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Multimodal health communication: A Thai and American comparison of COVID-19 face-mask campaigns

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ABSTRACT

This study analyzes visual and verbal semiotic resources in online poster campaigns promoting mask-wearing during COVID-19, with a comparative focus on health communication in the American and Thai contexts. 40 posters were collected in August 2023 from Facebook, Instagram, X, and official websites of government agencies and universities using non-probability sampling. Verbal semiotic resources (ideational, interpersonal, and textual metafunctions) were examined and coded in relation to advertising slogans, commodity exchanges, and lexical choice, while visual resources were analyzed in terms of representational, interpersonal, and compositional functions. Interactions between the two modes were assessed across corresponding components. Findings show that posters employed symbols (e.g., masks), a demanding gaze, medium camera angles, and non-action in the visual mode, alongside persuasive tone and hyperbolic exaggeration in the verbal mode. These modes appeared to be mutually reinforcing. Thai posters tended to feature longer sentences and a greater reliance on vivid colors, while Americans seemed to focus on a limited range of colors to maintain their professionalism and credibility. The study contributes to multimodal social semiotics by demonstrating how verbal and visual semiotic resources jointly shape persuasive health communication, emphasizing multimodality as integrative rather than additive. Cross-cultural comparison highlights both universal strategies (e.g., masks, persuasive gaze) and culturally specific practices (e.g., vivid colors in Thailand), underscoring the importance of culturally sensitive approaches to health risk communication.

KEYWORDS

multimodal discourse analysis, COVID-19, health communication, poster, context, visual-verbal interaction

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INTRODUCTION

COVID-19 (Coronavirus Disease 2019) is a respiratory illness transmitted through exhaled droplets. The use of face masks has received significant public attention, as mask-wearing reduces person-to-person transmission (Leung et al., 2020). Nevertheless, adoption has been inconsistent, influenced by contextual factors. For instance, although the United States enforced mask policies more strictly than Thailand, Thailand's cumulative infection rate (6.59%) was lower than that of the United States (30.12%) (World Health Organization [WHO], 2023). To address such challenges, government agencies, the private sector, and non-profit organizations promoted mask-wearing through health communication campaigns. Online platforms (e.g., Facebook, Instagram, X) extended campaign reach, while posters were distributed in public spaces.

As campaign tools, posters combine visual and verbal semiotic resources—such as words, images, and objects—to convey meaning and attract attention in public spaces. Beyond promoting ideas or sharing information, they also reflect the socio-cultural contexts of their audiences. In health communication, verbal resources convey medical information, represent linguistic communities (Maurer et al., 2021), and influence beliefs through language, design, and cultural cues (Partida, 2012). Yet verbal messages alone are insufficient; visual elements—images, colors, and layout—actively shape meaning and evoke responses. Together, visual and verbal resources form cohesive messages that guide interpretation. In Thailand and the United States, both countries employ health communication frameworks, but strategies differ: Thai campaigns favor detailed explanations and extensive wording, whereas U.S. campaigns emphasize brevity and credibility.

Based on a review of previous studies, only a few have addressed the role of context in health communication using multimodal discourse analysis (MDA) (Gill & Lennon, 2022; Martikainen & Sakki, 2021), yet only one study specifically examined contextual elements by comparing health communication posters from Sweden and Malaysia, representting Western and Eastern perspectives, respectively (Allwood et al., 2016). Several studies have examined the interaction between verbal and visual semiotic resources (Aning, 2021; Oyebode & Unuabonah, 2013; Martins & Spink, 2019), yet empirical evidence remains limited regarding how different modes interact in health communication. With respect to verbal semiotic resources, a gap remains in identifying the specific types of words analyzed in multimodal discourse studies of health communication, despite analyses of COVID-19 texts focusing on lexical choices (Chipidza et al., 2021; Liu et al., 2020; Ming et al., 2021).

In response to these research gaps, this study aims to analyze the visual and verbal semiotic resources in online poster campaigns promoting face-mask-wearing during the COVID-19 pandemic, with a comparative focus on health communication in the American and Thai contexts. Specifically, it examines how these campaigns employ visual and verbal semiotic resources to address gaps in understanding the interaction among modes (visual and verbal) and contextual elements in multimodal discourse analysis (MDA) of health communication.

Research questions

1. What are the differences and similarities in verbal semiotic resources utilized in online poster campaigns promoting face-mask-wearing during the COVID-19 pandemic in Thai and American contexts?
2. What are the differences and similarities in visual semiotic resources utilized in online poster campaigns promoting face-mask-wearing during the COVID-19 pandemic in Thai and American contexts?
3. What are the interactions between verbal and visual semiotic resources utilized in online poster campaigns promoting facemask-wearing during the COVID-19 pandemic in Thai and American contexts?

LITERATURE REVIEW

Health communication

As both an art and a science, health communication informs and guides individuals toward healthier living by designing messages that promote well-being at both individual and population levels. WHO (2017) outlined principles for effective communication across media and channels at the global level, while the Office of Disease Prevention and Health Promotion (ODPHP, 2010) identified attributes that encourage individuals to influence community health. Doak and Doak (2004) emphasized readability and effective visuals for reaching mass audiences. These frameworks share both similarities and differences relevant to American and Thai poster campaigns; accordingly, this study integrates them to explain communication approaches during the COVID-19 pandemic (see Table 1).

A study on health communication reported that audiences valued the disseminators more than the content itself (Teichmann et al., 2020). However, other studies have argued that disseminators should prioritize the content. Ratzan et al. (2020) proposed a checklist for effective health communication strategies aimed at attracting audiences, ensuring accuracy, and providing informative content. Their recommendations include being pro-active, planning while acknowledging uncertainty, and putting people first. Basch et al. (2020) supported the principle of putting people first and emphasized that ease of understanding is essential for effective health communication. In addition, Aning (2021) argued that the cultural context embedded in health communication is a critical factor for success and that disseminators should consider the interaction between presenters and audiences.

