

Visual Effectiveness of a Public Service Advertisement Video: Visual Sensation and Visual Perception among Students with Learning Disabilities

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ABSTRACT

Public Service Advertisement (PSA) videos are important communication tools for disseminating social messages and promoting public awareness. However, empirical evidence on how students with learning disabilities process visual information in PSA videos remains limited, particularly regarding visual sensation and visual perception. This study examined the visual effectiveness of a PSA video among students with learning disabilities by distinguishing visual sensation and visual perception as sequential dimensions of visual information processing. A quantitative descriptive design was employed involving 37 students with learning disabilities from four universities and one disability support institution in Indonesia. Participants viewed a PSA video under standardized conditions and completed a structured questionnaire measuring visual sensation and visual perception using a five-point Likert scale. Descriptive statistical analysis was conducted using mean scores, complemented by a scene-by-scene analysis to support interpretation of the findings. The results showed that both visual sensation and visual perception achieved high overall mean scores ($M = 3.9$). Indicators related to lighting, contrast, message comprehension, and recognition of social purpose received higher ratings, while emotional engagement and higher-order interpretation scored relatively lower. The scene-by-scene analysis indicated that organized visual structures, readable typography, colour contrast, subtitles, and multimodal visual cues enhanced accessibility and message comprehension. In contrast, excessive movement and visual complexity increased cognitive demands on viewers. This study contributes to visual communication research by providing empirical evidence on visual information processing among students with learning disabilities and offers recommendations for designing more inclusive, accessible, and cognitively sensitive PSA videos.

Keywords: *Public service advertisement, learning disabilities, visual sensation, visual perception, inclusive communication.*

INTRODUCTION

Public Service Advertisement (PSA) video have become an important communication medium used by governments, institutions, and public organizations to disseminate information, increase public awareness, and encourage behavioural change regarding various social issues (Hashim & Mohamad Salleh, 2021). In digital communication environments, PSA effectiveness increasingly depends on visual communication strategies because audiences are continuously exposed to large volumes of information competing simultaneously for attention. Consequently, visual elements such as colour, typography, images, motion, and visual

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composition no longer function solely as aesthetic components but also as mechanisms that influence information processing and message comprehension (Pirdaus et al., 2023).

Nevertheless, attracting audience attention does not necessarily guarantee successful communication. Effective visual communication depends on audiences' ability to process, organize, and interpret visual information appropriately. Previous studies have demonstrated that visual information processing is strongly influenced by cognitive abilities, perceptual characteristics, and prior experiences, causing different audiences to respond differently to identical visual stimuli (Schloss, 2025). Therefore, visual designs that are effective for general audiences may not necessarily be effective for audiences with different cognitive characteristics.

Visual information processing generally occurs through two sequential cognitive stages. The first stage is visual sensation, which refers to the immediate sensory detection of visual stimuli, while the second stage is visual perception, which involves organizing, interpreting, and assigning meaning to the visual information received (Moini et al., 2024). Although these processes are interconnected, they represent different cognitive mechanisms. Visual sensation determines whether visual stimuli can be comfortably detected, whereas visual perception determines whether the information can be successfully understood and transformed into meaningful knowledge. Furthermore, visual perception requires the integration of attention, memory, sensory input, and prior experiences to construct coherent understanding (Winter et al., 2024)

This distinction has become increasingly important in contemporary video-based communication. Current PSA video frequently employ attention-grabbing strategies, including rapid scene transitions, intensive motion graphics, layered visual information, and dense visual compositions to increase audience engagement (Yan & Goh, 2025). Although these strategies may be effective for broad audiences, they may simultaneously increase cognitive burden. According to cognitive load theory and multimedia learning principles, excessive visual complexity may overload cognitive resources, interfere with information processing, and ultimately reduce communication effectiveness (Kim et al., 2024; Mayer et al., 2021). Therefore, visual engagement should be balanced with cognitive accessibility to ensure that information remains understandable to diverse audiences.

This issue is particularly important in Indonesia, where higher education institutions have increasingly implemented inclusive education policies to provide equal educational opportunities for students with disabilities. Despite these efforts, students with learning disabilities continue to encounter various challenges in processing, organizing, and understanding information delivered through digital communication media. Learning disabilities commonly found among university students include Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), dyslexia, dysgraphia, dyscalculia, and other neurodevelopmental conditions that may affect attention regulation, working memory, information processing speed, language processing, and visual integration (Gray, 2023; Paramita et al., 2024). These cognitive characteristics may influence how students receive, process, and interpret visual information, particularly when information is delivered through complex video-based media.

