



Audience Interpretation of AI-Driven Product Visualization and Virtual Influencers in Culinary Marketing: S-O-R and Parasocial Approaches

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Abstract

Background: Artificial intelligence has transformed how culinary products are visualized and communicated in digital marketing.

Objective: This study develops a model of audience interpretation of AI-driven product visualization and virtual influencers in culinary digital marketing by integrating the Stimulus-Organism-Response (S-O-R) framework and Parasocial Interaction Theory.

Methods: An interpretive qualitative approach with a phenomenological design was applied. Data were obtained from 12 informants: 10 audience members aged 18–35 who had encountered AI-driven culinary content on Instagram or TikTok, one digital marketing practitioner, and one AI expert. In-depth interviews, digital observations, and documentation were analyzed using NVivo 15 through open, axial, and selective coding, thematic categorization, and triangulation.

Results: The findings show that AI-driven product visualization and virtual influencers function as stimuli that attract initial attention through aesthetic, modern, and realistic visuals. Audiences process these stimuli through cognitive, affective, and conative evaluations, including assessments of visual realism, message credibility, AI transparency, emotional appeal, uncertainty, and content authenticity. Audience responses appear in the form of engagement, information seeking, intention to try, and purchase intention, but depend on the consistency between promotional visuals and the actual products.

Conclusion: This study recommends a human-AI hybrid strategy combining AI-generated visual appeal, transparency, authentic evidence, and human involvement.

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INTRODUCTION

The development of digital marketing in the era of artificial intelligence has changed the way brands present products to audiences. Promotions no longer rely solely on text but also incorporate visuals, short videos, digital narratives, and virtual figures to capture audience attention. This change is especially noticeable in culinary products because food is a product that is often evaluated visually before it is directly consumed. The color, texture, lighting, composition, and presentation of food can shape an audience's initial perception of a product's quality, freshness, and appeal. Therefore, product visualization is an important component of digital culinary marketing (Hamrang et al., 2026; Misra et al., 2024).

Internet and social media use in Indonesia continued to expand during the period examined. DataReportal (2026) reported 230 million internet users, representing 80.5% internet penetration, and 180 million social media user identities, equivalent to 62.9% of the population (DataReportal & Social, 2025). These figures indicate that social media had become a central space for brand communication, product promotion, and audience interaction. For culinary businesses, visual platforms such as Instagram and TikTok were therefore increasingly strategic for introducing menus, developing brand images, and shaping audience responses to food products.

One application of artificial intelligence in digital marketing is AI-driven product visualization, which refers to product images created, enhanced, or refined using AI technology. In culinary marketing, this technology can produce orderly, realistic, consistent, and visually appealing food presentations while enabling businesses to create promotional content more efficiently. However, excessively polished images may prompt audiences to question whether the advertised appearance accurately represents the product they will receive.

This issue is reinforced by research examining differences in visual appeal between real food images and AI-generated food images. The study showed that participants were able to distinguish between AI-generated food images and real food images, particularly for ultra-processed foods, and tended to prefer AI-generated images when the images' origins were not disclosed. These findings are important because AI-generated food images can appear more attractive, but they also raise questions about authenticity, transparency, and congruence between promotional visuals and the actual product. In the context of the culinary business, original product visuals play an important role because they form the basis of audiences' expectations regarding the shape, portion, texture, freshness, and quality of the product they will receive (Califano & Spence, 2024).

When AI-driven product visualization presents an idealized image that is inconsistent with the actual product, audiences may perceive the communication as misleading, which can weaken brand trust and subsequent purchase intention. Existing research has not adequately explained how audiences interpret the authenticity, credibility, and congruence of AI-driven product visualization in relation to actual culinary products within social media marketing communication.



Figure 1. AI Visualization of the KFC Brand

Source: KFC (2025)

Gu et al. (2024) showed that audience acceptance of AI-generated advertisements is influenced by perceived intelligence and perceived eeriness. AI-generated advertisements may be evaluated positively when they appear intelligent, creative, and realistic; however, they may also evoke eeriness or unnaturalness when their visual characteristics conflict with audience expectations (Hamrang et al., 2026). These findings are relevant to this study because AI-driven product visualizations are not always received positively. Audiences still assess authenticity, credibility, and visual plausibility before forming responses to products. The research gap lies in the fact that existing studies continue to discuss AI advertising in general rather than specifically examining culinary products, which have sensory dimensions such as taste, aroma, texture, and freshness.

In addition to AI-driven product visualization, virtual influencers are also an important phenomenon in digital marketing. Virtual influencers are digital figures designed to appear human, embody a certain persona, and convey promotional messages through social media. These figures are attractive to brands because their images, communication styles, and promotional narratives can be consistently controlled. However, the use of virtual influencers in culinary promotion poses more complex challenges. Audiences may be attracted to digital personas, but the credibility of these figures remains questionable because virtual influencers do not have physical experiences of tasting food, perceiving textures, or evaluating product aromas (Djafarova & Davies, 2025).

Yu et al. (2024) showed that emotional displays by AI-generated virtual influencers can affect audience engagement. Emotional expressions by digital figures can shape social impressions and encourage audiences to respond to content. Thus, virtual influencers function not merely as visual elements but also as communicative figures capable of developing psychological closeness with audiences. However, that study did not examine culinary products, whose promotion depends on credible sensory experiences that virtual figures cannot directly possess.

Djafarova and Davies (2025) examined virtual influencers in the fashion and beauty industries by comparing the effects of virtual and human influencers on consumers' purchase intentions on TikTok. Their study addressed trust, expertise, the uncanny valley effect, attractiveness, content quality, and parasocial interaction. The results showed that human influencers were superior in terms of purchase intention, trust, and expertise, although virtual influencers still have potential in marketing communication. The research gap lies in the product context. Fashion and beauty products are easier to represent through shapes, colors, styles, and visual aesthetics. Culinary products are different because audiences not only perceive their appearance but also imagine their taste, aroma, texture, and the compatibility between the promotional visuals and the actual consumption experience.



Figure 2. Virtual Influencer Arbie Seo

Source: Instagram @arbie_seo (2026)

The culinary context needs to be studied specifically because social media plays an important role in shaping food audience behavior. Through a systematic review of 377 studies, it was shown that social media is related to food audience behavior through its functions as a tool, determinant, and source of information. The findings confirm that food content on social media can influence the way audiences seek information, shape attitudes, and make consumption

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decisions. However, the study by Rini et al. (2024) did not specifically discuss AI-driven product visualization and promotion through virtual influencers (Kechri et al., 2025). This gap is important because AI-driven culinary content presents different authenticity issues from those associated with conventional food content.

Ampornklinkaew (2025) showed that food-related content created by social media influencers can influence audiences' imitation intentions through source credibility, promotional content, and platform ease of use. These findings suggest that influencers play an important role in shaping audience responses to food content. However, the study focuses on human influencers and does not explain how audience responses are formed when promotional figures are AI-based virtual influencers. This gap is relevant because virtual figures have limitations in terms of real-world experience, especially when they are used to promote culinary products.

