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Department of Health Covid-19 Infographics Safety Reminder: A Semiotic Analysis

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Abstract

This study focuses on analyzing the semiotics of infographics used in health communication, particularly in the context of COVID-19 control and prevention issued by the Department of Health (DOH) in the Philippines. The objective is to identify, categorize, and interpret the visual signs employed in these infographics, considering their denotative and connotative meanings. The study follows qualitative and interpretative context analysis methods, using Charles Sanders Peirce's semiotic theory as the framework. The researchers will carefully examine the visual content, including objects, people, colors, and shapes. Ethical considerations such as credibility, trustworthiness, transferability, confirmability, and dependability will be addressed. The research corpus consists of five infographics issued by the DOH, each targeting different audiences and covering various aspects of COVID-19. The findings reveal a range of visual signs, including representations of respiratory symptoms, hand hygiene practices, medical professionals, news updates, and communication methods. Wearing face masks, seeking medical advice, and following proper etiquette is emphasized. The color schemes and symbols effectively convey urgency, caution, and guidance. Visual signs in the infographics play a crucial role in raising awareness and promoting public health measures during the COVID-19 pandemic which contribute to a comprehensive understanding of the messages conveyed through visual communication strategies.

Keywords: A Semiotic Analysis; Covid-19 Health Infographics; Covid-19 Poster Reminders; Health and Safety

INTRODUCTION

Language informative purpose is conveying information that educates others by being able to effectively communicate the facts. Its directive function is to direct someone else in any given circumstance (Nair, 2022). Communication, Fiske (1983) noted, "is too frequently taken for granted when it should be taken to pieces". Semiotics is one

appropriate tool to use in the endeavor to take apart, to unlock, interactional meanings (Leeds-Hurwitz, 1993). Visual representations play a crucial role in communicating health and safety protocols effectively. Language serves an informative purpose by providing clear and concise explanations, instructions, and guidelines to accompany visual representations. This combination of visuals and language enhances understanding, reinforces key messages, and ensures compliance with health and safety protocols. The researchers sought to understand the infographics or visual representations of guidance on health and safety protocol advertised by the department of health.

Posters are an excellent technique of mass communication for distributing new health information and discoveries to the general public. Posters successfully express concepts affordably through graphics and symbols. Health posters are aesthetically pleasing and cross all cultural boundaries (Asogwa, 2021). The context of a global health crisis, such as the Covid-19 pandemic, provides the backdrop for Covid-19 infographics. The urgency, severity, and impact of the crisis influence the design and content of these infographics. Covid-19 infographics serve as a means of effectively communicating crucial information related to the virus, including preventive measures, symptoms, testing procedures, and vaccination campaigns. It emphasizes the need for clear, concise, and accessible information. The purpose of Covid-19 infographics is to inform and educate the public about the virus which will enable individuals to make educated decisions and take the necessary actions. COVID-19 infographics safety reminders communicate the control and prevention guide of the COVID-19 virus. Health service advertisement plays an important role in this pandemic to remind the citizens to keep safe amidst the growing number of cases of COVID-19 which persuades the citizens to abide by the protocols and protect their welfare. Reputable sources such as the World Health Organization (WHO), local hospitals, and city municipalities use images to communicate their ideas in the public. According to studies, these graphics attract the audience's attention and help them remember key details (Spohn, 2022). Visual and verbal relationships are very close. If there is only one visual or verbal communication, communication will continue, but limited understanding. When both visual and verbal information are used together, understanding will be significantly higher (Nabila et al., 2022). These infographics involve a broad knowledge of semiotics which shall be examined to ensure that the public completely understands the message beyond the surface. In linguistics, the combination of verbal and features in WHO Covid-19 promotional posters can be investigated using the so-called semio-pragmatic analytical framework, which combines semiotics with pragmatics (Muhassin, 2022).

The infographics advertised by the Department of Health (DOH) involved a broad knowledge of semiotics. Infographics must be analyzed to ensure that the public completely understands the message beyond the surface. The effectiveness of the health safety reminder relies on the ability of the infographics to convey the message and encourage behavioral changes (Makulec, 2020). Infographics have the power to increase public awareness and compliance with safety precautions like face masks, which is essential in the ongoing fight to stop the spread of COVID-19 and its serious public health consequences (Egan, 2021).

Most researchers saw the need to enhance the readability and accessibility of infographics for better knowledge retention and understanding. According to Riggs et al., jargon was linked to difficult message processing, message resistance, lower

perceptions of message credibility, and lower intentions to follow to COVID-19 safety measures (2022). There is a lot of research about Covid-19 infographics pertaining to how to reduce the burden of the message however, there is a lack of research in examining the semiotics of the infographics. The researcher saw the need to study the infographics and aim to understand why certain infographics were used in presenting the information. It is important to understand its context and the reason behind it.

In conclusion, this study is anchored on the theory of Charles S. Pierce which defines semiotics as logic, associating the human mind and sign boundaries (Yakin & Totu,2014). Charles Sanders Peirce (1839-1914), an American philosopher, logician, and physicist, created "semiotics" and its essential ideas. He considers everything including words, images, smells, and objects, can be a sign. Peirce's most significant theories are the semiotic triad and technique of sign (Dahlstrom & Somayaji, 2003). Peirce elaborate sign theories to clarify reference, intellect, communication, and meaning. His theories' most novel elements included the icon, index, and sign classification by symbol (Hogan, 2014). Meanwhile, for Roland Barthes states that semiology refuses to accept the message at face value; it focuses on messages and the best methods of reading them (Barthes, 1964 as cited by Seiler, n.d.). “Nothing is a sign unless it is interpreted as a sign” (Peirce, 1894 as cited by Hartshorne & Weiss, 1935). In research from Nabila et al., the message in the posters is easier for the public to grasp since graphics have clearer meanings than text. Roland Barthes popularized semiotics by broadening it with visual elements including photography, advertisements, and films (2022).

