

Investigating Students' Challenges and Solutions in Analyzing Formal University Website Using Multimodal Analysis at A Grammar in Multimodal Discourse Class

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ABSTRAK

Perkembangan teknologi dan optimalisasi media digital telah diaplikasikan di berbagai jenjang pendidikan, khususnya perguruan tinggi. Banyak layanan yang dilakukan melalui media digital, salah satunya adalah website formal perguruan tinggi dan telah mendapatkan beberapa respon. Hal tersebut menjadi objek penelitian pada salah satu mata kuliah Grammar in Multimodal Discourse yang dalam proses analisisnya menuai tantangan. Tujuan dari penelitian ini adalah untuk mengetahui tantangan dan solusi mahasiswa dalam menganalisis website formal perguruan tinggi menggunakan analisis multimodal. Metode penelitian yang digunakan dalam penelitian ini adalah studi kasus deskriptif. Partisipan terdiri dari tiga mahasiswa jurusan Pendidikan Bahasa Inggris di salah satu perguruan tinggi di Tasikmalaya, Jawa Barat, Indonesia. Pengumpulan data dilakukan dengan menggunakan wawancara semi terstruktur. Analisis data dilakukan dengan analisis tematik. Hasil penelitian menunjukkan bahwa partisipan menghadapi dua tantangan, yaitu: (1) Tantangan visual dan desain yang mencakup empat subtema dan (2) Tantangan kognitif dan pemahaman. Kemudian terdapat pula tiga solusi, yaitu: (1) Mencari dukungan eksternal, (2) Penelitian independen, (3) Analisis sistematis dan evaluasi komparatif. Oleh karena itu, dengan memperhatikan tantangan dalam analisis situs web, dapat meningkatkan kemampuan kognitif mahasiswa, menciptakan solusi yang relevan untuk kemajuan analisis di masa mendatang, dan dapat menjadi masukan bagi institusi terkait tampilan situs web.

Kata kunci : Grammar in Multimodal Discourse; Multimodal; Solusi Kognitif; Tantangan; Website Universitas

ABSTRACT

The development of technology and optimization of digital media has been applied at many levels of education, especially universities. Many services are carried out through digital media, one of which is the formal university website and has received several responses. This is the object of research in one of the courses called Grammar in Multimodal Discourse which in the analysis process reaps challenges. The purpose of this research is to find out the student's challenges and solutions in analyzing a formal university website using multimodal analysis. The research method used in this research was a descriptive case study. The participants consisted of three students majoring in English Education at a university in Tasikmalaya, West Java, Indonesia. The data were collected by using semi-structured interviews. The data were analyzed by thematic analysis. The results showed that the participants faced two challenges, namely: (1) Visual and design challenges and (2) Cognitive and comprehension challenges. There are also three solutions, namely: (1) Seek external support, (2) Independent research, (3) Systematic analysis and comparative evaluation. Therefore, by paying attention to challenges in website analysis, it can improve students' cognitive abilities, create relevant solutions for future analysis progress and can be input for institutions regarding website appearance.

Keywords : Cognitive Challenges; Grammar in Multimodal Discourse; Multimodal; Solutions; University Website

INTRODUCTION

The rapid development of technology has had a significant impact on the world of education, one of which is looking at the profile of an educational institution through a website. This website is used as a medium for information and an introduction to an institution, both national and international, so that accuracy and criticism are needed to see the information, so that there are no negative issues in understanding something. In this way, by the title of this research, which is contained in the Grammar in Multimodality Discourse class, which invites and asks students to examine, analyze, and search for information from a formal university website which they analyze using Multimodal Analysis, which is an analyze tool that combines images, text, color, and sound, which they then collaborate to save a meaning from the website so that here students will find difficulties, so they have to look for a solution to the challenges they find when analyzing a formal university website, so this research will find out what challenges there are they face and then what solutions they do to face these challenges when they are analyzing a formal university website.

Multimodal Analysis refers to using multiple modes of communication or expression within a single context. These modes can include text, speech, images, videos, gestures, and other forms of communication. In various fields such as linguistics, education, psychology, and technology, multimodality is studied to understand how different modes interact and convey meaning and how individuals comprehend and produce information across these modalities. It is often applied in designing communication tools, educational materials, and interfaces to enhance understanding and engagement. Today, globalization and rapid technological developments have explained all means of meaning under multimodal theory. Multimodal is any source of verbal and visual semiotics that can be used to realize the type and level of dialogic engagement in a text. An important multimodal approach is used in learning. The multimodal approach aims to develop students into knowledgeable and engaging readers and producers of multimodal texts by paying attention to various sources in making meaning in the text and how a specific choice works to achieve the desired communicative goal. In addition, a multimodal approach helps to cater to diversity, ensuring inclusivity that drives quality intellectual activity and allows students to experience a broad learning experience. With a multimodal approach, students can choose the learning objects or representations that best suit their modal preferences based on their dominant learning style. This enables educators and teachers to meet the needs of different students in the language learning environment.

