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Resistance to persuasion through inductive reasoning

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Abstract

This study examined whether participants can induce rules discriminating illegitimate from legitimate scarcity tactics in advertisements and assessed persuasiveness and perceived manipulative intent for illegitimate and legitimate ads. Participants were provided with unmarked ads and were told that not all ads use scarcity tactics legitimately. Participants were asked to examine the ads and induce two rules discriminating between legitimate and illegitimate ads. Participants then rated another set of ads for persuasiveness and perceived manipulative intent. Results showed that although participants were poor at correctly inducing rules, they demonstrated less persuasion and greater manipulative intent for illegitimate scarcity ads. These findings highlight the need to educate students in schools and colleges on legitimate and illegitimate persuasion tactics to help them become informed consumers.

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Introduction

Consumers are relentlessly bombarded by persuasive messages urging them to invest in products or services. These messages may exist in the form of television advertisements, spam messages in their mail and email, and free samples, to name a few. Consequently, consumers need to decide when to be persuaded and when to shun persuasion as illegitimate. While on the one hand, consumers need to protect themselves from being duped into investments they don't need or aren't as promised, on the other hand, they need to avoid chronic distrust of everyone and everything (Sagarin & Cialdini, 2004). While advertisers are in the business of persuasion, they do not always use persuasion tactics in a genuine manner (Cialdini, 2001). In his book *Influence*, Cialdini discusses several persuasion tactics used by advertisers, such as the use of authority figures and the use of scarcity tactics in advertisements. Cialdini also recognises the various ways in which such tactics are used illegitimately to influence consumers. It is important to recognise that consumers are not only adults; students in schools and colleges are also exposed to advertising in school cafeterias and bookstores, for instance. Therefore, the implications of unscrupulous persuasion tactics become important to consider.

Legitimate versus illegitimate persuasion tactics

Skilled consumers who are able to distinguish legitimate from illegitimate persuasion attempts are at an advantage in terms of being able to make educated guesses about when to be persuaded. However, the legitimate-illegitimate distinction may not be easy to infer. For instance, some advertisers may rely on a real medical doctor in an advertisement to sell a particular drug while other advertisers may use a celebrity for this purpose (Sagarin, Cialdini, Rice, & Serna, 2002). Sagarin and colleagues suggested that advertisements with authority figures may require a distinction of who a legitimate authority (or expert) would be for the product or topic. In the case above, the legitimate authority would be the medical doctor and not the celebrity as the medical doctor would likely be knowledgeable about the product. Similarly, advertisements stressing the scarcity of the product may require the consumer to decide whether something is genuinely scarce or not. This distinction may be blurred by catchy phrases and titles which contradict the fine-print text enmeshed with other information about the product.

Sagarin et al. (2002) taught participants to distinguish legitimate authorities (i.e., experts speaking within their areas of expertise) from illegitimate authorities (i.e., experts speaking outside of their areas of expertise or actors parading as experts) and then asked participants to rate the persuasiveness and perceived manipulative intent for another set of ads that were not marked as legitimate or illegitimate. Participants who were told they were duped into finding an ad using an illegitimate authority figure convincing were better able to develop resistance to illegitimate authority ads than participants who did not have their vulnerability demonstrated to them or participants in the control condition who did not receive the legitimate-illegitimate authority distinction. Sagarin and colleagues examined another variable, the perception of undue manipulative intent, as a motivator of resistance to persuasion. They suggested that perception of manipulative intent does not require in-depth knowledge of the accuracy of the claims but requires only an evaluation of whether or not the persuasion tactic is legitimate. Their research was based on previous findings which have shown that people tend to reject information they perceive to manipulate them (e.g., Christensen, 1977; Jones and Wortman, 1973). In marketing research, persuasion attempts were unsuccessful if the perceiver detected manipulative tactics being employed (Campbell, 1995). People may reject such manipulative attempts not only to protect themselves from being cheated or tricked, which may lead to harmful consequences (Cosmides & Tooby, 1992), but also to avoid being labelled as a fool (Cohen, Aronson, & Steele, 2000).