The study's conclusions are expected to be beneficial academically by deepening the understanding of symbols and serve as a benchmark or reference for researchers interested in studying infographics about COVID-19 control and prevention. In addition, this will provide the public with an in-depth knowledge of the posters promoted by the Department of Health. Moreover, the findings of this research will benefit the local government and global context in promoting posters that are more effective in promoting posters that will catch the public's attention and improve the people's vigilance and information retention.

Research Objectives

The study seeks to analyze the indicators that are utilized nonverbally, and to give the infographics a lot of context. Specifically, the study aims to: (1) Identify the visual signs (2) Categorize the visual signs; and (3) Interpret the denotative and connotative meaning of visual signs.

METHOD

Data Source

There were no participants in this study. The data which will be analyzed in the study will be from the Department of Health (DOH) Philippines infographics about COVID-19 safety. The Department of Health (DOH) Philippines is the principal healthcare agency. By providing high-quality medical care and controlling the distribution of health products and services, it is accountable for ensuring that all Filipinos have access to fundamental public health services (“About us: Department of Health Website”). The scope of the study deals with the posters promoted by the Department of Health (DOH). This research conducts to describe the meaning of each symbols in Department of

Health's (DOH) collection of infographics entitled: (1) Health Advisory Tungkol sa Coronavirus, (2) Novel Coronavirus (2019-nCoV), (3) DOH Advisory Question Paano naipapasa ang virus ng Covid-19? (4) DOH Advisory: Covid-19 Kung Ikaw ay Nag-aalaga ng Taong Hinihinalang May COVID-19 and (5) 2019 Novel Coronavirus Acute Respiratory Disease (2019-nCoV ARD) Health Advisory For Overseas Filipinos in China, Hong Kong, Macau, and Taiwan based on Charles Sanders Peirce's semiotic theory.

In the inclusion of infographics for analysis, the following selection criteria was followed: accuracy and clarity, relevance and applicability, visual design and organization, language and accessibility, comprehensive coverage, and user-focused approach for diverse audiences. These criteria ensured that the chosen infographics effectively conveyed the desired insights and findings in a visually engaging and comprehensible manner.

SELECTION CRITERIA				
	Excellent (4)	**Good (3)**	**Fair (2)**	**Poor (1)**
Content Accuracy	The infographics present accurate and up-to-date information on all relevant topics related to COVID-19.	The infographics present mostly accurate and up-to-date information on most relevant topics.	The infographics contain some inaccuracies or outdated information on relevant topics but with inaccuracies or outdated information.	The infographics contain significant inaccuracies or outdated information on relevant topics.
Clarity	The information is presented in a clear and easily understandable manner.	The information is mostly clear and understandable.	The information has some elements of confusion but can be understood with effort.	The information is unclear or difficult to understand for the target audience.
Local Context	The infographics comprehensively address the specific context of the Philippines, including local guidelines, regulations, and health recommendations related to COVID-19.	The infographics adequately address the specific context of the Philippines, including some local guidelines, regulations, and health recommendations related to COVID-19.	The infographics partially address the specific context of the Philippines, but with limited or outdated information or incomplete coverage.	The infographics minimally or do not address the specific context of the Philippines, including local guidelines, regulations, and health recommendations related to COVID-19 are missing.

Applicability	The infographics provide practical and actionable guidance that can be easily implemented in the specific context of the Philippines.	The infographics provide practical and actionable guidance that can be implemented in the specific context of the Philippines.	The infographics provide some practical guidance, but may lack specificity or applicability to the specific context of the Philippines.	The infographics provide limited or irrelevant guidance that does not address the specific context of the Philippines or is not feasible or practical.
Layout and Structure	The layout and structure of the infographic are well-designed and effectively organized, with a logical flow of information.	The layout and structure of the infographic are well-designed and organized, facilitating readability and comprehension.	The layout and structure of the infographic are somewhat designed and organized, but may lack coherence or consistency.	The layout and structure of the infographic are poorly designed and hinder readability and comprehension.
Visual Elements	The visual elements (e.g., images, illustrations, icons) are thoughtfully chosen and visually appealing, enhancing the overall design and engagement of the infographic.	The visual elements effectively support the understanding and enhance the visual appeal of the infographic. They align with the content and contribute to readability.	The visual elements are present but may lack cohesiveness or may not fully enhance the visual appeal of the infographic. They do not significantly detract from readability.	The visual elements (e.g., images, illustrations, icons) are poorly chosen or do not contribute to the visual appeal or overall design of the infographic.
Color Scheme and Typography	The color scheme and typography choices are well-coordinated, visually harmonious, and enhance readability.	The color scheme and typography choices are mostly coordinated and contribute to readability.	The color scheme and typography choices may lack coordination or coherence.	The color scheme and typography choices are poorly coordinated and detract from readability.

Language Clarity	The language used in the infographics is clear, concise, and easily understandable.	The language used in the infographics is mostly clear, and concise, facilitating comprehension.	The language used in the infographics is generally understandable, but may have occasional ambiguity.	The language used in the infographics is unclear, verbose, or confusing, hindering comprehension.
Accessibility	The infographics are designed to be inclusive and accessible to a wide range of individuals, including those with limited health literacy or language proficiency.	The infographics are accessible to a wide range of individuals, including those with limited health literacy or language proficiency.	The infographics are somewhat accessible to a limited range of individuals, and may not be fully accessible to all individuals.	The infographics are not accessible to individuals with limited health literacy or language proficiency.
Prevention Strategies	The infographics provide a thorough and comprehensive coverage of COVID-19 prevention strategies, including a wide range of measures such as hygiene practices, social distancing, and mask usage.	The infographics cover most of the essential prevention strategies, but may lack depth or comprehensiveness in certain areas.	The infographics cover some of the essential prevention strategies, and some important information may be missing.	The infographics provide limited or incomplete coverage of COVID-19 prevention strategies, omitting key aspects.
Symptoms	The infographics provide a thorough and comprehensive coverage of COVID-19 symptoms,	The infographics cover most of the essential symptoms, but may lack depth or comprehensive	The infographics cover some of the essential symptoms, and may not provide comprehensiv	The infographics provide limited or incomplete coverage of COVID-19 symptoms,