This issue is especially relevant because PSA video are increasingly used to communicate important information related to public health, social awareness, civic participation, and behavioural change. Public communication is intended to reach all members of society equally; therefore, communication effectiveness should not be evaluated

solely from the perspective of general audiences. If PSA video contain excessive motion, rapid scene transitions, visually dense information, and complicated visual structures, they may unintentionally create additional barriers for students with learning disabilities. Consequently, understanding how this population processes visual information has become essential for ensuring that public communication in Indonesia is inclusive, equitable, and accessible to individuals with diverse cognitive characteristics.

Despite the growing body of research on visual communication, several important research problems remain unresolved. First, previous studies have predominantly examined PSA effectiveness among general populations rather than among students with learning disabilities. As a result, empirical evidence explaining how this vulnerable population processes PSA visual information remains limited. Second, existing studies commonly conceptualize visual effectiveness as a single construct without distinguishing between visual sensation and visual perception as separate stages of cognitive processing. Consequently, current findings are insufficient to explain whether successful visual detection automatically translates into successful message comprehension. Third, studies on visual communication, multimedia learning, and inclusive design have largely been conducted independently, with limited efforts to integrate these perspectives into a comprehensive framework for evaluating PSA effectiveness among students with learning disabilities. Therefore, evidence-based guidelines for designing cognitively accessible PSA video remain underdeveloped.

These unresolved issues create both theoretical and practical implications. From a theoretical perspective, the absence of empirical differentiation between visual sensation and visual perception limits our understanding of how visual information is processed by students with learning disabilities. From a practical perspective, ineffective visual communication may unintentionally exclude vulnerable populations from receiving essential public information. Under such circumstances, students with learning disabilities may be able to visually detect information without fully understanding its intended meaning. This indicates that high visual saliency alone is insufficient to guarantee effective communication outcomes.

Therefore, this study seeks to address these limitations by empirically distinguishing visual sensation and visual perception as two sequential but independent dimensions of visual effectiveness among students with learning disabilities. Specifically, this study aims to (1) examine the level of visual sensation experienced by students with learning disabilities while watching PSA video, (2) analyse their visual perception of the visual messages presented, and (3) identify processing patterns between sensory and perceptual dimensions. By integrating visual communication theory, multimedia learning theory, cognitive load theory, and inclusive communication perspectives, this study is expected to contribute to the development of evidence-based guidelines for designing more inclusive, accessible, and perceptually sensitive public service advertisements.

LITERATURE REVIEW

Visual Effectiveness in Public Service Advertisements

Visual effectiveness refers to the ability of visual communication elements to attract attention, facilitate information processing, and support message comprehension among audiences. In the context of Public Service Advertisements (PSAs), visual effectiveness plays a crucial role because PSA messages are intended to educate, raise awareness, and encourage behavioural change among diverse populations (Hasrul & Mohamad Salleh, 2021). Unlike

commercial advertisements that primarily emphasize persuasion and consumer behaviour, PSA communication prioritizes public understanding and information accessibility.

Recent developments in digital communication have increased the reliance on visual elements such as colour, typography, images, motion graphics, and composition to convey information efficiently (Pirdaus et al., 2023).

However, visual attractiveness alone is insufficient to guarantee communication effectiveness. Schloss (2025) argued that visual information processing varies among individuals because audiences possess different cognitive abilities, perceptual characteristics, and prior experiences. Consequently, visual designs that are effective for general audiences may not necessarily be effective for cognitively diverse populations, including students with learning disabilities. Therefore, evaluating PSA effectiveness requires understanding not only whether visual information attracts attention but also whether audiences can successfully process and interpret the information being presented. This perspective highlights the importance of examining multiple stages of visual information processing rather than treating visual effectiveness as a single outcome.

Visual Sensation as the Initial Stage of Visual Processing

Visual sensation represents the initial stage of visual information processing in which sensory organs detect and differentiate visual stimuli before cognitive interpretation occurs (Moini et al., 2024). At this stage, audiences identify visual characteristics such as colour, contrast, brightness, typography, object visibility, and movement. The quality of these visual components determines whether information can be comfortably received and distinguished by viewers.

Visual sensation is influenced by basic visual properties that determine how information is initially detected and processed by viewers. Colour and contrast are particularly important because they increase visual salience and facilitate the differentiation of objects from their surrounding environments. Effective use of these elements enables viewers to recognize relevant information more efficiently and improves visual accessibility (Ware, 2013). Readable typography and well-structured visual hierarchies improve information accessibility by enabling viewers to locate, organize, and interpret essential information more efficiently (Pettersson, 2010). Effective information design therefore reduces visual ambiguity and supports efficient cognitive processing. However, visual stimulation should be carefully regulated because excessive visual dynamics may increase cognitive demands. According to Lang's (2006) Limited Capacity Model of Motivated Mediated Message Processing, rapid scene transitions and highly dynamic visual presentations may compete for viewers' limited attentional resources and interfere with effective information processing. Within PSA video, visual sensation serves as the foundation of communication effectiveness because audiences must first detect visual information before they can assign meaning to it. Consequently, deficiencies at the sensory stage may negatively influence subsequent perceptual processes and ultimately reduce communication effectiveness.