Table 1. The combination of health communication strategies (Doak & Doak, 2004; ODPHP, 2010; WHO, 2017)

Feature	Description
Accessibility	The content is delivered on the platform where the audience can access it and available to the largest possible number of people in the target population.
Credibility and trustworthiness	The content is valid and without errors of fact and provide relevant scientific evidence, and the source of the content is credible.
Relevance and timeliness	The content is continued or repeated over time and correspondence with other sources to reinforce the impact with a given audience and to reach new generations.
Understandability	The reading or language level and format are appropriate for the specific audience with conversational style with active voice, common words, and provide examples for difficult words and concepts with lots of white space to make it look easy to read.
Cultural competence	The design, implementation, and evaluation process that accounts for special issues for select population groups and also educational levels and disability.
Focusing on the topic	The purpose and the benefits from patients' viewpoints are explained to limit content and leave out unnecessary content.

Clear-visual element	The used visual elements should be realistic without unnecessary details that contribute to the message.

Note: The authors have generated Table 1 from the principles of Doak and Doak (2004), ODPHP (2010), and WHO (2017) as their own work.

Multimodal discourse analysis (MDA)

Multimodal discourse analysis (MDA) examines how different modes—such as images, colors, and text—represent society, context, and culture, and how they interact with people, objects, and environments (Halliday, 1985; Kress, 2010; Royce, 2013). Two or more semiotic modes, such as image and language, can combine to construct meaning (Kress & van Leeuwen, 2006). Spoken or written language often works with visual, gestural, or symbolic modes to enhance communication. For instance, a face mask depicted in a COVID-19 poster, whether displayed publicly or shared online, serves as a multimodal representation of health messaging.

Halliday's (1985) Systemic Functional Linguistics (SFL) identifies three metafunctions of language—ideational, interpersonal, and textual—that operate simultaneously in all natural languages (Royce, 2013). The ideational metafunction expresses human experience and imagination; the interpersonal metafunction enacts meanings through interaction between disseminators and audiences; and the textual metafunction organizes discourse to achieve cohesion and coherence.

Verbal semiotic resources

Because COVID-19 spread rapidly and severely affected the respiratory system, public campaigns needed to be easily accessible. This study examined mask campaigns disseminated by government agencies and private and public colleges, targeting both the general population and high school graduates. Accessible language was crucial, as lexical choice directly affects comprehension and audience engagement. Given the linear relationship between word knowledge and reading comprehension (Laufer, 1992), word frequency is central to ensuring communicative effectiveness.

The study focused on two aspects: the metafunctional framework (ideational, interpersonal, and textual components) and lexical choice. Vasiloaia and Bacovia (2009) identified six linguistic features of advertising language, which were integrated with Skorupa and Dubovičienė's (2015) phonological and semantic features of slogans (see Table 5). In addition, Halliday and Matthiessen (2004) adapted Halliday's (1985) framework into a commodity exchange model that distinguishes between demanding, which prompts response or action, and giving, which conveys information.

Thai posters employed more words than American posters, making word analysis an important area of study. Word frequency, a key measure of lexical choice, highlights the usefulness of common vocabulary, its distribution across registers (West, 1953), its role in distinguishing conceptual properties (Tutin & Kittredge, 1992), and its genre specificity. This study therefore drew on Brysbaert et al. (2017), West (1953), and Tutin and Kittredge (1992) to examine lexical choices in urgent COVID-19 health campaigns.

Previous studies found that disseminators used strategic lexical choices to attract audiences (Chipidza et al., 2021), as shown by the popularity of key search terms such as prevention and control procedures (Liu et al., 2020) and mask (Ming et al., 2021).

However, little research has analyzed these choices within multimodal discourse analysis (MDA) of health communication.

Visual semiotic resources

Harrison (2008) adapted Kress and van Leeuwen's (2006) semiotic framework to analyze visual semiotic resources, introducing visual social semiotics (VSS) with three metafunctions: representational, interpersonal, and compositional. The representational metafunction examines how visuals construct narratives and reflect presenters' objectives. The interpersonal metafunction considers angle, distance, and gaze, which shape viewers' emotional engagement. The compositional metafunction addresses the arrangement of elements—such as color, background, and focal points—that direct attention and create overall impression (see Table 6).

Previous studies of health communication using multimodal discourse analysis (MDA), often with limited contextual focus, show variation across countries. In Finland, COVID-19 news emphasized emotional content (Martikainen & Sakki, 2021), while UK coverage relied on pragmatism and emotional appeal (Gill & Lennon, 2022). Poster analysis in Ghana revealed strong interaction between verbal and visual modes (Aning, 2021). Research in Nigeria (Oyebode & Unuabonah, 2013) and Brazil (Martins & Spink, 2019) highlighted the symbolic function of visuals in audience engagement. A comparative study of Sweden and Malaysia (Allwood et al., 2016) further demonstrated cultural variation: Sweden stressed credibility, whereas Malaysia emphasized color.

Color and culture

In the 21st century, colors serve multiple purposes in visual communication, including public relations. While humans with typical vision can perceive color, Wierzbicka (1990) argued that the concept of color is rooted in human experience and shaped by culture. Each culture develops its own color concepts (Yu, 2014), though some associations are widely shared: the word for red in many languages derives from blood, and blue from the sky. In both Thailand and the US, red signifies passion and energy, while black denotes death. However, cultural nuances differ: in the US, black also conveys luxury in fashion, whereas in Thailand it is linked to funerals, often referred to as "black" or "black-and-white events." Alnasuan (2016) emphasized that color perception is not only visual and cultural but also a stimulus that captures attention. Although no standardized medical color exists, cool tones such as blue and green dominate healthcare contexts for their associations with calmness, trust, professionalism, and cleanliness.

Colors are generally categorized as warm or cool (see Figure 1). Warm colors evoke heat and energy, while cool colors convey calmness. Combining complementary warm and cool colors—for instance, red and green—is a common technique to direct audience attention. Schloss et al. (2018) demonstrated that interpretations of color are highly contextual, supporting the view that people form inferences when interpreting color systems. Understanding these inferences helps predict audience expectations and supports the design of more accessible and comprehensible visual media.

