

Mapping the Conditions of Poetry Learning Media in Junior High Schools Based on the Perspective of Cognitive Load Theory

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ABSTRACT

Objective: This study looks at how Indonesian junior high school teachers use instructional media when teaching poetry, with the analysis grounded in the principles of Cognitive Load Theory (CLT). The data were drawn from teachers' lesson plans and teaching modules to understand what kinds of media they choose, how they make those decisions, and how students respond during learning. **Method:** This study employed a descriptive qualitative design with document analysis as the primary method. The design was chosen to systematically examine teachers' instructional documents and identify patterns in the use of media for poetry learning. **Results:** A total of 68 teaching modules were collected. Videos appear to be the most widely used (94.1%), followed by visual materials such as images or diagrams (72.1%). The use of digital tools such as YouTube, Canva and Quizizz appears to support germane cognitive load. These tools help students to develop schemas, promote active engagement, and provide opportunities for learners to connect new information with their prior knowledge. The combination of multimodal content and contextual examples contributes to more meaningful learning experiences in the poetry classroom. **Novelty:** Learning media should not only attract students' attention but also function as cognitive support that helps them manage the complexity of poetic texts. The integration of multimodal resources and digital platforms, when aligned with the principles of Cognitive Load Theory, points to a promising direction for improving the quality of poetry teaching.

INTRODUCTION

The fast integration of digital technologies in education has transformed the way educators design and deliver learning across disciplines. In many countries, multimedia resources and digital platforms are increasingly being used to enhance engagement, deepen understanding, and customize instruction to meet the diverse needs of learners (Mayer, 2009; Sweller et al., 2019). This digital transformation has been further accelerated by the COVID-19 pandemic, which has also illustrated the potential and limitations of technology for learning continuity. Diversity of conditions of society in Indonesia is very broad, including mastery and utilization of technology in school learning. The schools in urban areas are not the same as the schools in rural or suburban areas. This will greatly affect how teachers utilize or interact with learning media in schools with such diverse conditions.

In the Indonesian context, these processes connect with a particular set of obstacles. The penetration of the internet has reached 79.5% of the population (Asosiasi Penyelenggara Jasa Internet Indonesia, 2024), although there are still significant gaps of access between the urban and the rural areas. Statistics Indonesia's data supports that households in urban areas have far better access to dependable internet and devices than

their rural counterparts (Badan Pusat Statistik, 2024) . Such differences, frequently referred to as the “digital divide,” influence how teachers and students might use technology in classroom activities, such as in teaching literature and poetry.

National policies such as the Merdeka Curriculum and the Merdeka Mengajar Platform (PMM) are developed to assist teachers in implementing digital pedagogies. Thus, the choice of instructional media by many teachers, whether print, audio-visual or digital-interactive, is typically influenced more by contextual than by strictly pedagogical variables.

Meanwhile, literacy problems still haunt Indonesian pupils. . The Programme for International Student Assessment results reveal that Indonesian students scored below the average of the OECD in reading with the socio-economic status still affecting the performance outcomes ((OECD), 2023). These findings underscore the need for pedagogical strategies beyond increasing media access, to optimize students’ cognitive engagement.

Within this landscape, poetry learning poses unique pedagogical obstacles. While digital and multimodal media (e.g., video recitations, musicalization, online collaborative platforms) provide chances to make poetry more accessible and engaging (Höglund, 2022; Selfa Sastre & Falguera Garcia, 2022), poorly constructed resources risk raising students’ cognitive burden. This is consistent with the concerns of Cognitive Load Theory (CLT) which is concerned with regulating the intrinsic, extraneous and relevant load in instructional design (Mayer & Moreno, 2002; Mutlu-Bayraktar, 2019).

Cognitive Load Theory (CLT) addresses the effects of working memory constraints on learning processes and the effectiveness of instruction (Sweller, van Merriënboer, et al., 2019). CLT differentiates between intrinsic load (the inherent difficulty of the learning content), extraneous burden (due to bad instructional design), and germane load (resources dedicated to schema development). Well-designed instruction tries to eliminate unnecessary load while controlling intrinsic load and optimizing relevant load. Numerous research have confirmed CLT's validity across various domains demonstrating that students acquire higher comprehension and retention when teaching tactics are linked with memory restrictions (Kastaun, 2021; Mutlu-Bayraktar, 2019). Building on CLT, Mayer’s Multimedia Learning Theory gives specific design principles to enhance instructional media. Strategies like segmentation, signaling, modality, and coherence allow learners to concentrate on the important information and reduce superfluous processing (Mayer, 2009; Mayer & Moreno, 2002) . Principles such as Segmentation have been shown empirically to reduce superfluous load and enhance understanding in digital contexts (Çeken & Taşkın, 2022; Liu, 2024). However, multimedia that is poorly designed, such as misuse of animations or unnecessary text, might raise cognitive load rather than reduce it (Gkintoni, 2025; Harp & Mayer, 1998).

Emerging technologies such as augmented reality (AR) and artificial intelligence (AI) offer new opportunities for instructional design, but their effectiveness depends on careful alignment with CLT principles. Studies show that AR-based learning environments can enhance motivation and comprehension when extraneous elements are minimized (Candido & Cattaneo, 2025), while AI-supported adaptive systems can personalize learning and optimize cognitive load (Twabu, 2025).

