

QuickRef Should I Read Cited Papers for Understanding This Paper?



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Research Goal

How can we design the interactive reader that helps to understand scientific paper without navigating through cited papers?

Formative Study

1-on-1 semi-structured interview (N = 6):

Q1. Under what circumstances do you look for cited papers?

Q2. Are there any inconveniences related to cited papers?

Q3. What information do you usually look for in cited papers?

- Lack of explanation for users' interest
- Identifying trends in research topics
- Checking correctness of descriptions
- Require to check reference section
- Need to search for cited paper to access the content
- Consuming time to read and understand cited papers
- Meta Information: Title, Authors, Venue
- Overview: What is cited paper about?
- Relevance: How cited papers is related to the current paper?

QuickRef Design

Wizard of oz approach was used to evaluate needs of extracted information

Figure 1. The history of prototypes. From left, each image represents a start screen of the low-fidelity prototype, mid-fidelity prototype, and hi-fidelity prototype, respectively.

health applications is becoming important. This study reported that people who had never downloaded a health app, the most important reasons they had not done so were the following: high cost, lack of trust in apps collecting their data, and frequent reasons for discontinuation were the lack of time to enter data, loss of interest, and lack of motivation to start to use health apps is a common factor of interest [8]. Previous studies proposed that health applications or healthy people interested in managing their health. For example, researchers developed and evaluated smartphone apps to support patients with diabetes in Japan [11] and in Korea [7], chronic kidney disease in Taiwan [9], cardiovascular disease in Korea [1], and cancer in Korea [6]. While the majority of the existing apps aimed to support patients, multiple apps were designed to support people who did not have any diseases, such as people interested in diet management in Singapore [10], children who need to pay attention to salt intake in China [5], and older adults more likely to get three major diseases in Taiwan [3]. Prior studies showed examples of smartphone apps to support a variety of people for managing their health. Of course, they did suggest a need for discussion but not specific ideas on features that could help motivate users to use continuously.

In this paper, we report an example of how we applied a design thinking process for creating a user-centered smartphone app in a health domain. Our study developed a low fidelity (low-fidelity) prototype, a mid-fidelity prototype, and a hi-fidelity prototype. The design thinking process for creating a user-centered smartphone app in a health domain. Our study developed a low fidelity (low-fidelity) prototype, a mid-fidelity prototype, and a hi-fidelity prototype.

Usage Patterns of GlucoNote, a Self-Management Smartphone App, Based on ResearchKit for Patients With "Type" 2 Diabetes and Prediabetes
Satoko Yamaguchi, Kayo Waki, Yasuhito Nannya, Masaomi Nangaku, Takashi Kadowaki, and Kazuhiko Ohe
JMIR Mhealth Uhealth, Volume 7, 2019
Cited by: 23

Overview
Problem: Preventing progression from prediabetes to diabetes—or slowing the progression of diabetes—is an urgent task worldwide.
Method: The 522 users who enrolled in the study within 1 year of its release were analyzed. We analyzed the retention rates of 357 participants who recorded at least 1 of 4 items—body weight, blood sugar, blood pressure, or dietary information.
Result: The median observation and retention durations were 382 days and 8 days, respectively. The retention rates for 2, 4, 8, and 12 weeks were 0.627, 0.353, 0.272, and 0.220, respectively. Men were more likely to be robust users than women.
Extracted By Authors