Visual Perception as Meaning Construction

Visual perception refers to the cognitive process through which individuals organize, interpret, and assign meaning to visual information (Winter et al., 2024). Unlike visual sensation, which focuses on stimulus detection, visual perception involves constructing

coherent understanding from various visual components. This process requires the integration of attention, memory, sensory input, and previous experiences.

In PSA video, visual perception is reflected through audiences' ability to interpret symbols, understand narrative sequences, recognize message intentions, and connect visual elements with their intended meanings. Effective learning occurs when visual and verbal information complement one another rather than compete for limited cognitive resources (Mayer et al., 2021). Similarly, Paivio's Dual Coding Theory suggests that information is more effectively understood when it is simultaneously processed through verbal and visual channels (Clark & Paivio, 2006).

Nevertheless, successful visual perception is not always guaranteed by strong visual sensation. Excessive visual density, overlapping information, and complex visual structures may increase cognitive demands and interfere with message interpretation. Consequently, viewers may recognize visual elements without fully understanding the intended message. This distinction demonstrates that visual visibility and visual understanding represent two separate but interconnected cognitive processes.

Learning Disabilities and Challenges in Visual Information Processing

Learning disabilities encompass a range of neurodevelopmental conditions that affect information processing, learning performance, and cognitive functioning. Among university students, common learning disabilities include Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), dyslexia, dysgraphia, and dyscalculia (Gray, 2023). These conditions may influence attention regulation, working memory, language processing, processing speed, and visual integration.

In Indonesia, inclusive education initiatives have increasingly been implemented within higher education institutions to ensure equitable educational opportunities for students with disabilities. However, challenges remain regarding equitable access to digital information and visual communication media. Students with learning disabilities often require more structured, segmented, and cognitively accessible information to facilitate understanding (Paramita et al., 2024).

Previous studies have demonstrated that reducing visual clutter, simplifying layouts, and controlling information density can improve accessibility among neurodiverse populations (Em et al., 2023). Therefore, understanding how students with learning disabilities process PSA video is essential for developing evidence-based and inclusive public communication strategies.

Cognitive Load Theory and Inclusive PSA Design

Cognitive Load Theory provides an important framework for understanding how individuals process visual information. Human working memory has limited capacity; therefore, excessive information may overwhelm cognitive resources and impair learning outcomes (Sweller et al., 2011). Mayer (2009) similarly emphasized that effective multimedia learning occurs when information is organized and presented in manageable segments.

Contemporary PSA video frequently employs visually dense compositions, intensive motion graphics, and rapid scene transitions to maximize audience engagement (Yan & Goh, 2025). Although these strategies may attract attention, they may also unintentionally create cognitive overload, particularly among individuals with learning disabilities. Under such circumstances, both visual sensation and visual perception may be negatively affected.

Therefore, Cognitive Load Theory serves as an important theoretical foundation for understanding the relationship between visual sensation and visual perception among students with learning disabilities. Effective PSA design should balance audience engagement with perceptual accessibility by minimizing unnecessary visual complexity while maintaining information clarity. This perspective provides a theoretical basis for examining how students with learning disabilities process PSA video through both sensory and perceptual dimensions.

METHODOLOGY

Research Design

This study employed a quantitative descriptive research design to investigate the visual effectiveness of Public Service Advertisement (PSA) video among students with learning disabilities. The study focused on two dimensions of visual processing, namely visual sensation and visual perception. A quantitative descriptive approach was selected because it enables researchers to systematically identify visual processing tendencies and describe participants' sensory and perceptual responses based on numerical data collected through structured questionnaires. In addition, a scene-by-scene visual analysis was conducted by the researchers to complement the quantitative findings and provide a deeper understanding of how visual elements contribute to sensory and perceptual processing.

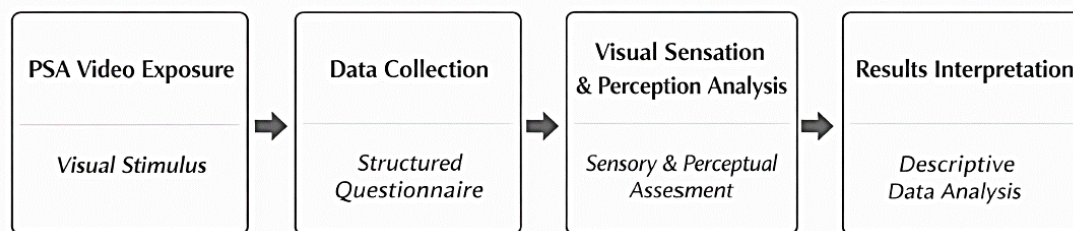


Figure 1: Conceptual framework

Ethical Considerations

This study was conducted in accordance with the ethical principles of respect for persons, beneficence, justice, confidentiality, anonymity, and voluntary participation. Prior to data collection, permission was obtained from the four participating universities and the disability support institution involved in the study. Eligible participants were informed about the research objectives, procedures, potential benefits, confidentiality measures, voluntary participation, and their right to withdraw from the study at any time without any consequences. Written informed consent was obtained from all participants before data collection commenced, and no personally identifiable information was collected.

