

The Effects of Social Proof Marketing Tactics on Nudging Consumer Purchase

Sean Park¹ and Joseph McCallister[#]

¹Northern Valley Regional High School at Demarest

[#]Advisor

ABSTRACT

A wide variety of marketing tactics can be used to nudge consumer purchases on e-commerce websites particularly through methods known as social proof, which stress the importance of conformity to the norms of a social group. Although many types of social proof-based messages are used in digital marketing – such as testimonials, influencer endorsements, and social media shares – the inclusion of positive product reviews and pop-up messages about product purchases by other buyers are common marketing tactics used to persuade shoppers to purchase advertised goods and services. Though studies on the impact of these tactics on adult consumers have been conducted, there is little to no information on impacts on adolescent consumers. What is also unclear is whether the impacts of these marketing tactics combined are greater than their impacts individually. Using a survey that displayed images of hypothetical products and various combinations of positive product reviews and pop-up messages, this study found that 1) positive product reviews significantly increased the likelihood of adolescent consumer purchasing, 2) pop-up messages had little to no effect, and 3) combining pop-up messages regarding the purchases of other buyers reduced the impact that positive product reviews had on nudging adolescent consumers to buy the marketed goods.

Introduction

When people make decisions, there are many factors that influence and guide them in the process. However, because decision-making involves much work in obtaining and processing information that may not be available to them, people naturally lean on rules of thumb – or heuristics – to help them in making decisions (Baumeister, 2007). Tactics that can influence the understanding and acceptance of these rules of thumb can therefore persuade others to take specific actions, including purchasing products.

According to Robert Cialdini (1984), there are six core principles that can affect heuristics and be used to persuade others: reciprocity, scarcity, authority, commitment and consistency, liking, and consensus. While reciprocity involves the balancing of social obligations between people as they give and receive from each other, scarcity refers to the reduction in the availability of products and services, which then creates higher demand. Authority or rather the opinions of those who are considered knowledgeable experts are influential because they are viewed as being credible and therefore worthy of being followed. Commitment and consistency relate to how people identify themselves with regards to certain representations such as beauty, health, and intelligence and how such representations can nudge people to be consistent with those qualities through their actions such as maintaining hygiene or exercising.

Liking or likability is an important step in building commonality and relationships, which are important elements needed to influence and persuade others. Consensus refers to the social nature of humans that compels them to conform to the norms of social groups; it is also known as “social proof.” According to Cialdini (1984), all six principles can be used to persuade people to behave a certain way and are therefore important concepts to consider for marketing products and nudging buyers to make a purchase, particularly with regards to social proof.

Social proof-based messages influence people to subscribe to societal norms and the “wisdom-of-the-crowds.” By persuading people to do what others do, social proof can be important tools used by marketers of e-commerce websites to nudge shoppers to purchase goods that many other shoppers have purchased. In particular, positive product ratings/reviews and pop-up messaging about product purchases by other consumers, two common social proof marketing tactics, can be very influential. What is unclear is to what extent they impact potential adolescent buyers and whether those impacts are additive if the marketing tactics are used at the same time.

Literature Review

Social Proof

Social proof is a psychological and social phenomenon wherein people copy the actions of others in an attempt to undertake normative behavior in a given situation (Abdul Talib & Mat Saat, 2017, p. 3). Social proof also goes by the name of informational social cues and is used in everyday life amongst everyone. The difference between social proof in society and marketing is quite distinct, as social proof in social situations is used when people are unable to determine the appropriate mode of behavior while social proof in marketing is used to convey a sense of reliability of the seller or the product to the consumer (Cialdini, 2008). When a person in society is not able to determine the appropriate mode of behavior, the individual uses social proof by looking to actions done by people surrounding them to understand the situation. This concept is similarly used in marketing when an individual is not able to determine whether they want to purchase a product or not. Social proof is a type of conformity, similar to peer pressure/influence amongst adolescents. Social proof is a phenomenon based on the concept of “fitting-in” and is valued highly among growing adolescents as most of their time is spent with friends in social situations rather than with family members as they did in the previous stages of their lives (Crosnoe, R., 2011; Eccles and Roeser, 2011). This results in people conforming to social norms in order to be liked or accepted by others.

Fear of Missing Out

The fear of missing out is a term that grew in popularity after the development of social media, based on the “pervasive apprehension that others might be having rewarding experiences from which one is absent” (Gupta & Sharma, 2021). The fear of missing out, or FoMO, is characterized by the desire to stay connected, being included, and still “fitting-in” with the crowd. With people being more exposed to what everyone is up to with the increased usage of social media, there is a deeper sense of social inferiority among adolescents who do not have the same level of activity as others (Metz, 2019). However, in this research paper, the concept of FoMO is focused less on the social, interpersonal aspect of social media but more focused on the following of trends, which are developed by social media users and communities. While the fear of missing out is mainly correlated with social inferiority (ex. when an individual sees their friends hanging out without them through social media), the concept of FoMO this research paper focuses on is the social inferiority that an adolescent may experience when not “keeping-up with the trends” (ex. not having the trendiest jeans). Adolescents always strive to fit in, and e-commerce websites take advantage of this by marketing that their product is “trendy,” appealing to adolescents who may be experiencing social inferiority.

