

The Effect of Suggestive Cues in Influencing Human Perception

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ABSTRACT: Suggestion is the medium through information of a perspective is shared. The act suggestion, conveyed through verbal, visual, or sensory cues, alters an individual's behaviour or actions, defined as social influence. This research focuses on how social influence and suggestive cues shape human perception and investigates how suggestive verbal input influence perception of visual anomalies in images. Participants were divided in two groups and were shown images and questioned, with one of the groups receiving a verbal suggestive cue. The results suggest that suggestive cues influenced perception in certain participants; however, patterns across gender and age could not be conclusively established, likely due to the limited sample size. Psychological reactance was also observed, with several participants resisting the cues or forming interpretations contrary to the suggestion. Locus of control (LOC)—the belief regarding the extent to which outcomes are determined by one's own actions versus external forces—has been linked to individual differences in suggestibility. These preliminary findings suggest that suggestion can influence visual perception, but individual differences and task context may change this effect. The research findings contribute to understanding of how humans process suggestion and highlight the complexity of perception as shaped by social influence.

KEYWORDS: Human Perception, Locus of Control, Social influence, Suggestive clues, Visual anomalies

1. INTRODUCTION

Suggestion, in psychology, is the process of leading a person to respond uncritically, as in belief or action. The mode of suggestion, while usually verbal, may be visual or may involve any other sense [1]. The effect of suggestibility depends on various factors such as age, experience, perception, belief systems and source of suggestion [9].

Social influence occurs when an individual's thoughts, feelings, and actions are affected by other people. It is a fundamental part of relations both within group and between groups. Social influence takes many different forms, and can be seen in processes of conformity, socialization, peer pressure, obedience, leadership, persuasion, minority influence, and social change [2]. At each level, social influence taps into the human fundamental need to belong, a need famously highlighted by psychologist Abraham Maslow in his hierarchy of needs. Studies discovered that this need of this often drives people to seek validation even at the expense of their values [6].

During forensic interviews, some witnesses may be prone to suggestibility to indicative information, believing it as memory. Being unable to withstand suggestion implies a risk for erroneous and false testimonies, with potentially far-reaching consequences in a legal process. Studies showed that yielding to suggestions in a forensic interview, even when being warned against doing so, altered eyewitness memory in a follow-up interview, making the testimony less accurate [7]. Similarly, when a media message is repeated across platforms, it becomes easier to process information, leading to mistaking familiarity for truth. This illusion strengthens beliefs regardless of actual accuracy [9].

The belief of an individual on what is within their control and what isn't is known as the locus of control (LOC) [17]. In recent studies, LOC has been correlated with how suggestive an individual might be [14]. People with an internal locus of control tend to believe that the events of success or failure that occur to them are greatly influenced by their own abilities, actions, or mistakes. Whereas, individuals with an external locus of control will be more likely to feel that other force such as luck, environmental factors, or the actions of others are more responsible for the events that occur in their life [17, 18]. People with the belief system of an external locus of control are more sensitive to cues and contingencies in social reinforcement and have shown greater verbal conditioning than individuals with internal locus of control. What makes individuals more or less susceptible to such influences may play the role of the individual's locus of control [16].

2. LITERATURE REVIEW

Social influence is the process by which an individual’s attitudes, beliefs or behaviour are modified by the presence or action of others [13]. A great example of social influence in daily human behaviour would be The Baader-Meinhof phenomenon. It describes how repeated exposure to a certain idea or image heightens one’s awareness of it, eventually leading to selective attention and interpretation that confirms its perception [3].

When the human mind is exposed to new information, a cognitive loop can emerge shaped by different mental biases. First, The Baader-Meinhof phenomenon causes people to suddenly notice the new concept more often in their surroundings, giving the impression that its occurrence has increased. This perception is strengthened by selection bias, where individuals unconsciously pay more attention to instances that support the new idea while disregarding instances where it is absent. Over time, this leads to confirmation bias, where they begin expecting to see the pattern repeatedly. When they do, it reinforces their belief that the pattern is common and significant even if it’s not objectively more frequent. This self-reinforcement cycle shapes perception and can change how individuals interpret reality [3, 4].

