



EVALUATING THE SINDARA WEBSITE'S MESSAGE DESIGN FOR PRIMARY TEACHER PROFESSIONAL DEVELOPMENT

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Article history: Received 17-02-2026 Revised 24-02-2026 Accepted 13-02-2026 Published 28-03-2026 How to cite: Anggraini, M., Setyosari, P., & Kurniawan, C. (2026). Evaluating The SINDARA Website's Message Design for Primary Teacher Professional Development. <i>Journal of Facilitating Learning and Improving Performance</i>, 1(1), 218–229. © The Author(s)  This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License	This study aims to analyze the message design of the SINDARA website (Integrated Teacher Data and Information System), a digital platform developed by the Ministry of Primary and Secondary Education to support the professional development of elementary and junior high school teachers. The study employed a qualitative content analysis approach using a multilayered evaluation rubric. The website's message design was evaluated based on the communication theories of Shannon–Weaver, Schramm, Berlo's SMCR model, and Pettersson; Mayer's Cognitive Theory of Multimedia Learning (12 principles); Dual Coding Theory; Cognitive Load Theory; principles of infology and infographics; and the principles of Universal Design for Learning (UDL). The analysis utilized a five-dimensional assessment rubric with a four-point scale applied to seven main pages of the SINDARA website. The findings indicate that the SINDARA website demonstrates strengths in visual hierarchy and information clarity, particularly on the PKGSD-MBI page (mean = 3.50). However, significant weaknesses were identified in the accessibility of dynamic content, the consistency of verbal messages, and the implementation of the Coherence Principle. This study formulates nine instructional message design principles that can be implemented in similar educational digital platforms in Indonesia, while also contributing to the literature on instructional message design for government educational digital platforms. Keywords: <i>Message Design; Multimedia Learning; SINDARA; Instructional Communication; Mayer's Principles.</i>

INTRODUCTION

The rapid integration of digital technology into education systems has fundamentally transformed the ways instructional messages are designed, delivered, and received. Digital platforms are no longer merely repositories of information; they have become essential environments for communication, learning, and professional development. Consequently, the effectiveness of educational technologies depends not only on their technical functionality but also on how instructional messages are structured and communicated to users. In teacher professional development contexts, where users are expected to engage with information independently and continuously, message design plays a crucial role in facilitating comprehension, engagement, and knowledge transfer. In Indonesia, digital platforms have increasingly been utilized to support teacher professional development by disseminating information, delivering training programs, and facilitating professional learning communities for teachers (Saerang et al., 2023; Ainiyah et al., 2025).

One of the latest initiatives in this area is the SINDARA website (Integrated Teacher Data and Information System), which began development in 2025 under the Ministry of Primary and Secondary Education. As the successor to previous systems such as SIMPKB and RGTK, SINDARA functions as an integrated platform providing professional development resources, literacy and numeracy programs, reproductive health awareness materials, consultation services, and digital administrative support. The platform currently serves approximately 90,447 educational institutions across Indonesia, representing users from diverse geographical, cultural, and socioeconomic contexts (SINDARA, 2025). Given its strategic role and broad user base, the quality of communication and message design within the platform directly influences how effectively information is received, interpreted, and utilized by teachers. Effective message design is therefore essential to ensuring that the platform fulfills its intended educational and professional development functions (Anastasya & Arpannudin, 2025).

The importance of communication effectiveness in digital learning environments has long been recognized within the field of instructional technology. Message design refers to the systematic organization of verbal and visual elements to facilitate communication and learning processes (Fleming & Levie, 1993). Drawing upon communication theory, cognitive psychology, visual literacy, and multimedia learning research, message design seeks to ensure that information is meaningful, understandable, and capable of supporting learning outcomes. In digital environments, instructional messages must not only convey information accurately but also guide user attention, support cognitive processing, and encourage active engagement with content. As educational platforms increasingly become learning environments in their own right, the quality of instructional message design becomes a critical factor in determining user experience and learning effectiveness.