Figure 1. Color wheel (The authors have adapted Figure 1, first developed by Isaac Newton in the 17th century (Newton, 2003), to demonstrate relationships between colors.)

In conclusion, the literature review examined health communication, MDA, color and culture, and previous studies on poster campaigns. Health communication employs verbal and visual semiotics to persuade, with language as a verbal resource and visual elements, including color, as visual resources, both shaped by the cultural contexts of disseminators and audiences.

METHODOLOGY

Research design

This study employed a multimodal discourse analysis (MDA) to investigate online campaigns promoting face mask-wearing during the COVID-19 pandemic. Both qualitative and quantitative methods were used to examine the language and strategies of health communication posters, with a primary focus on visual and verbal semiotic resources.

Qualitative analysis served as the main approach, applying Kress and van Leeuwen's (2006) framework—adapted by Harrison (2008)—to examine the representational, interpersonal, and compositional metafunctions of visual modes. Verbal modes were analyzed through word choice and frameworks by Halliday (1985), Skorupa and Dubovičienė (2015), and Vasiloaia and Bacovia (2009), which address rhetorical functions and metafunctions (ideational, interpersonal, and textual) in advertising discourse.

To investigate interaction across modes, verbal and visual semiotic resources were compared in terms of representational/ideational, interpersonal, and compositional/textual metafunctions. Quantitative analysis complemented these findings by calculating the frequency and percentage of strategies—particularly lexical choices—identified through coding.

Research sample

This study considered Thailand and the United States as representative Eastern and Western countries. Posters from Thailand and the United States were selected for analysis because they exemplify culturally and semiotically distinct approaches to health communication. The U.S., as a low-context, individualist culture (Hall, 1976; Hofstede, 2001), often employs direct verbal appeals, concise textual structures, and standardized

visual design, while Thailand, a high-context, collectivist culture, tends to rely on elaborate textual expressions, symbolic imagery, and vivid color schemes (Kittler et al., 2011). These contrasts make the two contexts valuable for exploring how semiotic resources—verbal (lexical choice, metafunctions) and visual (gaze, composition, symbolism)—are mobilized in multimodal persuasion (Kress & van Leeuwen, 2006). The COVID-19 pandemic further underscores their comparability: the U.S. experienced high infection and mortality rates and contentious debates over mask-wearing (Centers for Disease Control and Prevention, 2020), whereas Thailand initially achieved high compliance but required sustained campaigns to maintain preventive behaviors (Thai Ministry of Public Health, 2021). These divergent pandemic contexts likely shaped semiotic strategies such as slogan tone, metaphorical imagery, and the integration of verbal and visual modes. Additionally, linguistic differences between English and Thai enable insights into how distinct verbal semiotic systems interact with visuals, while both countries' reliance on Facebook, Instagram, X, and official websites provides a shared basis for examining digital health communication (Pérez-Escoda et al., 2020).

Mask-wearing policies differed markedly between the two countries. In the United States, enforcement included civil penalties (fines, citations, or compliance checks), business requirements (from stores, restaurants, and airlines), and, in some cases, criminal charges (trespassing or disorderly conduct) for noncompliance. In contrast, Thailand relied less on prolonged nationwide mandates and more on selective provincial regulations and strong cultural norms, resulting in widespread voluntary uptake. Mask use was already common early in the pandemic, and subsequent legal measures reinforced what social expectations had largely ensured—near-universal compliance.

Table 2. The illustration of the criteria for selection of the data

Platform	Facebook, Instagram, X, and the official website platforms
Campaign type	Promoting face-mask wearing for COVID-19 prevention
Date of dissemination	Between 2020 and 2022
Types of data	Poster campaigns
Detail in types of data	Poster content visual and verbal modes
Disseminators	Government agencies and universities

Table 3. The list of the disseminators

American's disseminators	
Government agencies	College
National Institutes of Health	The Catholic University of America
Department of Health	University of Dayton
Multnomah County (Oregon)	Spelman College
The White House	Harvard T.H. Chan school of Public Health
	Columbia University
	The University of Texas
	Montana State University
	Penn State University

Thai's disseminators	
Government agencies	College
Department of Disease Control	Khon Kaen University
The Government Public Relations Department	Chiang Mai University
Ministry of Public Health	Thammasat University
Local Government	Lampang Rajabhat University
Ministry of Culture	University of the Thai Chamber of Commerce
Anti-fake News Center	Sripatum University
	Dhurakij Pundit University
	Siam University

The study analyzed online poster campaigns promoting mask-wearing during the COVID-19 pandemic in Thailand and the United States, disseminated by government agencies and universities. Using non-probability sampling, 137 posters were collected in August 2023 (66 from the United States; 71 from Thailand). Based on the criteria in Table 2, a diverse subset of 40 posters from different disseminators was selected (see Table 3), with 20 from each country. Previous studies (Martin & Spink, 2019; Oyebode & Unuabonah, 2013) analyzed only five to ten samples; thus, 20 per context was considered sufficient to address the research questions.

According to Statista (2025), Facebook, Instagram, and X had the largest user bases. Official websites were also included, as some organizations continued disseminating information through them. An official website refers to a government-sanctioned or organizational platform used for formal communication. Table 2 outlines the selection criteria: (1) posters had to be disseminated on Facebook, Instagram, X, or official websites; (2) they had to focus exclusively on promoting mask-wearing as a preventive measure against COVID-19; (3) each poster required both visual and verbal semiotic resources, excluding those without verbal content; (4) disseminators had to be government or university-affiliated entities in Thailand or the United States, ensuring representation of Eastern and Western contexts; and (5) campaigns had to be released between early 2020 and late 2022, the most severe phase of the pandemic.