	including common and uncommon symptoms, their presentation, and when to seek medical attention.	information on less common symptoms.	e coverage or may include inaccuracies.	omitting key symptoms or providing inaccurate or misleading information.
Testing Recommendations	The infographics provide a thorough and comprehensive coverage of COVID-19 testing recommendations, including types of tests available, testing procedures, and testing eligibility.	The infographics cover most of the essential testing recommendations, but may lack depth or comprehensiveness in certain areas.	The infographics cover some of the essential testing recommendations, and may not provide comprehensive information.	The infographics provide limited or incomplete coverage of COVID-19 testing recommendations, omitting key aspects.
Travel Advisories	The infographics provide a thorough and comprehensive coverage of travel advisories, including restrictions, requirements, and safety measures.	The infographics cover most of the essential travel advisories, and guidelines, but may lack depth or comprehensiveness in certain areas.	The infographics cover some of the essential travel advisories, and guidelines, and may not provide comprehensive information.	The infographics provide limited or incomplete coverage of travel advisories, and guidelines, omitting key information or providing inaccurate or misleading information.
Myth-Busting	The infographics provide a thorough and comprehensive coverage of common myths and misconception	The infographics cover most of the essential myth-busting topics related to COVID-19, but may lack depth or	The infographics cover some of the essential myth-busting topics, but may not address certain	The infographics provide limited or incomplete coverage of myth-busting topics, omitting key

	s related to COVID-19 and provide accurate information to debunk them.	comprehensive ness in certain areas.	common myths or provide inaccurate information.	myths or misconception s or providing inaccurate or misleading information.
Target Audience	The infographics demonstrate a clear understanding of the target audience and effectively address their needs and concerns.	The infographics show a reasonable understanding of the target audience and address some of their needs and concerns.	The infographics partially consider the needs and concerns of the target audience, but may not fully meet their needs and concerns.	The infographics do not consider the needs and concerns of the target audience, providing irrelevant or impractical information.
Practical Information	The infographics provide practical and actionable information that can be easily implemented in daily life.	The infographics provide actionable information that can be implemented in daily life.	The infographics provide some actionable information, but may lack practicality or may be impractical for some.	The infographics provide limited or impractical information that is not easily implemented in daily life.

The rubric assesses sixteen key aspects, content accuracy, clarity, local context, applicability, layout and structure, visual elements, color scheme and typography, language clarity, accessibility, prevention strategies, symptoms, testing recommendations, travel advisories, myth-busting, target audience, and practical information. Each aspect is evaluated on a scale of 1 to 4, with 4 being the highest score indicating excellent relevance and applicability, and 1 being the lowest score indicating poor relevance and applicability.

The materials that will be used in the study will come from the Department of Health's (DOH) collection of infographics entitled: (1) Health Advisory Tungkol sa Coronavirus, (2) Novel Coronavirus (2019-nCoV), (3) DOH Advisory Question Paano naipapasa ang virus ng Covid-19? (4) DOH Advisory: Covid-19 Kung Ikaw ay Nag-aalaga ng Taong Hinihinalang May COVID-19 and (5) 2019 Novel Coronavirus Acute Respiratory Disease (2019-nCoV ARD) Health Advisory For Overseas Filipinos in China, Hong Kong, Macau, and Taiwan based on Charles Sanders Peirce's semiotic theory. The meaning of each symbol will be described and interpreted in the study.

The Design and Procedure

The qualitative and interpretative context analysis method will be used for this research. Developing an understanding of the meaning and experience aspects of people's lives and social environments is a goal of qualitative research. It aims to gain

insight on the participants' own subjective meanings, behaviors, and social circumstances (Fossey et al., 2002). Qualitative research allows you to explore people's experiences in detail such as content analysis, and visual methods. One of qualitative research's most distinctive features is the interpretive approach which allows you to identify issues, understand the meanings and interpretations (Hennink et al., 2020). A technique of qualitative research known as "interpretative phenomenological analysis analysis" (IPA) focuses on how people interpret their significant life experiences (Smith et al., 2022).

This study is a case centric research design. A qualitative case study is a research methodology that aids in the analysis of a phenomenon within a specific context and reveals the phenomenon's many dimensions using diverse data sources and several perspectives (Baxter & Jack, 2015). The case study method enables thorough, in-depth examinations of complicated issues in the context of real-world situations (Roller, 2021). The importance of the case study approach is acknowledged in health services research, which has produced insightful findings about many crucial facets of health and healthcare provision (Crowe et al., 2011).

In examining the department of health infographics, the cruciality is to ensure that the intended meanings are clearly understood by the public. It is vital to be aware of what is happening in society to help reduce the spread of the COVID-19 virus. Having the clarity of the message to the public helps to be more aware of the context that is embedded in those posters. The desired meaning is communicated and influences the people to take action according to these health advisories as it can keep them from harm and other people. It may be possible to flatten the COVID-19 pandemic's transmission curve by understanding how knowing COVID-19 infographics affects efforts to prevent COVID-19 transmission (Bakhtiar et al., 2020).

