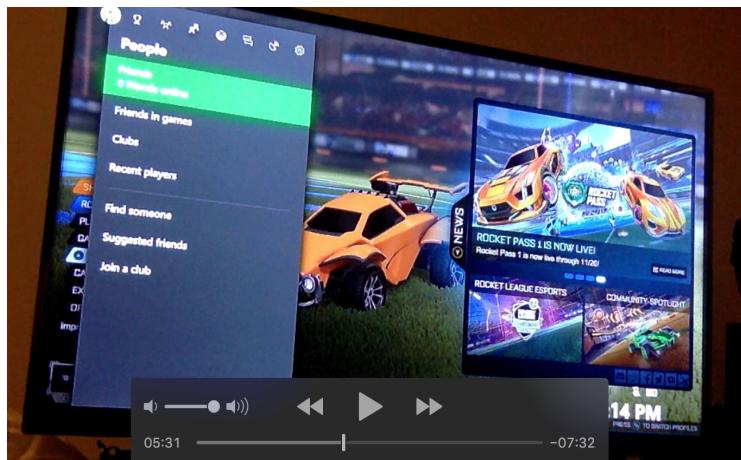


Figure 7.

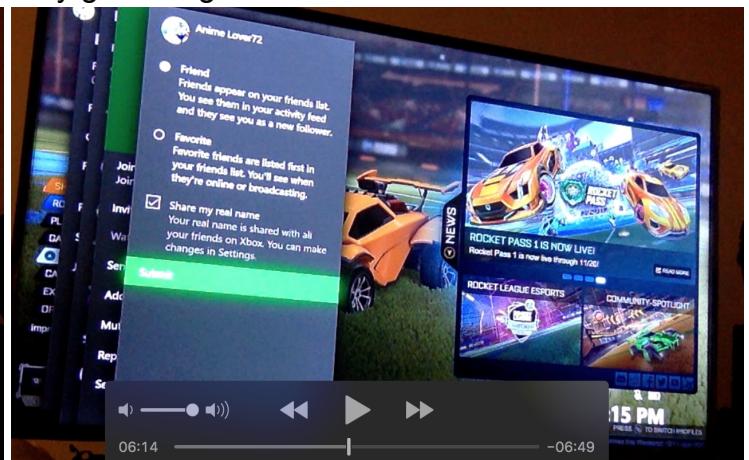


Figure 8.

The next task was to send her new Xbox Live friend a message. I found this part of the user test particularly interesting. She caught a functionality that I actually failed to realize was there before. When highlighting a friend, there are shortcuts to “Invite to your party” and “Send message” using the middle two buttons on the Xbox controller. She noted that it was unintuitive because it was towards bottom of the screen (boxed in red in Figure 9 below).

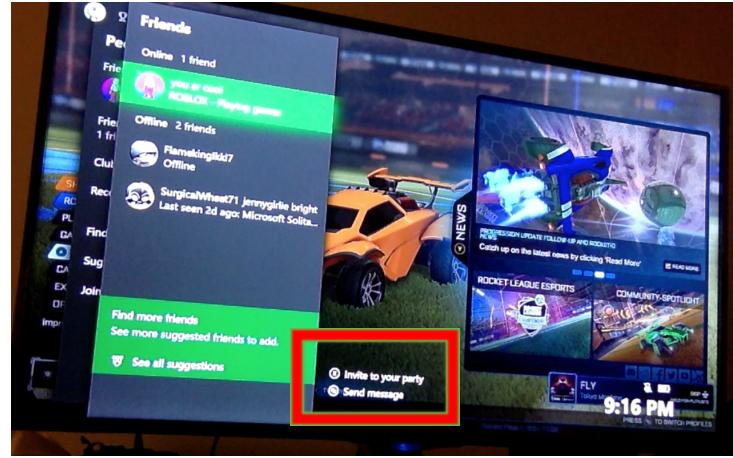


Figure 9.

She decided to directly add a new Xbox Live user whose gamertag she already knew. Being new to communicating with other gamers online, she felt uncomfortable with the initial person she added as they kept sending her frequent invites as soon as she added them (Figure 10). She ignored these pop-up requests.

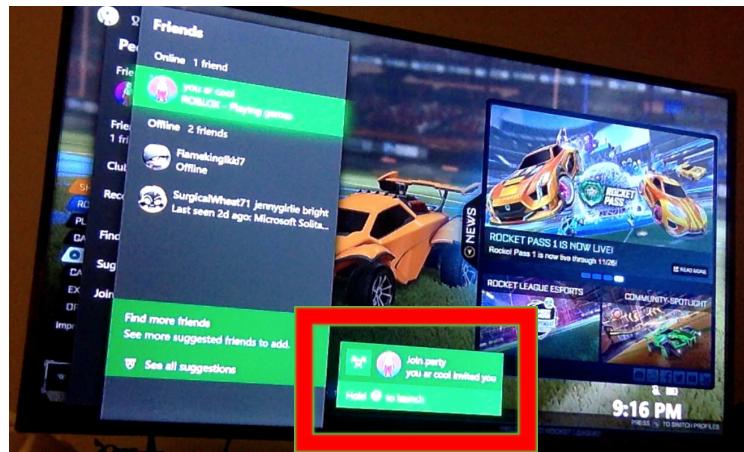


Figure 10.