Poetry learning involves unique cognitive and affective demands, as students must interpret figurative language, symbolism, and aesthetic dimensions. Multimodal approaches – such as video recitations, soundscapes, and visual imagery – can enrich the

learning experience and foster deeper engagement (Höglund, 2022; Selfa Sastre & Falguera Garcia, 2022). For example, collaborative projects involving videomaking or digital poetry creation have been shown to enhance students' aesthetic appreciation and critical thinking.

Recent innovations include AI-based poetry machines and online poetology platforms, which demonstrate how digital tools can improve students' creative writing and interpretation skills (Aituganova, 2023; Kangasharju, 2022). Meta-analyses further suggest that innovative methods in poetry teaching have measurable positive effects on student learning outcomes (Moldagali et al., 2024). Nevertheless, limited research has explored how these multimodal and digital resources interact with cognitive load, particularly in the Indonesian junior high school context.

The reviewed literature underscores that CLT and multimedia learning principles provide robust theoretical foundations for designing instructional media. Prior research on poetry education highlights the potential of digital and multimodal tools to make abstract content more accessible. However, few studies integrate these two strands—CLT-based instructional design and poetry pedagogy in Indonesia. This study seeks to fill that gap by analyzing teachers' choices of instructional media in poetry learning through the lens of CLT, thereby contributing both theoretical and practical insights.

Nevertheless, there is limited research on media use in teaching poetry by Indonesian teachers from the perspective of CLT. Most research on media use in teaching focuses on general literacy or technology integration, not on the cognitive consequences of various media choices for teaching poetry. To fill this gap, this study investigates the use of instructional media in poetry learning by junior high school teachers in Indonesia. By combining descriptive data from teachers' lesson plans with theoretical insights from CLT, this research contributes to strategies for balancing cognitive load and fostering meaningful literary learning in diverse contexts.

Based on the above description, this research generally aims to describe the conditions related to the use of learning media in poetry teaching at junior high schools in the cities of Bandung and Cimahi using the perspective of cognitive load theory (CLT). More specifically, the objectives of this research consist of: identifying the types of learning media used in poetry teaching, analyzing the cognitive implications of the use of such media, and describing the support and obstacles that arise from the use of media on the effectiveness of poetry teaching.

RESEARCH METHOD

A. Research Design

This study employed a descriptive qualitative design with document analysis as the primary method. The design was chosen to systematically examine teachers' instructional documents and identify patterns in the use of media for poetry learning. Cognitive Load Theory (CLT) served as the analytical framework, enabling interpretation of how different types of media align with intrinsic, extraneous, and germane cognitive loads. Participants and Data Source

The participants of this study were junior high school teachers of Indonesian language and literature who had prepared lesson plans and teaching modules focused on poetry. A total of 68 teaching modules were collected. These documents were developed by teachers across different schools in urban and semi-urban areas, reflecting varied access to digital technology.

B. Instruments and Data Collection

Data collection was conducted through documentation of teachers' lesson plans and teaching modules, which contained detailed information on:

1. Types of instructional media (print, visual, audio, video, digital platforms).
2. Teachers' considerations for selecting media (student characteristics, material complexity, school facilities, access).
3. Evaluation tools employed (printed worksheets, Google Forms, Quizizz, etc.).

The data were extracted into a coding sheet and categorized according to media type, frequency of use, and context of application. To complement the document analysis, contextual references from teacher interviews and national reports on digital adoption in education were reviewed for triangulation.

C. Data Analysis

The analysis was conducted in two stages:

Descriptive Analysis

Frequencies and percentages were calculated to identify the distribution of media types used in poetry learning. For example, the proportion of print versus digital media, the prevalence of video, audio, and visual aids, and the integration of digital platforms in classroom practice.

Cognitive Load Theory (CLT) Analysis

Each type of instructional media was then analyzed through the lens of CLT:

1. Intrinsic Load: complexity of poetry learning tasks using different media.
2. Extraneous Load: potential distractions or unnecessary elements from the media design.
3. Germane Load: the extent to which media support schema construction, interpretation, and student engagement.

The combination of descriptive statistics and CLT-based interpretation enabled a comprehensive understanding of teachers' media use. To ensure reliability, findings were cross-validated with existing studies on multimedia learning (Çeken & Taşkın, 2022; Mayer, 2009) and poetry pedagogy (Höglund, 2022; Selfa Sastre & Falguera Garcia, 2022).

D. Researcher's Role

In this study, the researcher takes on the role of a non-participant observer. The researcher analyzed lesson plan documents, instructional materials, and educational media gathered through a questionnaire. The data is examined through the framework of cognitive load theory (CLT), with an emphasis on the principles of consistency, transparency, and autonomy in the teachers' instructional methods. To minimize potential bias and maintain objectivity, the researcher maintained a distance from the teachers throughout the study.

E. Ethical Considerations

Regarding ethical considerations in this research, the researchers have applied the principles of qualitative research ethics. All participants received adequate explanations regarding their involvement in this research. After understanding the explanation and being willing to participate in this research, all participants gave their consent on the consent form combined with the questionnaire through Google Forms. The identities of all participants in this study are anonymized to maintain confidentiality and anonymity.

The data collected will be used only for this study and will be securely stored by the researchers per research ethics standards.