Children, adolescents, and young adults in schools and colleges are exposed to persuasion tactics through various advertising media. This is not limited to advertisements on television, but also, for instance, poster advertisements in school cafeterias. Learning to distinguish between legitimate and illegitimate persuasion attempts in advertising and other media can be taught to students in schools and colleges to help them become informed consumers who are able to accurately and intelligently decide when to be persuaded without having to learn this distinction through experiences of being duped. Research in the area of legitimate and illegitimate persuasion could help educators understand the need for teaching programs geared in the direction of persuasion tactics.

Rule induction

People do not typically have access to explicit training such as that provided by Sagarin et al. (2002). People watching television advertisements or passing by billboards are never trained on what sorts of ads constitute legitimacy. Students in schools and colleges are rarely given any training on persuasion tactics that may unduly influence them. Often, people may have to generate such distinctions themselves. The first step of this process may require an understanding that not all ads use advertising techniques legitimately. Most people perhaps recognise this at some level. However, does this recognition translate into inferences of when advertisements use persuasion tactics legitimately or illegitimately? Such inferences are instances of rule induction.

Inductive reasoning has been defined as the process of inferring a general rule by observation and analysis of specific instances (Polya, 1945). While inductive refers to establishing a rule, deductive refers to applying the rule (Shye, 1988). Inductive reasoning allows people to detect rules by identifying the regularities and irregularities that exist (Klauer, Willmes, & Phye, 2002). Klauer and colleagues also distinguished inductive reasoning from inductive inferring. Inductive reasoning allows the detection of broad generalisations or regularities whereas inductive inference extends beyond generalisations to the larger scheme of things by making assertions about a non-observable universe of objects. For example, a person given a set of toys may infer that the toys are made of wood. Such a generalisation is termed inductive reasoning. However, the person may incorrectly conclude that all toys are made of wood. This would be an inductive inference. Spearman (1923) found a close relationship between inductive reasoning and intelligence. People with inductive reasoning skills may be more intelligent than people lacking such skills. Similarly, Thurstone (1938) held that intelligence was made up of multiple factors, one of them being reasoning. He conceptualised reasoning as comprising inductive and deductive tests. Inductive reasoning may occur using either a top-down approach (Nisbett, 1993) or a bottom-up processing approach (Sternberg & Gardner, 1983).

Overview of the study

The purpose of this study was two-fold. First, this study examined whether people accurately inferred legitimate-illegitimate scarcity rules after being told that some ads use scarcity techniques illegitimately. Second, this study investigated whether accurate rule induction instilled resistance to persuasion and perception of greater manipulative intent for illegitimate scarcity ads.

Our illegitimate-legitimate scarcity distinction was based on two rules. We selected these rules as they provided a clear distinction of the legitimate-illegitimate scarcity ads that could be inferred and applied easily and unambiguously. The first rule was that scarcity-based ads that deceive people into thinking a product is scarce when it is not scarce should be rejected. For instance, the large caption of an ad for an antique-looking table says that the table is from the early 1900s. However, the fine print of the ad says that the carving designs on the legs of the table were copied from the early 1900s. The second rule was whether scarcity was genuine or manufactured. Genuine scarcity was considered to be legitimate and manufactured scarcity was considered to be illegitimate. Therefore, a product that cannot be created anymore has genuine scarcity (e.g., original coins from the 1800s are considered to be genuinely scarce as they cannot be manufactured today). However, a product that the manufacturer has decided to produce in limited

quantities has manufactured scarcity since the manufacturer has deliberately chosen to produce a small quantity of the item and can always create more. An example of this would be a limited edition of an ornament that can always be mass produced if the manufacturer decides to do so. We hoped that students would be able to induce these two rules by examining exemplars of illegitimate and legitimate scarcity ads.

