

Project: Is talking to Alexa enough? Or do we need more?

This is a study motivated by the line of Amazon's Echo device with screens, such as Echo Show and Echo Spot. The fundamental question here is: are the Alexa-enabled Echo devices better with a screen?

This study will investigate the user experience based on Amazon reviews submitted on five Echo products, including three devices with screen and two screen-less smart speakers:

Echo Show 1st Generation (with screen, #reviews = 4000)

Echo Show 2nd Generation (with screen, #reviews = 2048)

Echo Spot 1st Generation (with screen, #reviews = 4000)

Echo Plus 1st Generation (screen-less, #reviews = 3208)

Echo Plus 2nd Generation (screen-less, #reviews = 1832)

All reviews were extracted at the end of February, 2019. Up to 4000 reviews were extracted from Amazon for each of the devices.

The first step to explore the reviews data is to examine the satisfaction from each of these productions. Based on the provided star rating, ranging from 1 to 5, the mean star rating was plotted in Figure 1 below. Overall, all devices appear to have good and similar ratings. With the exception of Echo Show 1st Generation (mean star rating = 3.7), the other four devices scored more than 4 stars and the Echo Plus 2nd Generation has the best rating of 4.6.

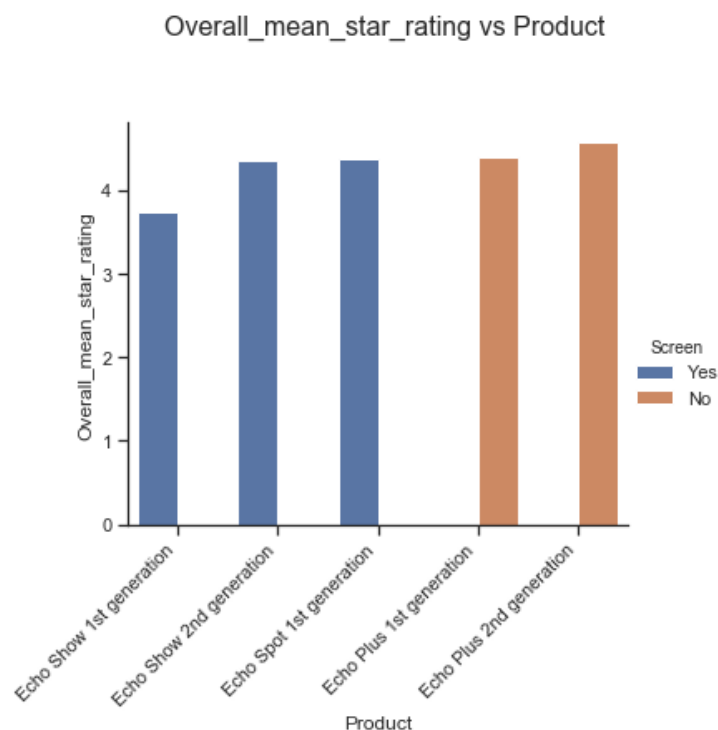


Figure 1. Mean star ratings of selected Echo devices.

The review length was further examined. The mean word counts were calculated from title and contents of reviews for each device. As shown in Figure 2, the titles and review title and contents are shortest for 5-star reviews, and the word counts increase as the star rating decreases. Interestingly, the longest reviews are either 2-star or 3-star reviews, not the 1-star reviews. In addition, reviews for Echo Show and Echo Spot are generally longer than those for Echo Plus. The Echo Show 1st Generation has the longest reviews across all star ratings, while Echo Plus 1st Generation has the shortest reviews. In some cases, the difference is quite significant. For example, the 5-star reviews of Echo Show 1st Generation have 92 words in average, which are 3 times as long as those 5-star reviews from Echo Plus 1st Generation. In Figure 3, the mean review length was plotted against the mean star rating, showing that reviewers, when they are not as satisfied with the device as reflected by the lower star rating, would write more. Interestingly, the two screen-less devices, with their relatively higher mean star ratings, have shorter reviews than the three devices with screen.