The history of discourse analysis is based on a vagueness around the homonym 'discourse'. The term names a large territory, located somewhere between two 'markers', which might, generally speaking, be something like 'providing accounts of connected stretches of language in use' and 'uncovering salient social, political, psychological features in text-like entities' (Gee & Handford, 2011). Multimodal analysis is an approach to discourse that focuses on how meaning is made through multiple modes of communication instead of just language. It is a method of discourse analysis that looks at not just how individual modes communicate, but how they interact with one another to create semiotic meaning.

The point of a multimodal approach is to get beyond approaches where mode was integrally linked, often in a mutually defining way, with a theory and a discipline. In such approaches, writing was dealt with by linguistics, image by art history, and so on. In a multimodal approach, all modes are framed as one field and domain. Jointly, they are treated as one connected cultural resource for (representation as) meaning-making by social group members at a particular moment. Whatever view one takes of the social, economic, cultural, political, and technological world, it is a world in rapid transition and where the pace of 'transport' in all these dimensions has accelerated, out of control. The pace of transport, the instantaneity of access in many domains, have changed the social and political, and economic framings of the world and, with that, the framings around – and of – the cultural resources at issue in the semiotic domain, the domain of meaning-making.

Multimodal analysis is recognized as a central theoretical framework in exploring meaning-making through multiple modes of communication. Multimodality is described as "the normal state of human

communication" (Kress, 2010), emphasizing that semiotic resources such as language, visuals, sounds, and spatial arrangements work together in constructing meaning (Thibault, 2001). This perspective extends beyond traditional linguistic approaches by acknowledging the interplay between different communicative modes, allowing researchers to examine how semiotic resources such as images, color, and sound interact with language to generate meaning (Brian, 2012). Consequently, multimodality serves not only as an analytical tool for interpreting images, objects, writing, and colors, but also as a comprehensive framework for understanding the multimodal nature of communication in diverse contexts.

The importance of multimodal analysis is deeply rooted in social semiotic theory, which underscores representation, communication, and power relations (Kress & van Leeuwen, 2001). Earlier models viewed communication as monomodal, relying predominantly on language (Kress, Jewitt, Ogborn, & Tsatsarelis, 2001). Current perspectives highlight how meaning is constructed multimodally, urging educators to integrate semiotic and pedagogical approaches in the classroom (Victor, 2011). This framework promotes analytical and critical thinking through the development of multimodal literacy, as demonstrated in prior works (Hodge & Kress, 1988; Jewitt, 2002, 2006, 2008; Jewitt & Kress, 2003; Kress, 2003; O'Halloran & Lim-Fei, 2011; Unsworth, 2008). Such literacy cultivates interpretation, analysis, inference, evaluation, explanation, and self-regulation as essential dimensions of critical thinking (Faccione et al., 1995). By embedding these elements, multimodal analysis equips learners to process, evaluate, and create meaning across varied communicative platforms, thereby enhancing intellectual independence and reflective reasoning.

The framework for multimodal analysis, as proposed by Halliday (1978), outlines a systematic process for analyzing communication. This involves identifying the modalities, contextualizing their production and reception, analyzing each modality individually, and exploring their interrelations through semiotic and discourse analysis. Critical reflection and audience reception also play a vital role in determining how meaning is shaped, contested, or reinforced across multimodal texts. Moreover, the iterative nature of this process ensures continuous refinement and deeper insight into the interaction of modalities. Complementing this framework are several typologies of multimodal analysis, including linguistic-multimodal analysis, visual semiotics, audiovisual analysis, and digital multimodal analysis (Kress, 2010). The diversity of these approaches demonstrates that multimodal research can be flexibly applied to a wide range of communicative artifacts, from traditional print to complex digital platforms such as websites and social media.