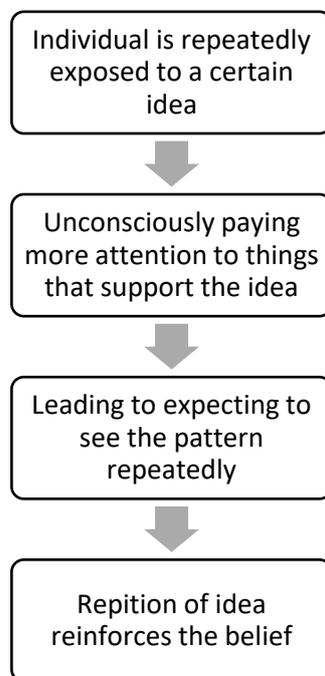


Fig 1.

Conformity, the process whereby people change their beliefs, attitudes, actions, or perceptions to more closely match those held by groups to which they belong or want to belong or by groups whose approval they desire [5]. It arises a change in a person’s behaviour or opinion as a result of a real or imagined pressure from a person or group of people [13].

Solomon Asch's conformity experiment was designed to investigate how social pressure from a majority group could influence an individual to conform. This study demonstrated the powerful influence of group pressure on individual judgment, even in clear-cut situations. It highlighted the role of normative social influence, where individuals conform answers to be accepted by the group [10]. The human need for affiliation and acceptance in social groups drives normative influence. It can cause individuals to adopt behaviours, attitudes, or values that they might not personally hold to fit in or to avoid disapproval from the group [11].

Informational social influence refers to the tendency to conform to what others actions or saying because the individual perceives them as a source of accurate information, particularly in ambiguous or uncertain situations. This occurs when a person conforms an idea because they have the desire to be right and seek to others who they believe may have more information. Informational social influence is where a person conforms because they have the desire to be right and look to others who they believe may have more information [11]. This is also known as social proof, which might affirm our decisions [12].

According to the findings, from the Journal of Experimental Psychology: Human Perception and Performance, a short verbal statement can alter a person's visual perception, especially if they are more susceptible to social influence [15]. Verbal hints can bias perceptual decision-making, even when the information they provide is false [14].

An experiment by Anlló et al. (2022) demonstrated that brief, false verbal cues can significantly bias perceptual decisions, particularly among individuals with high social suggestibility. Participants exposed to these cues reported seeing a suggested dominant colour more often and expressed greater confidence even when the cue was incorrect, highlighting how suggestion can distort perceptual judgments in ambiguous situations. This finding aligns with the current study's design, which primes participants with social suggestions before viewing ambiguous images to investigate how expectation shapes visual interpretation [15].

3. MATERIALS AND METHODS

This exploratory study adopts a quantitative experimental design to analyse the effect of suggestive cues on participants' perception of anomalies. This study involved 26 number of total participants, 42.3% being females and 57.6 % being males. Overall, participants' ages were approximately balanced across the study (50% aged above 30 and under). When divided into groups (Group A and B), slight imbalances were observed. Sex and gender were recorded as participant characteristics. Although gender distribution was slightly uneven in Group B, analysis was conducted with awareness of potential gender effects. While age, gender, and LOC were recorded, the primary analysis focused on group differences in anomaly detection.

The independent variable in this study was the presence of a suggestive cue, with participants randomly assigned to Group A, being the neutral group with no cues or Group B, with suggestive cues given. The dependent variable was the participant's suggestibility response, recorded as binary outcomes (yes/no) to indicate whether there was any influence by the cue. Additional participant responses were quantified numerically to provide further insight into the participants' suggestibility. Participant variables such as gender, age, and type of LOC were recorded but not manipulated, as these characteristics naturally occur and may influence the effect of suggestion.

A. Materials and Procedure

A consent form was provided to all participants to ensure informed participation and brief explanation about the research study. The participants were informed about the nature of the research study, procedures, voluntary participation and the right to withdraw at any point without penalty. The consent form also summarized the confidentiality of the data and the procedure of the debrief to avoid confusion. The full consent form is provided in appendix A.