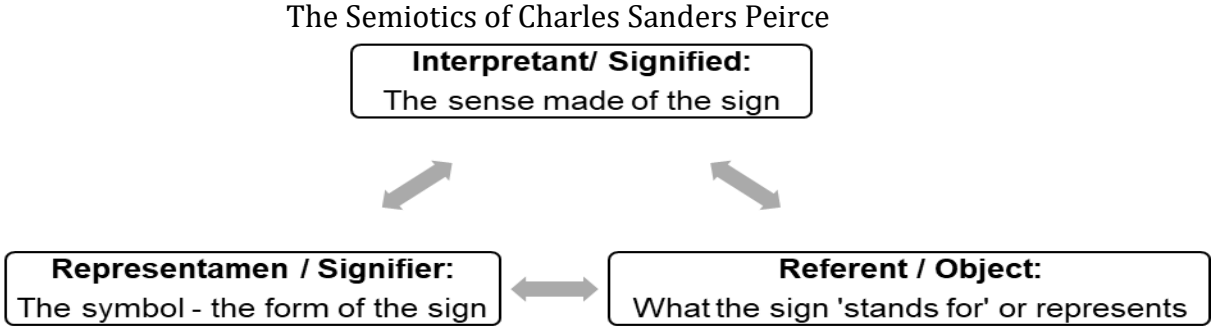


Figure 1. **Conceptual Framework**

A semiotic analysis has three steps: (1) Analyze verbal signs (what you see and hear), (2) Analyze visual signs (what you see), (3) Analyze the symbolic message (interpretation of what you see) Each sign consists of two parts: (1) Signifier, the form it takes and (2) Signified, the concept it represents. (Vos, 2022).

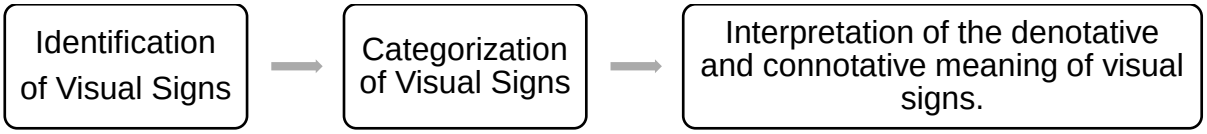
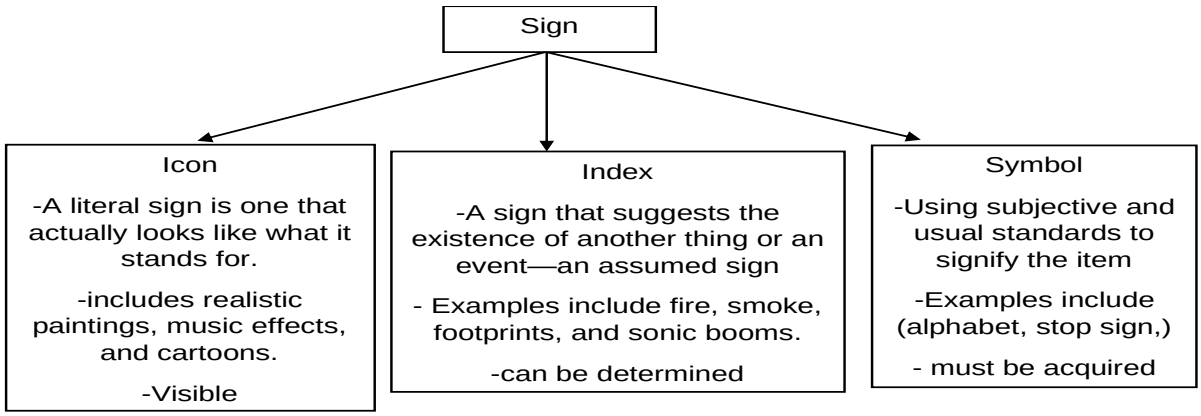


Figure 2. **Flow of Analysis**

The flow of analysis in semiotics involves three main steps. Firstly, identifying the verbal signs involves examining any accompanying text or written elements in the visual material and analyzing their meaning. Secondly, categorizing the visual signs entails

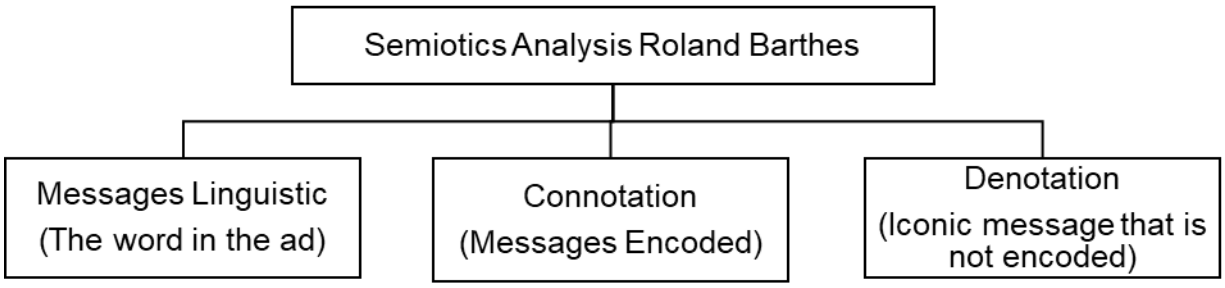
identifying and classifying the visual elements within the composition, such as objects, colors, shapes, and their relationships, based on their sign type (iconic, indexical, or symbolic). Lastly, interpreting the denotative and connotative meaning of visual signs involves understanding the literal or explicit message conveyed by the signs (denotation) as well as the subjective or cultural associations and interpretations they evoke (connotation). By following this flow, one can systematically analyze and understand the semiotic aspects of visual communication.

In identifying the visual signs in this semiotic study, the researchers carefully examined the visual content, looking for recurring or prominent elements that stand out. This includes observing objects, people, colors, shapes, and their relationships within the composition. Additionally, attention is paid to the visual characteristics of the signs, such as their shape, color, size, position, and orientation.