Data collection

The authors searched official platforms and saved all posters meeting the criteria in Table 2. The 40 posters were stored as JPG files and categorized into Thai and American groups. Verbal semiotic resources were manually transcribed into text files and analyzed through the three metafunctions: ideational, interpersonal, and textual. Textual analysis also included word frequency lists generated with AntConc and Voyant; because AntConc cannot process Thai script, Voyant was used exclusively for the Thai corpus. These lists supported the examination of interactions between verbal and visual resources. Visual resources were analyzed using the metafunctions—representational, interpersonal, and compositional. Data from both modes were coded with predetermined schemes (see Tables 5 and 6), and cross-modal analysis (interaction) compared corresponding components: representational/ideational, interpersonal, and compositional/textual.

Coding scheme

In this study, a "code" refers to a set of letters representing the characteristics listed in Tables 5 and 6. The first three letters indicate the semiotic category ("Ver" for verbal, "Vis" for visual), followed by letters denoting specific characteristics. For example, VisDM represents the demanding characteristic of visual semiotic resources.

Coding schemes for verbal analysis

In the verbal mode, phonological features (textual metafunction) concern sound patterns used to capture audience attention, such as rhyme, rhythm, alliteration, assonance, consonance, and graphic elements. Semantic features (ideational metafunction) address meaning-making devices, including personification, metaphor, simile, hyperbole, and metonymy. Interpersonal elements were examined through the commodity exchange framework (interpersonal metafunction), focusing on the functions of demanding and giving (see Table 5).

Coding schemes for visual analysis

In analyzing visual modes, this study employed three aspects of VSS (visual social semiotics) representational, interpersonal, and compositional metafunction (see Table 6).

Coding procedure

A deductive manual coding process was employed. Each poster was examined and coded. In verbal resources, the ideational and textual metafunctions may represent multiple characteristics, whereas the interpersonal metafunction—across both verbal and visual modes—is limited to a single characteristic (demand or offer). Similarly, certain visual features, such as narrative, gaze, social distance, and horizontal or vertical perspective, can represent only one characteristic. Inter-coder reliability was assessed using the coding scheme. The main coder was the first author, and the second coder, an experienced researcher in this field, was trained before testing. Both coders independently analyzed 30% of the sample (12 posters) (Mackey & Gass, 2016). The inter-rater reliability was 70.56%, which is considered acceptable, as agreement above 70% is commonly deemed adequate in discourse and content analysis (Mackey & Gass, 2016).

Data analysis

To address RQ1 and RQ2, a quantitative analysis examined the frequency of verbal and visual semiotic strategies in each corpus. Results were compared and presented through bar graphs and percentage distributions. For lexical analysis, frequently used words were generated with AntConc and Voyant, arranged by frequency, and compared across the two cultural contexts.

To address RQ3, all three structural aspects of verbal and visual modes were analyzed to explore their interaction within each poster. Findings showed how both countries

combined these modes to persuade audiences, with results again visualized through percentage distributions.

The analysis followed a social semiotic framework (Halliday, 1985; Kress & van Leeuwen, 2006), which emphasizes the metafunctional organization of meaning. Verbal resources were analyzed for ideational, interpersonal, and textual functions, while visual resources were examined for representational, interpersonal, and compositional meanings. Interaction was studied by systematically comparing the two modes along these metafunctional dimensions, noting how meanings were reinforced, complemented, or contrasted. This approach identified recurring multimodal strategies used in both American and Thai contexts.

Percentages were calculated by dividing the frequency of each characteristic by the total number of occurrences and multiplying by 100 (percentage = frequency ÷ total × 100). For example, if 15 of 20 American posters featured a demanding gaze (VisDM), this equaled 75%. Interaction between verbal and visual resources was calculated using the same formula, based on 60 units per context (20 posters × 3 metafunctions). Mean values were then computed to show relative distributions across the three metafunctions.

RESULTS

Similarities and differences in verbal modes

Word used

As shown in Table 4, Thai posters contained 951 words with a word density of 0.396 and an average of 135.9 words per sentence. American posters differed slightly, with 562 words, a density of 0.457, and an average of 17.6 words per sentence.

In the American corpus, the most frequent word was mask (27), followed by wear (16), indicating the action, and protect (13), indicating the rationale. A similar pattern appeared in the Thai corpus: "หน้ากาก" /nɑː.kɑːk/ ("mask") occurred 29 times; "ใส่" /saɪ/ (20) and "สวม" /sʊəm/ (16) both conveyed "wear"; and "ป้องกัน" /pɔːŋ.kɑːn/ ("protect") appeared 11 times.

Table 4. The words used poster between Thai and American

Factor	American	Thai
The total number of words or token	562	951
Density	0.457	0.396
Average Words Per Sentence	17.6	135.9
Word frequency	mask (27)	/nɑː.kɑːk/ (29)
	wear (16)	/saɪ/ (20)
		/sʊəm/ (16)
	protect (13)	/pɔːŋ.kɑːn/ (11)

Metafunction in verbal semiotic resources

An analysis of textual, ideational, and interpersonal structures (Table 5) shows that Thai and American posters were largely similar. Both emphasized VerAS (American: 65%, Thai: 95%), VerAL (American: 65%, Thai: 75%), and VerCS (American: 45%, Thai: 65%) within the textual aspect. A minor distinction appeared in the ideational aspect, where only Thai posters used VerMS (5%). In the interpersonal aspect, both groups mainly employed VerDM (American: 90%, Thai: 70%) to encourage mask-wearing.

