

Evaluating Voice Shopping with Alexa Voice Assistant

Gabriel Bailey, Brandon Dang, Peace Iyiewuare, Tim Salau



TEXAS

The University of Texas at Austin

Background

Amazon's line of Echo devices have exploded in popularity since its initial wide release in 2015 with over 20.5 million units sold in 2017 alone. Alexa, the Echo devices' voice assistant, can complete a variety of tasks, but arguably her most unique and appealing skill is allowing users to purchase items from Amazon.com using only voice commands. In our study, we investigated the strengths and weaknesses of voice shopping with Alexa in order to identify potential directions to improve users' experience.

Research Questions

1. How has voice shopping with Alexa changed or otherwise affected users' shopping behaviors online or in person?
2. What factors affect Alexa users' decision to buy an item using voice shopping vs online or in person?
3. What advantages do in person or online shopping have over voice shopping? On the other hand, what advantages does voice shopping have over these traditional methods?
4. Are users' searching and purchasing needs sufficiently met by Alexa voice shopping? In what ways can it be improved?

Methodology

This study uses mixed methods design: a combination of a questionnaire to gather data from a larger sample size, and individual interviews to gather in depth information about their voice shopping experiences with Alexa.

All questionnaire data was analyzed using Microsoft Excel, and qualitative interview coding and data analysis was completed using MAXQDA.

Survey Results

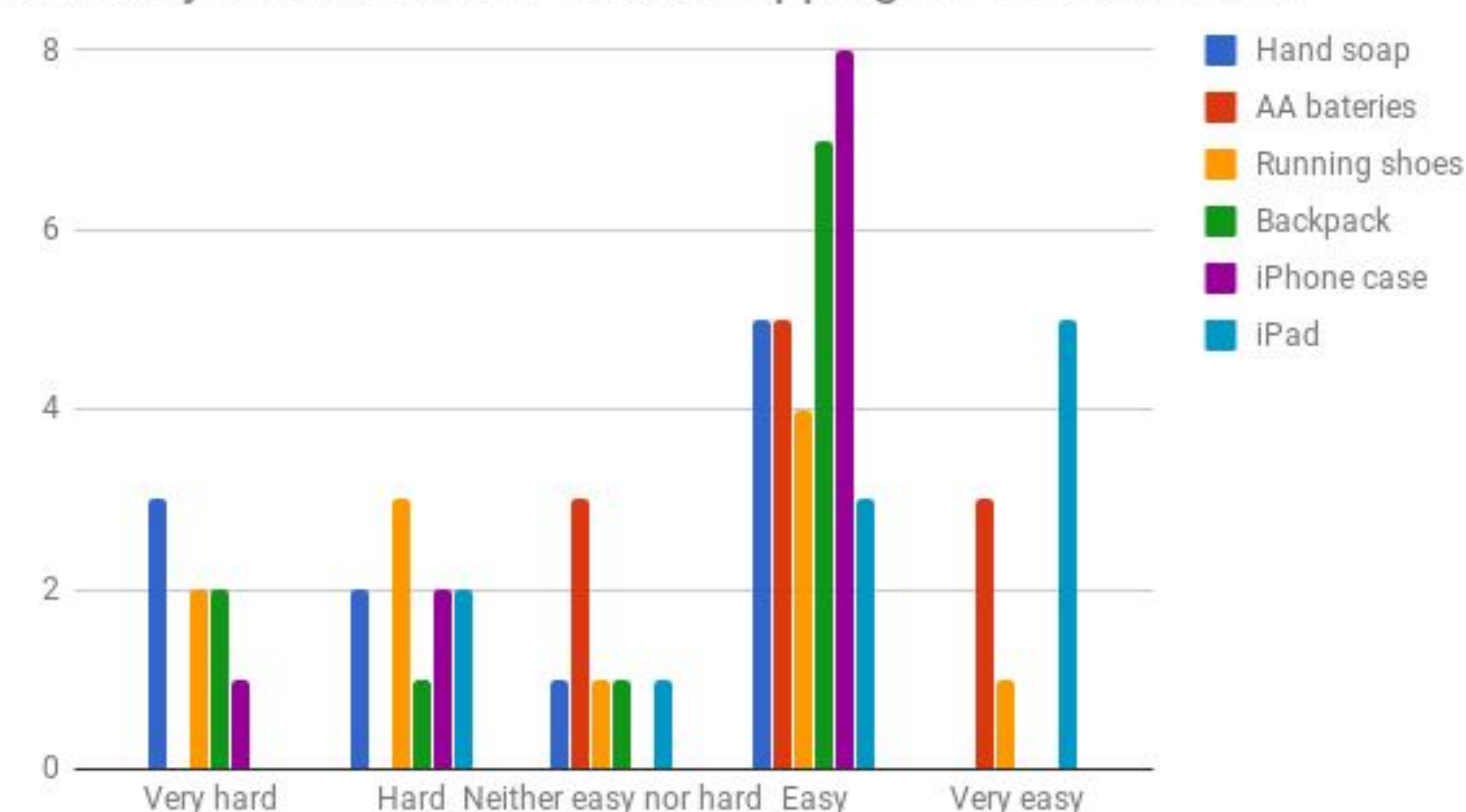
Demographics

We found our participants ($n = 11$) to be from a younger crowd ($M = 25.72$, $SD = 5.25$). The majority of our participants identified as male (63.63%) and Asian (63.63%).

Shopping Scenarios

The ease or difficulty of shopping for a particular item using Alexa greatly varied. Items with many substitutes were typically rated easier to order with Alexa. However, items that relied heavily on preference and specificity were rated more difficult to order using Alexa.

Difficulty or easiness of voice shopping for various items



Shopping Method Comparison

When asked to rate shopping method preferences (in store, online, voice), all users rated voice shopping last. Avoiding delivery times and hands on experience were mentioned as benefits of in store shopping. Additionally, the number of choices and competitive pricing was a benefit of shopping online.

Benefits of Voice Shopping

When asked why they would prefer voice shopping over other methods, respondents mentioned its quickness and innovation. Additionally, when respondents know exactly what they want to order, they prefer using Alexa over other shopping methods

Overall, the advantages of voice shopping don't outweigh other methods of shopping, but rather can serve as a complementary resource.

Interview Results

Coding

The result of data analysis produced four categories of codes: *action*, *opinion*, *communication*, and *item*. Action refers to the completion of a task using Alexa. Opinion simply refers to the user's opinions about their interaction, and their suggestions for improvement. Communication has to do with the literal phrases quoted by the participant. Lastly, item refers to a specific object of interest to the subject.

Themes

1. Voice shopping is very convenient for simple items, but in person or online shopping is preferred for complex items.
2. Artificial intelligence and natural language processing have a lot of room for improvement.
3. Traditional shopping heuristics still apply when using Alexa to voice shop.
4. Privacy, trust, and comfort are a concern to users

Conclusion & Implications

Though users find voice shopping to be convenient and novel, users find the lack of visual and physical feedback associated with on-line and in-person shopping to be inhibitive. In particular, we found that users prefer voice shopping most for items which are relatively unimportant. However, for items where quality, appearance, and preference were more significant factors, users strongly preferred traditional methods.

Overall, voice shopping has become a complementary resource to traditional methods rather than a replacement. In addition its the methodological disadvantages, the technological implementation behind voice shopping is also lacking. Users expressed the desire for improved natural language understanding, contextual understanding, etc. For voice shopping to better meet user shopping needs and experience more mainstream usage, both its underlying technology and methodological process should be improved to make it more "normal" and natural.