Tactics of Social Proof and Marketing on E-Commerce Websites

Many marketing tactics use social-proof messaging on e-commerce websites in order to sell their products. In this research paper, two appeals that reflect social proof marketing tactics geared towards adolescents were researched, tested, and analyzed. The first appeal is credibility. An individual often practices social proof when looking through reviews and testimonials of the product by other consumers in order to solidify their trust in the brand and to make

their final decisions. The effectiveness of product reviews on e-commerce websites was assessed in a journal article written by Jared Watson, Anastasiya Gosh, and Michael Trusov (2018) for which experiments were conducted. Data revealed that 1) higher-rated products surpassed lower-rated ones in sales and 2) highly-rated products kept gaining more reviews, while lower-rated products exhibited decreasing opportunities for consumers to write reviews (p. 125). Though the effectiveness of product reviews was tested for subjects of varying ages, there was no discussion of the specific effect it had on adolescents.

The second appeal is the Fear of Missing Out. According to the theory of social proof, individuals practice social proof in response to this appeal if they are, for example, sent product purchase log messages on an e-commerce website relaying information about the viewing and purchasing activities of fellow viewers (Sanak-Kosmowska, 2022). While product reviews and testimonials are common and are often listed on separate pages on websites for consumers to read through, the product purchase log marketing tactic is a minimal and simple visual pop-up on the consumer's screen. Oftentimes the visual pop-up is a small box displaying the message that another person on the website has purchased an item, along with the specific product he or she purchased, and the time that the order was placed. This may create anxiety that the product is selling quickly or is of popular demand and provide confirmation that it is trending. Given the appeal of FoMO, it could be hypothesized that adolescents are more likely to purchase the product since adolescents do not want to experience regret once the product is out of stock or out of style as stated in a journal article by Joseph Metz (2019): "many of our biggest regrets are our non-doings rather than our doings" (p. 452). The effectiveness of the pop-up tactic has yet to be proven, and there is no specific information on how effective the tactic is on adolescents.

These two appeals can be categorized as social proof marketing tactics, as the two marketing tactics both appeal to social inferiority, the fear that "everyone" already has the product, the fear that one will regret passing up the opportunity to experience the product, and the pressure to conform. Therefore, the use of such marketing tactics on potential consumers through the appearance of pop-ups that customers receive during their time on the website and/or the provision of positive product-reviews posted on the product would heighten customer sense of potential loss and anxiety.

Gap in the Research

Pre-existing research papers consist of individual social proof marketing tactics and each individual effect on adults. The findings by Abdul Talib and Mat Saat (2019) state that increasing the number of followers or having more community recommendations on a product, examples of social proof, are both equally effective in influencing consumers' likelihood of purchasing the product. Another study by Roethke, Klumpe, Adam, and Benilian (2020) includes findings about social proof and how social proof tactics employed individually increased user registrations.

While there are research papers with more than one social proof marketing tactics studied, and research papers that combined social proof marketing tactics along with the effectiveness of multiple social proof marketing tactics on one e-commerce website, no research paper has investigated the effects of social proof marketing tactics on adolescents. Since peer influence and social proof are highly related (Sanak-Kosmowska, 2022), it is highly likely that the usage of social proof marketing on adolescents would have an effect on their likelihood of purchasing products. The purpose of this study was to test whether such social proof marketing does in fact have an impact on their purchasing behavior and if found to have an impact, to determine which social proof marketing tactic was effective. The results of this study have important applications as they can inform e-commerce websites that target adolescent buyers of effective marketing tools. To analyze the effectiveness of social proof marketing tactics on e-commerce websites for adolescents, this study sought to answer the following research question: To what extent do various social proof marketing tactics affect adolescents' likelihood of purchasing products from an e-commerce website?

Data and Methods

A quantitative analysis using a questionnaire was conducted in order to test the hypotheses 1) that product review marketing tactics and pop-up marketing tactics increase the likelihood of an adolescent purchasing a product and 2) that the combination of these social proof marketing tactics further increase the likelihood of an adolescent purchasing a product. Inferential statistics involve defining a set of variables and testing hypothesized relations among these variables (Lau, 2017, p. 213), in particular whether there are statistically significant differences between the mean values of the groups of participants according to treatment type. The first set of observations for the participants served as the control trial for which no treatments were applied. The subsequent trials of observations reflect the likelihood of purchasing a product by participants for which 1) a positive product review is posted (treatment 1), 2) a pop-up marketing tactic is employed (treatment 2), and 3) the positive product review and the pop-up marketing tactic are simultaneously used (treatment 3). The objective of using this research method was to analyze the association between different social proof marketing tactics and the likelihood of an adolescent purchasing the product.