Participants in this study were assigned to one of three treatment conditions: (1) demonstrated vulnerability, (2) asserted vulnerability, and (3) neither demonstrated nor asserted vulnerability. In the demonstrated vulnerability condition, participants were shown two ads separately and were asked to rate how convincing they found each ad. They were then told that one of the ads used scarcity illegitimately and that they had been duped into being convinced by the ad. Next, they were shown a series of four ads and were told that two of these ads used scarcity legitimately and the other two ads used scarcity illegitimately. Following this, participants were asked to induce rules to distinguish legitimate from illegitimate scarcity ads. Participants then proceeded to rate four separate ads for persuasiveness and perceived manipulative intent.

Participants in the asserted vulnerability condition were shown the same two ads first and were told that one of these ads was using scarcity illegitimately and that they were fooled if they found the ads convincing. They were then shown four more ads, two of which used scarcity legitimately and two which used scarcity illegitimately. Participants were asked to induce a rule to distinguish legitimate from illegitimate scarcity ads. Next, they rated four separate ads for persuasiveness and manipulative intent. Participants in the neither asserted nor demonstrated vulnerability condition received the exact same information and process without any reference to whether or not they found the ads convincing.

Based on the research of Sagarin et al. (2002), we hypothesised that participants who had their vulnerability to being duped by illegitimate ads clearly demonstrated to them may be better at inferring legitimate-illegitimate scarcity rules than participants who did not have their vulnerability demonstrated. We also hypothesised that most students would be able to correctly induce legitimate-illegitimate scarcity rules after being told about illegitimate uses of scarcity in ads. Finally, we expected participants who accurately inferred the rules to demonstrate greater resistance to persuasion and stronger perception of undue manipulative intent towards ads using scarcity illegitimately than participants who did not accurately infer the rules. This is based on Sagarin et al.'s research where participants who received legitimate-illegitimate distinction rules without having to infer them showed resistance to persuasion and perceived greater manipulative intent for illegitimate ads and not legitimate ads relative to participants in the control group who did not receive the rules.

This has clear implications for training students and adults. If students and adults are able to accurately generate and apply rules to distinguish legitimate and illegitimate scarcity tactics after being informed about illegitimate persuasion tactics, this would suggest that training programs need not be very explicit. However, if students and adults are unable to generate and apply rules correctly, this suggests that explicit training programs with examples and applications may be a worthy investment.

Method

Participants

Fifty-nine undergraduate students enrolled in an introductory psychology course at Northern Illinois University participated in this study to fulfil class requirements. Ages ranged from 18 years to 22 years (M=18.74, SD=1.01).

Stimulus materials

Ten full-page colour and black and white advertisements were selected from magazines and newspapers. Six advertisements were used for the training for the rule induction task and four separate ads were rated. The training ads and rating ads were balanced to include equal numbers of legitimate and illegitimate scarcity ads. The three legitimate ads used for the training were coins from the late 1800s and early 1900s, an antique table circa 1740–1775, and the Parson-Smith house. The three illegitimate ads used for the training were a modern-day manufactured watch utilising an updated mechanical movement first designed in the 1920s, a limited edition of a Christmas Tree, and a pair of earrings whose design was copied from 1910. The two legitimate ads used for the rating were an original, un-restored portrait by painter Augustus Fuller (1815–1973) and an original bookcase from 1890. The two illegitimate ads used for the rating were Disney's limited edition DVDs and a one-day only J C Penny sale. The advertisements were selected to depict the rules of scarcity ads and to clearly fit the legitimate-illegitimate distinction for scarcity ads.

Procedure

Participants were randomly assigned to one of the three conditions and received the respective packet of materials that contained the advertisements, protocol, and rating scales. Advertisements, protocol, and rating scales were paper-based. On completion, participants were thanked, given a credit receipt and debriefing sheet, and dismissed.