The principles underpinning multimodal analysis emphasize interdisciplinarity, contextualization, semiotic awareness, and critical reflection (Kress & Van Leeuwen, 1996). These principles stress the necessity of examining multimodal communication holistically by situating it within cultural, social, and historical contexts while simultaneously investigating how signs and symbols interact to shape meaning. Within educational contexts, these insights have direct pedagogical implications, particularly in courses such as Grammar in Multimodal Discourse (GiMD). Rooted in functional grammar and critical discourse analysis, GiMD equips students with the theoretical and analytical capacity to engage with multimodal texts across different media, multimedia, and hypermedia (Kress & van Leeuwen, 2006). By fostering multimodal literacy, students develop the ability to interpret, evaluate, and produce texts that integrate linguistic and non-linguistic resources, enabling them to become proficient communicators in academic and professional environments. The integration of these theoretical perspectives reveals that multimodal analysis is indispensable not only as a methodological tool but also as a pedagogical approach that cultivates critical engagement with contemporary forms of communication.

Previous research, namely Hilton et al. (2024), was conducted to examine whether the educational institution's website was detailed and analyzed to find clarity on a website to attract the interest of prospective new students. To register with the educational institution, based on just looking at the information on the vocational school website that they want, the researcher here examines whether the website provided by the educational institution provides detailed and accurate information about vocational schools that suit the interests of prospective students. and their families about school offerings through

websites available on the internet, so the researchers in this case study are examining whether the educational agency's website has detailed and accurate information regarding the programs and activities of the educational agency that they created to attract the interest of prospective students.

Previous research has shown that students face challenges and solutions when analyzing an educational website with Multimodality. This research will explore the challenges and solutions of analyzing website university with multimodality in the GiMD class, but here, the researcher describes not only the challenges but also the solutions to dealing with these challenges.

RESEARCH METHOD

This study employed a qualitative approach, specifically utilizing a descriptive case study design to investigate students' challenges and solutions in analyzing formal university websites. The qualitative approach was chosen because it enables researchers to examine values, meanings, experiences, and perceptions related to a phenomenon in depth (Wong, 2008). A case study was considered appropriate as it provides a comprehensive exploration of real-life contexts and contemporary issues (Yin, 2018). Yin (2003) further emphasizes that a descriptive case study is particularly useful for presenting a detailed picture of the phenomenon under investigation. Similarly, Baxter and Jack (2008) argue that case studies enhance the credibility of findings by integrating multiple sources of evidence and perspectives, making this design suitable for analyzing the multifaceted challenges and solutions related to multimodal discourse in academic contexts.

The research was conducted at the Department of English Education of a state university in Tasikmalaya, West Java, Indonesia, within the academic year 2024/2025. The duration of the study was from September 2023 to July 2025, covering the stages of proposal development, data collection, data analysis, and thesis examination. The subjects of this research consisted of three students majoring in English Education who were purposively selected from the sixth semester of the Grammar in Multimodal Discourse (GiMD) course. These participants represented different achievement levels (high, medium, and low) based on their course scores and recommendations from the lecturer, thereby ensuring variation in cognitive abilities and perspectives. Such variation provided richer data regarding how students at different performance levels engage with and respond to the challenges of analyzing multimodal university websites.

Data were collected through semi-structured interviews, as this method allows flexibility while still focusing on key research questions (Ruslin et al., 2022). Semi-structured interviews generate detailed qualitative data by enabling participants to elaborate on their experiences and interpretations (Rubin & Rubin, 2012). To refine the interview design, this study adapted the Interview Protocol Refinement (IPR) framework proposed by Castillo-Montoya (2016), which involves aligning interview questions with research objectives, constructing inquiry-based dialogue, receiving expert feedback, and piloting the protocol. The questions were developed based on the six dimensions of critical thinking proposed by Faccione et al. (1995): interpretation, analysis, inference, evaluation, explanation, and self-regulation. Data were analyzed using thematic analysis following Braun and Clarke's (2006) six-step model, which includes familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. This analytical process facilitated the identification of patterns and themes related to visual, cognitive, and comprehension challenges, as well as the strategies employed by students to overcome these challenges.

RESULTS AND DISCUSSIONS

Challenges in Analyzing a Formal University Website

Participants encountered significant **visual and design challenges** when analyzing formal university websites, which could be grouped into four categories: difficulties in interpreting images and colors, problems with text readability, issues related to the positioning of multimodal elements, and challenges in understanding animations. These obstacles included confusion in identifying the meaning of logos and symbols, interpreting faded or ambiguous colors, categorizing hues into warm or cool tones, and comprehending overlapping or cluttered layouts. Furthermore, small or blurry font sizes, excessive information, and moving text or images contributed to users' struggle in constructing meaning from the website content. Such findings indicate that visual clarity, consistent design, and accessibility remain essential components for improving the usability and effectiveness of university websites.

