

Assignment M1

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Abstract—The investigated task involves viewing videos on the Instagram app available to smartphone/tablet users. Instagram does not have a function that allows users to fast-forward, rewind, or pause video content. However, there are plenty of similar applications that do allow for this functionality. Evaluating existing interfaces and comparing them to Instagram will be one method of needfinding regarding this task. Another form of needfinding will be to analyze data logs. The third method of needfinding will be to send surveys to social media users. Each needfinding method will help address one or more data items.

1 PROBLEM SPACE

The task of viewing videos is occurring on a smartphone, specifically on the Instagram application. Instagram is available on both iOS and Android devices; it is also available on web browsers. Users may view videos while lounging at home, sitting in a park, or commuting to work via public transportation. They may or may not use headphones while watching videos. Users may watch a video for entertainment purposes or to learn how to do something. In either case, the user may want to rewind the video to rewatch a segment, or they may have missed something said in the video. Similarly, users may want to skip ahead to the end of the video. Perhaps the user would like to pause the video. As of now, Instagram does not have the functionality to support these tasks. Consequently, users will have to rewatch the entire video to rewatch the segment they may have missed. This can be frustrating as Instagram's videos can be sixty seconds maximum. Allowing users to maximize Instagram videos and adding a small scrub bar to the bottom of the video would enable users to fast-forward and rewind the videos they are watching. Furthermore, adding a play/pause button would allow users to

pause and resume the video they are watching. See figure 1 for an example of a standard scrub bar.



Figure 1—Example of a scrub bar that allows for pausing, fast-forwarding, and rewinding video content. Source: Google Images

2 USER TYPES

2.1 Who are the users?

Users range from ages 9 to 55 and older. Moreover, most users fall within the 25 - 34 age range. Instagram is used by both men and women *almost* equally (Sehl, 2021). Instagram is home to both expert and novice users; some users have been using it since the iOS app launched in 2010, while others may have started using it more recently (Blystone, 2020).

2.2 Where are the users?

Users are located worldwide, with the vast majority residing in the United States (Sehl, 2021). Users may use the app while lounging at home, sitting on a park bench, or commuting to work via public transportation. Their environment may be noisy or quiet. The user might be using headphones while scrolling through videos.

2.3 What is the context of the task?

If the user is in public or a noisy environment, their attention may be divided by external factors. For example, users riding public transportation may frequently look away from their screen to see how many stops away they are from their destination. Furthermore, users in a noisy setting may have trouble focusing on the content's audio (if any). Users viewing content on Instagram in social settings may want to share the content with their friends by physically showing them the content on their screen.

2.4 What are the users' goals?

People use Instagram to achieve various goals. Some use Instagram to promote their businesses, music, or art to earn more sales or exposure. Similarly, users use Instagram to learn new things, for example, preparing a quick meal or a yoga technique. Some users go on Instagram looking for inspiration on where their next vacation destination will be. Some users use Instagram solely for entertainment. Some use Instagram for multiple reasons.

2.5 What do the users need?

Instagram provides users with a ton of information at a rapid speed. New information is always a swipe or tap away. What users need is a way to pause the incoming information so they can adequately retain it. Watching a sixty-second video on making beef and broccoli is great in theory; however, it is almost impossible to watch a sixty-second clip and remember all the described steps and necessary ingredients after one view.

2.6 What are the users' tasks?

While Instagram users view information via pictures, videos, and text, they physically swipe and tap their screens to access more media. They are sharing posts with their friends. They are saving posts to view later by tapping on the bookmark icon. They may be chatting with their friends about specific posts via direct messages. A more specific example of a user task may be watching a video on preparing a beef and broccoli dish and remembering all the steps and ingredients necessary to prepare the dish.

2.7 What are the users' subtasks?

The users' subtasks are opening the Instagram application, physically typing in a hashtag or an account name to find specific content. Regarding the task mentioned above about learning how to prepare a beef and broccoli dish, a user may be rewatching the video tutorial several times while taking notes to retain all the information needed to make the dish. The user may also bookmark the post so they can return to it at a future time.

3 NEEDFINDING PLAN 1: EVALUATION OF EXISTING INTERFACES (YOUTUBE, TWITTER, FACEBOOK)

3.1 Evaluation and Data Items

Evaluating similar applications alongside Instagram will aid our understanding of what tasks and subtasks Instagram users are performing; furthermore, we will also develop a better understanding of the task's context. For this method, we will be evaluating the following mobile apps: YouTube, Facebook, Twitter, and Instagram. We include Instagram as well to see how well it performs compared to similar apps. All four of these mobile applications can be found in the app store for iOS and Android smartphones and tablets. We will be performing participant observation for this method since it is cheaper and more covid friendly. First, we will measure the efficiency of searching for and watching videos on all four apps via participant observation. We will calculate this measure by seeing how long it takes to search for a video and play it. Performing a series of trials for each app will allow us to see if it takes more time to search for and play a video on one app as opposed to another. We can run five trials per app, time the task, and calculate the average time it takes to search for a video and play it. To remain consistent with our actions for each application, we can search for "Recipe" on each application. Measuring the efficiency of each app will give us insight into the context of the task if we perform the trials in different settings and environments. We can also learn about the users' tasks and subtasks while using this method. In addition, we will test the four apps for accuracy; how many errors do we commit while performing a task? Errors can be documented during participant observation. Using an audio recorder and a think-aloud approach while performing the task will aid in identifying errors made as they happen.