The study has undergone ethical review by the Universiti Kebangsaan Malaysia (UKM) Research Ethics Committee and has received ethical approval. At the time of manuscript submission, the formal approval letter and reference number were still in the administrative issuance process. Upon issuance, the official ethical approval reference will be updated in the final published version if required by the journal.

Population and Sampling

The population of this study consisted of university students with learning disabilities enrolled in several higher education institutions in Indonesia that have implemented inclusive education initiatives, as well as students registered under disability support services. Learning

disabilities represented in this study included Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), dyslexia, dysgraphia, and dyscalculia.

Participants were recruited using purposive sampling because the study targeted a specific and difficult-to-access population. Three inclusion criteria were applied: (1) participants had to be officially registered as university students, (2) participants had to have documented learning disabilities or be registered under institutional disability support services, and (3) participants had to voluntarily agree to participate in the study.

A total of 37 students were recruited from four universities and one disability support institution in Indonesia. Although this sample size may appear relatively small, the study was not intended to produce population-level statistical generalizations. Instead, the study aimed to explore visual processing tendencies among students with learning disabilities, a population that is often difficult to access due to its relatively limited representation across higher education institutions. Therefore, purposive sampling was considered appropriate because it enabled the researchers to recruit participants who possessed characteristics directly relevant to the objectives of the study. This sampling technique is particularly suitable when investigating specific populations that meet predefined inclusion criteria (Creswell, 2009; Etikan, 2016).

It is important to note that this study was designed as a descriptive quantitative investigation rather than a population-based survey. Consequently, the adequacy of the sample should be evaluated according to the exploratory objectives of the study and the accessibility of the target population rather than conventional sample size requirements for inferential survey research. This approach is particularly appropriate when investigating underrepresented populations such as students with learning disabilities across multiple institutions.

Research Materials

The research materials consisted of one Public Service Advertisement (PSA) video selected purposively according to their relevance to the study objectives. The video was selected because it contained diverse visual communication elements, including colour composition, typography, visual hierarchy, icons, motion graphics, scene transitions, and multimodal accessibility features that could influence sensory and perceptual processing. The video addressed public awareness issues and represented authentic examples of contemporary public communication. The original content was maintained without modification to preserve its authenticity and ensure that participants were exposed to real-world PSA materials. Participants watched the video collectively at their respective institutions under standardized viewing conditions. To minimize environmental variability, participants were instructed to watch the video without interruption before completing the questionnaire. Identical viewing procedures were implemented across all participating institutions to ensure consistency of exposure among participants.