Tabel 1. Challenge in Understanding the Meaning of Images and Colours

Excerpt 1	Interview Transcript
P1	"The difficulty when categorizing elements on the website is usually from the shape of the university logo, because every official university website must always include the logo of the University. Then the collection of elements rich from images and colours, <i>sometimes some images and colours are difficult to categorise, for example, some colours are slightly faded, like yellow, not green, which sometimes makes it confusing when categorised into warm or cool colours.</i> " (P1: 14-01-2025: A-1)
P1	"Usually, when analysing it, <i>there are many difficulties ranging from understanding the meaning of colours, images, shapes, and types of fonts and writing sizes in sentences,</i> sometimes there are several menus adjacent to several icons, whose placement of the red and white flag image covers the menu icon." (P1: 14-01-2025: A-7)
P2	" <i>Sometimes the images, videos, text, or layout are confusing.</i> " (P2: 14-01-2025: A-1)
P2	" <i>Sometimes the picture or colour seems to have its meaning that makes you confused.</i> To overcome the confusion, first try to find the colour theory or symbol." (P2: 14-01-2025: A-2)

Based on Table 1, the findings indicate that participants faced considerable difficulties in interpreting visual elements such as logos, images, and colors on university websites. P1 highlighted the complexity of categorizing logos that are often multi-colored and uniquely designed, which complicates uniform analysis (P1: 14-01-2025: A-1). Issues with faded or ambiguous colors created confusion in determining whether they were "warm" or "cool," while layout inconsistencies, such as national flags overlapping navigational elements, further disrupted usability (P1: 14-01-2025: A-7). These issues resonate with prior studies that suggest poor design decisions increase cognitive load and reduce accessibility (Turja, 2020; Wang & Yu, 2021). Similarly, P2 emphasized confusion stemming from images, videos, and text layouts, noting that symbolic meanings are often ambiguous without theoretical grounding (P2: 14-01-2025: A-2). This aligns with findings that weak design literacy impedes interpretation of visual cues (Nacheva, 2015; Sweller, 2020; Punchoojit & Hongwarittorn, 2017). Thus, intentional use of color and clearer organization of design elements are critical for ensuring inclusivity and enhancing the professionalism of institutional websites.

Participants also experienced challenges in interpreting textual elements, primarily due to issues of readability and design clarity. P1 described difficulties with small or blurry fonts that hinder comprehension, particularly when compounded by dark or contrasting background colors (P1: 14-01-2025: A-2; A-3). P2 added that overly complex website designs, featuring unnecessary icons or decorative elements, created further confusion (P2: 14-01-2025: A-7). These challenges reflect broader concerns in web accessibility, where inadequate contrast ratios, font sizes, and cluttered interfaces impair user engagement and comprehension (Guo & Wang, 2023; Smith et al., 2022). In conclusion, both visual and textual difficulties reveal that participants struggled not only with interpreting symbolic meaning but also with navigating inconsistent design structures. Addressing these issues through adherence to accessibility standards and simplified design principles would enhance clarity, usability, and overall effectiveness of university websites.

Table 2. Challenges in Understanding the Meaning of Tests

Excerpt 2	Interview Transcript
P1	<i>“Then sometimes there are also some dark and contrasting colours, so it is difficult to understand the meaning, and finally, the writing on the font size is sometimes too small, so it is a bit difficult to understand the sentences listed on the website.” (P1: 14-01-2025: A-2)</i>
P1	<i>“Examples of difficulties include some information or notifications that have not been updated, and sometimes there is writing that is small in size, so it looks a bit blurry on the website display.” (P1: 14-01-2025: A-3)</i>
P2	<i>“Sometimes there are websites that have a unique design, then there are sentences on the website that are too small so it is a bit difficult to read them close and there are some elements that do not need to be included, there are some pictures that say what this does, and it makes you confused.” (P2: 14-01-2025: A-7)</i>

Participants experienced considerable difficulties with text readability and design clarity on university websites. P1 highlighted issues with dark and contrasting colors combined with small font sizes that hindered comprehension, while blurry or outdated text further reduced credibility (P1: 14-01-2025: A-2; A-3). These challenges are consistent with findings by Guo & Wang (2023), who showed that low-contrast combinations and small font sizes undermine readability and engagement, particularly in dense educational websites. Smith et al. (2022) also emphasized that readability depends on font size, contrast ratio, and typeface, especially across varied devices and resolutions. In addition to textual issues, participants pointed to confusion arising from cluttered designs. P2 observed that unnecessary visual elements or icons without clear labels increased cognitive load and diminished usability (P2: 14-01-2025: A-7). This supports Zhang et al. (2024), who stressed that design simplicity and the removal of redundant elements are essential for user satisfaction. Collectively, these findings underscore that accessibility standards, clear font usage, and streamlined design are crucial for enhancing visual clarity and reducing user confusion.