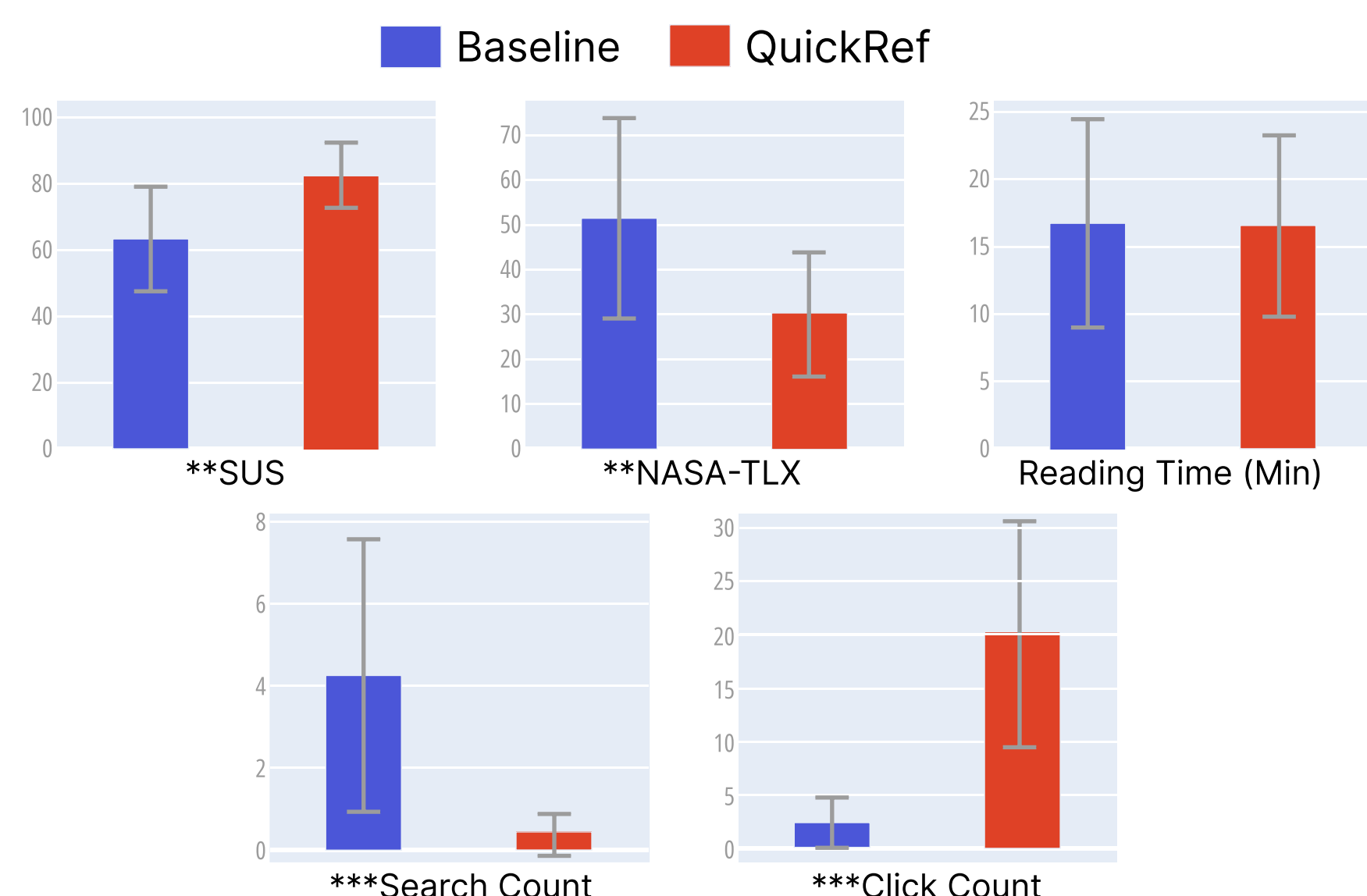
Relevance
Referred 1 time(s) on the paper
Problem Relevance: ★★★★★ Extracted By Authors
Method Relevance: ★★★★★
Sentence Similarity: 87 Extracted By Distill BERT
Sentence from this paper:
For example, researchers developed and evaluated smartphone apps to support patients with diabetes in Japan [11].
Sentence from cited paper:
Discussion > 1th Sentence
In this study, we evaluated a novel smartphone app, GlucoNote, which supports self-management in patients with type 2 diabetes and prediabetes and is established on the mobile health (mHealth) platform, ResearchKit.

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Figure 1. Sample view of GlucoNote screen.

User Evaluation (N = 20)

1. Quantitative Evaluation



2. Qualitative Evaluation Through User Interviews

Users evaluated QuickRef:

- help quickly judge cited papers to read
- assist to reduce interruption by citations.

Users wanted support for:

- more diverse level of information (e.g., keywords ~ detailed parameters)
- explanation of data extraction

User wanted UI to be:

- adaptive depends on granularity and context of info (e.g., hovering text, left side panel)
- aesthetic