Table 5. Coding scheme for verbal semiotic resources in health communication posters and its results (Halliday, 1985; Skorupa & Dubovičienė, 2015; Vasiloaia & Bacovia, 2009)

ST	Code	Description	Process	Example	Results	
					US	TH
Ideational	VerPS	Personifi-cation	Impersonating or embodying an attribute or concept; giving an inanimate item human characteristics	The virus can get in or out.	30%	10%
	VerMS	Metaphor & Simile	A simile is a figure of speech in which one thing is likened to another to clarify and enhance an image. Metaphor presents an implicit comparison, contributes to the aesthetics of the message, and emphasizes the main idea by describing one object in terms of another.	Be a hero, face mask safe lives. Protect our #retail heroes, please wear a mask when you're in the shop	5%	0%
	VerHP	Hyperbole	A figure of speech which contains an exaggeration for emphasis	Say it, **don't spray** it.	75%	55%
	VerMT	Metonymy	A figure of speech in which the name of an attribute or a thing is substituted for the thing itself.	**The virus** can get in or out. Stop the spread of **the germs**.	35%	35%
Interpersonal	VerDm	Demanding	The message asks or demands some action from the audience as "inviting to give".	Mask up, America.	90%	70%
	VerGv	Giving	The message gives some information to the audience as "inviting to receive".	There is a higher risk for COVID-19 spread indoors.	5%	25%
Textual	VerRM	Rhyme	The correspondence of sound between words or the endings of words. (same vowel and consonance)	sʊəm tʊk t**ʊŋ** p**ʊŋ** kɑːn daɪ prɑːsɪt tɪ pɑːp	10%	5%

	VerRT	Rhythm	Rhythm emerges from how stressed and unstressed syllables are arranged and timed	**Stop** the **spread**. Pro**tect** your **friends**.	0%	0%
	VerAL	Alliteration	The words begin with the same consonant sound or letter.	**K**eep **C**olumbus healthy.	65%	75%
	VerAS	Assonance	The same vowel in successive stressed syllables creates a vowel harmony.	St**ay** ap**art**, st**ay** sm**art**.	65%	95%
	VerCS	Consonance	The words end with the same consonant sound or letter.	Let's kee**p** it u**p**	45%	65%
	VerGP	Graphic aspect	The graphic elaboration of the text		0%	0%

Note: The authors have generated Table 5 from the principles of Halliday (1985), Skorupa and Dubovičienė (2015), and Vasiloaia and Bacovia (2009) as their own work.

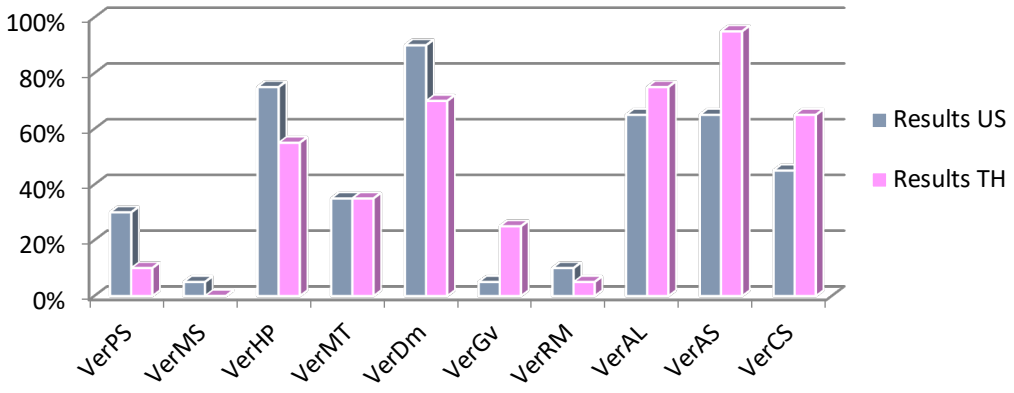

Figure 2. The frequency of verbal semiotic resources across metafunctions in the posters.

Similarities and differences in visual modes

According to Table 6, Thai and American posters employed similar visual modes. In the representational function, most featured VisRC (American: 75%, Thai: 60%) and all used VisSB (100%).

For interpersonal elements, VisDM (American: 75%, Thai: 60%) was more common than VisOF (American: 25%, Thai: 40%), while VisFA (American: 75%, Thai: 60%) was consistently applied. Presenters also provided VisMA (American: 95%, Thai: 100%), though VisLA appeared only minimally in American posters (5%). Differences emerged in

social intimacy and distance: American posters relied on VisID (50%), VisCP (35%), and VisFP (15%), whereas Thai posters used VisCP (65%), VisFP (20%), VisID (15%), VisFS (5%), and VisPD (5%).

In the compositional aspect, both groups showed similarities. American posters emphasized VisC/M (40%) and Thai posters VisG/N (40%). Both frequently used VisSZ (American: 90%, Thai: 85%) for salience. However, framing diverged: American posters preferred VisCL (50%), while Thai posters favored VisVS (55%) and uniquely employed VisFL (10%).

Table 6. Coding scheme of the social semiotics framework and its results (Harrison, 2008)

Aspects	Factors	Code	Description	process	Results	
					US	TH
Representational	Narrative	VisAC	Action	The narrative is created by an action of the presenters	25%	40%
		VisRC	Reactional	The narrative is created by the no action of the presenters	75%	60%
	Conceptual	VisCF	Classificatory	The presenter represents a member of a group, such as a doctor or a student.	30%	10%
		VisAT	Analytical	The content presents facts or evidence, such as a pie chart.	5%	15%
		VisSB	Symbolic	A sign that is important for what it means, for example, a face mask worn for COVID-19 prevention.	100%	100%
Interpersonal	Image act and gaze	VisDM	Demand	The presenter looks directly at the audience.	75%	60%
		VisOF	Offer	The presenter does not look at the audience.	25%	40%
	Social intimacy and distance	VisID	Intimate distance	The presenter only shows their heads and faces.	50%	15%
		VisCP	Close personal distance	The presenter only shows their heads and shoulders.	35%	65%
		VisFP	Far personal distance	The presenter shows their body from the waist up.	15%	20%
		VisCS	Close social distance	The presenter shows their whole figure.	0%	0%
		VisFS	Far social distance	The presenter shows their whole figure with space around it.	0%	5%
		VisPD	Public distance	The display of torsos of several people	0%	5%
	Perspective - horizontal and involvement	VisFA	Frontal angle	The presenter is presented frontally to the viewer.	75%	60%
		VisOA	Oblique angle	The presenter is presented obliquely to the viewer.	25%	45%