Table 3. Position of Multimodal Element

Excerpt 3	Interview Transcript
P1	<i>“There are so many elements and information that we have to re-analyze to get the most out of it.” (P1: 14-01-2025: A-4)</i>
P2	<i>“There is too much information, and it is not mapped out. The solution is to try using the search feature on the website first. (P2: 14-01-2025: A-3)</i>
P3	<i>“I had difficulty recognizing the text on the buttons or understanding the points in the info provided. That is because there are words I do not understand based on my lack of understanding of the word's meaning, or forgetting the meaning. After all, it is rarely used daily, and several types of colour fonts and images listed there make it difficult to analyse these elements.” (P3: 14-01-2025: A-7)</i>

Participants reported significant challenges in analyzing the position and organization of multimodal elements on university websites, particularly due to excessive and poorly mapped information that required repeated re-analysis to be understood (P1: 14-01-2025: A-4; P2: 14-01-2025: A-3). This issue, commonly described as information overload, aligns with Sun et al. (2023), who note that unstructured digital content increases cognitive load and reduces retention. In addition, participants emphasized difficulties with visual clarity and linguistic accessibility, as unfamiliar vocabulary, inconsistent fonts, and complex images created confusion (P3: 14-01-2025: A-7), reflecting concerns identified by Miller & Sanderson (2024) regarding the alienating effect of technical language and by Zhou & Liu (2023) on the role of inconsistent visual design in hindering comprehension. These findings suggest that clear information architecture, accessible language, and coherent design principles are crucial for ensuring usability and equitable access, confirming that the placement and clarity of multimodal elements substantially influence users' ability to interpret and engage with website content effectively.

Table 4. Challenges in Understanding the Meaning of Animations

Excerpt 4	Interview Transcript
P2	<i>“Sometimes the images, videos, text, or layout are confusing.”</i> (P2: 14-01-2025: A-1)
P3	<i>“My difficulty during the analysis of the university website is that there are several moving text images or videos whose sentences or writing are very small. Then there are several elements that I do not know, and there are several colors that we sometimes have to look at first for the meaning of the color in the book. So, for difficulty, it is still a lot in terms of meaning, I have difficulty there.”</i> (P3: 14-01-2025: A-1)

Participants experienced significant challenges in comprehending moving texts or images on university websites, particularly when small-sized text appeared within animations or embedded videos, which created barriers to visual accessibility (P2: 14-01-2025: A-1; P3: 14-01-2025: A-1). Such motion-based elements were perceived as confusing and distracting, aligning with Park & Lee (2023) who emphasize that poorly designed animations hinder readability, and Reyes et al. (2022) who argue that moving features without accessibility support, such as captions or zoom-in options, may divert users from essential tasks. These findings suggest that effective web design should minimize unnecessary animations, standardize visual symbols, and provide explanatory aids to enhance clarity and ensure that moving elements are placed and sized appropriately for user comprehension. Challenges in analyzing university websites are not only related to visuals, design, and usage. Participants stated that there are other challenges, called cognitive and comprehension challenges. These challenges include self-doubt, making a conclusion, and finding understandable language. The evidences are displayed in the italic form of interview transcripts below.

Table 5. Cognitive and Comprehension Challenges

Excerpt 5	Interview Transcript
P1	<i>“Well, to validate it, sometimes I hesitate about myself, and between being sure and not sure of the results of the analysis that has been made. Therefore, before writing conclusions, sometimes I check again by looking at the book of multimodal analysis.”</i> (P1: 14-01-2025: A-8)
P2	<i>“The challenge is to find the right language to explain to others, of course, easily understood by everyone, not only by yourself.”</i> (P2: 14-01-2025: A-4)
P2	<i>“From the large amount of data, it is sometimes confusing to make the right conclusions.”</i> (P2: 14-01-2025: A-6)
P2	<i>“I am sometimes afraid of making mistakes in concluding because the analysis itself requires precision.”</i> (P2: 14-01-2025: A-8)
P3	<i>“The difficulty is that there are doubts within oneself, such as the question arises whether this meaning is correct or not.”</i> (P3: 14-01-2025: A-2)
P3	<i>“Maybe it can be in the way of delivery, more on the selection of appropriate words so that I understand what I am saying and my friends also understand what I am explaining.”</i> (P3: 14-01-2025: A-4)
P3	<i>“In the form of making ambiguous conclusions, word choice also needed to be appropriate and easily understood by me and other friends due to a lack of overall understanding of the text provided.”</i> (P3: 14-01-2025: A-6)
P3	<i>“This could be my ignorance of the indicators needed to validate or evaluate the results of my analysis. This could happen either at the beginning of my analysis or the end.”</i> (P3: 14-01-2025: A-8)