RESULTS AND DISCUSSION

Results

This document presents a comprehensive descriptive analysis of junior high school teachers' data regarding the use of instructional media in teaching poetry. The analysis encompasses several dimensions, including respondent profiles, preferences for print versus digital media, the types of media employed, and the key factors influencing media selection. It further examines the integration of social media, the use of applications for packaging learning materials, the adoption of various media for assessment, the involvement of the school environment, and the construction of a digital adoption index. All findings are derived from a survey conducted with 68 teacher respondents.

A. Respondent Profile

A total of 68 teachers participated as respondents in this study. They represented diverse employment backgrounds, including civil servants (PNS), government contract teachers (P3K), private school teachers, and honorary teachers. The respondents reported an average teaching experience of 14.3 years, with a median of 12.5 years, and a range spanning from 0 to 40 years. The distribution of teaching tenure revealed that 26.5% of teachers had 0–5 years of experience, 16.2% had 6–10 years, 14.7% had 11–15 years, 16.2% had 16–20 years, 23.5% had 21–30 years, and only 2.9% had more than 31 years of experience. In terms of certification, 79.4% of teachers were certified, while 20.6% were not. These findings indicate that the majority of respondents possess formally recognized professional competence, as demonstrated through teacher certification. The distribution of teachers' length of service is presented in the figure below.

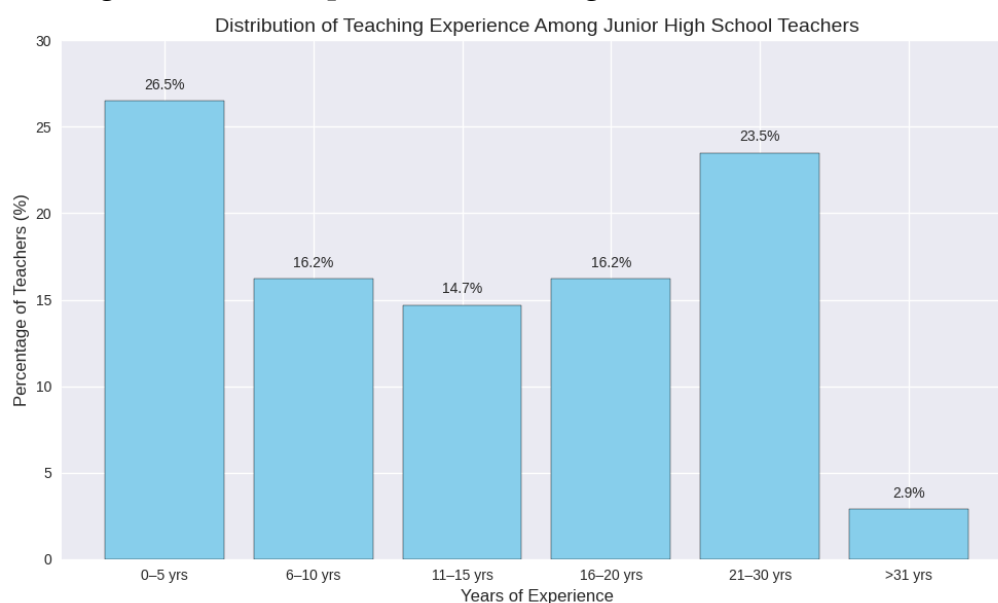


Figure 1. Distribution of Teachers' Length of Service

The length-of-service distribution carries direct implications for the media adoption patterns documented in the subsequent sections. When cross-tabulated with media preferences, a clear generational trend emerges: teachers in the earlier career stages (0–5

years, 26.5%; 11–15 years, 14.7%) more frequently reported the use of digital media, whereas teachers in the later stages (21–30 years, 23.5%; above 31 years, 2.9%) gravitated toward print-based resources. This pattern is consistent with the finding that uncertified teachers – who tend to be younger – leaned digital (57.1%), while certified teachers leaned print (57.4%).

Importantly, the dominance of mid-career teachers (the 11–20 year cohort comprising approximately 30.9% of the sample) appears to coincide with the high adoption rate of audio-visual media: this group represents a transitional generation that experienced both print-based and digital instructional cultures during their professional development. Their willingness to integrate video (94.1%), Canva (88.2%), and PowerPoint (77.9%) into poetry instruction reflects what may be called pedagogical bilingualism – an ability to operate fluently across both media paradigms. This cross-mapping between teaching tenure and media adoption provides an empirical basis for interpreting the CLT-related findings that follow, since the cognitive load implications of media choice cannot be separated from the professional trajectory of the teachers making those choices.

B. Media Categories (Print vs. Digital)

With respect to media category preferences, 54.4% of the teachers reported print media being used more frequently, and 45.6% reported a preference toward digital media. This indicates that teachers are in a transition stage of gradually moving away from dependence on print-based resources to digital platforms. When analyzed by teaching experience, teachers in the early stages of their careers (0–5 years and 11–15 years) used digital media more frequently, while teachers with more extensive teaching experience (21–30 years and above 31 years) used print media. In addition, certification status revealed a different pattern: uncertified teachers were relatively more digital-oriented (57.1%), while certified teachers showed a stronger preference for print media (57.4%).