	Perspective - vertical angle and power	VisHA	High angle	The presenter looks down toward the audience.	5%	0%
		VisMA	Medium angle	The presenter looks horizontally toward the audience.	95%	100%
		VisLA	Low angle	The presenter is looking up toward the audience.	0%	0%
Conceptional	Information value	VisG/N	Given/New	The presenter is on the left or right side of a poster.	35%	40%
		VisI/R	Ideal/Real	The presenter is at the top or below of a poster.	20%	25%
		VisC/M	Center/Margin	The presenter is in the center of a poster.	40%	35%
Conceptional	Salience	VisSZ	Size	The larger element	90%	85%
		VisSP	Sharpness	The presenter is out of focus.	5%	5%
		VisTC	Tonal contrast	Areas of high tonal contrast	45%	45%

Note: The values represent the percentage of posters in which each semiotic feature appeared, calculated separately for the United States (US) and Thailand (TH). These percentages indicate the frequency of individual characteristics rather than proportions of a whole. For instance, 75% in the US column shows that a demanding gaze (VisDM) appeared in 15 of 20 posters. Because a single poster may contain multiple features, the percentages within each factor do not sum to 100%.

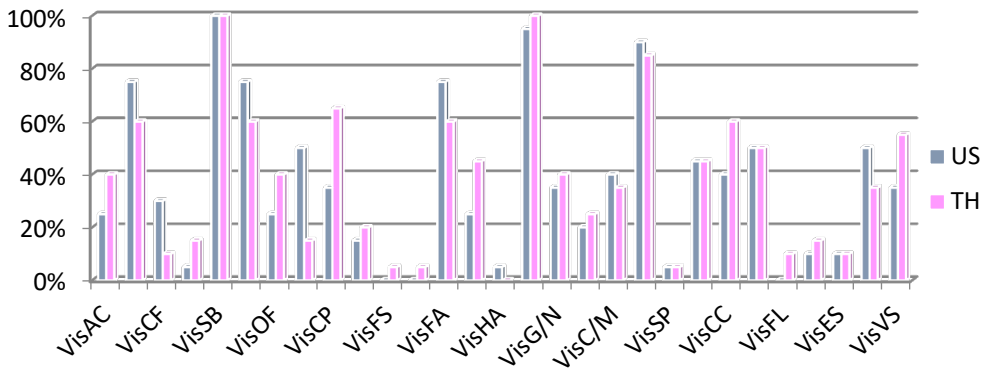

Figure 3. The frequency of visual semiotic resources across metafunctions in the posters.

The interactions between verbal and visual semiotics

The interaction of verbal and visual semiotic resources in Thai and American posters appears broadly similar across ideational/representational, interpersonal, and compositional/textual metafunctions (Table 7). In American posters, enhancement was strongest in the ideational/representational metafunction (95%), followed by compositional/textual (90%) and interpersonal (75%). Thai posters showed equal enhancement in the ideational/representational and compositional/textual metafunctions (75%), with interpersonal lowest at 65%. Overall, American posters displayed slightly higher mean enhancement than Thai posters.

Table 7. The interaction of visual and verbal semiotic resources

Structure	Aspects	American	Thai
Interaction	Ideational & Representational	95%	75%
	Interpersonal	75%	65%
	Textual and Compositional	90%	75%
Mean		90	75

Ministry of Public Health (2020)

Visual		Verbal		Interaction
Representational	Narrative: VisAC Conceptual: VisSB	Ideational	VerPS	Enhancing
Interpersonal	Image act and gaze: demand Social intimacy and distance: VisCP Perspective - horizontal and involvement: VisFA Perspective - vertical angle and power: VisMA	Interpersonal	VerDM	Enhancing

Compositional	Information value: VisI/R Salience: VisCC, VisSZ, VisF/B, Framing: VisCL	Textual	VerAL VerAS VerRM	Enhancing

Figure 4. The interaction between visual and verbal semiotic resources in Thai Poster

Figure 4 illustrates the interaction analysis of a Thai poster. The presenter, shown wearing a mask (VisAC), is surrounded by symbolic elements (VisSB) such as fireworks, the Ministry of Health's emblem, and celebratory figures. The verbal text, "The Ministry of Health encourages all Thais to wear masks to prepare for the upcoming New Year festival" (VerPS), is reinforced by the visuals: the emblem echoes "the Ministry of Health," the fireworks and celebration align with "New Year festival," and the presenter's action supports "encourage."

Interpersonally, the presenter is framed from the shoulders up (VisCP), establishes eye contact (VisDM), faces the audience (VisFA), and positions himself as an equal (VisMA). The verbal mode reinforces this with a directive tone (VerDM), creating reciprocal support between modes.

Compositionally, the presenter is placed at the top (VisI/R). The poster's blue background (VisCL) contrasts with the highlighted yellow phrase "สวมหน้ากาก" /sʊəm nɑː.kɑːk/ (VisCC), which also stands out through larger size (VisSZ). The accompanying text, "ส.ธ. รณรงค์คนไทยทุกคนสวมหน้ากาก" /sɔː.tɔː roʊn nɑː roʊŋ koʊn taɪ tʊk koʊn sʊəm nɑː.kɑːk/, employs alliteration (/r/, /k/, /t/), assonance (/oʊ/, /ɑː/, /ɔː/), and rhyme (/roʊn/, /koʊn/, /koʊn/). These verbal devices, together with VisCC and VisSZ, enhance the message across modes.

Figure 5 illustrates the interaction analysis of an American poster. The presenter, the U.S. President (2021–2025), is shown wearing a mask (VisSB, VisRC) alongside the White House emblem (VisSB). The verbal text, "Mask up, America" (VerPS), complements these visuals, with the word "America" amplified through synergy between modes.