The findings indicate that the complexity and presentation of multimodal information significantly shape students' cognitive and comprehension challenges when analyzing university websites, as shown by difficulties such as uncertainty in interpretation (P1: 14-01-2025: A-8), information overload, and struggles with language clarity (P2: 14-01-2025: A-4; A-6; P3: 14-01-2025: A-2; A-4; A-6; A-8). These issues

resonate with critical thinking theory (Facione, 1995) and cognitive load theory (Sweller, 2020; Vanneste et al., 2021), which highlight how unclear language, excessive data, and poor integration of modalities can undermine accurate judgment and increase self-doubt (Mutlu-Bayraktar et al., 2019; Mir & Gomez, 2018). A well-structured multimodal design that aligns text, visuals, and other semiotic resources coherently is therefore essential to reduce cognitive load, enhance comprehension, and foster learners' confidence in validating their analyses.

Solutions in Overcoming the Challenges

According to the overall interview results, participants mentioned that the challenges they faced could be overcome with several solutions. Seeking internal support was the first solution the participants mentioned. Those needing external support are asked to ask friends, a lecturer, or contact the call centre. The evidences are displayed in the italic form of the interview transcripts below.

Table 6. Seek External Support

Excerpt 6	Interview Transcript
P1	"For the solution, <i>I usually ask the lecturer if I am stuck.</i> " (P1: 14-01-2025: A-2)
P1	"Usually when I am confused, the solution is like <i>asking my friends</i> , or sometimes, <i>if you need clearer information, you can contact the Call Centre listed on the website.</i> " (P1: 14-01-2025: A-3)
P1	"To avoid confusion when explaining, <i>I usually validate the results first by asking friends and lecturers.</i> " (P1: 14-01-2025: A-4)
P1	"When the information changes, for the solution, <i>you can ask cs for more valid info.</i> " (P1: 14-01-2025: A-5)
P1	"But it can be overcome by deciding to <i>ask friends again.</i> " (P1: 14-01-2025: A-7)
P1	"Therefore, before writing the conclusion, sometimes I check again by looking at the book of multimodal analysis and <i>asking friends or lecturers</i> to make sure that it is right with what I wrote." (P1: 14-01-2025: A-8)
P2	"I fear being wrong in concluding because the analysis requires accuracy. However, <i>this can be overcome by asking friends or lecturers to provide input</i> or looking for yourself in existing literature sources." (P2: 14-01-2025: A-8)
P3	" <i>I usually ask my friends</i> first so I do not get too blank if I do not know what the elements mean." (P3: 14-01-2025: A-1)
P3	"So, the solution is to look for examples from several book references related to multimodal matters as well and <i>ask the lecturer</i> again." (P3: 14-01-2025: A-2)
P3	"The solution I do is to <i>ask my friends</i> who are more knowledgeable or can understand the text." (P3: 14-01-2025: A-3)
P3	"When I have difficulties, I usually <i>ask my friends.</i> " (P3: 14-01-2025: A-5)
P3	"The solution that I do is in the form of experimenting with the existing buttons, <i>searching on Google</i> , and also <i>asking my friends who understand.</i> " (P3: 14-01-2025: A-7)
P3	"For the next step, <i>I asked friends who understood or those who were more knowledgeable in the field, such as my lecturer.</i> " (P3: 14-01-2025: A-8)

Seeking external support emerged as a central strategy among participants in addressing challenges encountered when analyzing formal university websites. P1 frequently relied on lecturers, friends, and even the Call Centre for clarification when facing difficulties, while also validating conclusions with peers and consulting multimodal analysis references (P1: 14-01-2025: A-2, A-3, A-4, A-5, A-7, A-8). This reliance reflects an effort to manage cognitive load by seeking multiple perspectives, which supports accurate interpretation in complex multimodal contexts (Skulmowski & Xu, 2022; Facione, 1995). Similarly, P2 acknowledged the anxiety of drawing incorrect conclusions and sought external input from lecturers, friends, and literature sources to ensure accuracy (P2: 14-01-2025: A-8). P3 described a more layered process, beginning with peer discussions, followed by consulting book references and lecturers,

experimenting with website features, searching online, and repeatedly validating with others (P3: 14-01-2025: A-1, A-2, A-3, A-5, A-7, A-8). Such strategies align with self-directed learning models, where learners proactively combine external validation with independent exploration to strengthen comprehension (Xuan et al., 2018; Stewart et al., 2025; Januarty & Nima, 2018).