This research collected both quantitative and qualitative data through surveys. Before sending out the questionnaires, it was necessary to first select a target group. Adolescents between the ages of 13 and 18 who were attending high school in the United States at the time of the study were surveyed. The subjects needed no previous knowledge in order to participate in this study. Participants of the study were sampled using convenience sampling and snowball sampling. A public announcement was posted on my personal social media account where it redirected interested participants who met the sample criteria to another social media profile that was solely made for the study. The use of my personal social media account to recruit participants was an example of convenience sampling as the usage of my personal social media account was a convenient way to recruit participants for the study. All communication was done through the research-dedicated social media profile in order to keep personal life and schoolwork separate. Once interest in the study was verified through direct messages on the social media platform, an internet file was sent to the participants. The file consisted of student consent forms, parental consent forms, quantitative/qualitative data on social media marketing tactics, and the study itself.

Once the student and parental consent forms were submitted, participants were able to access the two main questionnaires. The purpose of the first questionnaire was to collect background information on the participants such as demographic information. The goal of the second questionnaire was to collect data on each participant regarding how likely they were to purchase the product based on the website's features or the social proof marketing tactics. Their views were entered as quantitative and qualitative data: how likely they were to purchase the product on a scale of 1 to 10 and explanations of their choices in 2-3 sentences. Once the questionnaires were completed via Google Forms, the data was collected and transferred into an Excel Spreadsheet where further data analysis was conducted. Once all the data was confirmed as having been transferred, each participant received another message requesting that they share the research-focused social media account with others in order to gain more participants for the study. Although it was a form of snowball sampling which limited the sample to participants of similar demographics (i.e. age), this type of sampling also allowed for more accurate results by increasing the sample size of participants.

In order to simulate a "shopping experience" enhanced by social proof marketing tactics on websites, this research displayed screenshots of a website on the questionnaire. The screenshots were designed through a combination of applications including Adobe Illustrator, Adobe Photoshop, and Adobe XD, with inspiration from small, local e-commerce clothing brands. The product that was sold on this simulated website had to be original to limit participant bias towards the product because of potential brand awareness. The product that was being "sold" on this website was a simple black t-shirt with a brand logo made through Adobe Illustrator and Adobe Photoshop. The logo was an original design created in order to control for brand bias. All website designs were based on the first "control" website design which had no social proof marketing tactics applied (see Figure 1). The other website designs, which looked similar in layout, had different social proof marketing tactics applied. The product review marketing tactic trial included the appearance of a positive review of 4.5 out of 5 stars by 92 people along with a quote from a "customer in Florida" (see Figures 2 and 4). The product rating and the number of product reviews on the website were not changed

for any participants or for the combination trial; this study, therefore, sought to assess the impact of the presence or absence of a positive product review rather than changes in the product ratings or the number of product reviews. The pop-up marketing tactic included the appearance of a small image in the bottom right-hand corner of the site where it stated that someone placed an order along with information about the product that he or she purchased, the order number, and the region where the purchasing customer was located (see Figures 3 and 4).