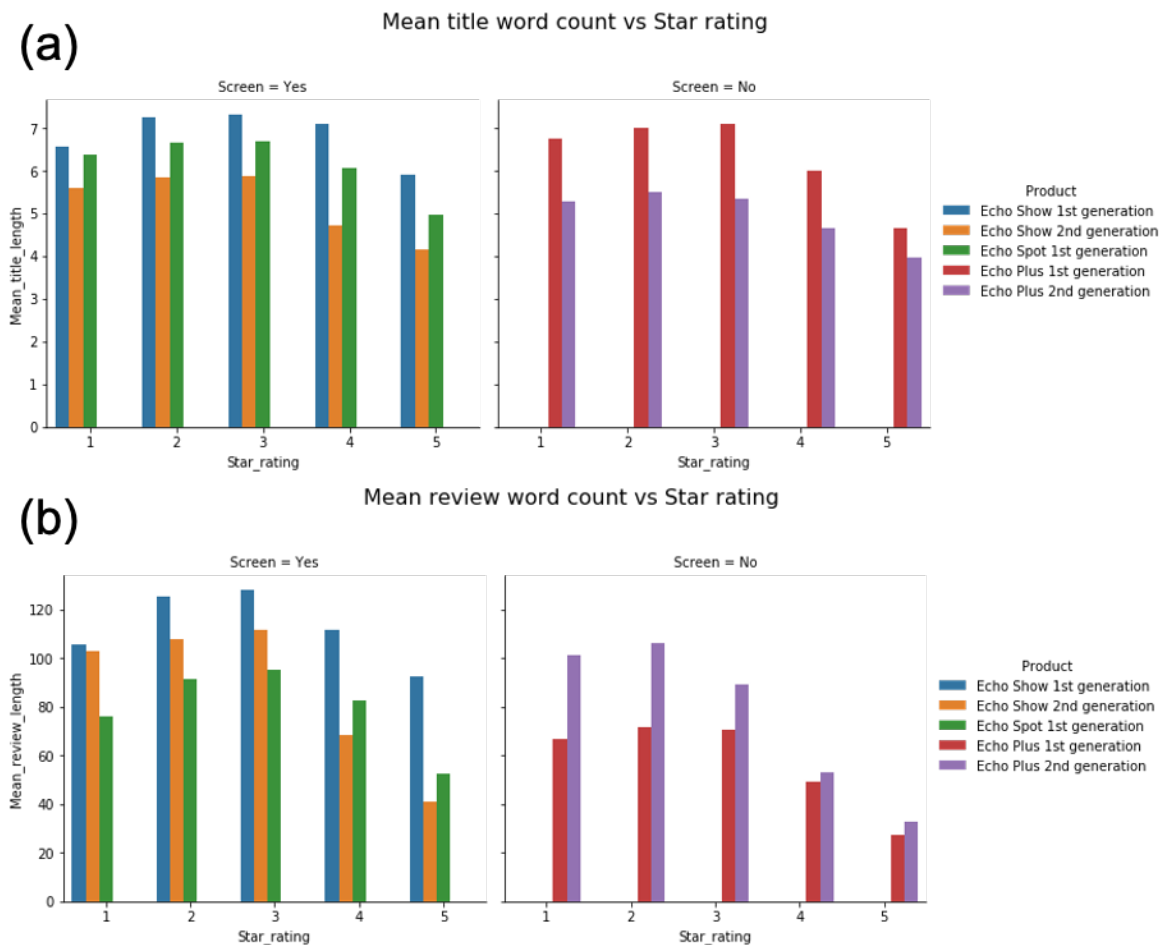


Figure 2. (a) Mean title lengths (word count) of reviews grouped by star rating. (b) Mean review content lengths (word count) of reviews grouped by star rating.

In Figure 3, the mean review length was plotted against the mean star rating, showing that reviewers, when they are not as satisfied with the device as reflected by the lower star rating, would write more. Interestingly, the two screen-less devices, with their relatively higher mean star ratings, have shorter reviews than the three devices with screen.

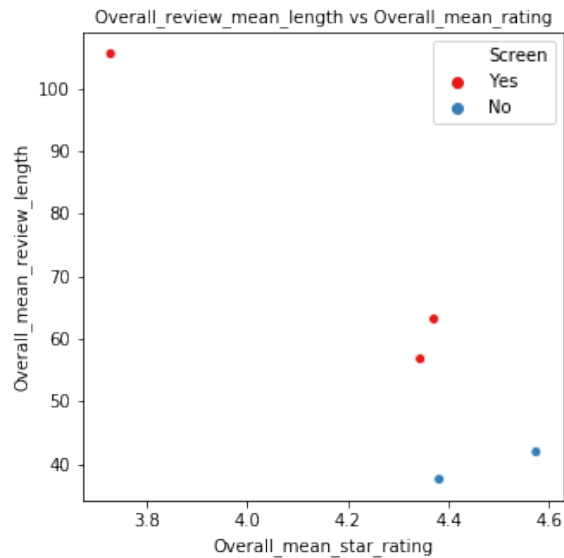


Figure 3. Mean review length vs. mean star rating of selected devices.