Pierce's interpretation of the semiotics of signs, emphasized three components of signs: iconic, symbolic, and indexical dimensions (Hassan,2015). Peirce argued that a sign can be classified as an icon, index, or symbol, with an icon having physical resemblance to the signified, an index showing evidence, and a symbol having no resemblance (Bradley,2016).

To elucidate the data, Roland Barthes framework of analysis semiological approach will be used to support the interpretation of denotative and connotative meaning in respect to photographic images as a system of signs.



Denotation refers to a word's literal, fixed, dictionary meaning, one that can be universally accepted. Connotation is the shifting associative meanings of a word, which takes place at the secondary level of signification (Barthes, 1975). The linguistic message is a designated description that expresses its actuality in plain language. In this instance, language is utilized to simply and purely direct readers to the intended understanding (Lanir, 2021).

Ethical Considerations

Credibility

In research from Moran, credibility refers to the qualitative researcher's trust in the validity of the research study's results (2021). Credibility determines the degree to which a study's findings may be trusted to be accurate (Korstjens & Moser, 2017). Visual images of linguistics are used to describe the phenomena of the infographics structure to consider a large range of contexts. According to Kumar, visual linguistics provides an innovative method for extracting an embedding sequence from an image to overcome the problem of picture captioning. Creating written descriptions for provided images is a common undertaking known as picture captioning (2020).

Trustworthiness

The quality, authenticity, and sincerity of qualitative research findings are referred to as trustworthiness. It refers to the level of trust or confidence readers feel in the outcomes (Cypress, 2017). Trustworthiness discussed strategies for ensuring that the study process was carried out appropriately. The goal of trustworthiness in a qualitative investigation is to support the claim that the investigation's results are "worth paying attention to" (Lincoln et al., 1985).

Transferability

Transferability is the ability to transfer research findings or methodologies from one group to another in qualitative terminology, which is comparable to external validity (Queens University of Charlotte Online, 2022). In research from Ness, transferability is the extent to which the findings of qualitative research may be generalized or transferred to different contexts or settings (2020).

Confirmability

Confirmability of qualitative data may be ensured by checking and rechecking data throughout the data collecting and analysis process to determine repeatability and as one indicator of total data reliability (What Is Confirmability | IGI Global, n.d.). The component of trustworthiness known as confirmability concentrates on the researcher's objectivity. This is established when the study conclusions are validated by the data gathered and have not been significantly altered as a result of researcher bias (Principe, 2022).

Dependability

Dependability is defined as the consistency and dependability of the extent to which study findings and processes are recorded, allowing someone outside the research to follow, the research process should be audited and critiqued (Sandelowski, 1986). The dependability of qualitative data is proved by guarantees that the findings were established in the face of changes in the study setting throughout data collection (*LibGuides: Chapter 4: Chapter 4: Home*, n.d.).

Research Corpora

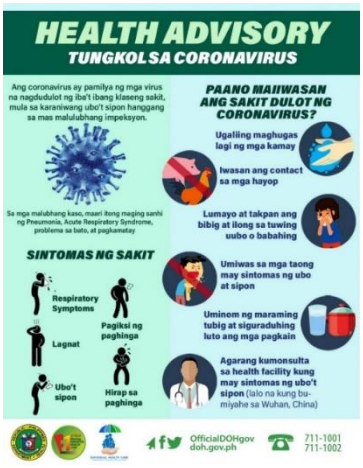
The corpus data included in this study are Covid-19 advisories.

Infographics	Who issued	Date Issued	Target Audience	Infographic Description

Infographic 1	Department of Health	January 13, 2020	Filipino Citizen	Health Advisory Tungkol sa Coronavirus
Infographic 2		March 17, 2020	Filipino Citizen	Novel Coronavirus (2019-nCoV)
Infographic 3		March 6, 2020	Filipino Citizen	DOH Advisory Question Paano naipapasa ang virus ng Covid-19?
Infographic 4		March 10, 2020	Suspected COVID-19 patient's caregiver	DOH Advisory: Covid-19 Kung Ikaw ay Nag-aalaga ng Taong Hinihinalang May COVID-19
Infographic 5		February 6, 2020	Overseas Filipinos in China, Hong Kong, Macau, and Taiwan	2019 Novel Coronavirus Acute Respiratory Disease (2019-nCoV ARD) Health Advisory For Overseas Filipinos in China, Hong Kong, Macau, and Taiwan

RESULTS AND DISCUSSION

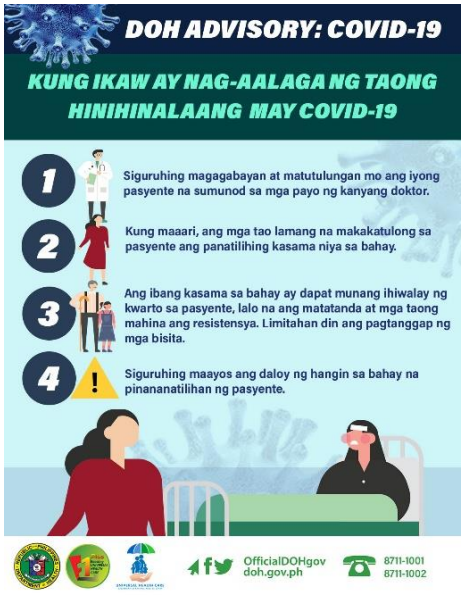
Picture 1: Health Advisory Tungkol sa Coronavirus