C. Types of Instructional Media

The most widely used medium in poetry instruction was audiovisual media (video), reported by 94.1% of teachers. Visual media in the form of images without sound were employed by 72.1% of teachers, while audio media (sound without images) were utilized by 44.1% of teachers. These findings indicate that teachers tend to prioritize multisensory media such as video to facilitate comprehension and enhance the overall appeal of poetry learning.

D. Social Media for Poetry Learning

The majority of teachers reported utilizing YouTube (80.9%) as the primary social media platform for poetry instruction. In addition, Instagram was used by 45.6% of teachers, TikTok by 27.9%, and Facebook by 10.3%. Other platforms such as Google Drive, WhatsApp, and Threads appeared only marginally in the data. The dominance of YouTube underscores the pivotal role of video-based platforms in providing performative examples and delivering instructional content for poetry learning.

E. Applications for Packaging Learning Materials

In designing and presenting poetry learning materials, the most frequently used applications were Canva (88.2%) and PowerPoint (77.9%). Google Slides was employed by 7.4% of teachers, while other applications such as Thesaurus, KBBI Online, YouTube, Quizizz, Kahoot, Liveworksheet, and Mentimeter were used only to a very limited extent.

These findings suggest that teachers tend to prefer applications that are simple, flexible, and visually oriented when packaging poetry learning materials.

F. Media and Learning Evaluation

In terms of evaluation, the majority of teachers (88.2%) continued to rely on worksheets or print-based assessments. However, a considerable proportion had also adopted digital tools, with 58.8% utilizing Google Forms and 41.2% employing Quizizz. A smaller number of teachers reported the use of applications such as Mentimeter (8.8%), Kahoot, Blooket, Pear Deck, and Genially, although these appeared only marginally in the data. These findings indicate a gradual shift toward digital-based evaluation, even though print media remains the dominant mode of assessment.

Discussion

The findings of this study provide an overview of the transition in the use of instructional media for poetry learning at the junior high school level and its implications for students' cognitive load within the framework of Cognitive Load Theory (CLT). In general, CLT categorizes cognitive load into three types: intrinsic load (the inherent load derived from the complexity of the learning material), extraneous load (the load caused by inefficient instructional design or presentation), and germane load (the load that facilitates schema construction and meaningful learning) (Coelho et al., 2025). The effectiveness of learning is largely determined by how these three types of cognitive load are managed (Paas et al., 2003). In this discussion, the survey findings are interpreted through the lens of CLT, emphasizing how different forms of instructional media (print-based, visual, auditory, video, and interactive digital) can either increase or reduce these cognitive loads.

A. Transition from Print to Digital Media: Implications for Intrinsic and Extraneous Load

Print-based media are generally linear and textual, requiring students to process information through a single visual-verbal channel. For students with limited literacy skills, an overreliance on printed text can increase intrinsic load, as they must decode and interpret complex poetic language without support from other modalities. Teachers who rely solely on textual presentation may inadvertently make poetry appear more cognitively demanding, especially since poetry often contains metaphors, symbolism, and figurative language. A high intrinsic load caused by the complexity of the material, when not balanced by visual or auditory support, can impede comprehension. This is consistent with the CLT principle that intrinsic load is determined by the complexity of interacting elements within the material and the degree of interactivity among them (Coelho et al., 2025). In poetry, these elements include diction, rhyme, rhythm, and implied meaning, which, for novice learners, can represent a large number of interacting components that must be processed simultaneously.

Conversely, the use of digital media offers opportunities to present poetry through multiple formats (text, sound, images, and animations) which can reduce intrinsic load when properly designed. For instance, a complex poetic text can be enriched with visual illustrations or audio recordings of poetry readings to help students build initial comprehension. According to Cognitive Theory of Multimedia Learning (CTML), learning becomes more meaningful when words are accompanied by relevant pictures or audio (Mayer & Moreno, 2002) (Mayer & Moreno, 2003). Delivering information

through dual channels (verbal and visual) allows for a more balanced distribution of cognitive processing, preventing overload in a single modality (Mayer & Moreno, 2003).

In an audio-visual learning environment, part of the information is processed through the auditory channel (e.g., listening to the intonation of a poem), while the visual channel processes text and imagery. This aligns with the modality principle in multimedia design, which posits that a combination of visual and auditory information (e.g., videos) is more effective than visual and text alone because it optimizes the use of working memory capacity (Mayer & Moreno, 2003).

The survey findings revealed that 94.1% of teachers have used audio-visual media (video) in poetry instruction, supporting this theoretical approach. The predominant use of video suggests that teachers recognize the value of multisensory media in enhancing comprehension and sustaining students' engagement. The integration of visuals, text, and sound in videos is consistent with the multimedia principle, which asserts that learners understand better from words and pictures than from words alone (Mayer, 2021). This practice potentially increases germane load (discussed in the next section), as students are better able to integrate visual and auditory information and construct a more coherent mental model of poetry.

Nevertheless, digital media also introduce challenges related to extraneous load. Cognitive Load Theory emphasizes that poor instructional design or the inclusion of irrelevant elements can impose unnecessary demands on working memory (Paas et al., 2003). Contemporary digital learning tools are often saturated with decorative features or non-essential functions. When teachers merely "convert" content from print to digital without applying appropriate design principles, extraneous load may increase rather than decrease.