Several theoretical perspectives provide valuable frameworks for evaluating message design quality. Classical communication models, including Shannon & Weaver's communication model (1949), Schramm's interactive communication model (1954), and Berlo's SMCR model (1960), emphasize the importance of message clarity, channel effectiveness, feedback mechanisms, and audience characteristics in determining communication success. From an instructional perspective, the principles proposed by

Fleming & Levie (1993) and the visual literacy framework developed by Lohr (2008) highlight how verbal and visual elements should be organized to optimize attention, perception, memory, and learning transfer. Furthermore, Mayer's Cognitive Theory of Multimedia Learning (CTML) (Mayer & Fiorella, 2021), which is grounded in Dual Coding Theory (Paivio, 1991) and Cognitive Load Theory (Sweller et al., 2019; van Merriënboer & Sweller, 2022), provides evidence-based guidelines for designing multimedia messages that enhance learning while minimizing unnecessary cognitive load. Complementing these perspectives, the Universal Design for Learning (UDL) framework developed by CAST (2018) emphasizes accessibility and inclusivity by ensuring that digital learning environments accommodate diverse user characteristics and learning preferences. These theoretical perspectives are particularly relevant for evaluating a national platform such as SINDARA, which serves teachers with varying educational backgrounds, levels of digital competence, and contextual needs (Skantz-Åberg et al., 2022).

Despite the growing importance of educational digital platforms, existing studies on message design evaluation have predominantly focused on learning management systems (LMS) and online learning environments in formal educational settings (Bannister & Connolly, 2012). Comparatively little attention has been given to government-managed teacher professional development portals, particularly in developing countries. This gap is significant because technical, accessibility, and communication-related barriers remain among the primary challenges affecting the effectiveness of digital educational systems (Campoverde-Molina et al., 2023). Moreover, studies conducted in Indonesia have demonstrated that the implementation of instructional message design principles and inclusive learning frameworks can positively influence user motivation, engagement, and learning experiences in digital environments (Husna et al., 2016; Putra et al., 2020; Sudiksa & Suciptawati, 2025). Nevertheless, no published study has comprehensively evaluated the SINDARA platform using an integrated framework that combines communication theory, instructional message design principles, multimedia learning theory, and Universal Design for Learning. As a result, limited evidence is available regarding the extent to which the platform effectively supports communication and learning processes for its users.

To address this gap, the present study evaluates the message design of the SINDARA website through a comprehensive rubric-based analysis grounded in instructional technology theory. By examining the alignment of the platform's communication practices with established theoretical frameworks, this study seeks to identify strengths, weaknesses, and opportunities for improvement in the design of instructional messages within government-supported digital platforms. The findings are expected to contribute both theoretically and practically by expanding the application of instructional message design theories to government educational platforms and by providing recommendations for improving digital services that support teacher professional development.

Accordingly, this study is guided by the following research questions: (1) To what extent is the message design of the SINDARA website aligned with classical communication models? (2) To what extent do the visual and verbal message designs on the website comply with recognized instructional message design principles? (3) How

effectively does the website's multimedia design implement Mayer's Cognitive Theory of Multimedia Learning? and (4) What strengths and weaknesses can be identified as a basis for improving the effectiveness of the website's message design? Through answering these questions, the study aims to provide a theory-based evaluation of SINDARA while offering practical recommendations for the design of instructional messages in government digital platforms supporting teacher professional development in Indonesia.

METHODS

Research Design

This study employed a qualitative content analysis method further developed by Kimberly A. Neuendorf (2017) to systematically examine the message design elements of the SINDARA website. This method was selected because it enables structured, consistent, and replicable analysis of communication artifacts based on theoretically grounded categories, making it suitable for descriptive-evaluative website message design research (Praherdhiono et al., 2022).

Data Sources

The primary data sources consisted of seven main pages of the SINDARA website (<https://sindara.gurudikdas.kemendikdasmen.go.id>), which were systematically accessed and documented in May 2026. These pages included: (1) the Homepage, (2) the PKGSD-MBI program page, (3) Consultation Services, (4) Literacy Corner, (5) Reproductive Health Education, (6) Numeracy Hub, and (7) the Help Center.

These seven pages were selected because they represent the platform's major functions, including information delivery, transactional services, educational content, and health education. Documentation was conducted using standardized screen captures in desktop view with a resolution of 1920 × 1080 pixels.

Research Instrument

The research instrument consisted of an observation rubric developed based on five theoretical dimensions derived from the instructional message design literature. Each dimension was divided into several indicators assessed using a four-point scale: 1 = not evident; 2 = partially evident; 3 = sufficiently evident; and 4 = highly evident (fully aligned).

The five aspects analyzed included: (1) Clarity and structure of verbal messages (Fleming & Levie, 1993); (2) Visual hierarchy and layout (Lohr, 2008); (3) Typography readability; (4) Application of multimedia learning principles proposed by Richard E. Mayer and Logan Fiorella (2021); and (5) Alignment with communication models based on the works of David K. Berlo (1960) and Wilbur Schramm (1954).