Independent variables

The experiment was a 3 x 2 factorial design with three between-subjects levels of treatment (demonstrated vulnerability, asserted vulnerability, and neither demonstrated nor asserted vulnerability) and two within-subjects level of legitimacy (legitimate and illegitimate scarcity-based ads). Participants were randomly assigned to one of these three conditions.

Demonstrated vulnerability treatment. The goal of the demonstrated vulnerability treatment condition was to effectively show participants that they are susceptible to deception in ads. Participants examined an ad containing illegitimate scarcity and an ad containing legitimate scarcity and rated how convincing they found each ad on a 7-point scale ranging from not at all convincing (0), somewhat convincing (1), fairly convincing (2), convincing (3), quite convincing (4), very convincing (5), and extremely convincing (6). Participants provided the two aspects of the ad that were most influential in making this judgment. Participants' vulnerability to the ad was demonstrated by the following statement, "Take a look at your answer to the first question. Did you find the ad to be even 'somewhat convincing'? If so, then you got fooled. Illegitimate ads like this fool most people. But if we want to protect ourselves from being manipulated, we need to know what makes an ad legitimate

or illegitimate". Participants then received four ads, two of which used scarcity legitimately and two which used scarcity illegitimately. Participants were asked to inspect the ads and induce rules for discriminating between legitimate and illegitimate scarcity. The remainder of the materials applied the scarcity distinction to another four ads.

Asserted vulnerability condition. Participants were exposed to two ads, one containing legitimate scarcity and another containing illegitimate scarcity. They were told that one of the ads contained an illegitimate use of scarcity and that they were fooled if they found the ad convincing. Participants were shown four more ads, two of which used scarcity legitimately and two of which used scarcity illegitimately. Participants were asked to examine the ads and induce rules to discriminate between legitimate and illegitimate scarcity-based ads. Participants then rated another set of four ads.

Neither asserted nor demonstrated vulnerability. Participants were exposed to the same two ads as in the other conditions and were told that one of the ads contained an illegitimate use of scarcity. Participants were shown four more ads, two of which used scarcity legitimately and two used scarcity illegitimately. They were asked to induce a rule to discriminate between legitimate and illegitimate scarcity-based ads. Participants then rated another set of four ads.

Dependent variables

After inducing the rules and rating the six ads for whether they contained legitimate or illegitimate scarcity, participants then rated four more ads, two of which used scarcity illegitimately and two which used scarcity legitimately. The ratings scales were adapted from Campbell (1995). A four-item scale assessed persuasiveness of the ad and another four-item scale assessed manipulative intent. The 4-item ad persuasiveness scale consisted of two items measuring perceptions of the brand along the dimensions bad/good and low quality/high quality, and two items measuring perceptions of the ad along the dimensions bad/good and awful/nice. All items were answered on 7-point scales. Exploratory factor analyses run and the scree plot criterion for determining the number of factors to extract indicated a single factor for ad persuasiveness. As a result, we combined the four questions into a single ad persuasiveness scale.

The 4-item perception of undue manipulative intent scale consisted of the following items: "The advertiser tried to manipulate the audience in ways that I don't like", "I was annoyed by this ad because the advertiser seemed to be trying to inappropriately manage or control the consumer audience", "I didn't mind this ad; the advertiser tried to be persuasive without being excessively manipulative", and an item measuring perception of the fairness of the ad along the dimension unfair/fair. All items were answered on 7-point scales. As with ad persuasiveness, exploratory factor analyses suggested one factor, and the four questions were combined into a single manipulative intent scale.

Results

Descriptive statistics for persuasion and manipulative intent for the scarcity ads are presented in Table 1. Scores on the persuasiveness scale for legitimate scarcity rated ads were combined, as were scores for the manipulative intent scale for the rated ads, producing four composites: a) persuasiveness of legitimate scarcity ads (Cronbach's alpha = .89), b) persuasiveness of illegitimate scarcity ads

(Cronbach's alpha = .89), c) perceived manipulative intent for legitimate scarcity ads (Cronbach's alpha = .91), and d) perceived manipulative intent for illegitimate scarcity ads (Cronbach's alpha = .93). There was no problem with skewness and scores were normally distributed. There was no problem with attrition or missing values.

