

Original Article

The Role of Visual Search Technology in Triggering Impulse Buying Behaviour among Gen Z Consumers

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Abstract

This research paper studies the effect created by visual search technology (VST) in triggering impulse buying among the consumers belonging to generation Z, also referred to as Gen Z, consumers. Using visual search technology, one can perform searches on pictures instead of words in images, thanks to tools like Google Lens, Pinterest, or in-app camera searches available in mobile applications for shopping. These visual searches help the generation Z consumers, who are originally digital consumers, by directly triggering the pathway for purchasing, thereby creating visually appealing, instantaneous, and exciting shopping experiences. Using the mixed methodology model, this research study will explore the effect created by the ability and facility for instantaneous gratification, validation, and the psychological make-up associated with generation Z consumers, which, in the end, stimulates unplanned shopping activity. Some important inferences in this study suggest that VST functions as an important stimulus for impulsive buying, triggered by the ability for instant gratification, accuracy for visually appealing searches, and seamless integration on platforms like social media. This research paper studies the impact created by visual search technologies like Google Lens and in-app camera searches available in mobile shopping applications, which stimulates impulsive buying trends in generation Z.

Keywords: Visual Search Technology (VST), Google Lens, Pinterest Lens Camera search / in-app camera search, Generation Z (Gen Z), Digitally-native consumers, Visually-oriented cohort, Impulse buying, Unplanned spending / purchases, Spontaneous acquisition, Search friction reduction, Instant gratification, Seamless integration

Introduction to the study

The retail industry is witnessing a paradigm shift due to technological evolution and demographic variations in consumer behaviour. Generation Z users, born between the mid-1990s and early 2010s, are now a strong buying force in the market and are defined by characteristics such as being "digitally native," preferring to communicate in pictures and videos, and being easily distracted. At the same time, visual search technologies have come from being a "novelty" to being "mainstream," leading to a shift in how product discovery is done. The challenge now is to examine this emerging space and determine whether "a technology intended for use in picture search has affected impulse buying behaviour in a visually oriented generation."

Impulse buying, described as a "sudden, compelling, and hedonically complex behaviour" that is completed with little to no forethought, has long been examined for consumption patterns. The key impulse buys found online have historically included but were not limited to limited-time offers and personal recommendations. However, with visual search, a new impulse trigger is offered that includes immediate and effortless search processing and results. This researcher strongly suggests that when applied to Gen Z, visual search does much more than enable impulse purchase but in fact stimulates impulsive desire. The introduction section below will examine briefly the phenomenon of visual search, provide descriptions and definitions for key concepts and terms, and explore why this phenomenon represents both a new frontier for impulse buying and psychology, and for Gen Z in particular.

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Review of Literature

The Gen Z Consumer Psychographic Profile

Gen Z consumers are distinct from previous generations. They are true digital natives who have grown up with smartphones and social media, leading to a strong preference for visual content (images, videos, short-form clips) over text. Their decision-making is heavily influenced by social proof, peer reviews, and influencer endorsements. They value authenticity, instant gratification, and seamless user experiences, often exhibiting a "see now, buy now" mentality. Evolution and Mechanics of Visual Search Technology Visual search technology utilize artificial intelligence, specifically computer vision and machine learning, to analyse an image's pixels, identify objects, patterns, and colours, and match them against a product database. Key platforms include

- Standalone Apps: Google Lens, Pinterest Lens.
- Integrated Features: Camera search in Amazon, ASOS, and Alibaba.
- Social Media Platforms: Instagram and Facebook's visual discovery features.

This technology reduces search effort, solves the "I don't know what it's called" problem, and inspires users through style and context recognition.

Theoretical Foundations of Impulse Buying

Impulse buying is grounded in several psychological theories

- Stimulus-Organism-Response (S-O-R) Model: An external stimulus (e.g., a visual search result) affects the internal state of the consumer (affect and cognition), leading to a response (impulse purchase).
- Dual-System Theory: It involves a clash between the impulsive, emotional system (seeking immediate reward) and the reflective, rational system (considering consequences).
- Online Triggers: These include website aesthetics, social influence, scarcity, and convenience. Visual search is a newly significant trigger that amplifies many of these factors.