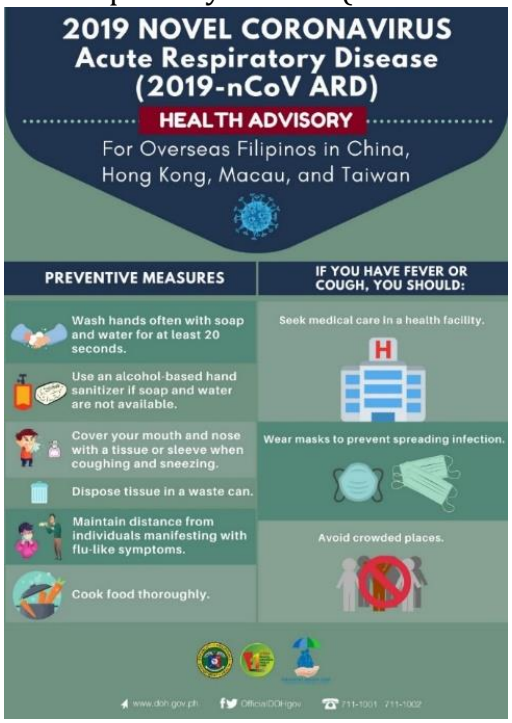
Picture 2: Novel Coronavirus (2019-nCoV)

Picture 3: DOH Advisory Question Paano naipapasa ang virus ng Covid-19?

Picture 4: DOH Advisory: Covid-19 Kung Ikaw ay Nag-aalaga ng Taong Hinihinalang May COVID-19



Picture 5: 2019 Novel Coronavirus Acute Respiratory Disease (2019-nCoV ARD) Health Advisory For Overseas Filipinos in China, Hong Kong, Macau, and Taiwan



Type of Visual Signs	Identified visual sign
Icon	• Black human holding his face with a towel • Black human showing dyspnea • Black human holding his head with heat steam • Black human sneezing and coughing • Black human holding his pulmonary part • Hand washing • Kid covering his nose and mouth • Pot and Water • Doctor • Laptop with news with human sitting and browsing • Spray bottle • Old man and kid • Alcohol and soap • Green trash can • Violet dressed person wearing face mask and green dressed person sneezing • Arrow • F • Bird • Telephone

Black human holding his face with a towel, showing dyspnea, holding his head with heat steam, sneezing and coughing, and holding his pulmonary part are shown on infographic one (1). According to Preparing and Managing Hospitals for a Disaster or Emergency (n.d.), code black means personal danger. First, a man is holding a towel on his face near the nose and mouth. It denotes that the nose and mouth is the most vulnerable in the transmission of the virus which leads to respiratory symptoms. Second, the man is experiencing dyspnea which means shortness of breath. Having shortness of breath means it is a personal threat. A black man has a fever. The personal threat of a rise of body temperature above normal because it may be a symptom of a severe illness. A man in black is sneezing and coughing. Sneezing and coughing is a personal threat as it can cause serious respiratory illnesses like influenza, respiratory syncytial virus (RSV), whooping cough, and worst of all, COVID-19. The man is uneasy and is holding his pulmonary part. The man is showing signs of difficulty in breathing which is a personal threat. The denotative and connotative meaning of each icon were defined respectively.

Cleaning hands recurred on infographics one (1) and (5), as well as a kid covering his nose and mouth, and a pot with carrots and water. Hand washing is the act of washing one's hand. It encourages the public to wash hands with soap and water to get rid of germs, viruses, and other microbes as well as grime, grease, and other potentially dangerous materials that have stuck to the hands. The kid is reminding the public to cover their nose and mouth. It connotes covering the nose and mouth with a towel when coughing and sneezing. It serves as an example to follow etiquette when coughing and sneezing to prevent the spread of the illness to other people. The carrots are put inside a boiling pot whilst the water is in the glass. Whether it is a carrot or not, all food must be cooked or sterilized while the cup of water urges the people to drink lots of water. The doctor came out in infographic (1) and four (4). A doctor is a person with a medical license. It tells the public to consult a doctor for medical advice.

On the second infographic, a laptop with news and a person sitting and browsing was visible. The news is displayed on a laptop with a person browsing it. It shows that news can be read on a laptop while sitting just by browsing and there is no need to go outside and interact with people to ask for updates.

On the third infographic, spray bottle emerged in the picture. It is a container that is commonly used by pressing the handle for dispensing chemicals or liquids. The spread of the virus called droplet transmission is compared to a spray bottle, which is likened to shooting water into the air.

An old man and kid appeared on the fourth infographic. An old man is someone advanced in age while a kid is a young person. They denote fragileness and weakness.

Alcohol and soap, green trash can, magenta dressed person wearing face mask and green dressed person sneezing, and a face mask appeared on the fifth infographic. Alcohol is used as a cleaning fluid whilst soap is a matter for cleaning and washing. It tells the people to use soap and water when washing hands. If it is not available, use alcohol. Green trash can means the trash can is in green color. Green trash can is waste that can be recycled, broken down, and used as plant fertilizers (ChuangPeng, 2022). Biodegradable waste such as face masks must be thrown in a biodegradable trash can. Magenta dressed person wearing a face mask and green dressed person sneezing. The person is wearing Magenta, which is a mixture of violet and red and is wearing a face mask. A sneezing person is wearing green. Magenta promotes cooperation (Hoekstra, 2023). It encourages everyone to wear face masks for self-protection. Green symbolizes calmness and logic (Michelle Neff, Michigan State University Extension, 2015). The color green represents life, rebirth, nature, and vitality which has healing properties (Moneah, 2023). The man with an illness wearing green must be calm and think logically so he can help himself to be healed. Face mask is the covering that you put over your face. It encourages everyone to wear a face mask if they have a cough and cold or just simply wear it to not contract any disease.

The arrow, f, bird, and telephone icon appeared on the five (5) infographics. An arrow signifies direction. F signifies Facebook logo whilst the bird icon signifies the logo of twitter. It implies to the people to look for updates via browsing and accessing social media which are Facebook and Twitter for updates. A telephone is a device, system, or method used to transmit sound or speech, typically using an electric device, to a remote location. It reminds the people to communicate to the government whenever there is a sign of the virus.