Table 1: Cell Means and standard deviations for persuasion and manipulative intent

	Persuasion		Manipulative Intent	
Condition	M	SD	M	SD
Legitimate Scarcity				
Demonstrated	31.20	10.35	35.55	8.85
Asserted	30.62	7.03	32.23	5.20
Neither	32.18	8.12	37.73	8.20
Illegitimate Scarcity				
Demonstrated	25.70[a]	9.42	21.36[c]	9.06
Asserted	32.54[a]	8.15	30.00[c]	10.47
Neither	29.82	4.92	29.09	9.21

Note. Means within a column with the same subscripts differ significantly from each other at $p<.05$. Higher numbers indicate greater persuasion and lower manipulative intent.

Table 2 provides the number of participants correctly inducing legitimate-illegitimate scarcity rules. Only participants who were unambiguously able to induce both rules for the legitimate-illegitimate scarcity distinction were considered to have induced the rules. No participants generated only one rule correctly. Clearly, participants appeared to have difficulty inducing legitimate-illegitimate scarcity rules. Participants in the demonstrated vulnerability condition were able to induce rules correctly relative to participants in the other two conditions.

Table 2: Number of participants correctly inducing the rule

Condition	N	Rule
Demonstrated Vulnerability	18	13
Asserted Vulnerability	22	7
Neither	19	1
Total	59	21

We ran two separate MANOVAs: the first model had treatment as the between-subjects factor and persuasion for legitimate and illegitimate scarcity as the within subject factors. The second model had treatment as the between-subjects factor and manipulative intent for illegitimate and legitimate scarcity as the within-subjects factor. The Treatment x Legitimacy interaction was significant only for manipulative intent, $F(3, 55)=4.32$, $p=.022$ but not for persuasion, $F(3, 55)=1.40$, $p=.262$. An examination of the simple effects within the Treatment x Legitimacy interaction for persuasion showed only one significant simple effect of participants in the demonstrated condition perceiving the ads with illegitimate scarcity as less persuasive compared with participants in the asserted condition $F(1, 55)=4.46$, $p=.04$.

The simple effects within the Treatment × Legitimacy interaction for manipulative intent showed that participants in the demonstrated condition considered the illegitimate ads to be more manipulative than participants in the asserted condition, $F(1, 55)=4.76$, $p=.04$. Participants in the demonstrated condition found the illegitimate scarcity-based ads to be more manipulative than participants in the neither condition, $F(1, 55)=3.52$, $p=.05$. Participants in the asserted condition found the legitimate scarcity-based ads to be more manipulative than participants in the neither condition, $F(1, 55)=3.24$, $p=.05$.

Discussion

Sagarin et al. (2002) provide participants with rules discriminating illegitimate from legitimate persuasion tactics and then examined whether or not people learned and applied these rules to an independent set of advertisements. This study examined whether participants can successfully induce and apply these rules without having the rules provided to them. This study also examined the extent of persuasiveness and perceived manipulative intent. Participants were provided with exemplars of illegitimate and legitimate uses of scarcity in ads and were told that some of the exemplars used scarcity tactics illegitimately. Participants induced legitimate-illegitimate scarcity rules and then rated another set of four ads for persuasiveness and manipulative intent.