Based on previous research, this research problem can be formulated more clearly. AI-driven product visualization is capable of making products look more attractive, but it can also cast doubt on the authenticity of the visual representation. Virtual influencers are able to build digital personas and a sense of closeness with audiences, but their credibility is questionable when promoting products that demand sensory experiences. Social media has been shown to be important in food consumption behavior, but studies that combine AI-driven product visualization and virtual influencers in the digital marketing of culinary products remain underdeveloped. This condition demonstrates the need for research that explains how audiences interpret AI-driven culinary content, rather than focusing solely on how such content attracts attention or drives purchase intentions.

The main problem in this study lies in the process of audience interpretation of the gap between AI-based promotional visuals and actual culinary product experiences. Audiences may appreciate the aesthetic appearance of food while still questioning the visual authenticity, the credibility of digital figures, and the congruence between promotional content and the actual product. This issue is important because culinary products do not merely sell appearance; they also promise taste, aroma, texture, freshness, and an overall consumption experience. When culinary content is created by AI or promoted by virtual figures, audiences need to assess whether the content is trustworthy, relevant, and worthy of influencing their actions.

The Stimulus–Organism–Response, or S–O–R, approach is used to explain this process. In this study, AI-driven product visualization and virtual influencers are positioned as stimuli received by audiences through social media. Perceptions, emotions, beliefs, doubts, and judgments of authenticity are understood as the audiences' internal processes. Audience responses can appear in the form of engagement, interest in trying the product, purchase intentions, saving content, sharing content, or seeking further information. This approach helps explain how AI-based digital stimuli are processed by audiences before generating specific responses.

Parasocial Interaction theory is also used because promotion through virtual influencers involves a parasocial relationship between audiences and digital figures. Audiences can feel close to, interested in, trusting of, or connected to a virtual figure even though the relationship does not occur through direct interpersonal interaction. In a culinary context, parasocial relationships can influence how audiences evaluate promotional messages, especially when virtual figures are used to introduce food products. Parasocial Interaction helps explain how audiences' perceived closeness, trust, and attachment to digital figures shape their interpretation of AI-driven culinary content (Godulla, 2026; Horton & Wohl, 1956).

The novelty of this research lies in the development of an audience interpretation model for AI-driven product visualization and virtual influencer content in the digital marketing of culinary products by integrating the Stimulus–Organism–Response and Parasocial Interaction approaches. This study not only views AI as a tool for visual content creation or virtual influencers as digital promotional figures but also positions both as stimuli that audiences process through assessments of visual realism, trust, authenticity, parasocial closeness, and conative responses. The novelty of this research also lies in its focus on culinary products, which have sensory characteristics such as taste, aroma, texture, and freshness, as well as the congruence between promotional visuals and actual products. Through this model, the research is expected to shed

light on how audiences interpret AI-driven culinary content more deeply within digital marketing communications.

Based on this description, this research is important for developing an audience interpretation model for AI-driven product visualization content and virtual influencers in the digital marketing of culinary products. This research focuses on how audiences interpret AI-based food visuals, interpret the presence of virtual figures, process stimuli through cognitive and affective dimensions, and form responses to culinary products on social media. The S-O-R approach is used to explain the relationship between AI-generated content stimuli, the audiences' internal processes, and the responses that emerge. Parasocial Interaction theory is used to understand audiences' perceived proximity to and trust in virtual figures. Through this approach, this research is expected to produce an audience interpretation model that is relevant to the dynamics of culinary digital marketing in the AI era. This study aims to analyze how audiences interpret AI-driven product visualization content in the digital marketing of culinary products on social media.

METHOD

This study used an interpretive qualitative approach with a phenomenological design, chosen because the purpose of the research was not merely to describe phenomena but to explain how meaning was formed and interpreted by audiences when interacting with AI-driven product visualization-based culinary marketing content and virtual influencers. Referring to Wiesner (2022), the interpretive approach explored the structure of meaning from subjective experiences through systematic reflective and analytical processes (Elliott et al., 2025). The Stimulus-Organism-Response (S-O-R) framework and Parasocial Interaction theory were used as analytical lenses to examine the cognitive, affective, and conative processes of audiences.

The research population comprised individuals and professionals who had been exposed to or involved in AI-driven product visualization and virtual influencers in culinary digital marketing. Because the phenomenon occurred in digital environments, no geographical boundary was imposed. Purposive sampling resulted in 12 informants across three defined categories: (1) ten audience members aged 18–35 who used Instagram or TikTok and had encountered AI-driven culinary content; (2) one digital marketing practitioner; and (3) one AI expert. The sample was intended to support interpretive depth rather than statistical representation; recruitment ceased when additional interviews no longer produced substantively distinct categories within the reported coding framework.

The researcher served as the key instrument (human instrument), supported by semi-structured interview guidelines covering cognitive, affective, and conative processes, parasocial relationships, and the authenticity and credibility of AI-generated content. Voice recorders were used to ensure transcription accuracy, and NVivo 15 for Windows was used as a tool for coding, categorization, and visualization of themes. The trustworthiness of the research was maintained through the trustworthiness criteria of Lincoln and Guba (1985): credibility, dependability, confirmability, and transferability (Beuvig & Vries, 2025).

Data were collected in four stages: (1) purposive selection of informants according to the eligibility criteria; (2) online interviews via Google Meet or Zoom, or face-to-face interviews; (3) digital observation of AI-driven product visualization and virtual influencers on Instagram and TikTok, documented through screenshots or video frames; and (4) review of scientific literature and industry reports as secondary sources. With each informant's consent, interviews conducted during the reported December–January fieldwork period were recorded and transcribed verbatim.

The analysis was conducted in a descriptive-interpretive manner with the assistance of NVivo 15. The process included transcription editing; three-level coding (open coding, axial coding, and selective coding) to develop thematic categories such as trust, authenticity concerns, emotional resonance, and parasocial closeness; data reduction; data presentation through a theme map, Project Map, Matrix Coding Query, and representative citations; and the drawing and verification of conclusions. The findings were then linked to the S-O-R and Parasocial Interaction frameworks to construct an audience interpretation model. Trustworthiness was strengthened

through source triangulation (audiences, a digital marketing practitioner, and an AI expert) and methodological triangulation (interviews, digital observations, and documentation).

Each informant provided voluntary informed consent, including consent for audio recording. Participant confidentiality was maintained through anonymized coding: A01–A10 for audience participants, DMP01 for the digital marketing practitioner, and AIE01 for the AI expert. Member checking was conducted to confirm that the researchers' interpretations were consistent with the informants' experiences. The research process was documented through an audit trail to ensure methodological accountability.