For instance, PowerPoint slides with cluttered layouts or excessive animations may divert students' attention away from the substance of the poem. Extraneous load arises when mental resources are consumed by non-essential tasks, such as locating key information within overly decorated slides (Muller et al., 2008). Research demonstrates that learners achieve better outcomes when extraneous material is removed, since irrelevant information competes with essential content for limited cognitive resources in working memory (Muller et al., 2008).

This reinforces the importance of applying the coherence principle, which advocates for the elimination of digital "ornaments" that do not serve instructional goals (Mayer, 2017). The finding that most teachers predominantly use Canva (88.2%) and PowerPoint (77.9%) to design their teaching materials indicates a preference for simple, flexible, and visually oriented digital tools. However, document analysis of the collected modules also revealed instances where these tools were used in ways that potentially elevated extraneous cognitive load. For illustration, several Canva-based modules in the corpus presented a four-line stanza of a poem on a slide that simultaneously contained three or more decorative graphic elements (e.g., floral borders, illustrative icons of pens or scrolls), two different font families, and animated text transitions. While visually attractive, such configurations require learners to allocate working memory resources to filtering relevant from decorative content before they can begin interpreting the poetic text itself. When used thoughtfully, these platforms can effectively support the presentation of poetry through coherent design, such as combining text and images that complement each other.

In addition, the integrated presentation principle should be observed, placing related text and visuals in close proximity so that learners do not need to divide their attention to establish connections (Mayer & Moreno, 2003). A slide layout that presents a poetic excerpt alongside its corresponding image or explanation is more effective than separating them across different areas, as this design minimizes the mental search effort required to connect the two.

Interestingly, the data indicate that non-certified teachers tend to be more digitally oriented, with 57.1% using digital media, whereas certified teachers remain more conventional, with 57.4% predominantly relying on print-based materials. This difference may be associated with age and habitual factors: younger teachers are generally more comfortable experimenting with new media, while senior teachers tend to rely on established, traditional methods.

In terms of students' cognitive load, experienced teachers who continue to rely on print media must ensure that intrinsic overload does not occur. They can compensate for this through scaffolding strategies, such as providing glossaries for complex poetic diction or segmenting longer poems into shorter, more manageable sections. Meanwhile, teachers who are more proactive in adopting digital media need to strengthen their instructional design literacy to ensure that technology genuinely reduces cognitive load rather than increases it.

Recent studies emphasize that poorly designed multimedia can increase total cognitive load, whereas multimedia designs aligned with CLT principles can simplify complex concepts and improve learner performance (Coelho et al., 2025). Therefore, teacher training in the application of principles such as coherence, signaling, and modality is crucial for ensuring the effectiveness of digital media. Without this theoretical grounding, the transition to digital instruction risks becoming a mere format shift (from paper to screen) without any real cognitive enhancement.

B. The Use of Visual, Audio, and Video Media: Implications for Cognitive Load

Poetry videos, for example, recordings of poetry readings accompanied by text or visual imagery, can help reduce intrinsic load by providing richer contextual cues: students can listen to tone and expression (auditory channel) while simultaneously viewing the text or visual scene (visual channel). Presenting information concurrently through both channels facilitates comprehension of the poem's essence, as the cognitive demand on each channel is distributed more efficiently.

Previous research consistently demonstrates that multimedia instruction enhances deep understanding compared to unimodal instruction, provided that the video design avoids unnecessary complexity (Mayer & Moreno, 2003). The current findings align with this evidence: teachers tend to "prioritize multisensory media such as video to facilitate understanding." This can be interpreted as an intuitive effort by teachers to enhance students' germane load, that is, to stimulate productive cognitive processes such as organizing, integrating, and constructing meaning from poetic information.

A well-designed video can also help reduce extraneous load, for instance, by replacing lengthy textual explanations with synchronized audio narration. This reallocation of cognitive resources allows students to focus their mental capacity on meaning-making activities, thereby promoting germane processing and deeper poetic comprehension.

In contrast, the use of static visual media without audio and audio media without visuals produces distinct cognitive consequences. Visual-only media, such as poetic illustrations or printed poems displayed on posters, tend to increase intrinsic load when the visual or textual content is complex and not supported by accompanying narration. Students are required to interpret the visual or textual information independently, which in the context of poetry can involve high levels of ambiguity. A picture without narration can create additional cognitive puzzles, as learners must infer the relationship between the illustration and the poem's verses. Consequently, the number of interacting elements that need to be mentally connected increases, thereby raising intrinsic load. Within the CLT framework, this is equivalent to increasing task complexity. Without the aid of explanatory audio or textual guidance, static visuals may cause essential (intrinsic) load to exceed the optimal threshold, particularly for novice learners.

Conversely, audio-only media (for example, teachers reading a poem aloud or playing a recording without text or images) tend to increase extraneous load for many students. In the absence of visual cues, learners must rely solely on short-term memory to retain and process the words they hear. Complex sentences or diction may be forgotten before they are fully understood, forcing students into a kind of mental juggling that overloads working memory. This situation parallels the split-attention effect, albeit in an internal form: learners divide their attention between listening to the next line and recalling the previous one. Extraneous load also emerges when students must construct their own mental imagery to compensate for the lack of visual anchors that could otherwise support comprehension. Classic CLT studies have shown that when learners must search for or infer missing information, extraneous cognitive load increases, thereby hindering learning (Paas et al., 2003).

