

Robinhood's Behavioral Nudges: Gamification of Trading and Lack of Investor Education

Celina Ye
May 2024

I. ABSTRACT

THE capstone final project focuses on analyzing the behavioral nudges induced by the Robinhood trading platform. Robinhood is a commission-free trading and investing platform founded in April 2013 by Vladimir Tenev and Baiju Bhatt. The platform features a seamless, user-friendly interface that allows users to swiftly execute trades, including buying and selling stocks, exchange-traded funds (ETFs), options, and cryptocurrencies. Users can also access real-time market data and the option to manage their retirement plan and utilize Individual Retirement Account (IRA) matching within the Robinhood app.

The final artifact is a redesign of the Robinhood platform that mitigates the negative social impacts due to behavioral nudges, which the company uses to encourage users to increase activity within the app through short-term investment strategies. In particular, the main negative social impacts being addressed include 1) addictive behavior from the gamification of trading and 2) financial instability and vulnerability as a result of minimal comprehensive and engaging investor education resources. The behavioral nudges and the surrounding space pose a challenge for responsible computing due to the extent of the company's transparency and power that undermines user autonomy and consent regarding the decision-making process in trading. Hence, the platform induces cognitive biases in users without explicit awareness and encourages risky trading behaviors without a complete understanding of the potential consequences.

The link to the prototype can be found here: [Figma Prototype](#)

II. THE PROBLEM SPACE

One of the behavioral nudges on the Robinhood platform is the confetti animations when users hit trading milestones or make their first trade, gamifying the trading process. The gamification of trading was so prevalent that in 2020, Massachusetts regulators filed a complaint against Robinhood for its "aggressive tactics to attract inexperienced investors and its use of gamification strategies to manipulate customers." While Robinhood's head of product management defended the confetti animation design as a positive reinforcement for new and novice investors, Robinhood recently replaced the original confetti animations in 2021. Nevertheless, the new visual graphics still resemble the former confetti animations. Similarly, the free stocks in the shape of a lottery ticket and one-click trading are an extension of the app's gamification of trading, triggering a dopamine response similar to that of a gambling addict craving instant gratification.

Additionally, the Robinhood platform boasts a simple and user-friendly interface. However, the app lacks comprehensive educational information on the different types of financial investments available and the user's specific investor profile to accompany the interface. As a result, even if the trading app helps increase accessibility to the stock market by bringing in new investors, new users are often left to deal with the aftermath of making trades too risky for their financial status, especially without help to become well-educated investors, which can become extremely dangerous. Such cases have been documented in the past, including 20-year-old Alexander Kearns, a Robinhood user who had committed suicide after finding a negative \$730,165 cash balance displayed in red and had written a final note filled with anger toward Robinhood, saying he had "no clue" what he was doing.

The culmination of these features and design

choices results in users being nudged to align with Robinhood’s objective to earn profits. Specifically, users adopt short-term investment strategies to increase transaction activity on the platform so the company can profit from the generated revenue of increased app usage. These behavioral nudges affect users’ decision-making process by reducing their autonomy and control over their decisions, regardless of whether they are aware of the situation. Additionally, the app’s design choices encourage addictive behaviors by producing various spaces throughout the app to achieve a sense of satisfaction, as a strategy to increase user retention rates. Thus, the problem is a complex intersection between transparency, user autonomy, and consent, as a result of behavioral nudging through the gamification of trading and lack of educational resources.

III. APPROACH JUSTIFICATION: DOMAIN EXPERTS

In addressing the problem space of Robinhood, it is vital to mitigate the negative social impacts relating to the gamification of trading and the lack of educational resources. According to domain expert Bradford Gibbs, a Senior Lecturer in the Brown University Department of Economics teaching applied finance courses and former Managing Director at Morgan Stanley, the Robinhood trading platform is a victim of its success. The platform encourages short-term investments in stocks and coupled with the entertainment value from the gamification of trading, there is a fine line between investing and betting. Furthermore, knowledge gaps concerning investor education and financial literacy can cause household savings to be majorly impacted. Thus, while Robinhood and other trading platforms demystify and provide greater accessibility to trading stocks, expanding the number of households that can buy equity, market timing is a fool’s errand and investors are best suited by compounding over time.

Similarly, the addictive behaviors induced by the trading platform like Robinhood also need to be addressed. Domain expert Steven Sloman, a cognitive scientist and professor in the Cognitive, Linguistic, and Psychological Sciences, gave insight into how systems are designed to addict people and how addictive behaviors form. Since most people are more sensitive to losses than gains, people are pushed around by reinforcement schedules with

rewards in critical moments, similar to gambling. As such, an opportunity for a short-term win could be very appealing. To mitigate the issue, forcing a delay such that gains and losses are not immediate by having users wait for a separation between a transaction and a reward can decrease the likelihood of addiction. Thus, the theoretical insights from both domain experts aid in the decision-making process of redesigning the platform to increase investor education and financial literacy while reducing the chance of addictive behaviors occurring.