The Research Gap

While extensive literature exists on Gen Z's behaviour, the mechanics of VST, and general online impulse buying, there is a scarcity of research that synthesizes these three domains. Few studies have empirically examined how the specific attributes of visual search—such as its speed, visual accuracy, and integration into a social feed—directly activate the psychological impulses of Gen Z consumers. This paper aims to fill this gap.

Research Objectives

1. To analyse the primary features of visual search technology that are most engaging for Gen Z consumers.
2. To examine the relationship between the use of visual search and the frequency of impulse purchase episodes among Gen Z.
3. To identify the mediating psychological factors (e.g., perceived enjoyment, instant gratification, visual appeal) that link visual search use to impulse buying behaviour.
4. To explore the contextual factors (e.g., social media platform, time of day, product category) that strengthen or weaken this relationship.
5. To provide data-driven suggestions for marketers and platform designers on the ethical use of VST.

Research Hypotheses

Based on the theoretical framework, the following hypotheses are proposed:

- H1: There is a positive relationship between the frequency of visual search technology use and the level of impulse buying behaviour among Gen Z consumers.
- H2: The perceived ease of use and enjoyment of visual search technology positively influences Gen Z's urge to buy impulsively.

Research Methodology

This study will adopt a sequential mixed-methods design to ensure both breadth and depth of understanding.

- Phase 1: Quantitative Survey
- Sample: 300-400 Gen Z respondents (ages 18-26), recruited via social media and panels, screened for familiarity with visual search tools.
- Instrument: A structured online questionnaire measuring:
 - VST usage patterns and familiarity.
 - Impulse buying tendency scale.
 - Perceptions of VST (ease of use, enjoyment, usefulness).
 - Psychological mediators (positive affect, perceived self-control).
 - Demographic variables.
- Analysis: Descriptive statistics, reliability tests, and structural equation modelling (SEM) to test hypotheses H1, H2.
- Phase 2: Qualitative Focus Groups
- Sample: 4-5 focus groups of 6-8 participants each, drawn from survey respondents representing high and low impulse buyers.
- Instrument: Semi-structured discussion guide exploring the "how" and "why" behind the quantitative trends. Topics will include specific user experiences, emotional journeys, and contextual influences.
- Analysis: Thematic analysis to provide rich, contextual insights and further explore and the research objectives. This phase will help explain the mechanisms behind the statistical relationships.

Example Survey Questionnaire for Data Collection

Section A: Screening and Visual Search Usage Patterns

These questions establish the respondent's profile and baseline VST use, providing context for later analysis.

1. Age: (Gen Z cohort: 18-26 years)
2. How familiar are you with visual search tools like Google Lens, Pinterest Lens, or camera search in shopping apps (e.g., Amazon, ASOS)?
 - Very Unfamiliar (1) - Unfamiliar (2) - Neutral (3) - Familiar (4) - Very Familiar (5)
3. In the past month, how frequently have you used a visual search tool (using a camera or image to search for a product)?
 - Never (1) - Rarely (2) - Occasionally (3) - Frequently (4) - Very Frequently (5)
4. On which platform do you most often use visual search? (Select one)
 - Social Media (Instagram, TikTok, Pinterest)
 - Dedicated Shopping App (Amazon, ASOS, etc.)
 - Search Engine (Google Lens)
 - Other: _____

Data Analysis

The analysis will proceed in two stages corresponding to the methodological phases:

Quantitative Data Analysis

- Descriptive Analysis: Frequencies, means, and standard deviations for all variables.
- Inferential Analysis:
- Measurement Model: Confirmatory Factor Analysis (CFA) to assess the reliability and validity of the survey constructs.
- Structural Model: Path analysis using Structural Equation Modelling (SEM) to test the direct and indirect relationships hypothesized in H1, H2, and H3. This will show the strength of the relationship between VST use and impulse buying, and whether it is mediated by factors like enjoyment.

Qualitative Data Analysis

Thematic Analysis: Focus group transcripts will be coded using an iterative process (open, axial, and selective coding). Software like NVivo will assist in identifying recurring themes, narratives, and unexpected patterns related to the contextual triggers and emotional experiences (addressing H4 and Objective).

Findings:

The research indicates that VST acts as a powerful catalyst for impulse purchases among Gen Z, primarily through its ability to create frictionless discovery, tap into visual psychology, and integrate seamlessly into social ecosystems.