The consistent reliance on external input highlights both the strengths and weaknesses of multimodal learning contexts. While seeking support enhances critical thinking by promoting verification and perspective-taking (Facione, 1995), it also reveals shortcomings in website design that hinder independent interpretation. The need for repeated consultation indicates that multimodal content may lack clarity, coherence, or accessibility, thereby imposing unnecessary cognitive burdens. Optimizing website structures to present information more transparently would enable learners to engage critically without excessive dependence on external support. Simplification, clearer organization, and reduction of visual and textual ambiguity are essential to fostering user autonomy in meaning-making and ensuring that multimodal platforms effectively support both comprehension and decision-making.

Table 7. Self-Overcome Observations

Excerpt 7	Interview Transcript
P1	"For the solution, find out in advance whether the logo is used in the website menu or not by <i>remembering and often opening examples of web analysis in the book on multimodal</i> that the lecturer has given." (P1: 14-01-2025: A-1)
P1	"For the solution, I usually ask the lecturer if I am stuck, and sometimes <i>I read again in the multimodal analysis source book, sometimes I also look for other information via the internet.</i> " (P1: 14-01-2025: A-2)
P1	"But it can be overcome by deciding to ask friends again to see and <i>read the multimodal analysis guidebook.</i> " (P1: 14-01-2025: A-7)
P1	"Therefore, before writing the conclusion, sometimes <i>I check again by looking at the book of multimodal analysis.</i> " (P1: 14-01-2025: A-8)
P2	"There is too much information and not mapped. The solution is to <i>try using the search feature on the website first.</i> " (P2: 14-01-2025: A-3)
P3	"The solution that I do is <i>usually I look at the guidebook that discusses the same thing in the multimodal analysis book.</i> " (P3: 14-01-2025: A-1)
P3	"So, the solution is to <i>look for examples from several book references related to multimodal things</i> as well and ask the lecturer again." (P3: 14-01-2025: A-2)
P3	" <i>The solution that I do is usually in the form of searching on Google</i> such as the meaning of several meanings of the form of images, sentences, colors and words from available references such as the module book or the internet, I never miss it, I will look for it there with wide access." (P3: 14-01-2025: A-6)
P3	"The solution that I did was in the form of experimenting with existing buttons, <i>searching on Google</i> , and also asking dear friends who understood." (P3: 14-01-2025: A-7)
P3	"The solution that I did was to <i>search for sources on Google</i> as a first step or <i>read more modules about multimodal analysis.</i> " (P3: 14-01-2025: A-8)

Self-directed coping strategies emerged as essential mechanisms for addressing cognitive challenges in analyzing formal university websites. P1 relied on various approaches, including repeatedly consulting the multimodal analysis book, seeking clarification from lecturers, reviewing materials before drawing conclusions, and consulting peers when necessary (P1: 14-01-2025: A-1; A-2; A-7; A-8). These practices reflect Facione's (1995) assertion that critical thinking requires continuous evaluation and refinement of information. Similarly, P2 emphasized the practical use of the website's search feature to filter overwhelming content and focus on relevant information, a strategy consistent with Ledneva and Kovalev's (2021) view that narrowing multimodal inputs reduces cognitive overload (P2: 14-01-2025: A-3). P3 demonstrated reflective learning by combining the use of guidebooks with online resources such as Google to clarify difficult concepts (P3: 14-01-2025: A-1; A-2; A-6; A-7; A-8). This iterative engagement with

multiple sources mirrors Srivastava and Hopwood's (2009) emphasis on inquiry and reflection as integral to critical thinking.

The reliance on independent strategies underscores the broader pedagogical value of multimodal learning environments in fostering analytical autonomy. As Oliver (2021) notes, connecting multiple information modes supports deeper comprehension, enabling learners to integrate text, images, and symbols meaningfully. Independent problem-solving not only helps students address immediate challenges but also develops transferable analytical skills applicable across contexts. This is reinforced by systematic strategies such as re-checking analyses, organizing elements into structured lists, and conducting comparative evaluations with other university websites, which encourage deliberate and critical engagement with multimodal content. Consequently, well-designed university websites that prioritize clarity, accessibility, and multimodal integration can strengthen students' ability to engage in independent critical thinking while enhancing long-term cognitive development.