When she directly added a new user, she noted that there was an inconsistency in the functionality, as doing so removed the ability to use the two buttons on the Xbox controller as shortcuts to interact with the user (Figure 11). She just navigated to and pressed the only option available on the screen for “Send message”.

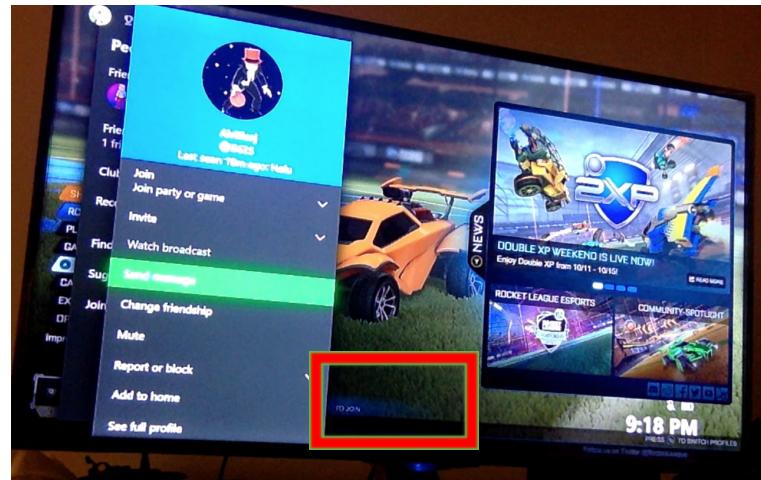


Figure 11.

Given that she had previous experience typing through a controller, she didn't give any complaints regarding the interface. She correctly selected the blank area to start typing and sent a short message "Hi you're cool". However, when finishing typing, she wasn't sure how to exit the full-screen keyboard. She hesitantly selected the bottom right button and said, "That might be 'enter'?", which it was (Figure 12). She was able to correctly send the message to the user.

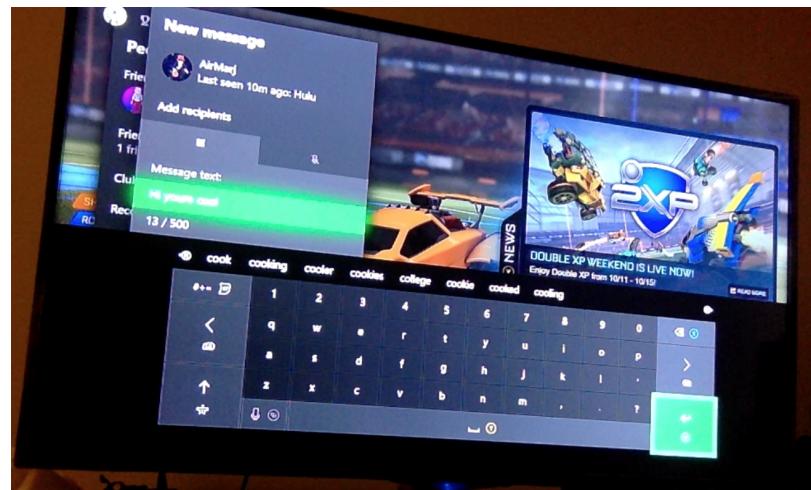


Figure 12.

She expressed no interest in muting any players as no conversation was happening during the bugged online game. When given the next task to delete a message, she very smoothly navigated to the “Conversations” tab.

Her recall was good, as this was her third attempt in using the interface. She also used one of the button shortcuts on the controller that appeared to delete the entire conversation. She said that “it’s not exactly the most intuitive, but I guess I just kinda know that... to look around and see what type of prompts [are there]. It’s kinda weird that it’s farther... off to the side instead of the bottom... It just doesn’t seem as natural”

For the last task, I prompted, “If you were having any trouble with the Xbox Live messaging system, how do you think you’d go about receiving help within the system?” She explored the different tabs for a few seconds until she clicked on “Xbox Assist” saying, “I don’t even know what this is”. When the page loaded, she correctly navigated to “Help” (Figure 13), but selected the wrong subtopic “What’s new & how-to videos” (Figure 14). She didn’t click on “Social” because the subtitle said “Parties, clubs, Mixer” but didn’t indicate anything about text messaging. When she found the correct section, she expressed that she “guesses” that she’d be able to find help she needs in this section. However, her first intuition would be to directly Google [search] what the issue is instead of consulting the Xbox in-system.