IV. ARTIFACT DESCRIPTION

The user story/scenario for my artifact, a redesigned Figma prototype of the Robinhood trading platform on a mobile device screen mitigating the negative social impacts as discussed, is a user new to investing by themselves but feels comfortable starting. The user has just successfully created an account for Robinhood and is logging in and navigating through Robinhood for the first time.

The important functionalities of the prototype feature a risk assessment survey that all Robinhood users have to complete before using the app. The user can also claim their free stock and utilize the search function to look for transparent information on different stocks on the home page. Additionally, before the user can buy or sell a stock for the first time, they must work through education modules and pass a quiz. Once they pass the quiz, the buy and sell features will be enabled and the user will have access to the trading transactions functionality. Furthermore, the user will be reminded of their risk assessment results and the information in the education modules for every five investment transactions they make, immediately before buying or selling. Once the transaction is complete, the user can see the processed transaction in 24 hours. Lastly, users can easily navigate to and from the profile and home page to view and edit their risk assessment survey results and access additional educational resources.

V. KEY TECHNICAL IMPLEMENTATION CHOICES

A. *Risk Assessment Survey*

The risk assessment survey is a mandatory step the user is required to complete before using the app. The design choice to make the survey mandatory comes from the concept of increasing user knowledge of investment strategies and information

about themselves as an investor, to prevent overly risky trading transactions. The user can also view their results directly after completing the survey and after every five investment transactions (ie. any combination of five sell or buy stock transactions), in the form of a reminder just before starting a transaction. Domain expert Professor Sloman explains that the issue is not only the lack of financial literacy but also the timing of the information provided, which can influence a user's decision-making process. Thus, by reminding users of their risk assessment survey results after a few transactions, the likelihood of a decrease in user autonomy through the platform's nudging would decline. The results and survey are also easily accessible within the profile page for users to refer back to and edit if the answers provided in the beginning no longer apply to the type of investor they are now. As a result, users will be given relevant and updated feedback on their financial and investment needs.

B. Educational Modules

The educational modules contain non-biased, transparent information on individual stock investment strategies regarding how and when to buy or sell a stock. The first time the user wants to use the buy and sell feature, they are required to read over the module and pass a short quiz. It is mandatory to read the module and take the quiz for the first buy and sell to ensure that the user has some baseline knowledge of trading stocks, to prevent overly risky trading that leads to financial instability and vulnerability. Additionally, the quiz gamifies the educational aspect of the app in a positive way to engage users to become knowledgeable about investment trading. Similar to the risk assessment survey, the user will be reminded of the information in the education modules for the respective transaction made every five transactions to decrease the likelihood of declining user autonomy.

C. Claim Free Stock

The claiming of the free stock has been altered to become less gamified. Instead of the resemblance of a lottery ticket, the user will simply receive the stock with one click. The decision was made in thinking about addictive behaviors and the triggering of dopamine responses. Nevertheless, the design maintains the company's goals in a seamless

and user-friendly interface that novice investors can navigate.

D. Delaying Rewards and Gratification

When the user completes a transaction, they will view a screen that tells them their order is processing and the results will be viewable in 24 hours. This design decision to make the transaction and the results viewable in 24 hours is an attempt to delay rewards and the gratification that is often associated with addiction. That is, forcing a separation between the action, especially a short-term investment, and the reward decreases the chances that the user becomes addicted to the gratification of short-term gains. Additionally, it prevents users from only focusing on short-term investment strategies, which could cause financial instability and vulnerability.

VI. FINAL PROTOTYPE



Link to the final prototype: [Figma Prototype](#)

VII. CONCLUSION

Overall, the behavioral nudges in the current Robinhood trading platform raise concerns regarding addictive behavior through the gamification of

trading and financial instability and vulnerability through the lack of educational resources about investment strategies. As a result, user autonomy and transparency are compromised. While Robinhood increases the accessibility of the stock market to a large population, it is still necessary to mitigate these negative social impacts. Thus, my artifact of a redesigned Robinhood platform features a risk assessment survey for the user to think about their investment needs and delay short-term gratification to prevent addictive behaviors from forming. More interestingly, the gamification of trading present in the current Robinhood platform is prominent in the claiming of a free stock, resembling a lottery ticket. Instead of completely removing the gamification, my artifact reassigns the gamification to the education aspect of the app to encourage users to engage in learning about investment strategies and reduce the likelihood of financial instability and vulnerability.