Participants of both Group A (neutral) and Group B (experimental) were shown two images both with different verbal cues and instructions. Image 1 and 2 are provided in appendix B and C. Participants were individually approached and were verbally asked questions. Group A was instructed to observe the image and respond accordingly with no suggestive cues given for both the images. Before revealing the first image, Group B was told that individuals who had viewed the image felt it was scary or unusual about the image, then showed the image and asked what they observed. After this, both the groups were asked the same question to identify locus of control- "if you got fired from your job tomorrow, what could be the reason according to you?" This question is designed to assess the participant's locus of control. If the participant attributes the outcome to external factors like company-related issues, market conditions, it is categorized as External Locus of Control (ELOC). If the participant attributes the outcome to internal factors such as their own mistakes or lack of skill, it is categorized as Internal Locus of Control (ILOC). The open-ended format encourages participants to think immediately and reflectively about possible causes rather than responding to an obvious or leading question. The debriefing of the participants included a clarified explanation of the research study mentioning the deception for participants of Group B. It concluded with clarifying any doubts from the participants and follow up questions on the images.

Responses were recorded as 'Yes' or 'No,' depending on whether the participant reported seeing the suggested anomaly. Additional comments from participants were also noted where relevant. The responses were tabulated in a spreadsheet for further analysis.

B. Data Analysis

The responses collected were analysed using basic descriptive statistics. The number of "yes" and "no" responses for each question was counted, and the frequencies were converted into percentages to compare across participants and the groups. Additional observations relevant to their observations provided by participants were also noted and summarized. No advanced statistical software was used and calculations were carried out manually to identify overall patterns and trends in suggestibility.

4. RESULTS

The findings from the less controllable variable being the type of LOC, were roughly balanced out in the total number of participants- 57.6% Internal Locus of Control (ILOC) and 42.3% External Locus of Control (ELOC). Group A consisted of 6 participants with ILOC and 8 with ELOC. In Group B, 9 individuals with ILOC and 4 with ELOC. Age distribution was done by categorizing it under 30 or 30 and above. In Group A, a total of 9 participants categorized in above 30 and rest in under 30 consisting of 5 participants. For Group B, 6 participants were aged above 30 and 7 under 30. Group A consisted of 8 males and 6 females, and Group B consisted of 6 males and 5 females.

A. Anomaly Analysis in Image 1 for Group A and B

Group A which received no suggestive cues and were kept neutral, amongst the total participants in Group A, 76.9% (n=10) reported seeing an anomaly in image 1. An equal number of male and female participants (5 each) reported seeing an anomaly. Out of total participants reporting anomaly, 60% (n=6) were 30 or above and 40% (n=4) were under the age of 30. Moreover, there was an equal number of participants with ILOC and ELOC.

In image 1 for Group B where a suggestive cue was given, out of the total number of participants under Group B, 84.6% (n=11) saw an anomaly. Anything reported as “scary”, “unusual” or “abnormal creatures” are considered as anomaly for more clarity in analysing data. Out of the 11 participants who report seeing an anomaly, 45.4% (n=5) were females and the rest being 54.5% (n=6) were males. Participants aged under 30 (46.1%) were more likely to spot an anomaly compared to participants aged over 30 (38.4%). Additionally, 36.3% (n=4) participants were ELOC and 63.6% (n=7) of participants were ILOC who spotted anomalies in image 1.

B. Anomaly Analysis in Image 2 for Group A and B

Group A participants who were asked to report their observations informed about no anomaly in image 2. However, 30.7% (n=4) mentioned the presence on an anomaly in image 2. Out of which all were male, 50% ELOC AND 50% ILOC. These participants reported saying the image is unusual or abnormal.

C. Comparing Results

1. Comparison of Responses in Image 1

In Group A, 76.9% of participants observed anomalies in the image 1. Furthermore, 84.6% of participants reported anomalies in image 1. This indicates that participants of Group B who had received a suggestive cue were more likely to spot anomalies compared to Group A. This is demonstrated in fig 2.