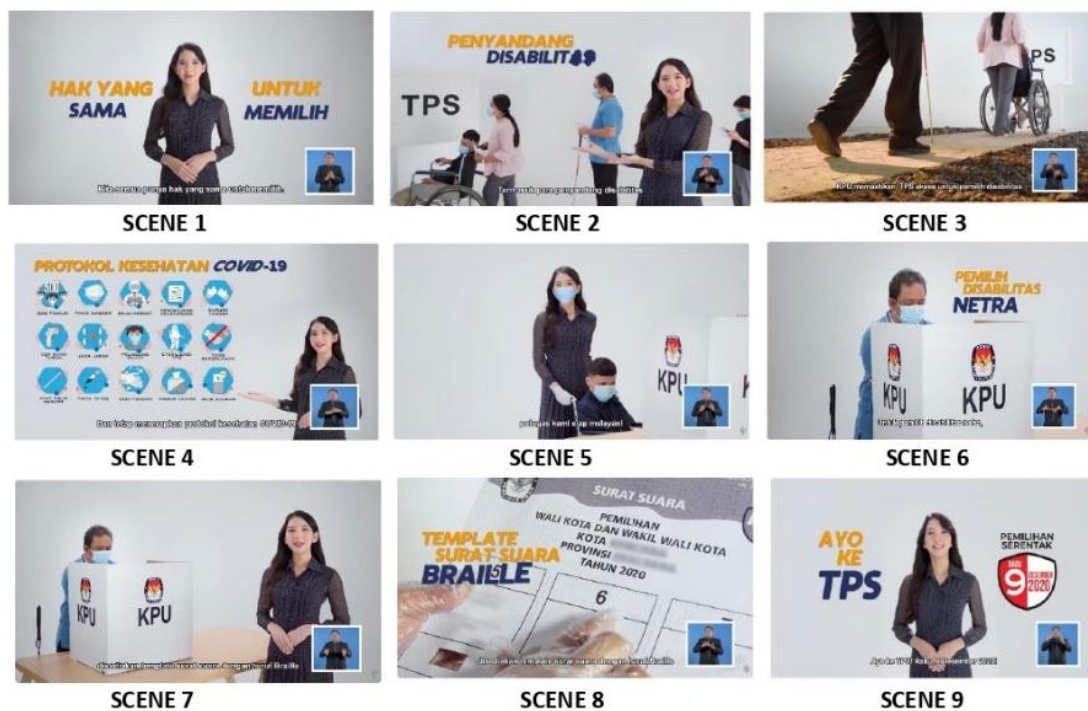


Figure 2: Public Service advertising video material

Research Instrument

Data were collected using a structured questionnaire consisting of two constructs, namely visual sensation and visual perception. The visual sensation construct measured participants' initial sensory responses to visual stimuli and included indicators such as colour clarity, contrast visibility, typography readability, object visibility, visual comfort, and motion intensity. The questionnaire items were adapted and modified to suit the context of PSA video evaluation among university students with learning disabilities (Pettersson, 2010; Ware, 2013).

The visual perception construct measured participants' ability to interpret and understand visual information, including symbolic interpretation, narrative coherence, message clarity, alignment between visual elements and intended meanings, and information organization. These indicators were adapted from the Cognitive Theory of Multimedia Learning, which explains how learners organize and integrate visual information (Mayer, 2002), visual semiotics, which emphasizes symbolic meaning construction (Chandler, 2017), and information design principles concerning the organization and accessibility of visual information (Pettersson, 2010). All questionnaire items were measured using a five-point Likert scale ranging from 1 (very low) to 5 (very high).

Table 1: Operational definition of variables

| Variable | Indicator | Source |
|------------------|---------------------------------|---|
| Visual Sensation | Color Attractiveness | (Spence, 2022) |
| Visual Sensation | Movement and Transition Clarity | (Mayer, 2002) |
| Visual Sensation | Visual Composition | (Lidwell, W., Holden, K., & Butler, 2003) |
| Visual Sensation | Lighting and Contrast | (Ware, 2013) |
| Visual Sensation | Visual Engagement | (Hollebeek, 2023) |
| Visual Sensation | Symbol and Icon Recognition | (Chandler, 2017) |

| | | |
|-------------------|---------------------------------------|---|
| Visual Sensation | Emotional Response | (Lang, 2006) |
| Visual Perception | Message clarity | (Mayer, R. E., Fiorella, L., & Stull, 2021) |
| Visual Perception | Text-Image Congruence | (Mayer, R. E., Fiorella, L., & Stull, 2021) |
| Visual Perception | Visual Support for Social Purpose | (Lester, 2006) |
| Visual Perception | Real-Life Relevance | (Green & Brock, 2000) |
| Visual Perception | Character-Based Message Understanding | (Moyer-Gusé, 2008) |
| Visual perception | Audio-Independent Comprehension | (Mayer, R. E., Fiorella, L., & Stull, 2021) |
| Visual Perception | Reflective Visualization | (Mayer, 2002) |
| Visual perception | Content Clarity | (O’Keefe, 2018) |
| Visual Perception | Social Message Effectiveness | (Baig et al., 2018) |
| Visual perception | Comprehension Suitability | (Mayer, R. E., Fiorella, L., & Stull, 2021) |
| Visual Perception | Visual Communication Satisfaction | (Hollebeek, 2023) |

Data Collection Procedure

Data collection was conducted in six stages. First, official permission was obtained from the four participating universities and one disability support institution involved in this study. Second, institutional coordinators and disability support service providers assisted in identifying eligible participants based on the inclusion criteria. Third, participants were informed about the study objectives, procedures, confidentiality measures, and their rights as research participants before informed consent was obtained.

Fourth, participants watched the selected PSA video at their respective institutions under standardized viewing conditions. Fifth, participants completed the questionnaire immediately after viewing the video to capture their sensory and perceptual responses while minimizing recall bias. Finally, the researchers conducted a scene-by-scene visual analysis of the PSA video to complement and contextualize the quantitative findings.

Data Analysis

The collected data were analysed using descriptive statistical techniques to examine students' responses toward the Public Service Advertisement (PSA) video. Frequency analysis was used to describe the distribution of participants' responses, while mean scores were calculated to determine the average levels of visual sensation and visual perception among students with learning disabilities. The questionnaire employed a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Mean scores were calculated for each questionnaire item to identify participants' levels of agreement with the indicators of visual sensation and visual perception. The use of mean scores is appropriate for summarising Likert-scale responses in descriptive quantitative research because it provides a clear representation of participants' overall responses (Boone & Boone, 2012). To facilitate interpretation, mean scores were classified into five descriptive categories: 1.00–1.80 (Very Low), 1.81–2.60 (Low), 2.61–3.40 (Moderate), 3.41–4.20 (High), and 4.21–5.00 (Very High), as presented in Table 2.