Interpersonally, the presenter is framed from the shoulders up (VisCP), averts his gaze (VisOF), and avoids direct confrontation (VisOA). Despite his authority (VisCF), the audience perceives equality through VisMA. Yet, reinforcement between visual and verbal modes is limited, as the visuals emphasize VisOF while the text adopts a demanding tone (VerDM).

Compositionally, the presenter appears on the left (VisG/N), with salience achieved through the dominant blue color (VisCL) against a blurred background (VisF/B). Unlike Thai posters, this example lacks textual techniques, suggesting weaker multimodal reinforcement in composition.

The White House (2021)

	Visual	Verbal		Interaction
Representational	Narrative: VisRC Conceptual: VisSB, VisCF	Ideational	VerPS	Enhancing
Interpersonal	Image act and gaze: VisOF Social intimacy and distance: VisCP Perspective - horizontal and involvement: VisOA Perspective - vertical angle and power: VisMA	Interpersonal	VerDM	Not enhancing
Compositional	Information value: VisG/N Salience: VisF/B, VisCL	Textual	-	Not enhancing

Figure 5. Interaction between Visual and Verbal Semiotic Resources in American Poster

DISCUSSION

Verbal semiotic resources

Lexical choice and word per sentence

In both countries, the most frequent words were mask and wear, with "wear" functioning as the action linked to "mask," a term central to disease prevention. This aligns with Liu et al. (2020), who identified "prevention and control procedures" as key themes in COVID-19 communication. The familiarity of these words supports comprehension (Laufer, 1992). Word choice in both contexts prioritized audience understanding (Tutin & Kittredge, 1992), consistent with Ming et al. (2021), who highlighted the prominence of mask, though differing from Chipidza et al. (2021), who found that disseminators often relied on attention-grabbing language. The shared lexical patterns reflect health communication principles emphasizing clarity and credibility (Doak & Doak, 2004; ODPHP, 2010; WHO, 2017).

The only significant verbal difference was sentence length. American posters used fewer words per sentence, reflecting efforts to minimize text and maintain readability (Doak & Doak, 2004; ODPHP, 2010; WHO, 2017). In contrast, Thai posters included more words, often referencing authoritative sources and providing supporting examples to strengthen credibility and reliability. This tendency is also shaped by the propositional nature of Thai, which allows meaning to be expressed through a continuous flow of propositions with fewer grammatical constraints than English, resulting in longer sentence structures.

Table 8. The similarities in the use of elements across the visual and verbal elements

Modes	Aspects	elements
Verbal modes	Lexical analysis	Word choice
	Ideational	Hyperbole
	Interpersonal	Demand
	Textual	Assonance
		Alliteration
Visual modes	Representational	Reactional
		Symbolic
	Interpersonal	Demand
		Frontal angle
		Medium angle
	Compositional	Size
Interaction		

Metafunction in verbal semiotic resources

The analysis indicates that all aspects of metafunction within verbal semiotic resources are highly similar, aligning with Basch et al. (2020), who stressed that health communication during crises must be accessible and provide clear behavioral guidelines.

Regarding the ideational metafunction, the results resemble findings from Martikainen and Sakki's (2021) study in Finland, which showed that news discourse often relied on moralizing, demonizing, and nationalizing strategies. Similarly, Thai and American posters frequently employ hyperbole, a rhetorical device that simplifies complex issues and enhances comprehension through culturally resonant exaggeration (Skorupa & Dubovičienė, 2015). This approach fosters audience engagement by connecting to experiences, attitudes, and cultural backgrounds (Doak & Doak, 2004; ODPHP, 2010; WHO, 2017).

The interpersonal findings likewise echo prior research, suggesting that disseminators consider audience perception, use proactive strategies to clarify objectives (Ratzan et al., 2020), and provide explicit guidance during health crises (Basch et al., 2020). They often adopt a demanding tone that motivates action, which is critical given COVID-19's rapid transmission (Chu et al., 2020; WHO, 2017). Such strategies reinforce communicative goals by promoting timely, relevant, and comprehensible responses (Doak & Doak, 2004; ODPHP, 2010; WHO, 2017).

Textual analysis reveals frequent use of assonance in posters from both countries, replicating vowel sounds to aid recall and comprehension—central aims of effective health communication (Skorupa & Dubovičienė, 2015; Vasiloaia & Bacovia, 2009). This technique also functions as a proactive strategy to attract attention (Ratzan et al., 2020).

Visual semiotic resources

In the visual semiotic resources, the results show that Thai and American posters frequently use similar techniques in the representational, interpersonal, and compositional metafunctions, although certain techniques within the interpersonal and compositional metafunctions differ.

Metafunction in visual semiotic resources

In the representational metafunction, most presenters appear without performing actions, reflecting a reactional process and modeling correct mask use. Each poster also includes at least one symbolic element (Martins & Spink, 2019), such as a mask, to guide audiences, while organizational emblems enhance credibility (Doak & Doak, 2004; ODPHP, 2010; WHO, 2017).

Within the interpersonal metafunction, disseminators employ a demanding tone through direct gaze and verbal imperatives, suggesting that demand-based strategies are central across modes. This is reinforced by the frontal angle but balanced with a medium eye-level angle, which conveys equality and fosters trust (Gill & Lennon, 2022). Such strategies align with principles of culturally appropriate and comprehensible communication (Doak & Doak, 2004; ODPHP, 2010; WHO, 2017). Medium angles also allow viewers to clearly see mask placement, reflecting an effort to engage audiences through visual demonstration (Aning, 2021; Martikainen & Sakki, 2021).

For the compositional metafunction, size is frequently used to emphasize key elements, supporting accessibility and visual clarity (Ratzan et al., 2020; Teichmann et al., 2020). American posters often use intimate distance, framing only the presenter's head to create closeness, while Thai posters use close personal distance, showing head and shoulders for a more formal tone. These cultural differences reflect Western tendencies toward physical expressiveness versus Eastern reserve (Aning, 2021; Gill & Lennon, 2022).