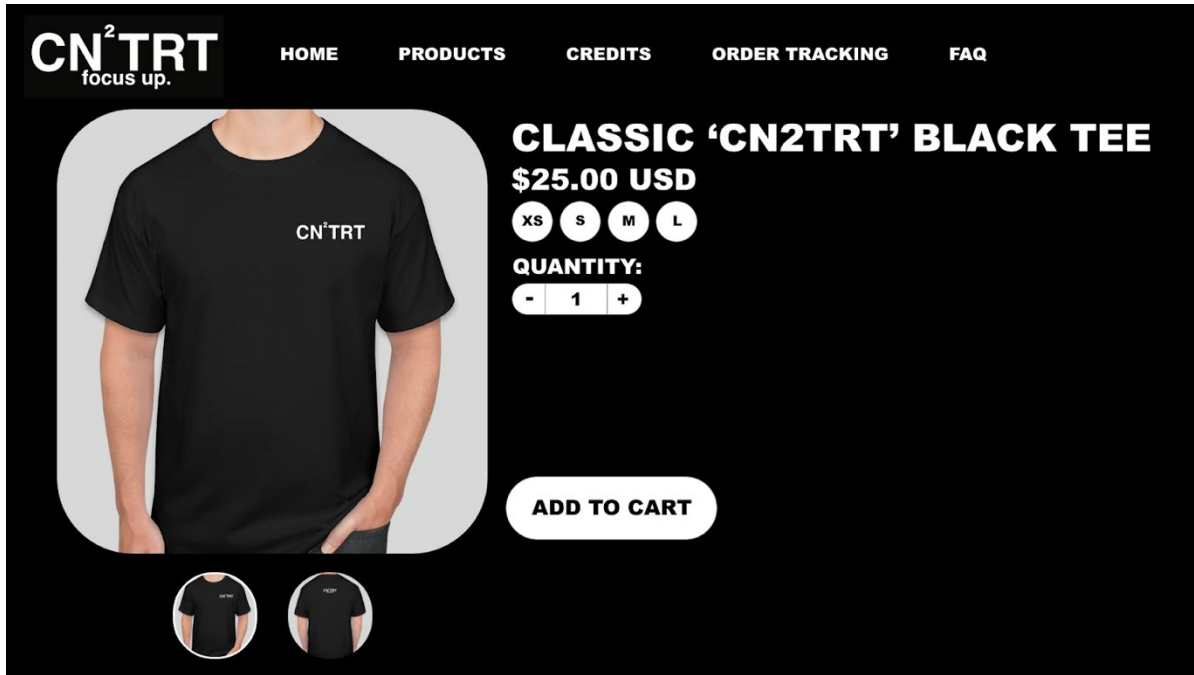


Figure 1: Control Trial - No Marketing Tactic

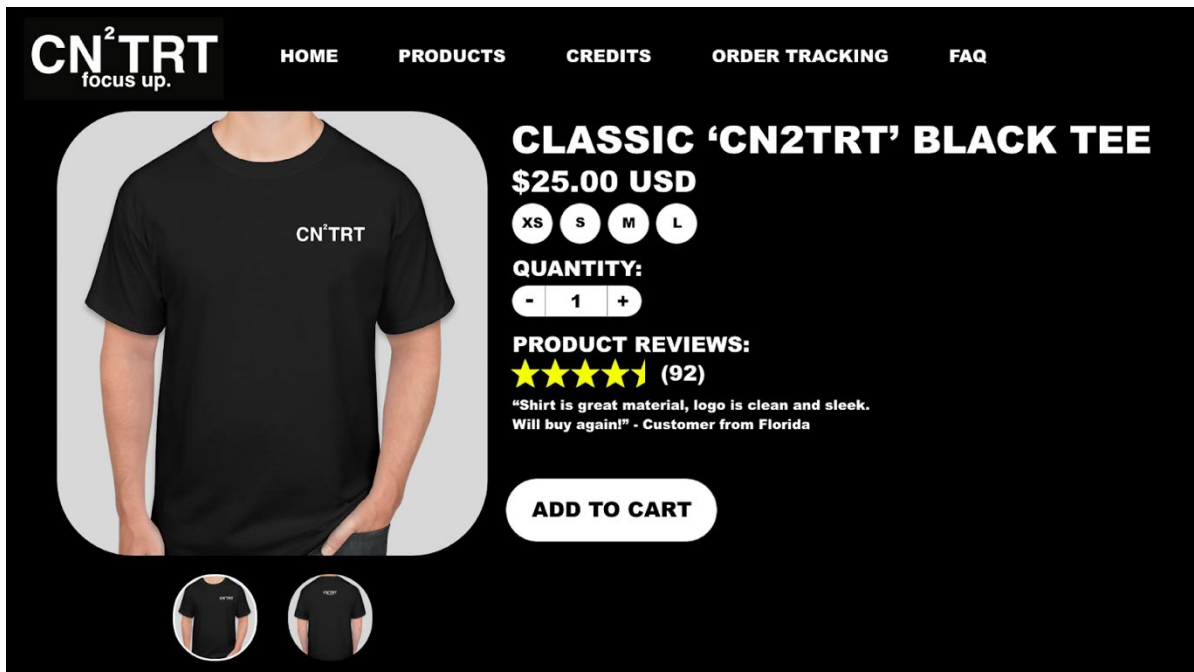


Figure 2: Treatment 1 Trial - Positive Product Review Marketing Tactic

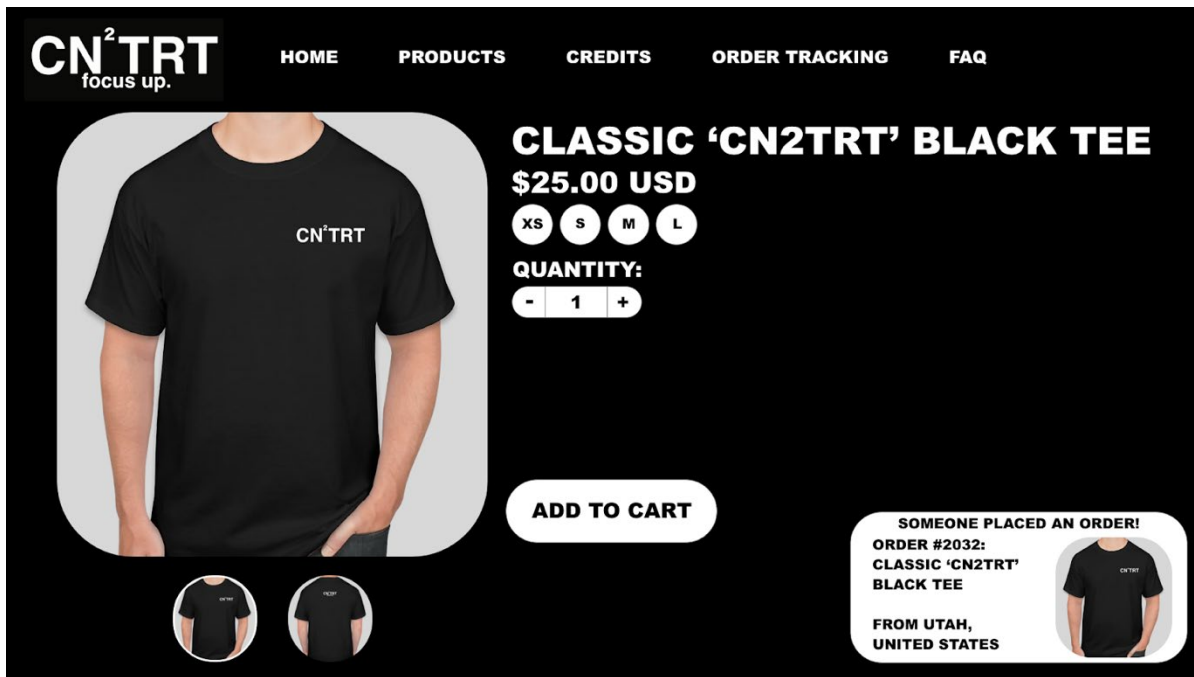


Figure 3: Treatment 2 Trial - Pop-Up Marketing Tactic

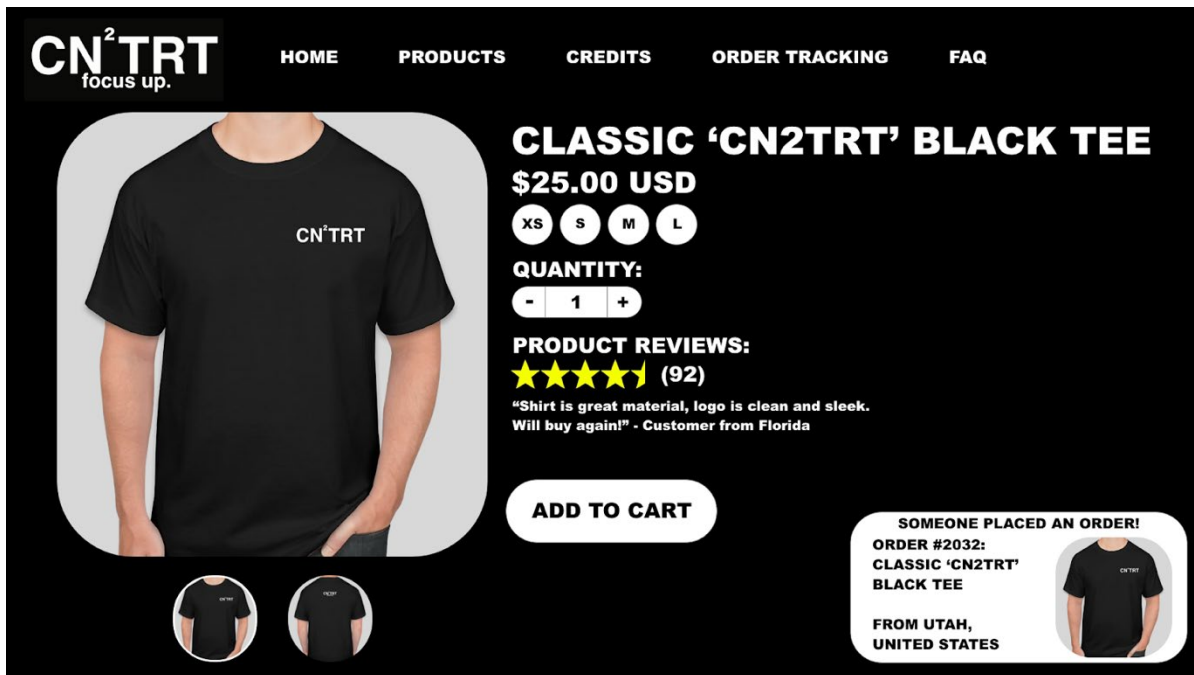


Figure 4: Treatment 3 Trial - Combined Marketing Tactic (Positive Product Review and Pop-Up)

The analysis focused on comparing the means of the four different trials (i.e., control, treatment 1, treatment 2, and treatment 3) by using a paired sample t-test. These t-tests can be used to determine if there were statistically significant differences between the mean values of the likelihood of purchasing a product for each treatment trial and

the control trial in which no treatments were applied. If p-values for the paired sample t-test were less than the critical value of 0.05, then we could reject the null hypothesis that the means values associated with the control and treatment trials were essentially the same. This would imply that the treatment had an impact on the mean likelihood of purchasing a product on the sample population. This research also used the one factor ANOVA test to determine if there were any statistically significant differences in the means of multiple sample populations (i.e., control, treatment 1, treatment 2, and treatment 3). If the p-value for the ANOVA test was less than 0.05, then it could be inferred that the means for the trials were significantly different. To determine which trials exhibited statistically significant differences in their mean likelihoods of purchasing the product, a post Tukey test was used.

Results

During the span of a month, 31 participants were surveyed. In order to make proper comparisons between participants who naturally have different preferences, the values of each trial for all 31 participants were individually differenced to find the participant's "effectiveness value" or EV. This was done by determining the base line of how likely the participant was to purchase the product (i.e. the participants' rating in the control trial). The control trial rating was then subtracted from the values entered for all the other trials to get differences in ratings between treatment trials (i.e. trials in which marketing tactics were applied) and control trials, which represented the effect of the marketing tactics used. For example, if the participant gave a rating of "3" for the control trial, all the other trials' ratings were subtracted by the value of "3" in order to find the marketing tactics' effectiveness. If the EV for the trials with social proof marketing tactics were positive in value, the impact of the marketing tactic would be positive; if a negative value, the impact would be negative; if the value were 0, there would be no effect of the marketing tactic on adolescents. After calculating the EV between trials for each participant, the mean EV of 31 participants for each social proof marketing tactic trial was determined.