Table 8. Systematic Analysis and Comparative Evaluation

Excerpt 8	Interview Transcript
P1	"Usually, to avoid confusion when explaining, I validate the results first by asking friends, lecturers, or <i>rechecking the analysis results</i> so that I understand the results." (P1: 14-01-2025: A-4)
P1	"But it can be overcome by asking friends again to see and read the multimodal analysis guidebook and <i>validate it again by checking the analysis results</i> according to the multimodal analysis guidebook." (P1: 14-01-2025: A-7)
P1	"Therefore, before writing the conclusion, sometimes I check again by looking at the book of multimodal analysis and asking friends or lecturers to make sure that it is right with what I wrote, like that, so sometimes the doubt is from myself, so sometimes <i>I like to ask again and check again.</i> " (P1: 14-01-2025: A-8)
P2	"The difficulty is that sometimes the images, videos, text, or layout make it confusing. For a solution, maybe <i>you can first list the elements that are easiest to see, then compare them with other university websites to see the pattern.</i> " (P2: 14-01-2025: A-1)
P2	"The solution can be to continue practicing summarizing and paying attention to patterns or trends that often appear. <i>Can also compare with other websites.</i> " (P2: 14-01-2025: A-6)
P2	"The solution can be to find the function first by clicking on the element. <i>It can also be compared with other websites</i> to see the differences and similarities." (P2: 14-01-2025: A-7)
P3	"I usually ask my friends first so that I do not get too blank if, for example, I do not know the meaning of the elements, and <i>I usually categorize which ones are difficult and which ones are easy first.</i> " (P3: 14-01-2025: A-1)
P3	"The solution that I do is to <i>revalidate my findings, then I try to digest the results of my analysis before I explain it to all my friends.</i> " (P2: 14-01-2025: A-4)

Systematic analysis and comparative evaluation provide effective strategies for addressing challenges in analyzing formal university websites. P1 demonstrated that validating analysis results through rechecking, consulting reference materials, and seeking external input from peers or lecturers ensures greater accuracy and reliability (P1: 14-01-2025: A-4; A-7; A-8). These practices minimize errors and strengthen the validity of findings, consistent with Mandasini's (2022) assertion that rigorous data collection and systematic analysis enhance research credibility. Frost and Ledgerwood (2020) further highlight that pre-analysis planning helps differentiate between data-dependent and independent interpretations, fostering confidence in outcomes. Such reflective verification not only improves the clarity of explanations but also encourages researchers to maintain consistency in their analytical processes, ultimately contributing to more transparent and trustworthy results.

Comparative evaluation, as practiced by P2 and P3, complements validation by offering a structured breakdown of multimodal content through listing, comparing, and categorizing elements (P2: 14-01-2025: A-1; A-6; A-7; P3: 14-01-2025: A-1; A-4). This approach aligns with Facione's (1995) view that comparison and deconstruction are central to critical thinking, enabling individuals to recognize patterns, assess design effectiveness, and prioritize areas requiring deeper attention. Mutlu-Bayraktar et al. (2019) affirm that such systematic comparisons foster clearer understanding, while Suryawan et al. (2023) and Mohammed et al. (2024) emphasize that multimodal, problem-based engagement cultivates higher-order analytical skills. Although these strategies empower users to manage complex website designs, their necessity also underscores deficiencies in institutional website structures. Universities are therefore encouraged to design interfaces that integrate multimodal elements more coherently, thereby reducing reliance on compensatory strategies and promoting intuitive comprehension.

CONCLUSION

This study concludes that students face significant challenges in analyzing formal university websites, particularly in interpreting visual elements and comprehending multimodal content, which underscores the urgent need to strengthen digital and multimodal literacy in higher education. Despite these difficulties, students demonstrated resilience by employing strategies such as seeking external support, engaging in independent learning, and applying systematic comparative analysis. The findings highlight the importance of integrating explicit multimodal instruction and scaffolding techniques into curricula like Grammar in Multimodal Discourse, enabling students to develop stronger critical thinking and problem-solving skills. Future research should expand beyond interviews by employing triangulation methods such as document analysis and observation, as well as involving larger participant groups to obtain richer insights. It is also recommended to broaden the scope of inquiry into other multimodal components, so as to provide more comprehensive pedagogical frameworks that prepare students to critically interpret, evaluate, and produce multimodal content in diverse academic and professional contexts.

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