RESULT AND DISCUSSION

Data Analysis and Research Results

Data Analysis Process with NVivo

The researcher began the data analysis process by creating a new project in NVivo 15. The project was named according to the research title so that all data could be organized in a structured and easily searchable manner throughout the analysis process. The data entered into NVivo included interview transcripts from 10 audience informants, 1 AI expert, and 1 digital marketing practitioner. All data were then grouped to facilitate coding, theme development, and the identification of relationships among research categories.

Figure 3 displays the process of importing the research data into NVivo 15. The figure shows that all interview transcript files were successfully imported into the research project and were ready for use during the coding stage. This data import process represents an important initial stage because it ensures that all research data sources have been systematically documented before further analysis.

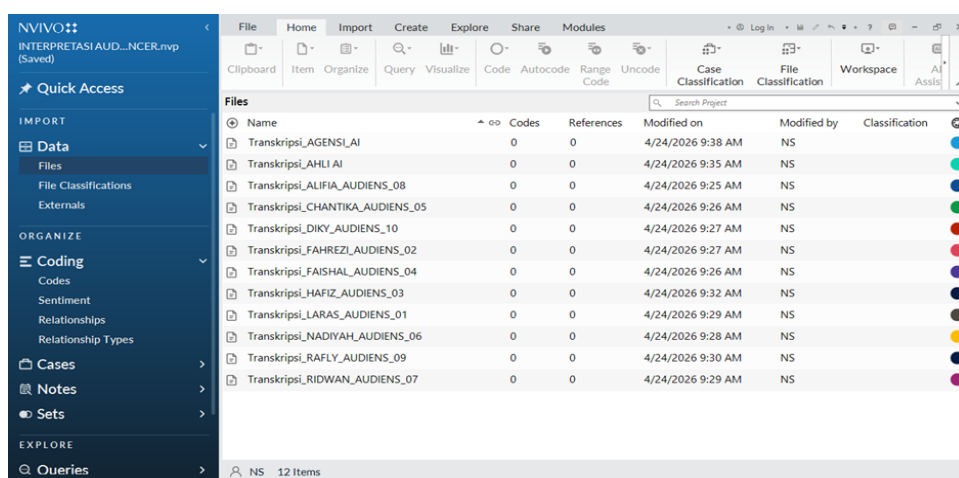


Figure 3. View of research data that has been imported into NVivo

Source: NVivo (2025)

Interpretively, the data organization process shown in Figure 3 demonstrates that the research analysis is not conducted separately or randomly but is compiled through a structured and directed data management system. Data from audience informants, AI experts, and digital marketing practitioners are positioned as complementary sources of information for understanding audiences' interpretations of AI-driven product visualization and virtual influencer content. This data management process also supports triangulation, as the researchers can trace differences and similarities in perspectives across various groups of informants.

The node creation process is carried out through three stages, namely, open coding, axial coding, and selective coding. During the open coding stage, the researchers identified important statements from informants related to AI-driven product visualization, image authenticity, emotional responses, relationships with virtual influencers, and responses to AI-driven culinary content. During the axial coding stage, codes with similar meanings were grouped into more structured categories, such as trust, doubts about visual authenticity, interest, perceived proximity to virtual figures, and assessments of visual quality. During the selective coding stage,

the researchers selected the most relevant overarching themes to explain the audience interpretation process, which subsequently served as the basis for developing the research model.

Figure 4 shows the process of creating nodes and grouping data in NVivo 15. The figure illustrates that the research data have begun to be mapped into categories that correspond to the research focus, such as AI-driven visual stimuli, cognitive interpretation, affective interpretation, parasocial interaction, and audience responses. This grouping clarifies the direction of the analysis because each informant's statement is placed in a category corresponding to its meaning and context.

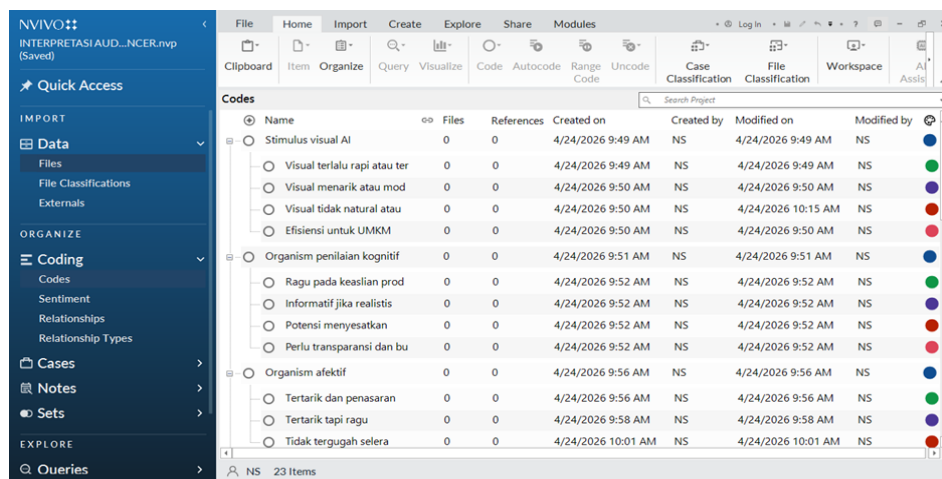


Figure 4. Node Creation View

Source: NVivo (2025)

Interpretively, Figure 4 not only illustrates the technical process of creating nodes but also shows the early stages of theme formation in the research. AI-driven product visualization stimulus nodes help researchers understand how audiences evaluate the characteristics of AI-based content, such as visual appearance, realism, attractiveness, and visual unnaturalness. Organism nodes help researchers examine the audience's internal processes, particularly how they form trust, interest, doubt, and judgments about the authenticity of the content. Response nodes are used to examine audience behavioral tendencies after viewing AI-driven culinary content.

Thematic Findings Based on S-O-R and Parasocial Interaction

In this section, the research findings are presented based on the S-O-R and Parasocial Interaction frameworks. The S-O-R framework is used to explain how AI-based visual content acts as a stimulus, how audiences process the stimulus cognitively and affectively, and how audience responses are formed after viewing the content. Meanwhile, Parasocial Interaction is used to understand the extent to which audiences experience emotional closeness to, trust in, and perceptions of authenticity toward digital figures or virtual influencers used to promote culinary products.

The findings in this section are divided into three main components, namely Stimulus, Organism, and Response. The Stimulus component focuses on the visual characteristics of AI-generated content, initial appeal, and the practical value of AI. The Organism component describes the audience's internal processes through cognitive assessment, affective responses, and Parasocial Interaction. The Response component describes conative responses and audience behaviors, such as seeking additional information, reading reviews, developing indirect purchase intentions, and recognizing the need to combine AI-generated content with evidence from real products.