The average EV for the product review marketing tactic trial was +2.742, indicating that the presence of positive product reviews increased the likelihood that an adolescent would buy the product off a website by over a quarter of the scale. As the scale that was used to find the values were from 1 to 10, an added value of +2.742 to the control value is a significant increase in participants' perceptions of likelihood of purchase. Hypothetically, if a participant with the likelihood of buying the product without any marketing tactic were over 7, the product review marketing tactic would raise the EV to close to 10, meaning the participant would buy the product immediately. There was only one participant who had a negative EV of '-1' for the product review marketing tactic trial, and when the participant was asked the reason why s/he chose the value of 4 on the product review marketing tactic trial and a base control value of 5, the participant explained that he preferred the simplicity of the control trial.

As for the pop-up marketing tactic trial, the average EV was +0.2903, having little effect on the likelihood of an adolescent buying the product off a website. As mentioned before, the scale used to find the perceived likelihoods of purchasing the product ranged from 1 to 10, so an added value of +0.2903 carries little weight overall. It can be concluded that the pop-up marketing trial had little to no effect on adolescents in nudging them to buy products off an e-commerce store.

The last trial combined the positive product review marketing tactic and the pop-up marketing tactic. The average EV for the combined trials was +1.9355, increasing the perceived likelihoods of purchasing the product by nearly 2 whole points. Although the EV for the combined marketing trial was not as high as the positive product review marketing tactic EV, it was still an overall increase in the likelihood of purchase. While it was hypothesized that the combined trial would have the highest EV, many participants stated similar reasons as to why the combined trials did not persuade them much more than the singular positive product review marketing tactic trial had. One participant said that the pop-up marketing tactic seemed "tacky" and "fake" and that the addition of the pop-up marketing tactic lowered their rating of how likely they were to purchase the product.

This research also used inferential statistics to test whether the mean likelihood of purchasing a product for each treatment trial was different from that of the control trial by employing paired sample t-tests. The results of the

t-tests found in Table 1 indicated that there were statistically significant differences between the control trial and treatment trial 1 (product review) and trial 3 (combined product review and pop-up messaging). Therefore, this research can conclude with at least 95% certainty that product reviews helped raise the likelihood of purchasing the product as did the combined marketing tactic of using product reviews and pop-up messaging. The ANOVA and Tukey tests further clarified which treatments led to statistically significant differences in mean likelihood of purchasing a product even between treatment trials. The ANOVA test revealed that there were statistically significant differences between the mean values for all trials (see Figure 5). The Tukey test revealed that statistically significant differences existed between treatment trial 2 (pop-up messaging alone) and the other treatment trials 1 (product review alone) and 3 (combined product review and pop-up messaging). Therefore, it could be concluded that using either product reviews alone or a combination of marketing tactics led to a higher likelihood of purchasing a product than using just the pop-up messaging tactic. However, what is still unclear is whether the combination of marketing tactics actually leads to a lower likelihood of purchasing a product than would the use of product reviews alone since the p-values for that comparison was not less than 0.05. Though the difference in means was not statistically significant, it does not imply that the means are the same, but rather that it is unclear as to whether there were real differences that would be found in similar sample populations or whether the results were indicative of chance events.

Table 1. Paired Sample t-tests

	Treatment Trial Mean (St. Dev.)	Control Trial Mean (St. Dev.)
Treatment Trial 1 – Product Review*** p = 0.000	5.48387097 (1.52470692)	2.74193548 (1.43684242)
Treatment Trial 2 – Pop-Up p = 0.213	3.03225806 (1.1100712)	2.74193548 (1.43684242)
Treatment Trial 3 – Combination*** p = 0.000	4.677419355 (1.700727232)	2.74193548 (1.43684242)