Type of Visual Signs	Identified visual sign
Index	• Red dressed person • Broken lines • Circle callout: arrow right with blue virus inside • Green Dressed person • Hospital

On infographics 3 and 4, a person wearing red was visible. A red dressed person means the person is wearing red. On infographic three (3), the figure wearing red is a patient. Red tagged patients are the ones who must receive therapy right away or risk not living. They represent the highest priority and are regarded as urgent and crucial (Picmonic, 2021). On infographic four (4), the person wearing red is a caregiver. Red is depicted as a vibrant and upbeat color that denotes strength and perseverance and is

linked to our fundamental survival. Red subconsciously motivates and assists the wearer to act and accomplish (Minor, 2020). Broken lines also appeared on the fourth infographic. It is a line made up of many dashes. It connotes the transmission method of the virus is shown by broken lines emanating from the infected person's mouth. A circle callout reading "arrow right with blue virus inside", and a green dressed person emerged on the third infographic. The circle callout arrow is pointing to the right and inside it has blue virus. It emphasizes that the COVID-19 virus can be transmitted to any person on the opposite side of the carrier. The green dressed person is wearing green. It indicates that the person is non-life threatening (Picmonic, 2021).

Hospital appeared on the fifth infographic. A hospital is a place where sick or injured people can receive medical attention, surgical care, and nursing care. It tells everyone to visit a hospital to receive medical treatment if they have symptoms of the virus.

Type of Visual Signs	Identified visual sign
Symbol	• Deep Green Background • Icy Blue Background • Powder Blue Background • Luxury Gradient Blue Background • Teal Green Background • Maroon Background • Moroccan Brown Background • Pastel Blue Background • Pebble Blue Background • Muted Green Background • Marble Green Background • Mint Green Background • Blue Virus • Crossed-out pig and chicken • Crossed-out human who has cough and cold • 1 • 2 • 3 • 4 • Green Hospital Bed and Blanket • Yellow General Warning • Crossed-out public • Department of Health Logo • F1 Plus Boosting Universal Health Care Logo • Universal Health Care Logo

The background colors of the five infographics are deep green, icy blue, powder blue, luxury gradient blue, teal green, maroon, moroccan brown, pastel blue, pebble blue, muted green, marble green, and mint green. Deep green is a darker shade of green. A combination of green and adding a small amount of black. Icy blue is a pale blue, a mixture of cyan and white. Powder blue is a light shade of cyan blue. Luxury gradient blue is a combination of smooth dark blue and black vignette color. Teal green balances the qualities of green and blue while leaning slightly more toward green. Maroon is a brownish red color (Olesen, 2022). Moroccan brown is a dark shade of brown (AMC

Moroccan Brown / #493b2a Hex Color Code, n.d.-b). Pastel blue is a pale shade of blue. Pebble blue is pale-tone blue gray (M&L Paints, 2023). The color muted green belongs to the color family pastel green. It is of medium brightness and medium saturation (Muted Green Color | ArtyClick, n.d.). Marble green is a dark shade of green-cyan (British Standard BS 2660 BS 6-068 - Marble Green / #34433e Hex Color Code, n.d.). Mint green is a variable color averaging a light green that is bluer and stronger than variscite green and paler and very slightly yellower than serpentine ("Definition of Mint Green," n.d.). The dominant colors in the background combination are blue, brown, green, and red. Code Blue refers to a medical emergency; code brown is an external emergency as schools are not in the scope of the hospital. (Preparing and Managing Hospitals for a Disaster or Emergency, n.d.) while code green refers to the activation of the hospital's emergency operations plan (What Do Code Blue and Other Hospital Codes Mean, 2019).

The five (5) infographics featured the blue virus. Blue Virus means the color of the virus is blue. It shows the anatomy of the virus which is called COVID-19. Coronaviruses (CoVs) are positive-stranded RNA(+ssRNA) viruses with a crown-like appearance under an electron microscope (coronam is the Latin term for crown) due to the presence of spike glycoproteins on the envelope (Cascella, 2023).

Crossed-out pig and chicken appeared on the first infographic, as well as the Crossed-out human who has cough and cold. The pig and chicken have a "Do Not" sign and also the human who has a cough and cold. This means that having contact with animals is prohibited. It is also prohibited to be in close contact with people who have coughs and colds.

On infographic four (4), numbers one (1), two (2), three (3), and four (4) were sequentially displayed. One (1) is the first whole number above zero. It denotes numbers in a logical manner where one (1) means what to do first. Two (2) is the number that comes after one (1). The number is used to denote what to do next after the first procedure. Three (3) is the number that comes after two (2). The number is used to denote what to do next after the second procedure. Four (4) is the number that comes after three (3). In this context four (4) is used to signify the last thing to do.

Yellow general warning appeared on the fourth infographic, as well as the green hospital bed and blanket. Yellow general warning is a generic means of warning personnel, customers, suppliers, or visitors of any dangers around. Warning signs in yellow urge people to exercise caution, take safety measures, or perform an inspection. Green beds and blankets are used by patients in the hospital. The surgical units of a hospital use green sheets hospital beds and blankets to make the patients comfortable. Since green is the hue best suited to the human eye, it produces a calming, soothing effect on the viewer. As a result, incorporating green into a medical atmosphere will probably put patients at rest (Pitamber Kaushik, 2020). According to Dr. G. Harvey Agnew, secretary of the Canadian Medical Association's department of hospital services, colors aid in a patient's psychological care. Generally, green is neutral in effect and promote mental serenity (Canadian Medical Association, 1945). Crossed-out publicity emerged on the fifth infographics. The public has a "Do Not" sign. It means going out in public places is prohibited.

The logo of the Department of Health, as well as the F1 Plus Boosting Universal Health Care Logo, and Universal Health Care Logo can be observed on the five (5) infographics. The Department of Health (DOH) is the country's main health organization.