Stimulus(s): AI-driven product visualization stimulus

AI-driven product visualization Characteristics

Regarding the visual characteristics of AI-generated content, the research data show that

audience trust in AI-based visual content remains conditional. Audiences do not immediately trust content simply because the visuals appear attractive, polished, or aesthetically pleasing. Trust begins to develop when AI-driven product visualizations are perceived as capable of representing culinary products realistically and consistently while remaining supported by evidence from real products. As shown in Figure 5, AI-generated visual stimuli are perceived through several key characteristics, namely attractive or impressive visuals, visual consistency, visuals that appear overly neat or perfect, and visuals that appear unnatural, contain glitches, or otherwise look strange.

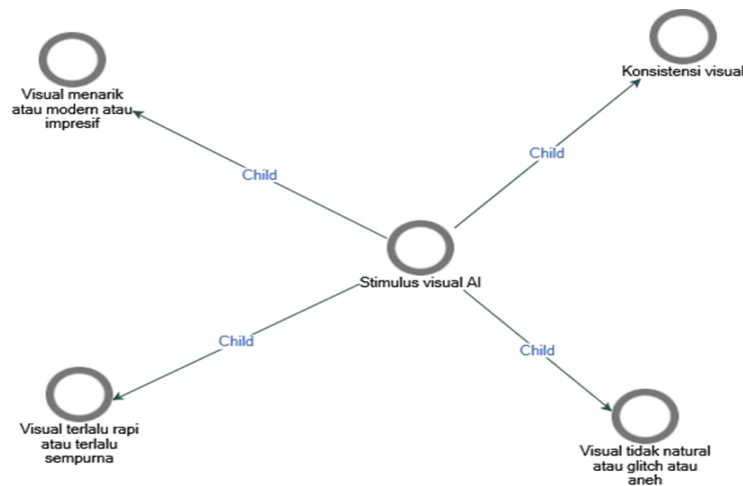


Figure 5. Visualization Project Map 1
Source: NVivo (2025)

Figure 5 shows that the visual characteristics of AI serve as an initial stimulus that influences how audiences assess AI-driven culinary content. Eye-catching, modern, and impressive visuals can capture the audience's initial attention. However, visuals that are overly neat, too perfect, unnatural, or affected by glitches can raise doubts. Visual quality in this context is understood not only as an aesthetic appeal but also as a starting point for audiences to assess the credibility of the content.

Califano & Spence (2024) reinforce these findings, as AI-based food images can appear attractive while still raising questions about authenticity and visual compatibility with real products. In this study, the issue arises from the audience's reluctance to immediately trust AI-generated visuals, particularly when the product appearance is overly perfect or unsupported by original evidence. Visual attraction is therefore more accurately understood as an entry point for capturing attention rather than as a guarantee of trust formation.

Early Appeal

Regarding initial appeal, AI-based visual content appears capable of attracting audience attention through a unique, novel, and distinctive appearance compared with conventional promotional content. AI-generated visuals create a modern and creative impression that can encourage audiences to pause and pay attention to the content. However, this attraction does not immediately develop into trust. As shown in Figure 6, AI visual stimuli elicit several audience responses, including curiosity; judgments that the content is less convincing; perceptions of a lack of authentic experience; the absence of opportunities to taste the product; and concerns about potential visual inconsistencies.

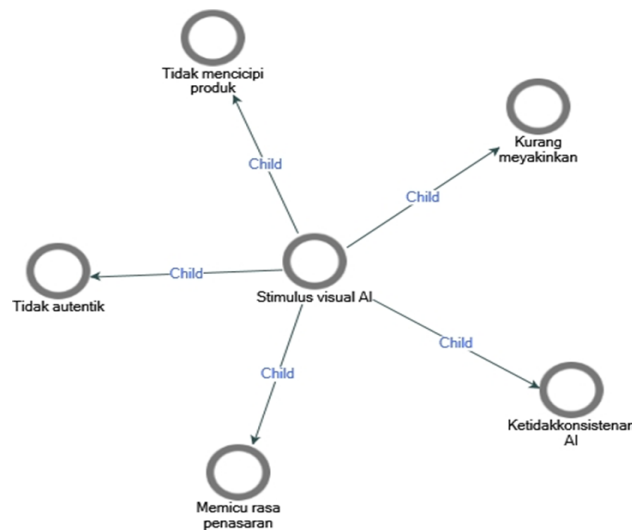


Figure 6. Visualization Project Map 2
Source: NVivo (2025)

Figure 6 shows that the initial appeal of AI visual content does not manifest as a single response. On the one hand, AI-driven product visualization can arouse curiosity because it appears different and stands out more than conventional culinary content. On the other hand, audiences still evaluate the content critically, especially when it does not convey an authentic experience of the product. This pattern shows that AI visual stimuli have the power to attract attention but still require authentication cues to be more convincingly accepted.

This finding is consistent with a study that explains how the emotional displays of AI-based virtual influencers can affect user engagement. In the context of this study, such engagement is reflected in the form of attention and initial curiosity. However, for culinary products, audience engagement still needs to be reinforced by perceptions of authenticity because food is not evaluated solely through visual presentation but also through the anticipated sensory experience that audiences seek to verify (Yu et al., 2024).

The Practical Value of AI

Regarding the practical value of AI, AI-based visual content is not only understood as an engaging visual stimulus but also as a tool that can support the digital marketing content production process. Although there are still limitations in terms of realism, authenticity, and trust, the use of AI still provides functional value for culinary business operators. This value can be seen in cost efficiency, ease of content production, speed of promotional material creation, and the ability to maintain visual consistency. As shown in Figure 9, AI-driven product visualization stimuli are understood as a technology that can provide practical benefits for MSMEs, particularly in the creation of digital promotional materials.

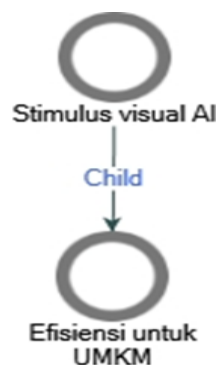


Figure 7. Visualization Project Map 3Source: NVivo (2025)

Figure 7 shows that the practical value of AI emerges as part of a visual stimulus that is related not only to content presentation but also to the production benefits it provides to business

actors. AI is perceived as being able to help business actors create content more quickly, efficiently, and consistently. In the context of digital marketing for culinary products, this benefit is important because business actors need to produce visual content regularly to maintain their brand presence on social media.

Ziakis & Vlachopoulou (2023) reinforce this interpretation because AI in digital marketing plays a role in supporting personalization, automation, efficiency, and communication management with audiences. In the context of this study, this function can be seen through the use of AI to help produce visual culinary promotions more quickly and consistently. However, culinary products still demand authenticity because audiences not only evaluate the efficiency of content production but also assess the fit between promotional visuals and actual consumption experiences.

The practical value of AI provides an opportunity for culinary businesses to improve the quality of visual communication without having to rely solely on expensive content production processes. AI can be used to create visual concepts, structure promotional materials, maintain visual consistency, and accelerate content creation. This strategy will be more effective if the use of AI is accompanied by photographs of the original product, customer reviews, and information demonstrating that the actual product corresponds to the promotional visuals. In this way, AI not only serves as an efficiency tool but also becomes part of a digital marketing strategy that maintains brand credibility in the eyes of the audience.