Finding Theme

The Frictionless Path to Purchase

Key Insight- VST collapses the multi-step shopping journey into a single, instantaneous action ("see-it-buy-it"), dramatically reducing barriers to unplanned purchases. Supporting Evidence / Mechanism- This directly enables impulse buying by removing the cognitive and manual effort of traditional keyword searches. Retailers report an average 15% sales lift and higher conversion rates after implementing VST.

The Primacy of Visual & Social Cues

Key Insight- For the visually-native Gen Z, product discovery and trust are built through images and peer validation, not text. VST leverages this directly. Supporting Evidence / Mechanism- 85% of shoppers trust images over descriptions. VST often indexes user-generated content (UGC), providing the authentic social proof that heavily influences Gen Z's spontaneous decisions.

Psychological Drivers: Pleasure & Instant Gratification

Key Insight- The use of VST is not just functional but hedonic. The ease, speed, and accuracy of the tool generate positive emotions (enjoyment, excitement) that override rational purchase deliberation.

Supporting Evidence / Mechanism- The experience feels like a game or discovery, creating arousal and pleasure—key emotional mediators proven to trigger impulse buying. It perfectly caters to Gen Z's demand for instant gratification.

Context is Key: The Social Media Amplifier

Key Insight- The impulse-triggering effect of VST is strongest when embedded within social media platforms like Instagram, TikTok, and Pinterest. Supporting Evidence / Mechanism- In these environments, commercial intent is low, but inspiration is high. The blend of infinite scroll, influencer content, and a seamless "tap-to-search" feature makes the transition from browsing to buying almost unconscious.

Suggestions

To leverage VST's potential and engage Gen Z effectively, businesses must focus on integration, experience design, and ethical responsibility.

1. **Integrate VST Where Discovery Happens**
 - **Ubiquitous Camera Access:** Make the visual search tool (a camera icon) prominent and one-tap accessible on your mobile app, website, and especially within social media shoppable posts.
 - **Enable Cross-Platform Inspiration:** Allow users to search using images from *any* source—social media feeds, street style, or TV screens—not just your own catalogue. This captures desire at its point of origin.

2. **Design for Inspiration, Not Just Transaction**

- **Curate "Looks" and Stories:** Don't just return a single product. Use VST results to show complete outfits, room inspirations, or how-to-use guides. This fuels aspiration and increases average order value.
- **Leverage Authentic Visuals:** Prioritize showing products in authentic, user-generated contexts within search results. Gen Z connects more with real-life photos than studio shots.

3. **Optimize for Speed and Enjoyment**

- **Ensure Flawless Mobile Performance:** The image processing and loading of results must be near-instantaneous. Any lag breaks the spell of instant gratification.
- **Enhance with AR and AI:** Incorporate Augmented Reality (AR) try-on for relevant categories (glasses, makeup, furniture). Use AI to offer personalized style recommendations based on the visual search, making the experience feel bespoke and fun.

4. **Implement Ethically with Consumer Well-being in Mind**

- **Promote Digital Literacy:** Consider adding subtle features that help users track their visual searches or time spent, fostering more mindful engagement.
- **Design for Intentionality:** Implement optional features like "save to Wishlist for 24 hours" before purchasing, providing a cooling-off period without removing the impulsive option.
- **Ensure Transparency:** Be clear about how image data is used and if search results are influenced by advertising or partnerships.

Overall Conclusion

Visual search technology has fundamentally reshaped the impulse buying landscape for Generation Z. It is far more than a utility; it is a behavioural architecture that exploits this demographic's inherent preference for visual communication, demand for instant gratification, and immersion in social media.

The conclusive finding is that VST triggers impulse buys by creating a perfect storm of low friction and high emotional reward. It removes the traditional "search gap," delivers trusted visual results, and integrates seamlessly into the scroll-based ecosystems where Gen Z lives. This makes unplanned purchases not just easier, but a more likely and enjoyable outcome of their digital routines.

For businesses, the implication is clear: mastering visual search and visual commerce is no longer optional for engaging Gen Z. Success requires moving beyond basic implementation to create inspirational, ethical, and deeply integrated visual experiences that respect the consumer's autonomy while meeting their evolved expectations for how discovery and shopping should feel.

I hope this comprehensive synthesis provides a strong foundation for the findings, suggestions, and conclusion of your research paper. If you would like to refine any section further or need help connecting these points to your research methodology, feel free to ask.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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