It verifies that the Department of Health produces the health advisories and are authentic. The F1 Plus Boosting Universal Health Care is the Department of Health (DOH) presented formula for Health Strategy. It aims to boost Filipinos' universal health care via FOURmula one plus which is committed to address the improvement of quality, efficiency, effectiveness and equity health services without causing financial hardship. Universal health care is a health care system which guarantees access to medical care for all citizens of a certain nation or region. It connotes that all people are covered by universal health care, which enables them to access the entire range of high-quality healthcare services they require whenever and wherever they need them without facing financial difficulty. It covers the entire spectrum of necessary healthcare services, including palliative care, treatment, rehabilitation, and health promotion (World Health Organization: WHO, 2019).

CONCLUSION

As the study examines the denotative and connotative meanings of different icons, indexes and symbols used in the infographics. The study implies the following: (1) communication effectiveness as it understands how these visuals convey messages helps improve the effectiveness of communication to the target audience; (2) visual design and information organization as these provide insights into how these elements contribute to conveying information and engaging the audience; (3) health promotion and education as the study highlights the importance of promoting accurate health information and educating the public about COVID-19 by analyzing the content of the infographics, such as preventive measures, symptoms, testing guidelines, and myth-busting; (4) cultural relevance as the study mentions the use of specific colors, symbols, and icons that may have cultural significance in the Philippines especially hospital codes. Understanding the cultural context can help ensure that the infographics resonate with the target audience and effectively convey the intended messages; and (5) policy and strategy as the presence of logos from the Department of Health and references to universal health care suggest that the study may have implications for health policy and strategy. It could inform decision-makers on how to design and disseminate information effectively during health emergencies.

Implications for Further Study

To further enhance our understanding of the role and effectiveness of visual signs in health communication and contribute to the development of evidence-based design principles for infographics during public health emergencies. Other researchers could explore the following parameters related to the study on visual signs in COVID-19 infographics:

1. Perception and comprehension: Researchers can investigate how different demographics perceive and comprehend the visual signs in the infographics. Factors such as age, education level, cultural background, and visual literacy can influence individuals' understanding of the messages conveyed by the visuals.
2. Emotional impact: Researchers can examine the emotional impact of the visual signs on the audience. How do the visuals evoke emotions such as fear, empathy, or urgency? Studying the emotional responses can provide insights into the effectiveness of the visuals in capturing attention and influencing behavior.
3. Effectiveness of different visual elements: Researchers can analyze the effectiveness of specific visual elements used in the infographics, such as color

schemes, icons, typography, and layout. They can conduct experiments or surveys to assess which visual elements are most attention-grabbing, memorable, and persuasive.

4. Information retention and behavior change: Researchers can investigate the extent to which the visual signs in the infographics contribute to information retention and behavior change. They can conduct follow-up studies to assess if the audience remembers the information presented in the infographics over time and whether it influenced their attitudes and actions related to COVID-19 prevention and management.
5. Cross-cultural analysis: The study focused on the cultural relevance within the Philippines. However, researchers can explore how the visual signs resonate with different cultural contexts. Comparing the effectiveness and cultural appropriateness of the visuals across diverse populations can help improve the design and dissemination of infographics in a global or multicultural context.
6. Accessibility and inclusivity: Researchers can assess the accessibility and inclusivity of the visual signs in the infographics. They can investigate how individuals with visual impairments, cognitive disabilities, or limited language proficiency perceive and interpret the visuals. This research can contribute to designing inclusive infographics that cater to the needs of diverse populations.
7. Visual storytelling: Researchers can explore the narrative and storytelling aspects of the infographics. How do the visual signs create a cohesive and compelling story that engages the audience? Analyzing the narrative structure, sequencing of visuals, and use of visual metaphors can provide insights into the storytelling techniques employed in health communication.
8. Comparative analysis: Researchers can conduct a comparative analysis of different sets of infographics from various sources, such as government agencies, international health organizations, or media outlets. By comparing the visual signs and design choices across different infographics, researchers can identify trends, best practices, and areas for improvement in the presentation of COVID-19 information.

The study lies in advancing the understanding of visual communication in health promotion, informing the design of effective visual materials, and contributing to the development of evidence-based guidelines for health communication during emergencies like the COVID-19 pandemic.

Understanding the effectiveness of visual communication is important as it provides insights into the effectiveness of visual communication strategies in conveying health information. By demonstrating the impact of infographics on knowledge, understanding, and engagement, the study emphasizes the value of visual materials in health communication during emergencies. The identification of effective design elements highlights the role of specific design elements, such as colors, icons, and symbols, in promoting comprehension and message recall. By identifying the visual components that are most impactful, researchers can guide the design of future infographics and visual materials. Culturally appropriate visuals touch the importance of cultural relevance in visual communication. By considering cultural symbols and perceptions, researchers can develop visuals that resonate with diverse audiences, leading to better message reception and acceptance. Regarding the arrangement and organization of visual elements in infographics contribute to the development of best practices for visual hierarchy and layout. This can guide designers in creating visuals that guide viewers through the content effectively, facilitating information processing and understanding.

The exploration of different health promotion messages within the infographics can guide and inform the development of persuasive messaging strategies. By understanding which messages are most effective in motivating behavior change and encouraging preventive actions, health communicators can craft more compelling and impactful messages in future campaigns. The focus on assessing the impact of infographics on audience behavior and health outcomes contributes to the evidence base for health communication interventions. By demonstrating the effectiveness of visual materials in influencing behavior change, researchers can advocate for the use of infographics and similar visual tools in public health emergencies. The study's findings, along with further research in the field, can contribute to the formulation of evidence-based guidelines for designing visual materials in health communication during emergencies. These guidelines can be used by public health agencies, practitioners, and designers to create visually appealing, engaging, and effective materials that promote public health and mitigate the impact of emergencies.

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