Organism (O): Internal Processes of the Audience

Cognitive Interpretation

In the cognitive interpretation aspect, audiences process AI-based visual content by evaluating realism, authenticity, credibility, and visual congruence with the original product. AI-generated content is not immediately accepted as completely trustworthy information. Audiences first assess whether the displayed visuals can represent culinary products realistically, without being excessive or misleading. As shown in Figure 10, the audience's cognitive assessment includes several key themes, namely information considered useful when it is realistic, conditional trust, doubts about product authenticity, skepticism toward AI, the need for transparency and original evidence, and the potential for misleading content.

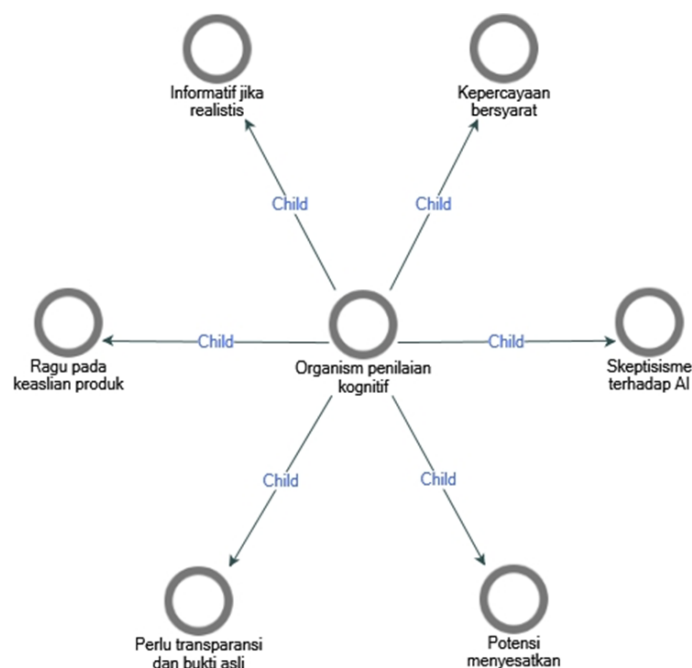


Figure 8. Visualization Project Map 4

Source: NVivo (2025)

Figure 8 shows that the audience's cognitive process is not only related to assessing whether AI-generated visuals are attractive. Audiences also consider whether the visuals are

sufficiently realistic to serve as a basis for trust. Information presented through AI-driven product visualization can be considered useful if it maintains a clear relationship with the original product. Conversely, when visuals appear too perfect, unnatural, or lack supporting evidence, audiences begin to question the authenticity and credibility of the content.

Gu et al. (2024) reinforce this interpretation because audience acceptance of AI-based advertising content is influenced by perceptions of content intelligence and the unusual impressions that emerge from the content (Hamrang et al., 2026). In this study, the unusual impression appears when AI-driven product visualizations are considered too perfect, unnatural, or lacking a clear connection to the original product. Audiences not only assess whether AI content looks sophisticated but also judge whether it is reasonable, honest, and trustworthy in the context of a culinary product.

Affective Interpretation

In the aspect of affective interpretation, the audience's response to AI-based visual content appears to change dynamically. AI content can evoke awe, interest, and curiosity in the early stages, especially when the displayed visuals appear different from conventional culinary content. However, these emotional responses do not always last long. Repeated exposure to similar AI content can leave audiences feeling saturated or hesitant, or may lead them to avoid such content. As shown in Figure 9, audiences' affective responses to AI visual stimuli include decreased emotional engagement, interest and curiosity, curiosity accompanied by doubt, a tendency to skip content, perceptions that the content is unappetizing, and a need for data-driven visual honesty.

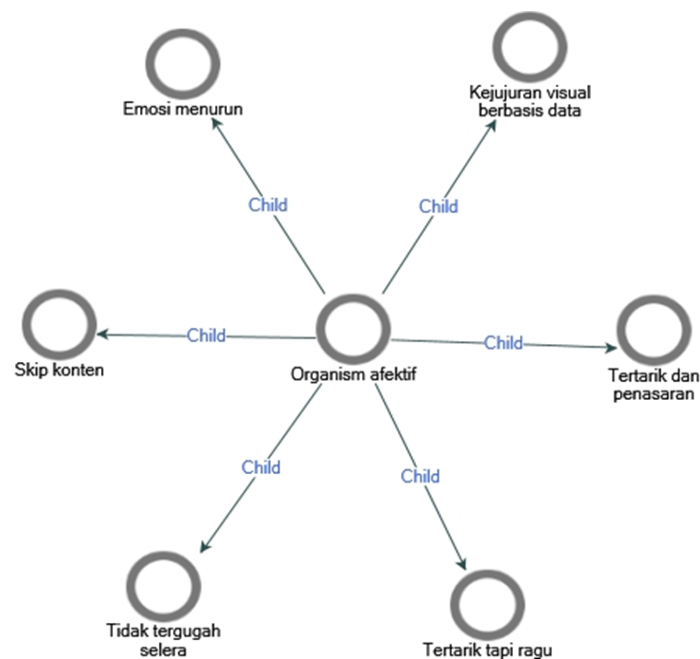


Figure 9. Visualization Project Map 5
Source: NVivo (2025)

Figure 9 shows that the audience's affective response not only includes interest in AI-driven product visualization but also encompasses doubts and emotional distance. AI content is indeed capable of producing a novelty effect because it appears polished, modern, and different. However, when the visuals feel repetitive, less original, or less appetizing, the audience's emotional engagement can weaken. This pattern shows that visual appeal needs to be accompanied by an authentic impression for the audience's emotional response to be maintained.

The study is relevant to this interpretation because the emotional displays of AI-generated virtual influencers can affect user engagement. In the context of this study, emotional involvement is reflected in amazement, curiosity, and initial interest in AI content. However, in the context of culinary products, emotional engagement still requires support from authentic product evidence because audiences evaluate not only visual appearance but also anticipated sensory and

consumption experiences (Yu et al., 2024).

Parasocial Interaction

In the aspect of parasocial interaction, AI-based content involving digital visuals and virtual influencers has not yet been fully able to build a strong emotional connection with the audience. The personal closeness that usually arises through interaction with human figures has not been deeply established with virtual figures. As shown in Figure 10, the audience's parasocial relationship with AI content is characterized by three main themes, namely conditional closeness, weak emotional closeness, and the perception that the content is less authentic because it lacks real-world experiences.