Poster layout also varies: American posters typically center the presenter, minimizing distraction and highlighting mask usage, whereas Thai posters position presenters to the side to emphasize written text and credibility. Regarding color, Americans favor blue, reinforcing reliability and safety, while Thai disseminators use vivid contrasts to capture attention, consistent with cultural tendencies in visual design (Allwood et al., 2006).

Interaction

The interaction between visual and verbal modes reveals more similarities than differences. Although American posters score slightly higher than Thai ones, the difference is not statistically significant.

In the representational metafunction, visual symbols mirror organizational names in the verbal mode. Interpersonally, the demanding verbal tone aligns with presenters' direct gaze. Compositionally, enlarged verbal elements correspond with visual emphasis on size, showing how the two modes reinforce meaning.

These parallels suggest that disseminators in both contexts follow established health communication frameworks, prioritizing audience comprehension, relevance, credibility, and reliability (Doak & Doak, 2004; ODPHP, 2010; WHO, 2017). The mask image

conveys the campaigns' core message, while organizational emblems build trust, supporting research on credibility and symbolic elements in health communication (Gill & Lennon, 2022; Oyebode & Unuabonah, 2013; Teichmann et al., 2020).

The demand expressed through both modes creates a concise, assertive call to wear masks, while enlarged key terms ("mask," "protect," "wear") reinforce the mask symbol and enhance clarity. However, these results contrast with Martins and Spink (2019), who found that visual semiotic resources primarily served symbolic rather than audience-oriented functions.

Table 9. The differences use of elements in American and Thai posters

Modes	Aspects	Elements	American	Thai
Verbal modes	lexical analysis	Word per sentence	17.6	135.9
Visual modes	Interpersonal	Social intimacy and distance	Intimate distance	Close personal distance
	Compositional	Information value	Center/Margin	Given/New
		Salience	Color	-
		Framing	-	Color contrast

Implications and recommendations

This study advances multimodal social semiotics by showing how verbal and visual resources interact in persuasive health communication, reinforcing the view that multimodality is integrative rather than additive. By comparing American and Thai posters, it demonstrates cultural variation in semiotic choices and extends Halliday's (1985) metafunctional framework across sociocultural contexts. The findings highlight how crisis communication combines universal strategies (e.g., masks as symbols, persuasive gaze) with culturally specific practices (e.g., vivid color use in Thailand), suggesting that health risk communication theories should account for both multimodality and cultural variation.

Practically, the study offers guidance for campaign design. Verbal resources may employ hyperbole for emphasis, persuasive tones to encourage action, and devices such as assonance and alliteration for memorability, with word choice aligned to campaign aims (e.g., mask, wear). Visual strategies include depicting presenters wearing masks without gestures, using organizational emblems to enhance credibility, and adopting frontal gaze, medium angle, and equal eye level to foster solidarity. Enlarging key elements further increases salience.

Given that health communication is culturally situated, the analysis revealed differences between American and Thai posters (see Table 9). Recommendations are therefore presented separately for each context to promote culturally responsive campaign design.

CONCLUSION

In summary, this study employed a qualitative method as the primary approach, supported by quantitative analysis, to examine health communication campaigns in online posters disseminated by government agencies and universities in the United States and Thailand. The analysis drew on metafuctions, with results presented in percentage form.

The comparison of elements used in the posters from both countries revealed notable similarities, possibly reflecting a shared reliance on established health communication frameworks. For instance, both American and Thai posters frequently employed assonance in verbal semiotic resources to facilitate readability and enhance the accessibility of information.

In terms of visual semiotic resources, presenters in both contexts were often depicted looking directly at the audience—a compositional choice classified as a demand image, which may foster a sense of involvement and engagement among viewers.

One key difference identified in this study was the average number of words per sentence across the two languages. Thai tends to use more words per sentence, as it is a propositional language in which disseminators can construct meaning with fewer syntactic constraints than in English. Another notable finding, consistent with previous studies, concerns the use of color in health communication posters across cultural contexts. Western designs often favor consistent, muted color schemes to convey professionalism, whereas Eastern designs tend to incorporate a variety of contrasting colors to capture audience attention.

Although these findings may inform disseminators, designers, and educators involved in health communication campaigns, they should be interpreted with caution due to the limited scope of this small-scale study.

This study contributes to a broader understanding of the importance of health communication campaigns, particularly those using posters to promote COVID-19 prevention through both verbal and visual modes. It also highlights the interaction between these modes in conveying public health messages effectively. The findings indicate that the elements used in posters from both the United States and Thailand were largely similar. This similarity may reflect the adoption of universal principles in health communication during a global health crisis such as the COVID-19 pandemic. In times of widespread emergency, disseminators tend to follow established frameworks to ensure that essential health information reaches the public efficiently and clearly.

In an era of advanced technology, global pandemics like COVID-19 may seem unlikely, yet their rapid spread underscores the need for preparedness. Accurate and accessible health communication can save lives by ensuring that populations are informed and equipped to act.

Furthermore, the analytical framework used in this study can be adapted to other health contexts, such as vaccination campaigns or mental health awareness efforts, thereby extending its practical relevance beyond the COVID-19 crisis.

Limitations

This study focused primarily on actions, camera angles, and the positioning of elements in the visual mode. However, color elements were only minimally addressed, despite the likelihood that color plays a significant role in poster design. Only three compositional

elements related to color were examined: tonal contrast, individual color use, and color contrast—regardless of the variations in color schemes present in the posters. For future research, color analysis should play a more prominent role in the examination of health communication posters. This could include analysis of color schemes, color temperature, and the ways in which color contributes to interpersonal meaning in visual and verbal semiotic resources.

Additionally, the sample size was limited, as the corpus was manually collected and contained relatively few words. Future studies would benefit from larger, more representative corpora, which could be constructed with the aid of advanced linguistic software. These tools can help newer generations of authors collect and analyze data more efficiently.

Finally, this study examined only posters disseminated by government agencies and universities. Yet many effective health communication materials are also produced by private-sector and nonprofit organizations. Future research should therefore include these sources, as they constitute important contributors during public health crises.

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