In poetry instruction, relying solely on audio deprives students of visual anchors that can facilitate meaning-making, thus increasing the mental effort required to "fill in the gaps." It is therefore unsurprising that teachers in this study used audio-only media less frequently (44.1%) than visual or video-based media. Intuitively, teachers appear to recognize the limitations of using audio in isolation.

These findings support the modality and redundancy principles in multimedia learning: combining visual and auditory channels (as in video) is superior to single-modality formats. The redundancy principle suggests avoiding the simultaneous presentation of identical information through both channels (for instance, identical narration and text), as this can trigger incidental processing to reconcile the two inputs (Mayer & Moreno, 2003). However, in the context of poetry, the combination of spoken narration and textual display can be considered complementary rather than redundant, as hearing pronunciation and tone can aid in understanding nuanced meanings that may not be apparent through text alone. Teachers must ensure that when audio and text are presented together, they are synchronized and mutually reinforcing, rather than duplicative. As long as the contiguity principle is maintained, where audio elaborates or expresses what is shown in the text or image, students' germane load increases through meaningful integration, while extraneous load remains controlled.

C. Social Media as a Learning Resource: Enhancing Germane Load through Examples and Summaries

In poetry learning, YouTube videos that feature professional poetry readings or thematic analyses can be viewed as worked examples. Students directly observe effective ways to

interpret and perform poetry, sparing them from the trial-and-error process of discovering interpretative methods on their own, a process that could otherwise impose extraneous load through “strategy guessing.” This aligns with CLT’s assertion that reducing extraneous cognitive effort (for instance, by providing examples instead of open-ended tasks) frees up mental capacity for germane processing (Paas et al., 2003), in this case, for analyzing poetic beauty and developing appreciation.

Moreover, YouTube content is inherently audio-visual, aligning with the principles of multimedia learning discussed earlier. Several international studies have reported that YouTube videos are effective tools for self-paced learning, as students can replay, pause, or review segments according to their cognitive needs. This flexibility helps learners regulate intrinsic load and promotes germane load as comprehension gradually deepens. For example, learners naturally apply the segmenting principle by controlling the video’s pacing. Thus, teachers’ preference for YouTube corresponds with global findings showing that online video platforms serve as powerful pedagogical tools for enhancing motivation and comprehension, even within language and literature domains.

The use of Instagram and TikTok by some teachers, though less frequent than YouTube, also merits discussion. These platforms are typically used for short-form content, such as illustrated poetry quotes on Instagram or brief poetry performances on TikTok. The potential advantage of such media lies in their concise and engaging presentation, which effectively captures learners’ attention and may boost motivation. From the perspective of germane load, brief and well-structured content can help students organize information more efficiently, an infographic on Instagram summarizing a poem’s theme may aid memory retention.

However, there are inherent risks of extraneous load in social media environments, particularly due to split attention and rapid pacing. TikTok videos, for example, often present dense information within short durations, which can overwhelm students. If a TikTok video rapidly alternates poetic text with background music and visual effects, students must divide their attention across multiple stimuli, an extreme form of cognitive overload may occur when the required processing exceeds working memory capacity (Mayer & Moreno, 2002, 2003; Moreno & Mayer, 2007). Moreover, social media feeds frequently include irrelevant or seductive details such as comments, advertisements, and unrelated visual cues that distract from core learning content. Research warns that such seductive details disrupt learning by diverting attention from essential information (Fiorella & Mayer, 2021) . Consequently, overly “busy” social media content can be categorized as extraneous material that impairs cognitive efficiency and distracts from the poetic core.

Overall, the findings of this study align with prior evidence showing that video platforms like YouTube effectively support example-based learning, whereas short-form social media content must be carefully designed to avoid increasing extraneous load. A study by Turan et al. (Turan et al., 2016) on gamified learning found that adding appealing features can temporarily increase total and extraneous cognitive load among learners. This concern parallels the potential challenges identified with TikTok and Instagram: when content is unstructured, it may impose additional cognitive burden. Nonetheless, other studies indicate that increasing learner interest can reduce cognitive load if the content remains well-directed and pedagogically coherent (Coelho et al., 2025) .

In this sense, Instagram or TikTok can be beneficial tools when content is concise, visually organized, and free of unnecessary distractions. For example, teachers may post

simple infographics outlining a poem's structure or theme, effectively reducing intrinsic load by visually presenting conceptual relationships. The key lies in ensuring that essential information is preserved in these short forms and that irrelevant stimuli are minimized.

Taken together, the high level of social media adoption, especially YouTube, suggests that teachers are expanding learning resources beyond the classroom. This reflects a global trend in which educators leverage open-access online content to enrich instruction. In many contexts, YouTube has become an informal tutorial repository. The present findings affirm that, within the Indonesian poetry-learning context, YouTube fulfills a similar role and from a CLT perspective, it positively contributes to germane load when content is carefully curated and aligned with learning objectives.