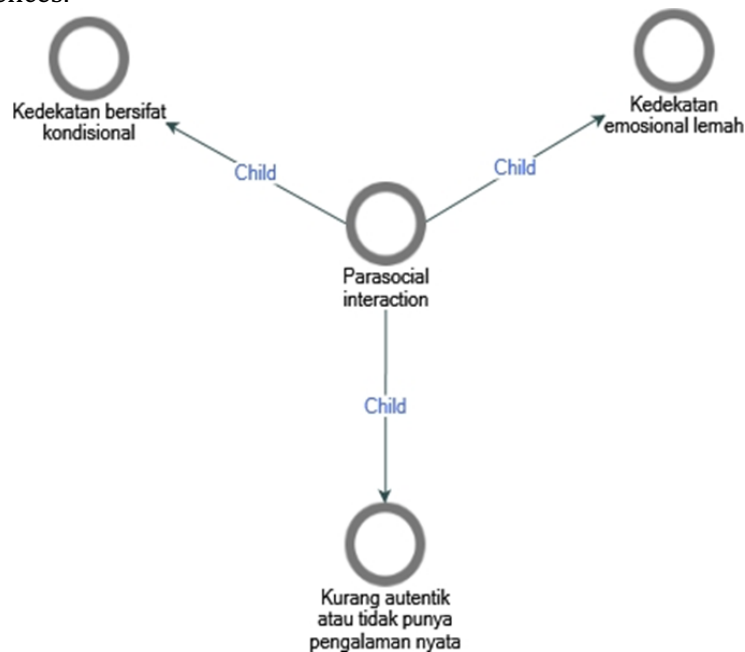


Figure 10. Visualization Project Map 6

Source: NVivo (2025)

Figure 10 shows that the parasocial relationship between the audience and the virtual influencer remains at a limited stage. Audiences may pay attention to AI content because it looks engaging or entertaining, but that attention does not always develop into emotional attachment. The closeness that is formed still depends on the extent to which the content is able to present an authentic and relevant impression supported by evidence of real experience with culinary products.

Yu et al. (2024) demonstrated that emotional displays by AI-generated virtual influencers can affect user engagement. However, in the context of culinary products, such engagement should be interpreted cautiously because virtual influencers cannot directly experience sensory attributes such as taste, aroma, and texture.

Response (R): Conative Response and Audience Behavior

Audience responses to AI-driven visual content do not directly lead to a purchase decision. Interest in AI-driven product visualization is more likely to encourage audiences to stop and look, pay attention, or seek additional information. A cautious attitude remains evident because audiences need additional evidence before trusting the promoted product. As shown in Figure 13, audience responses to AI visual content include the use of AI because of business efficiency, the search for additional information, the reading of reviews, the influence of small or conditional purchases, the tendency to purchase indirectly, the need for a combination of AI content and real products, and the view that AI is more appropriate as a promotional tool.

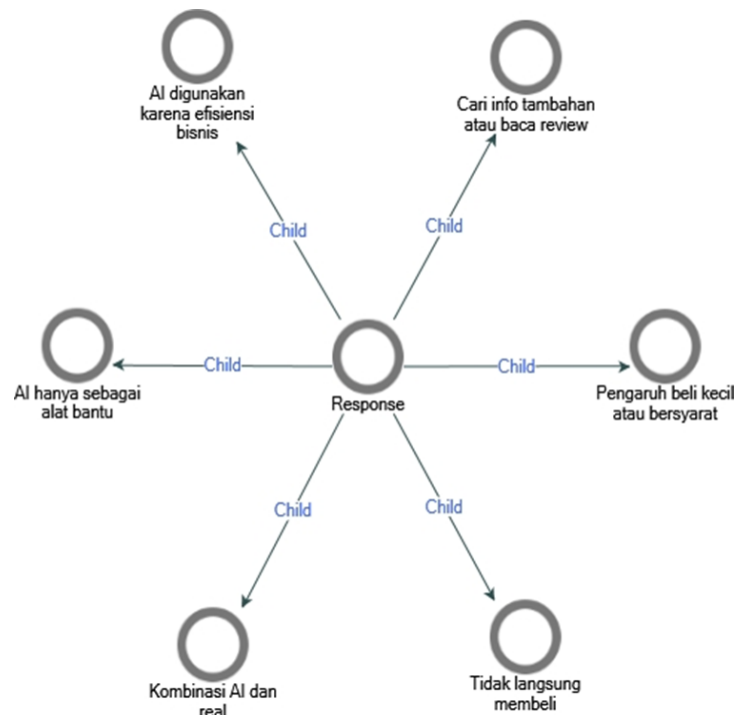


Figure 11. Visualization Project Map 7
Source: NVivo (2025)

The visualization in Figure 11 illustrates that AI content is not the sole factor driving audiences to purchase culinary products. The responses that emerge are more characteristic of the exploration and validation stages. Audiences may feel attracted to the visual presentation, but they still need additional information to ensure that the product being offered truly matches the displayed visuals. This pattern positions AI as an initial trigger of attention rather than as the final determinant in the decision-making process.

The study is relevant to these findings because audience engagement with virtual influencers can be related to perceived value and purchasing tendencies. In this study, such involvement still requires support from credibility and authenticity. Audiences may be interested in AI visual content or virtual figures, but purchase intention has a stronger likelihood of developing when the content is supported by evidence of the actual product and verifiable information (Cao et al., 2025).

Data Triangulation

Data triangulation strengthened credibility by comparing three informant groups (ten audience members, one AI expert, and one digital marketing practitioner) and three methods (interviews, digital observation, and documentation). The comparison was applied to the principal themes generated in NVivo 15 visual appeal, realism, authenticity, trust, affective ambivalence, parasocial closeness, and conative response so that interpretations were retained only when supported or meaningfully qualified across sources.

Vivek et al. (2023) explain that qualitative and multimethod studies can triangulate in-depth interviews, documents, literature, and other sources to strengthen the credibility of findings (Alejandro & Zhao, 2024). Accordingly, this study compared the accounts of audience members, the AI expert, and the digital marketing practitioner with digital observations and documentation. Convergent evidence supported shared interpretations, whereas differences were retained to clarify conditional trust, authenticity concerns, and the limited parasocial closeness associated with virtual influencers.

The results of the analysis show that audiences do not reject AI content outright. Audiences perceive AI-driven product visualization as engaging, neat, impressive, and curiosity-sparking. However, this initial interest was accompanied by doubts about the visual authenticity, credibility of the virtual figure, and compatibility between the promotional display and the actual culinary product. This pattern is reflected in the Project Map, which places the visual

characteristics of AI, initial attractiveness, practical value of AI, cognitive assessment, affective responses, parasocial relationships, and conative responses as interconnected themes.

Theme Linkage Analysis via *Matrix Coding Query*

Theme linkage analysis through Matrix Coding Query was used to examine the relationships between themes coded in NVivo 15. This analysis helps researchers identify patterns of relationships between AI content stimuli, the audience's internal processes, and the responses that emerge after audiences view AI-driven product visualization content for culinary products. At this stage, the matrix not only shows the presence or absence of relationships between themes but also indicates the frequency with which these relationships emerge through the number of coding references.