3.2 Biases

Using the think-aloud approach while performing the trials helps us reduce recall bias. If we were to take post-event notes instead, we might forget to note errors or slips during the trials. Furthermore, the needfinding method may include confirmation bias, where we see what we want to see. The participant may be unable to see the interfaces from a novice perspective. Moreover, the participant

may be too focused on the problem rather than the interface. This could result in overlooking other aspects of the interface. This bias can be avoided by not focusing on the lack of a scrub bar while evaluating Instagram. Instead, we can focus on other capabilities (or lack thereof) and the efficiency of each interface. Additionally, the participant observation method will not consider novice users. Novice users may take more time to search for a video and play it. If the trials included novice users, the average time to search for a video and play it might be higher. From a processor model perspective, this experiment is more expert-focused and task-focused. On the contrary, using participant observation avoids observer bias; this bias occurs when the researcher subconsciously biases their user. For example, interactions between the researcher and participant may lead the participant to perform ingenuine tasks. Removing the user in this method eliminates that bias.

4 NEEDFINDING PLAN 2: ANALYSIS OF DATA LOGS

4.1 Data Logs and how it Correlates with Data Items

The second needfinding method for this task is to analyze data logs to better understand Instagram users and our data items. One can download their own data using the Instagram app, moreover API's are available to use for this process as well. For starters, analyzing log data will help us understand how much time users spend on Instagram and similar apps. In addition, we can view data that showcases what types of content users are viewing. Looking at existing data logs that capture this information enables us to understand the users' tasks (what users are physically, socially, and cognitively doing). This data will also complement our survey data and fill in the holes that biases may create. Furthermore, by analyzing existing data logs, we can better understand users' goals and perhaps *why* they use Instagram. Data logs can be systematically analyzed by creating a spreadsheet that captures the reported metric(s). Then, the data for each log can be visually represented in a meaningful way via bar graph, scatter plot, etc. Finally conclusions made regarding each log can be recorded in said spreadsheet.

4.2 Biases

One possible bias to avoid while pursuing this method of needfinding is confirmation bias. It is possible to conduct this needfinding method with preconceived notions in mind and finding data that confirm these notions. For example, the statement "Users use Instagram 3-5 hours a week" could constitute a preconceived notion. This bias can be avoided by intentionally looking for trends that prove the preconceived notion wrong. Additionally, involving other people in this needfinding method could aid in preventing confirmation bias. Other individuals working on this method are less likely to have the same preconceived notion in mind, so they will not actively look for data samples that support it. Another related bias to keep in mind is belief bias. As someone who regularly uses Instagram and other similar apps and is researching the belief that viewing videos on Instagram could use improvement, it is crucial to avoid *solely* analyzing data that confirms this belief.

5 NEEDFINING PLAN 3: SURVEY

5.1 Survey Questions and Data Items

The third method of needfinding to be used during this investigation involves sending out a survey (see Appendix 1). Invited classmates will be able to respond to the survey through PeerSurvey. Each question addresses one or more items from our data inventory. Questions 1 and 2 allow us to understand who our user is, precisely their age and gender. Question 3 tells us where our users reside. The answer to this question is open-ended, allowing users to be as broad or specific as they want. Question 4 tells us more about who the user is and their tasks (what they are doing; for example, watching DIY tutorials on YouTube). Survey participants are also able to choose "other" as a response to question 4. That answer is open-ended in the event the respondent uses an app that we did not cover. Question 5 provides some context of the task, when and where the user uses social media apps (if any). This response gives us insight into what else may be competing for the users' attention while using Instagram or other social media apps. Question 6 tells us more about users and their habits, precisely how much time they spend on social media. This response may also hint at how experienced

our participant is when it comes to social media apps. Question 7 may give us insight into the user's goals and what they wish to accomplish, for example, viewing cute animal videos or quick recipes. Question 8 may point out whether some users prefer certain apps to others depending on their goals.

5.2 Biases

Performing needfinding via a survey may come with biases. For example, we may run into a social desirability bias amongst our answers for questions 6 or 7. Participants may answer inaccurately if they think their chosen response seems more socially desirable. For example, participants who spend 15 hours or more a week on social media apps may select 3-5 hours if they feel that that answer is more socially desirable. Participants may also answer question 7 with genres of content that they deem more socially desirable. Participants may not want to share their genuine interests if they feel embarrassed about them. Researching existing data logs about what types of content are popular amongst users will aid in the understanding of users' goals, thus compensating for potential biases. Naturalistic observation can also help uncover what genres are trending; for example, keeping track of what hashtags are trending on Twitter for two weeks. Using the survey method may also introduce voluntary response bias since users with firm opinions tend to be more enthusiastic about responding to surveys surrounding topics of interest. Limiting the survey content shown to participants before them beginning the survey can help eliminate voluntary response bias.

REFERENCES

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2. Sehl, K. (2021, January 27). Instagram Demographics in 2021: Important User Stats for Marketers. Retrieved September 12, 2021, from <https://blog.hootsuite.com/instagram-demographics/>

APPENDIX 1 - SURVEY QUESTIONS

Question 1. Please state your gender

Answers: Male, Female, Prefer not to answer

Question 2. What is your age?

Answers: Under 12, 12 - 17, 18 - 24, 25 - 34, 35 - 44, 45+

Question 3. Where are you located?

Answer: Open-ended

Question 4. Which apps (if any) do you use during a typical week? Select all that apply:

Answers: YouTube, Facebook, Instagram, Twitter, Snapchat, Other: Please specify

Question 5. In what settings do you typically use social media apps?

Answer: Open-ended

Question 6: How much time do you spend per week on social media apps?

Answers: 1 - 2 hours, 3 -5 hours, 6 - 8 hours, 9+ hours

Question 7. What types of content do you like to view on the apps chosen in question 4?

Answer: Open-ended

Question 8. If you checked more than one app in question 4, which app or apps are better suited to watch the content you enjoy?

Answer: Open-ended