Table 2: Mean interpretation

| Mean | Interpretation |
|-----------|----------------|
| 1.00–1.80 | Very Low |
| 1.81–2.60 | Low |
| 2.61–3.40 | Moderate |
| 3.41–4.20 | High |
| 4.21–5.00 | Very High |

Source: Developed by the researchers based on the five-point Likert scale

To complement the quantitative findings, a scene-by-scene analysis was conducted to examine how specific visual elements influenced visual sensation and visual perception. The PSA video was divided into nine scenes, and each scene was systematically analysed to identify visual communication elements, including colour composition, typography, visual hierarchy, symbolism, motion, and multimodal accessibility features. The analysis focused on how these visual elements supported participants' sensory responses and message comprehension. The analytical framework was informed by Information Design (Pettersson, 2007), Information Visualization (Ware, 2013), the Cognitive Theory of Multimedia Learning (Mayer, 2002), Visual Semiotics (Chandler, 2017), and the Limited Capacity Model of Motivated Mediated Message Processing (Lang, 2006). The findings from the scene-by-scene analysis were subsequently compared with the descriptive statistical results to provide a comprehensive interpretation of the visual effectiveness of the PSA video among students with learning disabilities.

RESULTS

Visual characteristic Participant

Table 3: Participant distribution

| Category | Description |
|----------------------------|---|
| Participants | 37 students |
| Institutions | 4 universities and 1 disability support institution |
| Media material | 1 PSA video |
| Data collection instrument | 5-point Likert questionnaire |

Visual Sensation

Table 4: Visual sensation results

| Item | Mean | Interpretation |
|--------------|------|----------------|
| SV1 | 3.8 | High |
| SV2 | 3.9 | High |
| SV3 | 4.0 | High |
| SV4 | 4.1 | High |
| SV5 | 4.1 | High |
| SV6 | 3.9 | High |
| SV7 | 3.5 | High |
| Overall Mean | 3.9 | High |

The findings indicate that students generally demonstrated high levels of visual sensation while watching the PSA video, with an overall mean score of 3.9. This result suggests that the visual elements presented in the video were effective in attracting participants' attention and facilitating initial sensory processing. Among the indicators, lighting and contrast (SV4) and sustained visual attention (SV5) obtained the highest mean scores ($M = 4.1$), indicating that clear and well-organized visual presentations support sensory engagement among students with learning disabilities. In contrast, emotional responses (SV7) obtained the lowest mean score ($M = 3.5$). Although this score remains within the high category, it suggests that emotional engagement may require more complex cognitive processing beyond the initial sensory stage. Overall, these findings demonstrate that

structured visual elements facilitate visual sensation among students with learning disabilities.

Visual Perception

Table 5: Visual perception results

| Item | Mean | Interpretation |
|--------------|------|----------------|
| PV1 | 4.1 | High |
| PV2 | 4.0 | High |
| PV3 | 4.1 | High |
| PV4 | 3.7 | High |
| PV5 | 4.1 | High |
| PV6 | 3.7 | High |
| PV7 | 3.6 | High |
| PV8 | 4.1 | High |
| PV9 | 3.9 | High |
| PV10 | 4.1 | High |
| PV11 | 4.0 | High |
| Overall Mean | 3.9 | High |

The findings show that students generally demonstrated high levels of visual perception, with an overall mean score of 3.9. Participants were able to understand the main message, identify the intended social purpose, and interpret the visual content effectively. Indicators related to understanding the main message (PV1), understanding the social purpose (PV3), understanding moral messages through characters (PV5), and the suitability of the visual presentation to participants’ needs (PV10) obtained the highest mean scores (M = 4.1). Conversely, indicators associated with everyday relevance (PV4; M = 3.7), understanding messages without audio (PV6; M = 3.7), and reflective thinking (PV7; M = 3.6) obtained comparatively lower scores. These findings indicate that higher-order interpretation processes may require additional cognitive support among students with learning disabilities

Integrated Findings

Table 6. Comparison between Visual Sensation and Visual Perception

| Variable | Overall Mean | Interpretation |
|-------------------|--------------|----------------|
| Visual Sensation | 3.9 | High |
| Visual Perception | 3.9 | High |

Overall, visual sensation and visual perception obtained identical overall mean scores (M = 3.9), indicating that successful sensory detection was accompanied by successful message interpretation. However, several indicators associated with emotional responses and higher-order cognitive interpretation obtained comparatively lower scores. This finding suggests that effective visual communication should not only attract attention but also support accessible and meaningful understanding among students with learning disabilities.