AI-driven product visualization stimulus vs Cognitive Organism

The relationship between themes in Figure 14 shows the relationship between the AI-driven product visualization stimulus category and the Cognitive Organism category. The column axis contains stimulus categories such as visual information, product characteristics, inauthenticity, lack of convincingness, AI inconsistencies, and efficiency for MSMEs. The row axis contains categories of audience cognitive responses, such as informative if realistic, conditional trust, the need for transparency and authentic evidence, misleading potential, doubts about product authenticity, and skepticism toward AI. The height of the bar indicates the number of coding references that arise from the relationship between the two categories.

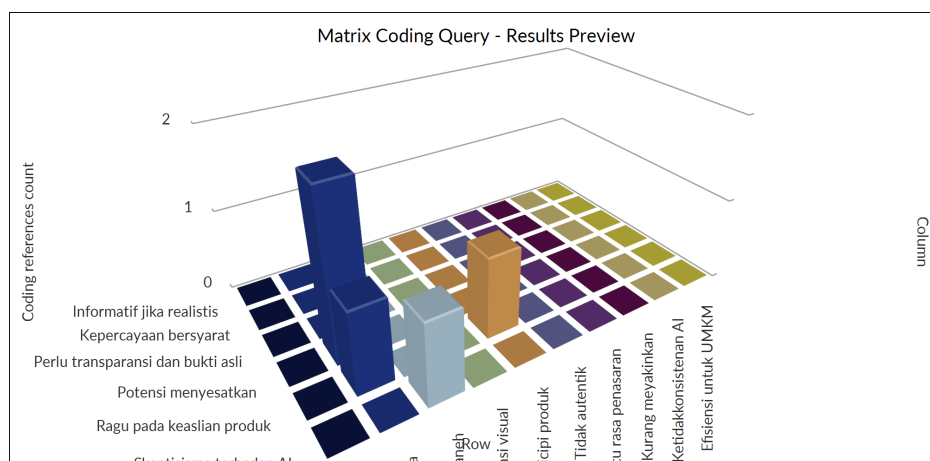


Figure 12. Matrix Coding Query 1
Source: NVivo (2025)

The visualization of the matrix showed that the strongest associations appeared between the category of visual information and informative cognitive responses if realistic and conditional trust. This pattern shows that audiences can still accept AI content as a source of culinary product information. Such acceptance arises when the visuals look reasonable, realistic, and close to the original condition of the product. Audiences do not immediately believe the content simply because the visuals seem appealing. They still assess whether the appearance of the food can accurately represent the actual product.

The relationship pattern in the matrix shows that the audience's cognitive processes are selective and conditional. AI-driven product visualization can capture attention and provide initial information. However, audiences still evaluate realism, the suitability of product features, authenticity, visual consistency, and the presence of supporting evidence. Trust is built when AI-driven product visualization does not stand alone but is accompanied by transparent information and genuine product evidence.

These findings reinforce the position of cognitive organisms within the S-O-R framework. AI's visual stimulus does not immediately generate a positive response. The audience first processes the stimulus through rational judgment. The assessment includes questions about whether the visuals appear realistic, whether the information is trustworthy, whether the product

matches the image, and whether the brand provides supporting evidence. In the digital marketing of culinary products, AI-driven product visualization needs to be carefully managed so that it is not only aesthetically appealing but also informatively credible.

AI-driven product visualization stimulus vs Affective Organism

The analysis in the second visualization shows the relationship between the characteristics of the AI-driven product visualization stimulus and the audience's affective responses. In this section, attention is no longer focused on rational judgments such as realism and credibility but on the emotional reactions that arise when audiences see AI-driven culinary content. The stimulus categories that emerged include being too perfect, glitches or other strange visual artifacts, visual consistency, inauthenticity, triggering curiosity, lack of convincingness, and efficiency for MSMEs. These categories are connected to affective responses such as interest and curiosity, interest but hesitation, skipping the content, and an unappetizing response.

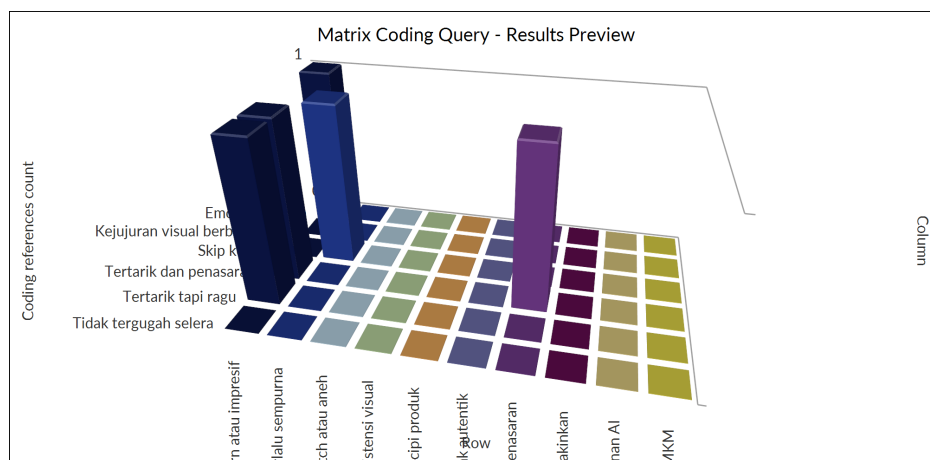


Figure 13. Matrix Coding Query 2

Source: NVivo (2025)

The results of the matrix showed that the category of being too perfect had a fairly strong association with responses characterized by being interested but doubtful and interested and curious. These findings show that highly polished, idealized, and flaw-free AI-driven product visualizations can capture audience attention in the early stages. However, such attraction does not always result in complete emotional acceptance. Audiences can feel attracted to visual beauty while simultaneously questioning the plausibility of the product's appearance. This condition indicates the existence of affective ambivalence, which is a state in which interest and doubt arise at the same time.

These findings reinforce the position of affective organisms within the S-O-R framework. AI visual stimuli are processed by audiences through emotional reactions before evolving into further responses. Content that is able to evoke curiosity, sensory anticipation, and emotional comfort has a greater chance of retaining audience attention. In contrast, content that features visual unnaturalness tends to create emotional distance and encourage audiences to skip the content.

Stimulus AI-driven product visualization vs Parasocial Interaction

The analysis in this section shows the relationship between the characteristics of the AI-driven product visualization stimulus and the aspect of Parasocial Interaction. In the context of this study, Parasocial Interaction is understood as the perceived pseudo-closeness felt by audiences toward content or digital figures that are presented through social media. This relationship is important to analyze because AI content is not only judged based on its visual characteristics but also on its ability to build a sense of closeness, trust, and emotional connection with audiences.

The stimulus categories that emerged include interesting, modern, or impressive; too neat or too perfect; glitches or other strange visual artifacts; inauthenticity; lack of real experience;

sparkling curiosity; lack of convincingness; and efficiency for MSMEs. Meanwhile, the categories of Parasocial Interaction seen in the matrix include weak emotional closeness, conditional closeness, and a lack of authenticity or real experience.