D. Evaluation Media: Immediate Feedback and Germane Load

Traditional paper-based assessments offer several advantages: their format is familiar, free from technological distractions, and allows students to focus solely on content. From a CLT perspective, paper-based tests primarily impose intrinsic load, depending on the complexity of the task, with relatively low extraneous load since they do not require technological mediation. However, their main drawback lies in the lack of immediate feedback. Students often receive scores or comments long after the assessment, reducing the opportunity to allocate cognitive resources for reflection immediately after the test. Reflection on correct or incorrect responses constitutes a form of germane processing, essential for schema refinement and long-term learning. Research on feedback consistently shows that delayed feedback is less effective in fostering knowledge construction than immediate feedback (Taxipulati & Lu, 2021). In CLT terms, immediate feedback strengthens schema connections (increasing positive germane load), whereas delayed feedback risks leaving cognitive resources unutilized or diverted before meaningful integration occurs.

Of the digital evaluation tools found, Quizizz (used by 41.2% of teachers) is especially suitable for the cognitive principles supporting relevant load. Three interconnected mechanisms seem to drive this alignment. First, Quizizz gives quick feedback at the item level: when students submit an answer, they immediately see if they were correct and what the correct answer was, and when configured, they get a brief explanation. This short temporal distance between response and feedback is consistent with Taxipulati and Lu's (2021) finding that immediate feedback yields significantly higher germane load scores than delayed feedback, as cognitive resources can be redirected to schema repair while the original reasoning is still active in working memory. Second, the multiple-choice and short-answer formats preferred on Quizizz can be tailored to address specific sub-skills of interpretation of poetry – for example, identifying figurative language, paraphrasing a stanza, or matching theme to verse – thus supporting the segmentation principle by dividing complex interpretive tasks into focused and manageable units. Third, the review aspect of the platform, which allows students to revisit wrong items after the session, extends the germane processing window beyond the assessment itself, allowing deeper schema consolidation. Thus, real-time digital assessments transform testing from a summative act into an integral component of the learning process.

Moreover, platforms like Quizizz incorporate gamification elements (points, rankings, and virtual rewards). From a motivational standpoint, these features boost engagement; however, from a CLT perspective, teachers must ensure they do not add

excessive extraneous load. Chen, Zhang, and Yin (Chen et al., 2022) found that gamification elements can temporarily increase extraneous cognitive load, as students may focus too much on scores or time limits instead of content. Teachers can manage this by framing points as bonuses and ensuring time constraints are moderate to maintain cognitive calm. When used proportionally, gamified quizzes such as Quizizz can even reduce cognitive load by increasing motivation, which, in turn, promotes germane processing.

Recent studies further indicate that interactive learning platforms, when aligned with educational goals, can simplify complex concepts and lower cognitive load (Gong et al., 2025; Wang & Kartika Sari, 2024). In poetry evaluation, tasks often involve interpreting themes or figurative meanings, but Quizizz can break these into short, focused quiz segments, preventing overload while still stimulating deep thinking.

Nonetheless, the continued dominance of paper-based evaluations (88.2%) suggests that traditional methods have not been fully replaced. Several factors may account for this: (1) A belief in the reliability of written tests for assessing deeper comprehension; (2) Infrastructure or digital literacy limitations affecting equitable access; and (3) Institutional or student preferences for conventional testing.

From a CLT viewpoint, there is nothing inherently wrong with maintaining paper-based assessments, particularly for evaluating creative or reflective tasks such as writing poetry or analytical essays. The key is for teachers to recognize the trade-offs: after traditional assessments, feedback sessions or discussions should follow to convert testing experiences into germane learning opportunities. Although the present data do not specify post-assessment practices, the ideal approach would be delayed but structured feedback, allowing students to consolidate understanding and refine schemas once results are shared.

Overall, this hybrid approach to assessment mirrors trends in other educational systems undergoing digital transitions. Numerous studies report that while digital assessment tools are available, teachers often remain comfortable with paper tests due to their flexibility for extended responses and minimal technical issues (Young, 2024). The present findings confirm a similar pattern in Indonesia: while adoption of Google Forms and Quizizz is increasing, paper-based testing remains dominant. From the standpoint of cognitive load, this situation requires students to adapt to dual assessment formats. Teachers can mitigate potential extraneous load associated with unfamiliar digital interfaces by training students through low-stakes online quizzes before formal written exams. This dual exposure ensures that students' cognitive resources remain focused on poetic comprehension rather than technical navigation during assessment.

E. Digital Adoption Index and Integrated Cognitive Load

The survey calculated a Digital Adoption Index for teachers, representing the number of distinct digital platforms they used—including social media, instructional design tools, and assessment applications. The average index score was 5.62 (ranging from 3 to 13), with digitally oriented teachers showing a higher mean score (6.42) compared to print-oriented teachers (4.95). This indicates that teachers who favor digital media tend to employ a broader range of platforms simultaneously. This raises an intriguing pedagogical question: does using multiple platforms enhance or hinder students' cognitive load management?

On one hand, the use of multiple platforms—such as YouTube, Instagram, Canva, Quizizz, and WhatsApp—can enrich the learning experience. Each platform offers unique affordances: YouTube excels in audio-visual presentation, Instagram in concise visual summarization, and Quizizz in interactive assessment. When properly integrated, this combination can enhance germane load, as cross-platform reinforcement helps strengthen schema construction. Students encounter information repeatedly in different modalities, which promotes deeper conceptual encoding. For instance, a teacher might post a poetry infographic on Instagram as a pre-class teaser, explore the full poem in class through a YouTube video, and reinforce learning with a Quizizz exercise. This multimodal, complementary approach enables students to process poetic concepts through multiple cognitive pathways, facilitating retention and comprehension.