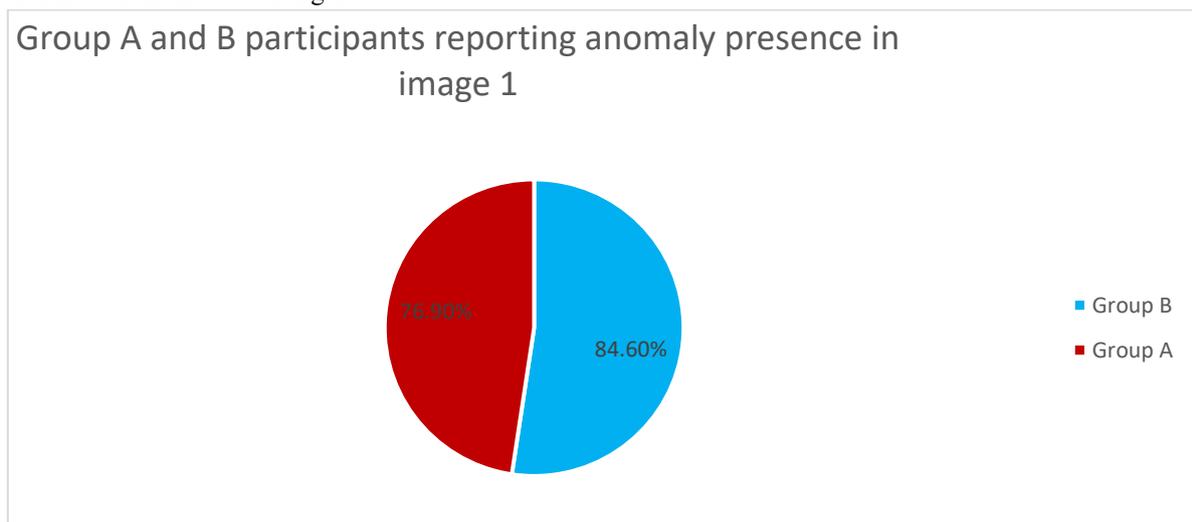


Fig 2.

There were no participants of Group A reporting spotting anomalies in image 2. In contradictory, 30.7% of participants of Group B claimed of the presence of anomalies in the image 2. This reveals that the suggestive input given to Group B participants influenced their responses, leading them to report the presence of an anomaly. The findings also illustrate males were more likely to be influenced than females.



The findings highlight that participants in Group A, who were asked to report solely from their observations of both images, tended to provide their own interpretations for Image 1, with many responses differing from what is typically expected. In contrast, the Group B, which was exposed to suggestion, demonstrated less likelihood of answers from what is typically expected. This underscores that Group B exhibited psychological reactance, defined as the motivation to regain freedom when it is perceived to be threatened, leading individuals to resist social influence [19]. In this context, participants may have unconsciously ignored the suggestive cues. Alternatively, this pattern could indicate that some individuals are simply less susceptible to influence than others. During debriefing, a few participants reported that the verbal cues prompted them to search for anomalies in the images. The different responses of all the participants from Group A and B are compared in the graph below (fig 3.).

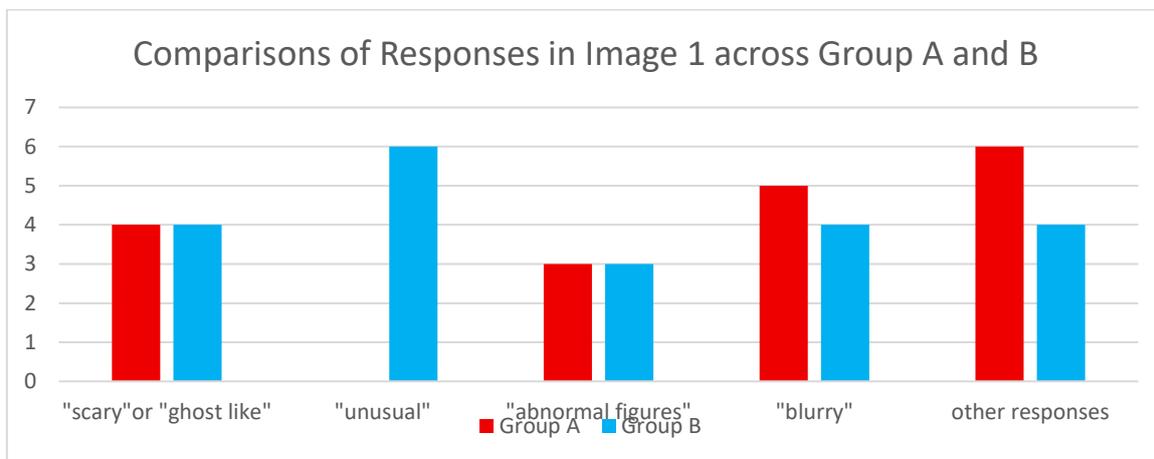


Fig 3.