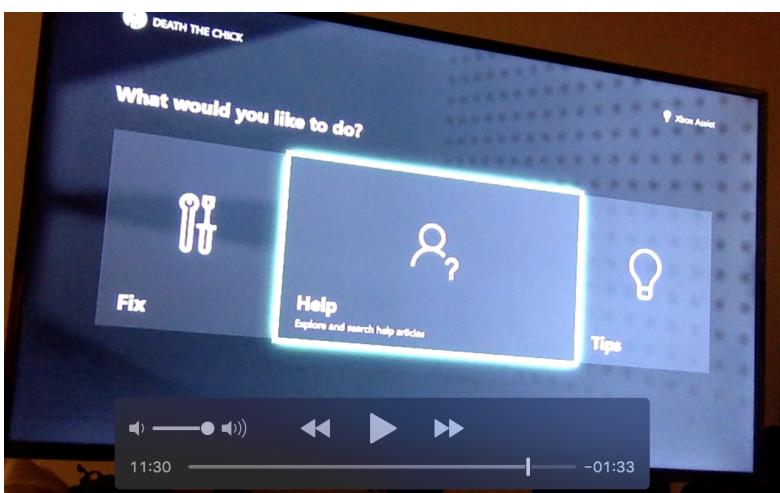


Figure 13.

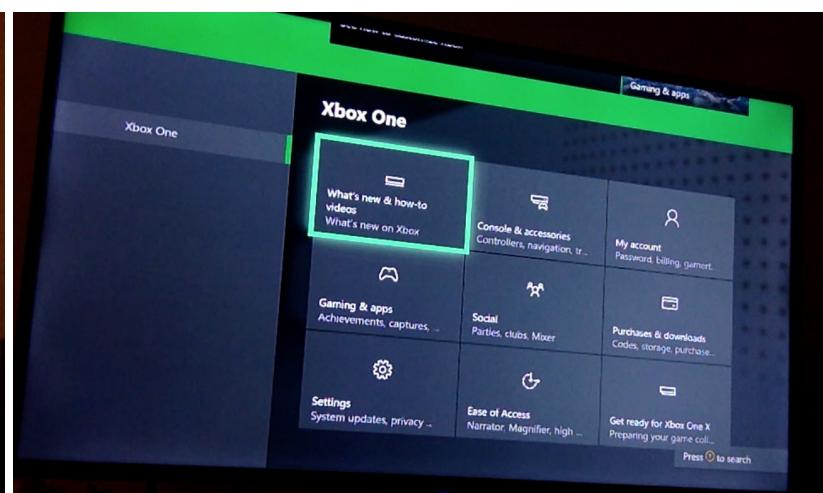


Figure 14

Overall, the user think-aloud test took about 8:18 minutes to conduct, not including the required online multiplayer game session prior to the task prompts. It was much faster than I expected it to be. Though the user had issues figuring out where to even begin looking for friends online, once she figured out that the Xbox Live communication system overlayed the actual game, she was able to complete the tasks assigned to her. As I expected with my cognitive walkthrough of the user interface, there was confusion regarding labeling of similar areas, such as within “Conversations” and the “Xbox Assist” help documentation. An expression she normally expressed was that placement of buttons and words was “unintuitive” or “unnatural”. Based on this one user, one can assume that similar users will have comparable experiences. However, she was able to complete the tasks relatively quickly while explaining her thought process to me. She was able to recall where tabs in the Xbox Live interface were located and narrow her options from what she

remembered. Therefore, one can assume through analyzing this one test that for users of a similar technologically-proficient demographic, they will find the Xbox Live messaging system “unintuitive” but relatively workable enough.

The experience of conducting this think-aloud test was as straightforward as it could be. It was cheap, as I found ways to work around buying expensive screen-recording software and hardware by recording the TV screen with my laptop. Just being able to simultaneously record video and audio automatically while I took notes provided me with a lot of rich qualitative data. If I wanted to analyze it even further, I could have counted the exact number of seconds it took for the user to complete a task. I decided not to do this as the test had wasn't in a strictly controlled environment. However, the most difficult part of the think-aloud protocol is human bias, both on my end and the user's. On my part, I prewrote tasks and attempted to ensure that my questions would not be leading. When the user did not do what I expected them to, I did not correct them and sat back to take notes. On the user's part, unbeknownst to me, they could have been filtering what they were saying or trying to only say or do things that they thought were pleasing to me. Additionally, within this one user test, the user was very quiet in the first few minutes until they became more talkative about their thoughts as the test progressed. This is due to the process of talking your thoughts out loud (without the tester's biased responses) being unnatural. Therefore, it takes time for the user to be comfortable giving open statements, which could cause user's thoughts to be particularly filtered in the beginning of the user test.