Scene By Scene Analysis

Table 7: Scene by scene analysis

| Scene | Dominant Visual Elements | Analytical Findings | Theoretical Support |
|---------|--|---|---|
| Scene 1 | Colour composition and visual hierarchy | Clear visual organization facilitated attention and object recognition. | (Ware, 2013) (Pettersson, 2010) |
| Scene 2 | Typography and icons | Readable typography and recognizable icons improved information accessibility. | (Pettersson, 2010) |
| Scene 3 | Character interaction and visual narrative | Character representation supported message interpretation. | (Chandler, 2017) |
| Scene 4 | Public information symbols | Visual symbols simplified the communication of social messages. | (Chandler, 2017) |
| Scene 5 | Subtitles and multimodal cues | Multimodal elements enhanced message comprehension. | (Mayer, R. E., Fiorella, L., & Stull, 2021) |
| Scene 6 | Visual transitions and movement | Dynamic movement increased cognitive demands. | (Lang, 2006) |
| Scene 7 | Colour emphasis and focus points | Colour contrast directed viewers' attention to important information. | (Ware, 2013) |
| Scene 8 | Visual sequencing | Sequential presentation improved narrative coherence. | (Mayer, 2002) |
| Scene 9 | Integrated visual presentation | The combination of visual elements supported overall communication effectiveness. | (Mayer, 2002; Pettersson, 2010) |

A scene-by-scene analysis was conducted to complement the quantitative findings and provide a deeper understanding of how visual elements influenced visual sensation and visual perception among students with learning disabilities. Across the nine scenes, static visual elements, including colour composition, typography, icons, and visual hierarchy, consistently supported both sensory detection and message comprehension. These findings suggest that clearly organized visual information improves information accessibility among students with learning disabilities.

The analysis further revealed that multimodal accessibility features, such as subtitles, visual symbols, and sequential information presentation, facilitated message interpretation and narrative understanding. These findings are consistent with multimedia learning principles, which emphasize the importance of integrating visual and textual information to improve comprehension (Mayer, 2002).

However, dynamic visual elements, particularly rapid transitions and intensive movements, may increase cognitive demands and potentially reduce processing comfort among students with learning disabilities. This finding supports Lang's (2006) Limited Capacity Model, which suggests that excessive visual stimulation may overload attentional resources. Overall, the scene-by-scene analysis complements the quantitative findings by demonstrating that effective PSA design requires balancing visual attractiveness with perceptual accessibility.

Table 8. Integration of Quantitative and Scene-by-scene Findings

| Dimension | Quantitative Findings | Scene Analysis Findings | Interpretation |
|----------------------|---|---|--|
| Visual Sensation | Overall Mean = 3.9 | Colour, composition, and contrast facilitated attention. | Static visual elements support sensory processing. |
| Visual Perception | Overall Mean = 3.9 | Subtitles, symbols, and visual narratives improved comprehension. | Structured visual information supports message interpretation. |
| Cognitive Challenges | Several indicators obtained lower scores. | Rapid movements increased cognitive demands. | Visual complexity should be minimize |

DISCUSSION

Visual Sensation in PSA Video among Students with Learning Disabilities

The findings indicate that students with learning disabilities generally demonstrated high levels of visual sensation while watching the PSA video ($M = 3.9$). This finding suggests that the visual elements presented in the video were effective in attracting attention and facilitating the initial stage of sensory processing. Indicators associated with lighting, contrast, image composition, and sustained attention obtained relatively higher scores, indicating that organized visual structures may support visual accessibility among students with learning disabilities.

This finding is consistent with information design theory, which argues that colour, contrast, and visual hierarchy facilitate object recognition and information discrimination (Ware, 2013). Similarly, Pettersson (2010) emphasized that clearly organized visual structures improve accessibility by reducing visual ambiguity and supporting information processing efficiency. These findings suggest that stable visual elements are particularly important for audiences with diverse cognitive characteristics.

However, emotional responses obtained comparatively lower scores than other indicators. This finding may indicate that emotional engagement involves more complex cognitive mechanisms that extend beyond the initial sensory stage. Therefore, effective PSA design should not only prioritize visual attractiveness but also consider the cognitive characteristics of students with learning disabilities.

Visual Perception in PSA Video among Students with Learning Disabilities

The findings further demonstrate that students generally exhibited high levels of visual perception ($M = 3.9$). Participants were able to understand the main message, recognize the intended social purpose, and interpret the visual information presented in the PSA video. This finding indicates that the visual communication strategy implemented in the PSA successfully supported message comprehension among students with learning disabilities.