Note: Responses shown in the graph only took account of participants spotting anomaly. Responses were coded into more than one category when participants used multiple descriptors (e.g., a participant describing the image as both “scary” and “blurry”).

2. Comparison of Responses in Image 2

Group A participants reported no anomaly in image 2. However, 30.7% of Group B participants claimed the presence of anomaly in image 2. This demonstrates the work of social influence upon few of the participants. The data has been organized in a graph below (fig 4).

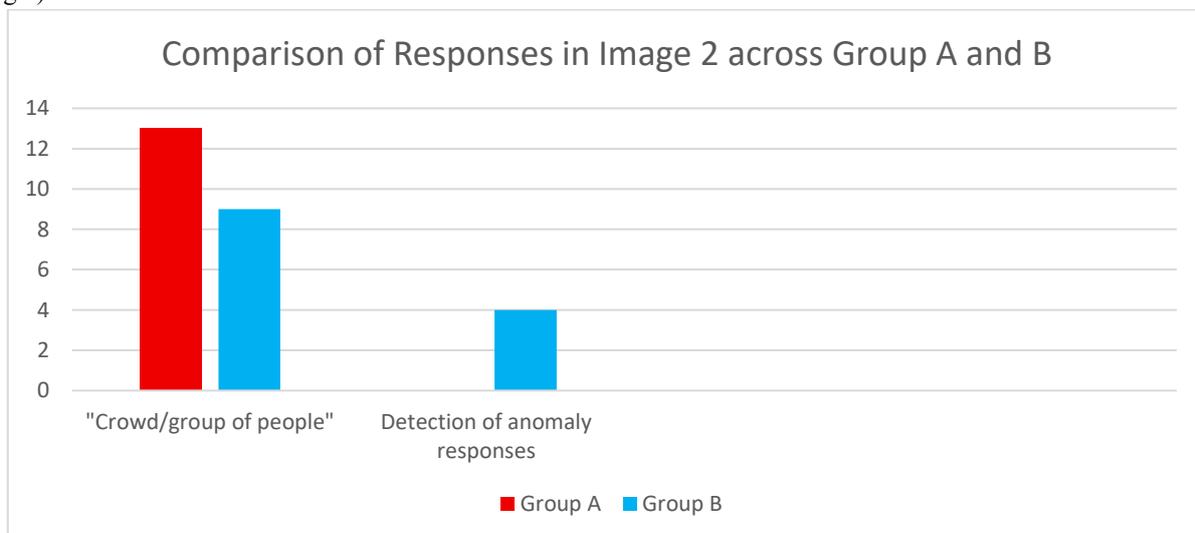


Fig 4.

Note: Responses shown in the graph (fig 4) represent the total number of participants in each group, regardless of whether they reported spotting an anomaly.



5. ETHICAL CONSIDERATIONS

This study is exploratory in nature, aiming to identify patterns in participants' responses to suggestive cues rather than test a formal hypothesis.

The participants were informed about the purpose of the study and procedure was only followed after their signature on the consent form. No names or personal details were revealed at any point and were kept private. Participants were not forced to take part in the research study and were free to refuse. They had the right to withdraw at any time without penalty and this was clearly mentioned in the consent form. All participants went through debriefing of the study and were explained about the withheld purpose of the research. To ensure unbiased responses, participants were not fully informed of the specific research aims prior to data collection. This limited form of deception was used solely to prevent response bias. The study design therefore minimized risk and maintained adherence to ethical research principles.

This study was conducted without formal review by an institutional review board. This research study is researcher-approved. All procedures ensured that ethical guidelines, including informed consent, confidentiality, and voluntary participation, were strictly followed.