Data Analysis Procedures

The data analysis was conducted in three sequential stages. The first stage was systematic observation, in which each webpage was accessed and documented using the observation rubric. The second stage involved rubric scoring and categorization, where each dimension was evaluated for every webpage. The average scores were then

classified into three categories: Strong (3.1–4.0), Moderate (2.1–3.0), and Needs Improvement (1.0–2.0). The third stage consisted of interpretative analysis, in which the evaluation results were connected to the theoretical framework to identify emerging message design patterns. From this process, nine instructional message design principles were derived from the recurring patterns identified across the seven website pages.

RESULTS

General Overview of the SINDARA Website

SINDARA is a web-based platform developed using Next.js, a React-based framework that supports dynamic client-side rendering and influences digital content accessibility (Campoverde-Molina et al., 2023). The platform interface consists of a horizontal navigation bar with seven main menus, a hero section combining SVG illustrations and taglines, as well as several feature sections designed with card-based layouts and statistical counters to enhance information clarity.

Rubric Evaluation Results

Table 1 presents the rubric scores from the seven analyzed webpages based on five message design dimensions. The overall mean score of 2.21 out of 4.0 indicates that the effectiveness of the website's message design remains in the lower-moderate category. A considerable difference was identified between the highest-scoring page, PKGSD-MBI (mean = 3.50), and the lowest-scoring page, Consultation Services (mean = 1.40).

In addition, four out of the seven webpages received scores below 2.0, indicating that message design problems are still present across most of the platform's main sections.

Table 1. Rubric Scores of the SINDARA Website Message Design Based on Pages and Dimensions

Page	Verbal Clarity	Visual Hierarchy	Typography	Multimedia Principle	Comm. Model Alignment	Mean
<i>Beranda</i> (Homepage)	3,5	3,5	3,0	3,0	3,0	3,20
<i>PKGSD-MBI</i>	3,5	4,0	3,0	3,5	3,5	3,50
<i>Layanan Konsultasi</i>	1,0	1,5	2,5	1,0	1,0	1,40
<i>Kedai Literasi</i>	1,5	1,5	2,0	1,0	1,5	1,50
<i>Gerai Numerasi</i>	2,0	2,0	2,5	2,0	2,0	2,10
<i>Kespro (detail-kespro)</i>	1,5	1,5	2,5	1,0	2,0	1,70
<i>Pusat Bantuan / FAQ</i>	2,5	3,0	3,0	2,5	2,5	2,70

Rerata Keseluruhan	2,14	2,36	2,57	1,86	2,14	2,21
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Communication Clarity and Navigation Structure

Main Message Architecture

The SINDARA homepage header clearly displays the system name and tagline, enabling users to immediately understand the platform's purpose as part of improving teacher governance and quality, in line with Berlo's (1960) concept of message communication. The main navigation menu also presents the platform's seven core services. However, from Schramm's (1954) perspective, the use of acronyms such as PKGSD-MBI and ZI WBK without explanation may create communication barriers for new users.

Visual Hierarchy and Information Architecture

Hero Section Design

The hero section presents a clear primary visual hierarchy through a large SVG illustration of teachers. The headline uses a significantly larger font size than the body text, creating a directed reading flow consistent with Lohr's (2008) principles of visual organization. The teacher illustration functions as a visual representation aligned with Mayer & Fiorella's (2021) image principle, helping to enhance users' sense of social presence. The use of SVG illustrations instead of photographic images provides advantages in terms of scalability and faster loading times, making it particularly relevant for users in regions with bandwidth limitations (CAST, 2018).

Feature Section Design

The Numeracy Hub section uses quantitative statistics as persuasive visual elements. However, the absence of data visualizations such as graphs or progress indicators limits the effectiveness of information presentation. Previous studies on website-based educational media development in Indonesia have shown that interactive data visualization can significantly improve user engagement (Putra et al., 2020).

Typography Readability and Verbal Message Quality

The website employs a clean sans-serif font, making the text hierarchy relatively easy to understand. Nevertheless, several sections still display placeholders such as "Loading content..." which may disrupt users' communication flow. In addition, the footer consistently displays incomplete information such as "Address unavailable," "Phone number unavailable," and "Email unavailable" across multiple pages. This lack of complete verbal information weakens institutional credibility from Berlo's (1960) communication perspective. Similar findings have been reported in e-governance studies, where incomplete contact information can reduce user trust in government platforms (Bannister & Connolly, 2012).