Research by Wang and Sari (Wang & Kartika Sari, 2024) supports this notion, demonstrating that well-integrated multiplatform learning can simplify complex concepts and improve student performance. As long as the platforms are instructionally aligned, cognitive load can be distributed rather than concentrated, preventing overload in any single processing channel.

On the other hand, using multiple platforms poses the risk of split attention across media. If these platforms are not cohesively integrated, students may struggle to shift contexts efficiently. Sweller (Paas et al., 2003) noted that when learners must search for information dispersed across several sources, significant extraneous load is introduced. In a multiplatform learning scenario, the absence of clear navigation guidance—such as explicit directions like “Watch the video on YouTube, then complete the Quizizz quiz, and finally read the summary on the class blog”—can result in cognitive disorientation. Students might forget login steps, lose track of sequence, or expend mental effort learning how to navigate each new interface. Each platform’s distinct layout, notifications, and interactions can fragment attention and compete for cognitive resources. The situation is analogous to having several textbooks open at once—information may be abundant, but without clear organization, the potential for cognitive overload is high.

In this sense, using many platforms is a double-edged sword. From a CLT perspective, each platform functions as an interactive element within the learning task. As the number of platforms increases, element interactivity also rises—thereby elevating the potential intrinsic load of the overall task (i.e., learning poetry through six different media). This additional complexity is not inherently detrimental, provided that teachers achieve smooth integration so that students perceive a single coherent learning experience rather than multiple disjointed tasks. For example, a teacher might create a unified learning pathway—embedding a YouTube video within a Google Form, followed by an automatically linked Quizizz quiz. The more integrated and linear the experience, the lower the extraneous load caused by split attention.

The current data suggest that digitally oriented teachers are actively experimenting with diverse tools, likely in search of optimal configurations. This differs from trends in other contexts, where teachers new to digital adoption tend to rely on one or two preferred platforms. In contrast, Indonesian junior high school teachers in this study demonstrated broader digital experimentation, which reflects commendable innovation and openness to technological diversity. However, they should be encouraged to prioritize quality of integration over quantity of tools. As Skulmowski and Xu (Skulmowski & Xu, 2022) caution, designs that are irrelevant or overly complex can increase learners’ cognitive load, diminishing instructional effectiveness. Similarly, an

excessive number of loosely connected platforms can introduce redundant or overlapping content, compounding extraneous load rather than enhancing learning.

CONCLUSION

Fundamental Finding : This study shows that poetry instruction in Indonesian junior high schools is in a transition between print and digital media, with three main findings: (1) audio-visual media, especially video, are dominant in adoption at 94.1%, indicating teachers' intuitive recognition of multimodality as a way to manage intrinsic load; (2) the widespread use of Canva and PowerPoint shows both the potential and the risk of these tools, supporting coherent design when used judiciously but increasing extraneous load when over-decorated; and (3) feedback-rich platforms such as Quizizz are emerging as effective drivers of germane processing in poetry assessment. **Implication :** The results show the importance of instructional design literacy based on Cognitive Load Theory. Digital media enhance students' learning experiences only when they are designed with conscious attention to coherence, signaling, and modality. Most of the teachers in this survey indicated that they considered the students' characteristics and the complexity of the materials when picking media. This demonstrates a nascent consciousness of the intrinsic load management. But the gap between the adoption of media and CLT-informed design suggests that teacher professional development needs to explicitly link pedagogical technology and cognitive science principles, so that platforms such as YouTube, Canva and Quizizz are used not simply as format variations but as cognitive support structures that genuinely support poetic understanding. **Limitation :** Three limitations should be acknowledged. First, the data were drawn from teacher-reported lesson plans and instructional modules; consequently, this study captures intended rather than enacted classroom practices. Second, students' actual cognitive load and learning outcomes were not measured directly, leaving the CLT interpretations at the level of inference rather than empirical confirmation. Third, the Digital Adoption Index quantifies the number of platforms used without capturing the quality of their pedagogical integration. These limitations situate the present findings as preliminary and necessarily invite further investigation through methodologies that can address what document analysis alone cannot. **Future Research :** To directly address the limitations identified above, future research is recommended to adopt a mixed-methods design that triangulates document analysis with classroom-based empirical inquiry. Specifically, three lines of investigation are proposed. First, sequential explanatory designs combining the current document-analytic approach with classroom observations and stimulated-recall interviews would allow researchers to compare teachers' intended media use (as documented in lesson plans) with their enacted practices and underlying pedagogical reasoning. Second, embedded experimental designs that pair quantitative measurement of students' cognitive load – using validated instruments such as the NASA-TLX, Paas's subjective rating scale, or dual-task secondary measures – with qualitative think-aloud protocols would generate the direct evidence currently absent from the literature on poetry pedagogy. Third, longitudinal mixed-methods studies tracking teachers' digital competency development over 12–24 months would illuminate how professional growth interacts with media choice and, by extension, with students' cognitive load profiles. Such mixed-methods approaches would move the field beyond descriptive mapping toward causal and developmental understanding of media-cognition interactions in literary education.

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