Note: * = $p < 0.10$; ** = $p < 0.05$; *** = $p < 0.01$

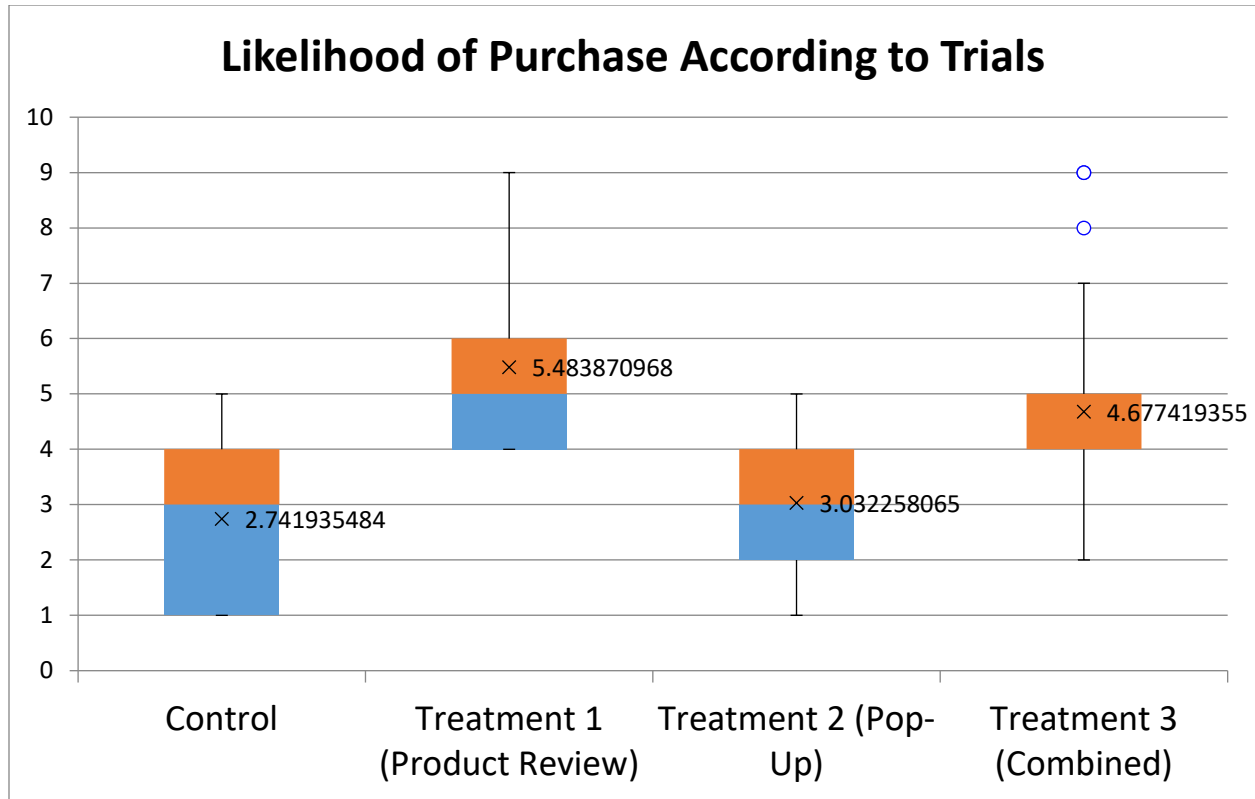


Figure 5. Box plots and mean likelihood of purchasing a product for the four trials.

Discussion

The study was designed to test the hypotheses of whether positive product review marketing tactics and pop-up marketing tactics would increase the likelihood of an adolescent purchasing the product and whether the combination of these marketing tactics would further increase the likelihood of purchase. Through the use of effectiveness values and inferential statistics, several important findings were uncovered.

As hypothesized, both social proof marketing tactics increased the likelihood of an adolescent purchasing the product. The positive product review marketing tactic affected the likelihood of an adolescent purchasing the product by nearly 3 points, a significant value as the scale used for data collection was only 1 through 10. Since the pop-up marketing tactic had an EV close to 0 at 0.2903 and the trial mean value was found to be not statistically different from that of the control trial, the pop-up marketing tactic could be characterized as having no statistically significant positive effect on adolescents' likelihood of purchasing the product.

Overall, it was found that the positive product review marketing tactic had the greatest effectiveness in nudging adolescents, followed by the combination of the positive product review marketing tactic and the pop-up marketing tactic, and then by the pop-up marketing tactic alone – which exhibited the least effectiveness. While it was hypothesized that the addition of social proof marketing tactics would increase the likelihood of purchase as represented by positive EVs, the data showed that the addition of the pop-up marketing tactic was detrimental to the EV. Based solely on the data, the usage of one social proof marketing tactic is most effective, contrary to the initial hypothesis that more than one social proof marketing tactic would further increase the likelihood of an adolescent purchasing the product. These findings could be useful to e-commerce stores and websites where the target consumers are adolescents. This study also uncovered that pop-up marketing tactics were perceived as being “fake” and “tacky,” indicating that pop-up marketing tactics may be risky to use in e-commerce websites where marketing is targeted to adolescents. On the

other hand, positive product review marketing tactics are beneficial in raising likelihoods of product purchases by adolescents. These findings provide support for the existence and roles of both adolescents' fear of missing out and social proof. They also point to which marketing tactics have more appeal to adolescents, a useful finding for e-commerce websites that seek to market their products to adolescents and increase sales.

Conclusion

Increasing the likelihood of adolescents purchasing products, or nudging them, through the usage of social proof marketing tactics can be explained through the concepts of social proof, fear of missing out, and peer pressure. The usage of EV (effectiveness value) and sample t-tests allowed us to find the effects that social proof marketing tactics on e-commerce websites have on adolescents. Treatment 1 (product review marketing tactic) had the most significant influence on adolescents in encouraging product purchase. Treatment 3 (combined marketing tactic) had the second most significant influence, while Treatment 2 (pop-up marketing tactic) had the least influence on nudging adolescents to purchase the product. While the usage of social proof marketing tactics on e-commerce websites targeted toward adolescents was found not to be negative, a positive effect was not guaranteed either. The pop-up marketing tactic had little to no impact. Social proof marketing tactics, especially Treatment 1 (product review marketing tactic) exhibited the greatest effect and therefore holds great potential for e-commerce websites that want to grow their target customers of adolescents.