These findings are aligned with Mayer (2002) Cognitive Theory of Multimedia Learning, which explains that meaningful learning occurs when visual and verbal information complement each other rather than compete for limited cognitive resources. Similarly, Paivio's Dual Coding Theory suggests that information becomes easier to understand when processed simultaneously through visual and verbal channels (Clark & Paivio, 2006).

Nevertheless, indicators associated with understanding messages without audio and reflective thinking obtained comparatively lower scores. This finding suggests that higher-order cognitive interpretation may require additional support mechanisms, particularly

among students with learning disabilities who may experience challenges related to working memory, information integration, and sustained attention.

The Relationship between Visual Sensation and Visual Perception

One of the most important findings of this study is that visual sensation and visual perception obtained identical overall mean scores ($M = 3.9$). This finding suggests that successful sensory detection was accompanied by successful message interpretation. In other words, participants who were able to comfortably receive visual stimuli also tended to demonstrate better message comprehension.

However, this relationship should not be interpreted as a direct causal relationship. Rather, the findings indicate that sensory accessibility may facilitate perceptual understanding when visual information is presented in a structured and organized manner. This observation is consistent with Cognitive Load Theory, which argues that reducing unnecessary cognitive demands enables audiences to allocate more cognitive resources to meaningful information processing (Sweller, J., Ayres, P. and Kalyuga, 2011).

Therefore, effective PSA communication should be understood as a multidimensional process that involves both sensory accessibility and perceptual understanding rather than focusing solely on visual attractiveness.

Implications for Inclusive PSA Design

This study provides practical implications for the development of inclusive public communication strategies. First, PSA designers should prioritize clear visual organization, readable typography, effective colour contrast, and balanced information density to improve accessibility among students with learning disabilities. Second, excessive visual movement and unnecessary visual complexity should be minimized to reduce cognitive overload. Third, multimodal accessibility features, such as subtitles, symbols, and visual cues, should be incorporated to facilitate message comprehension among audiences with diverse cognitive characteristics.

More broadly, the findings contribute to the development of inclusive communication practices in higher education and public information environments. Designing accessible PSA materials may support equitable access to information for students with learning disabilities and strengthen inclusive communication initiatives within educational institutions.

Study Contribution

This study contributes to visual communication research by integrating visual sensation and visual perception within a single analytical framework among students with learning disabilities. Unlike previous studies that primarily focused on general audiences, this study specifically examines an underrepresented population and combines quantitative findings with scene-by-scene visual analysis. This approach provides a more comprehensive understanding of how visual communication can be designed to support inclusive public communication. These findings may also assist government agencies, public institutions, and media designers in developing more accessible public communication for individuals with diverse cognitive characteristics.

CONCLUSION

This study examined the visual effectiveness of a Public Service Advertisement (PSA) video through the dimensions of visual sensation and visual perception among students with learning disabilities in several higher education institutions in Indonesia. Overall, the findings indicate that participants demonstrated high levels of both visual sensation and visual perception, with identical overall mean scores ($M = 3.9$). These findings suggest that the visual elements presented in the PSA video were generally effective in supporting both initial sensory detection and message comprehension among students with learning disabilities.

The study further revealed that organized visual elements, such as clear compositions, appropriate colour contrast, readable typography, and effective visual structures, positively contributed to participants' sensory and perceptual processing. Conversely, indicators associated with emotional engagement and higher-order cognitive interpretation obtained comparatively lower scores, indicating that complex cognitive processing may require additional support among students with learning disabilities. The scene-by-scene analysis also demonstrated that multimodal accessibility features, including symbols, subtitles, and structured visual sequences, play an important role in improving information accessibility and message interpretation.

This study contributes to the visual communication literature by integrating visual sensation and visual perception within a single analytical framework among students with learning disabilities, a population that remains underrepresented in PSA research. Unlike previous studies that predominantly focus on general audiences, this study specifically highlights the importance of inclusive communication design for cognitively diverse populations. The integration of quantitative findings and scene-by-scene analysis also provides a more comprehensive understanding of how visual communication strategies influence both sensory and perceptual processing.

Practically, the findings suggest that PSA designers should prioritize accessible visual communication by minimizing unnecessary visual complexity, maintaining balanced information density, and incorporating multimodal accessibility features to improve message comprehension among students with learning disabilities. These findings may support the development of more inclusive public communication strategies within educational and public information environments.

Nevertheless, this study has several limitations. First, the study involved a relatively small number of participants from selected institutions; therefore, the findings should not be generalized to all students with learning disabilities in Indonesia. Second, the study analysed only one PSA video, which may limit the diversity of visual communication patterns examined. Future studies are encouraged to involve larger samples, multiple PSA materials, and additional analytical approaches to further understand visual information processing among students with learning disabilities. Ultimately, effective public communication should not only be visually attractive but also cognitively accessible to ensure equitable access to information for all audiences, including students with learning disabilities.

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