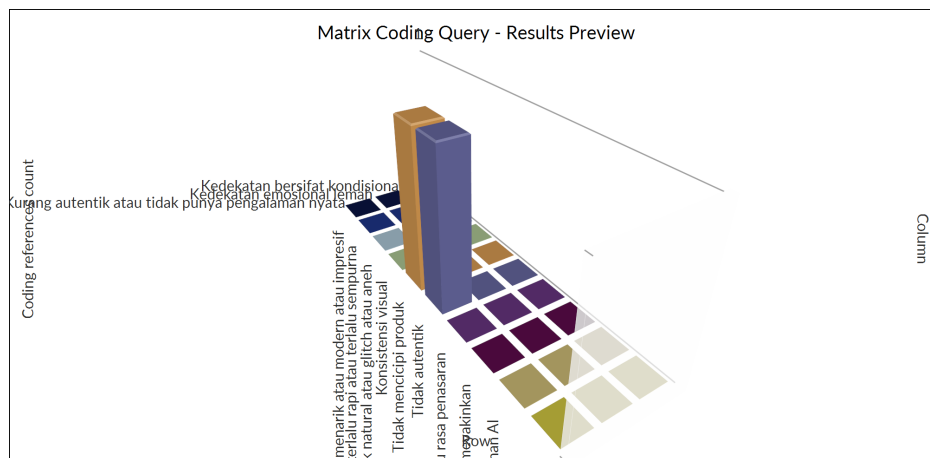


Figure 14. Matrix Coding Query 3
Source: NVivo (2025)

The results of the Matrix Coding Query show that AI-generated visuals are not yet fully able to build strong emotional closeness. The most prominent relationship is seen in stimuli related to inauthenticity and a lack of real experience. Both aspects are closely related to the perception that audiences' emotional proximity to AI content tends to be weak. These findings show that audiences still regard real experiences as an important element in culinary promotion. Food is not enough merely to be displayed attractively. Audiences also need the impression that the product has actually been tasted, tried, and experienced firsthand.

The value of efficiency for MSMEs is understood more as a technical benefit than as a trigger for emotional closeness. Audiences can accept that AI helps businesses create content more quickly, economically, and consistently. However, these benefits do not automatically make audiences feel close to the product or digital figure being used. Proximity remains more strongly influenced by authenticity, real experiences, and the ability of content to deliver a believable narrative.

Cognitive Organism vs Response

The analysis in this section discusses the relationship between the audience's cognitive processes and the responses that emerge after audiences assess AI-driven culinary content. Cognitive processes include the ways in which audiences interpret authenticity, credibility, misleading potential, and the need for supporting evidence. Audience responses do not appear spontaneously after seeing AI-driven product visualization but are formed through a gradual assessment process. Audiences first weigh whether the information displayed is trustworthy, whether the visuals match the original product, and whether the content has sufficient basis to influence their actions.

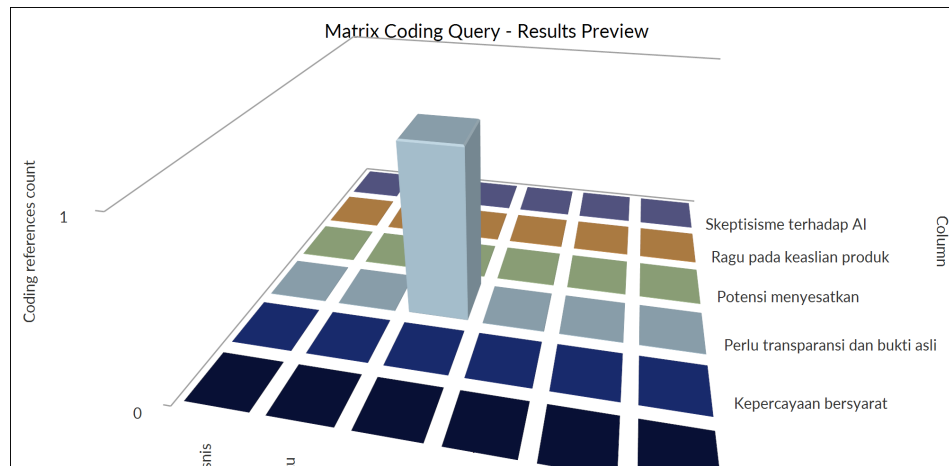


Figure 15. Matrix Coding Query 4

Source: NVivo (2025)

The results of the Matrix Coding Query show that skepticism toward AI is one of the cognitive aspects that plays an important role in shaping audience responses. This skepticism arises when audiences feel that AI content is too idealized, overly manipulated, or lacks a reflection of the actual state of the product. In the culinary context, this type of doubt is understandable because food is not judged solely by its visual appearance. Audiences also imagine its taste, texture, aroma, portion, and real consumption experience. When AI-driven product visualizations are unable to provide convincing representations of these aspects, audiences tend to withhold further responses.

The pattern of relationships between cognitive organisms and audience responses suggests that AI does not directly drive consumption actions. Audience responses move through a validation process. Audiences may be interested in the visuals but still postpone a decision until stronger evidence is obtained. In the digital marketing of culinary products, this shows that AI-based visual strategies need to be accompanied by honest communication and concrete evidence. AI-driven product visualization can reinforce initial attention, but credibility is still built through congruence between the digital display and the real product experience.

CONCLUSION

The study shows that audiences interpret AI-driven product visualization as an attention-generating stimulus rather than sufficient evidence for purchase. Aesthetic and modern presentations attracted interest, but excessively polished images raised doubts about realism, authenticity, and congruence with actual culinary products. Virtual influencers were similarly perceived as innovative and consistent, yet their limited ability to demonstrate taste, aroma, and texture restricted their credibility and parasocial closeness. Within the S–O–R process, audiences moved from cognitive and affective evaluation to conditional conative responses, particularly information seeking and product validation before purchase.

The findings support a human–AI hybrid strategy in which AI contributes efficiency and visual appeal, while transparent disclosure, original product evidence, testimonials, and human involvement sustain trust. The model extends the S–O–R and Parasocial Interaction frameworks by showing that authenticity and trust shape the movement from digital stimulus to audience response in a sensory-product context. Nevertheless, the study is limited to a purposive sample of 12 informants and culinary content encountered on Instagram and TikTok. The findings are analytically transferable to comparable settings when contextual similarities are established, but they are not statistically generalizable to all audiences, platforms, products, or AI applications. Further research may examine broader participant groups, other product categories, and complementary quantitative designs.

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AUTHOR CONTRIBUTION STATEMENT

Fitri Firdausi Nuzula was responsible for the conceptualization, methodology, data collection, data analysis, interpretation of the findings, and preparation of the original manuscript. The author also revised the manuscript in response to the reviewers' comments and approved the final version for publication.

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