Multimedia Learning Alignment

Coherence and Signaling Principles

According to Mayer & Fiorella's (2021) coherence principle, learning becomes more effective when irrelevant information is removed. In the context of SINDARA, the homepage still displays forum member avatars originating from an external placeholder service unrelated to the actual user community. In contrast, the PKGSD-MBI page demonstrates better message design implementation through a step-by-step registration flow presented in numbered sequences. This presentation aligns with the Signaling Principle and the advance organizer strategy, both of which help users process information more systematically (Husna et al., 2016).

Spatial Contiguity and Dynamic Content Failures

Four SINDARA pages (Consultation Services, Literacy Corner, Numeracy Hub, and Reproductive Health Education) still display loading placeholders without substantive content. This condition indicates dependence on Next.js client-side rendering, which may create perceptual accessibility problems (Fleming & Levie, 1993). As a result, users are required to wait or may even fail to obtain the expected information. Research by Tzafilkou et al. (2023) also demonstrated that such technological failures can increase negative cognitive load and reduce users' learning motivation and engagement, including teachers accessing the platform for professional development purposes.

Findings by Webpage

Consultation Services — Score 1.40 (Lowest)

This page demonstrates the most serious message design failure. The page title is insufficiently descriptive, and the main content fails to appear even though users are instructed to select a consultation schedule. The absence of loading indicators, error messages, or login prompts reflects a failure of communication feedback according to Schramm (1954).

In addition, the repetition of subheadings with similar content is considered ineffective based on Mayer & Fiorella's (2021) Redundancy Principle.

Literacy Corner and Numeracy Hub — Score 1.50

Both pages still display loading placeholders without substantive content. Consequently, Mayer & Fiorella's (2021) multimedia learning principles cannot yet be implemented optimally. These findings are consistent with accessibility studies on modern JavaScript-based educational websites that lack fallback server-side rendering mechanisms (Campoverde-Molina et al., 2023).

Reproductive Health Education — Score 1.70

The Reproductive Health Education page also fails to display its main content but continues to show partner institution logos such as the Ministry of Education, the Ministry of Health, the Government of Canada, UNFPA, and Siklus Indonesia. The presence of these partners helps strengthen source credibility according to Berlo's (1960) communication model. However, because the page addresses reproductive

health topics, inaccessible content may reduce the effectiveness of information delivery to teachers (Saerang et al., 2023).

Help Center / FAQ — Score 2.70

This page demonstrates a better visual structure than other low-scoring pages, as reflected in its clear titles, subtitles, and tab navigation. However, the FAQ section still displays messages such as “No FAQ available” and technical text such as “Showing 1 to 0 of 0 entries.” Such technical information should not be visible to end users because it may interfere with message clarity (Fleming & Levie, 1993).

DISCUSSION

Alignment with Communication Models

The analysis indicates that the message design of the SINDARA website is dominated by a linear source-to-receiver communication pattern, making it more closely aligned with the Shannon–Weaver model (1949) than with Schramm’s (1954) transactional communication model. The limited availability of feedback features causes the platform to function primarily as an information delivery medium rather than as an interactive learning environment. This finding is consistent with the study by Anastasya & Arpanudin (2025), which emphasized the importance of two-way communication in teacher training platforms in Indonesia.

The use of unexplained acronyms also reflects a mismatch in the “field of experience” between message providers and users, as described by Berlo (1960). This issue is particularly important considering the wide variation in teachers’ digital competencies in Indonesia (Skantz-Åberg et al., 2022). Therefore, clearer terminology is necessary to ensure that information can be understood more evenly across users.

Strengths and Opportunities in Visual Message Design

SINDARA demonstrates strengths in the use of consistent grid-based layouts, which help users understand the flow of information more easily, in accordance with Lohr’s (2008) principles of visual organization. The SVG illustrations also support message delivery because they are relevant to the users’ context and align with Paivio’s (1991) Dual Coding Theory. The PKGSD-MBI page serves as the most effective example through its structured presentation of information from general to specific, enabling users to follow procedural flows more easily (Husna et al., 2016; Pangestu et al., 2023).