Very few participants were able to correctly induce the rules. Participants in the demonstrated vulnerability condition who had their susceptibility to being fooled by illegitimate scarcity ads clearly shown to them were better at inducing rules than participants in the other two conditions. Consistent with Sagarin et al.'s (2002) research, participants in the demonstrated vulnerability condition showed less persuasiveness and perceived greater manipulative intent for illegitimate scarcity ads compared to participants in the other conditions. It seems that participants were not able to infer complete and accurate rules for the legitimate-illegitimate scarcity distinction but were able to correctly shun persuasion and detect manipulative intent for illegitimate ads. These findings suggest that college students may need explicit training on the distinction between legitimate and illegitimate scarcity, as well as demonstrations of their vulnerability to unscrupulous persuasion tactics to help them avoid the perception of being immune to deceptive advertising.

There are some clear limitations to this study. Our sample size was small and restricted to college students. We also used a set of ads that clearly fit the legitimate-illegitimate distinction and met the two rules for legitimate scarcity use. Most advertisements are complicated and use a variety of persuasion tactics, thus rendering it different to consistently and accurately infer and apply rules to discriminate between legitimate and illegitimate advertising tactics. Future research could consider how rule induction differs across age groups and advertising media (print ads versus online ads). Nonetheless, our study lends support to the illusion of invulnerability of people believing themselves to be relatively immune from the misfortunes and gullibility that befall their peers. It seems that clearly and forcefully providing evidence to people of their susceptibility to dishonest persuasion and manipulation may be an effective way to instil them with techniques to resist such persuasive attempts in future. It is also encouraging that although people cannot clearly identify rules for legitimate-illegitimate persuasion tactics, they are able to accurately decide when to be persuaded.

References

Campbell, M. C. (1995). When attention-getting advertising tactics elicit consumer inferences of manipulative intent: The importance of balancing benefits and investments. *Journal of Consumer Psychology, 4*, 225–254.

Christensen, L. (1977). The negative subject: Myth, reality, or a prior experimental experience effect? *Journal of Personality and Social Psychology, 35*, 392–400.

Cialdini, R.B. (2001). *Influence: Science and Practice* (4th ed.). Boston: Allyn & Bacon.

Cosmides, L., & Tooby, J. (1992). Cognitive adaptations for social exchange. In J. H. Barkow, L. Cosmides & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 163–228). New York: Oxford University Press.

Cohen, G. L., Aronson, J., & Steele, C. M. (2000). When beliefs yield to evidence: Reducing biased evaluation by affirming the self. *Personality and Social Psychology Bulletin, 26,* 1151–1164.

Jones, E. E., & Wortman, C. (1973). *Ingratiation: An attributional approach*. Morristown, NJ: General Learning Corporation.

Klauer, K. J., Willmes, K., & Phye, G. D. (2002). Inducing inductive reasoning: Does it transfer to fluid intelligence? *Contemporary Educational Psychology, 27,* 1–25.

Nisbett, R. E. (1993). *Rules for reasoning.* Hillsdale, NJ: Erlbaum.

Polya, G. (1945/1973). *How to solve it* (2nd ed.). New York: Doubleday.

Sagarin, B. J., & Cialdini, R. B. (2004). Creating critical consumers: Motivating receptivity by teaching resistance. In Eric S Knowles & Jay A Linn (Eds.), *Resistance and Persuasion.* (pp. 259–282), Mahwah, NJ, US: Lawrence Erlbaum Associates.

Sagarin, B. J., Cialdini, R. B., Rice, W. E., & Serna, S. B. (2002). Dispelling the illusion of invulnerability: The motivations and mechanisms of resistance to persuasion. *Journal of Personality and Social Psychology, 83*, 526–541.

Shye, S. (1988). Inductive and deductive reasoning: A structural reanalysis of ability tests. *Journal of Applied Psychology, 73,* 308–311.

Spearman, C. (1923). *The nature of intelligence and the principles of cognition.* London: Macmillan.

Sternberg, R. J., & Gardner, M. (1983). Unities in inductive reasoning. *Journal of Experimental Psychology: General, 112*, 80–116.

Thurstone, L. L. (1938). Primary mental abilities. *Psychometric Monographs, No. 1*.