6. DISCUSSION

In research studies by Cook (1973) and Shrivastav (2018) reported that individuals with an external locus of control were generally more susceptible to suggestion, particularly under sensory manipulation. In contrast, the present exploratory study observed a more balanced pattern, with internal and external LOC participants showing anomalies at relatively similar rates. This difference may be due to the small sample size, the nature of the task (visual anomaly detection vs. sensory manipulation), or uncontrolled contextual factors. Still, the difference highlights the complexity of the relationship between LOC and suggestibility, and suggests that future large-scale studies should clarify whether certain task types magnify the role of LOC more than others.

Participants in Group B, who received suggestive cues, were less likely to report anomalies for Image 2, indicating possible psychological reactance, whereas few participants did report anomalies for Image 1, showing that cues can influence perception under certain conditions. Image 1 where the image wasn't necessarily a neutral one, participants of Group B tend to resist labelling the image as "scary" or other such responses. Instead, choosing the word preference of "unusual" to appear vague about their observation. In contrast, due to no verbal cue was received by Group A, answers were more likely to be creative. For image 2 which was a neutral image (due to no participants from the control group mentioned anomaly), Group A participants did not report anomaly whereas few participants of Group B did mention the presence of anomaly. LOC played a neutral role across groups in spotting anomaly.

This underscores the play of psychology reactance from Group B participants with their responses for image 1 and how social influence may have altered the answers for few of the Group B participants with LOC being a neutral factor in influence of perception. These results contribute to how suggestive cues can affect perception and possibly have an effect in daily media and information consumption.

As an exploratory study with a small sample, these findings should be interpreted with caution. While the distribution across variable subgroups was largely balanced, the limited sample size and exploratory nature of the study restrict the generalizability of the results.

7. CONCLUSION

The findings of this portrays that suggestive cues influenced perception of participants on anomalies, with some participants demonstrating resistance, likely due to psychological reactance. These findings highlight the complex interplay between external suggestion and individual judgment, suggesting that perception can be influenced but not uniformly across all individuals. The study was conducted with a small sample size, limits how far the findings can be applied to the larger population. As an exploratory study, the design focused on identifying patterns rather than testing specific hypotheses, which limits statistical accuracy.

Although participant distribution was largely balanced, some subgroup categories were unequal, which could have influenced comparisons. The study also did not undergo formal institutional ethical review, though ethical principles were followed throughout the study. The question used to classify participants by locus of control may not fully reflect their true belief system, as responses could be influenced by situational factors such as their current job performance or personal experiences, rather than stable personality traits.

These findings contribute to our understanding of how humans process suggestion and highlight the complexity of perception. Ultimately, the study demonstrates the subtle ways in which perception can be shaped by both external cues and individual beliefs.

8. APPENDIX A: CONSENT FORM

Consent Form

You are invited to participate in a **psychology experiment** investigating **aspects of visual perception and how individuals interpret images**. During this study, you will be shown a series of images and asked to report what you see or how you interpret them. Your participation is entirely **voluntary**, and you have the **right to withdraw** at any point during the experiment without any penalty. All of your responses will be recorded and kept **strictly confidential and anonymous**, used solely for research purposes. We anticipate no psychological harm from your participation. After you have completed the experiment, you will receive a full debriefing by the end of the day where the **complete purpose of the study will be explained**, and you will have the opportunity to ask questions and **withdraw your data** if you wish. It is strongly advised to keep the information given in the debriefing and your analysis of the experiment **deeply confidential and not to be discussed with others**.

Statement of Consent

"I have read the information provided above and understand the nature of this study. I understand that my participation is voluntary and that I may withdraw at any time. I also understand that my data will be kept confidential and that I have the right to withdraw my data after the full debriefing. I consent to participate in this research study."

Participant's Name: _____

Participant's Signature: _____

Date: _____

9. Appendix B: Image 1



Image retrieved from Pinterest. <https://fr.pinterest.com/pin/7177680648490322/>

10. Appendix C: Image 2



"Facial Recognition Technology and an Individual's Right to Privacy," by M. Stearns, 2014, <https://www.michaelstearnsmd.com/198/>. Copyright 2014 by Michael Stearns.



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