Social proof marketing tactics should be used on e-commerce websites to nudge adolescent product purchase as these tactics do not discourage adolescents from purchasing products. Social proof marketing tactics should therefore be applied to encourage product purchase by adolescents. The results of this study indicate that using the product review marketing tactic alone from treatment 1 would have the greatest positive impact. However, since the pop-up marketing tactic had no effect on adolescents, the combined trial's effect is less than the singular product review marketing tactic trial, and creating such tactics costs money, the pop-up marketing tactic is accompanied by more costs than benefits and should therefore be limited in its use.

Limitations

There were several limitations in this study related to sampling, errors with data collection, time, and bias. The most important limitations were associated with the sampling method used to elicit participants and collect data: convenience sampling and snowball sampling. Finding participants from my personal social media account resulted in having participants who personally knew me, which could have resulted in bias in my results. If participants correctly assumed that the website was designed by me, they may have raised their scores in an attempt to please me or in fear of receiving backlash for giving a lower score. To limit this potential for bias, however, it was never explicitly stated that the website was designed by me. Additionally, differences in scores were used so that the impact of tendencies of those who may generally give higher ratings and those who may give lower ratings would be minimized. The research design and analysis, therefore, helped to minimize bias. Another major problem with convenience sampling and snowball sampling is that the demographics of the participants were similar. Most participants were Asian-American adolescents who live in the Bergen County area of New Jersey. As the study was conducted on a small sample size with participants of similar demographics, the conclusion of this study cannot be generalized to other populations.

Another limitation was error associated with data collection. There were several misunderstandings with the questionnaire; for example, participants may not have realized that the likelihood of buying the product was not to be based on the actual design of or desire for the product, but the design of the website that showcases the product. Although this was specified in the questionnaire, a few participants did not realize this and completed the questionnaire giving the same ratings for all four trials. While the same rating for all four trials is possible, their qualitative data showed that they based their answers solely on the product's design, not the marketing tactics and website's design.

Most participants realized this mistake and retook the questionnaire, deleting their initial answers to the questionnaire. A source of error, however, comes from the fact that there is a possibility that some participants did not retake the questionnaire even after misunderstanding the questions, creating results that do not accurately reflect the impact of marketing tactics on likelihoods of purchase.

Another limitation was the time constraint. Because this research was conducted over a short period of only 8 months, there was not enough time for data collection. This resulted in a smaller sample size and dependency on convenience and snowball sampling. While the original plan was to use the same 30 participants and to have each participant complete one questionnaire of a different marketing tactic once every week, the time constraint resulted in 30 participants completing one larger questionnaire that included every marketing tactic trial, including the control trial. As there was no time in between the testing of individual marketing tactics, many participants were able to see the obvious change in the various website designs and gave ratings that might have been “manufactured”: participants might have known what the study was attempting to evaluate (impact of marketing tactics) and answered what they thought would be the impact of marketing tactics in general instead of rating their likelihoods of purchase according to how they felt about the image with the marketing tactic. This situation could have contributed to error in the data and analysis as well.

The final limitation is the fact that the data were subjective values. Although the ratings 1 and 10 were defined, values between 1 and 10 were not, which resulted in subjective values that depended on the participant. In order to address this limitation, the effectiveness value, also known as “EV ” was used. By differencing subjective ratings (relative to the baseline provided by the control trial), the EV better represented relative likelihoods of purchasing a product and was more *objective* in measuring the effectiveness of social proof marketing tactics on individual participants. The usage of EVs minimized this potential source of error and its effect on the final data analysis.

Further Research

The first topic of further research is exposure. During the preliminary research process, an additional research question arose as to whether greater exposure to social proof marketing tactics on e-commerce websites would have diminishing effects on potential consumers. Potentially, as customers spend more time on a certain website, positive product reviews and pop-up marketing may have less impact on nudging customers to purchase the products, possibly because of information overload or simple acclimation from extensive exposure. Could it be that people become so familiarized with marketing tactics that they become unresponsive to such nudges? Future research to investigate this question would need to vary the length of the surveys for two different samples: one sample for which shorter questionnaires were given in all trials and another sample for which longer questionnaires were given. Differences between the two samples could reveal the impacts of differences in exposure to marketing tactics. If my hypothesis that exposure would affect the effectiveness of social proof marketing tactics is correct, the data should show that participants with extended exposure to social proof marketing tactics display lower EVs.

The second topic for further research is the impact of other social proof marketing tactics. While two major social proof marketing tactics – positive product review marketing tactics and pop-up marketing tactics – were tested in this paper, there are many other social proof marketing tactics that have yet to be tested on adolescents. It would be beneficial for e-commerce stores to see how different variations and combinations of social proof marketing tactics could influence adolescent perceptions and purchasing behavior. It would be beneficial for e-commerce businesses that have a focused target audience of adolescents to know which singular social proof marketing tactic has the highest positive EV and which of the different combinations of social proof marketing tactics have the highest effectiveness in nudging adolescents to purchase their products.

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