Implementation of Mayer’s Multimedia Learning Principles

A major weakness in SINDARA’s message design lies in the presence of “ghost content,” where four out of seven main pages fail to display content properly. This condition hinders message accessibility and increases users’ cognitive load due to empty pages or loading states without explanation (Tzafilkou et al., 2023). Meanwhile, the FAQ page demonstrates that the system is technically capable of displaying complete pages. Therefore, the problems found on other pages appear to be more related to design decisions rather than technical limitations (Campoverde-Molina et al., 2023).

Cultural and Contextual Dimensions

The SINDARA website must be evaluated within the Indonesian educational landscape, which is characterized by significant regional diversity. Website design should therefore consider the highly varied educational conditions across Indonesia. Dependence on stable internet connectivity may disadvantage teachers in regions with limited infrastructure. For this reason, digital accessibility should become an essential component of government educational platform design (Polat, 2023; Ainiyah et al., 2025).

Proposed Instructional Message Design Framework (IMDF-SINDARA)

Based on the rubric analysis and theoretical synthesis, this study proposes nine instructional message design principles (IMDF-SINDARA) that can be applied to educational digital platforms in Indonesia:

P1 – Structural Clarity.

Content should be organized hierarchically from macro to micro levels using advance organizer techniques, ensuring that macro-level information always precedes micro-level details (Fleming & Levie, 1993; Husna et al., 2016).

P2 – Progressive Disclosure.

Information should be presented in manageable segments using tab sections or accordion panels to implement Mayer & Fiorella's (2021) Segmentation Principle.

P3 – Visual Signaling.

Typography contrast, numbered sequences, bold keywords, and visual cues should be used to direct users' attention to key content (Mayer & Fiorella, 2021; Sudiksa & Suciptawati, 2025).

P4 – Coherence Filtering.

Visual elements that do not support comprehension, including placeholder avatars and decorative elements that increase extraneous cognitive load, should be removed (Mayer & Fiorella, 2021; Sweller et al., 2019).

P5 – Accessibility-Based Rendering.

Server-side rendering should be prioritized for all core content sections to ensure message delivery regardless of device capability or internet connectivity quality (CAST, 2018; Campoverde-Molina et al., 2023).

P6 – Source Credibility Signaling.

Complete institutional information should be displayed as a mandatory component of message design in government platforms (Berlo, 1960; Bannister & Connolly, 2012).

P7 – Feedback Loop Integration.

Explicit confirmation messages, progress indicators, and accessible feedback pathways should be provided in accordance with Schramm's (1954) bidirectional communication model (Anastasya & Arpanudin, 2025).

P8 – Typographic Consistency.

A consistent font hierarchy should be maintained across all pages to support visual coherence and reduce cognitive adaptation demands (Lohr, 2008; Sudiksa & Suciptawati, 2025).

P9 – Vocabulary Alignment.

All institutional terminology and acronyms should be accompanied by contextual explanations to minimize encoding-decoding gaps across teacher populations (Berlo, 1960; Skantz-Åberg et al., 2022).

CONCLUSION

This study conducted a systematic, rubric-based, and multi-theoretical analysis of the SINDARA website's message design by evaluating seven main pages based on classical communication models, instructional message design principles, Mayer's Cognitive Theory of Multimedia Learning, and Universal Design for Learning guidelines. The overall mean score of 2.21 out of 4.0 indicates that the effectiveness of the SINDARA website's message design remains in the lower-moderate category. Four out of the seven sections (57.1%)—namely Consultation Services, Literacy Corner, Numeracy Hub, and Reproductive Health Education—received scores below 2.0. This finding indicates a systemic failure in message delivery that may potentially affect teachers' access to professional development at the national level (Ainiyah et al., 2025; Anastasya & Arpanudin, 2025). The Multimedia Principles dimension recorded the lowest mean score (1.86), reflecting widespread dependence on problematic content rendering mechanisms. The website's main strengths were identified in the structured program presentation on the PKGSD-MBI page (mean = 3.50), the use of SVG illustrations aligned with users' cultural contexts, and the homepage's clear and easy-to-follow visual hierarchy.

This study produced the IMDF-SINDARA framework as a message design guideline for government educational digital platforms, grounded in internationally recognized instructional design theories and calibrated specifically for Indonesian government educational platforms. However, this study remains limited to static content analysis and did not directly observe user behavior. Therefore, future studies are recommended to employ usability testing or eye-tracking methods involving teachers as the primary users in order to evaluate the effectiveness of the proposed principles further.

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