

**INTEGRATING ARTIFICIAL INTELLIGENCE INTO MULTIMODAL DISCOURSE
ANALYSIS OF THE INSTITUTIONAL IDENTITIES ON BADGES OF COLLEGES
OF EDUCATION IN KANO STATE**

BY

UMAR UBA ABUBAKAR, Ph.D.

Department of English Language

Yusuf Maitama Sule College of Education and Advanced Studies Ghari, Kano State.

Corresponding Email: umaruba1983@gmail.com/08033228477

Abstract

The paper investigates the visual representation of institutional values in Kano State Colleges of Education badges and their implications for integrating Artificial Intelligence (AI) into language education. Its objectives are to analyse the visual discourse of the badges, explore implications for AI-driven language education, and identify strategies for culturally sensitive AI integration. The study employs Kress and van Leeuwen's (2006) Multimodal Discourse Analysis theory. The research analyses the badges of the three colleges using. Through observation, the study identifies key visual elements (symbols, colours, and layout) that convey meanings related to knowledge, culture, and education. Notably, findings revealed a strong emphasis on traditional values and knowledge dissemination, suggesting both integration in language learning. The strength and weakness of the approach were highlighted. Consequently, the research contributes insights into blending cultural heritage with technological advancement in Kano State educational context.

Keywords: AI integration, education, Institutional identities, Multimodal Discourse Analysis, Colleges of education badges

1.0 Introduction

This paper analyses different ways in which linguistic and non-linguistic elements express both verbally and visually, educational values, cultural heritage, and mission through visual branding of Kano State colleges of education badges. To demonstrate the central arguments, the analysis of badges from the colleges' badges are presented. "College badges are symbols or emblems that represent college identities, values, or achievements. These messages are usually constructed in such a way that they identify images of individuals, group or events and describe them according to the ways they refer to real-world events" (Elkins, 2003:17). The objective of the paper is to highlight how badges present the actual nature in which it reveals the meaning and ideologies of educational identities through verbal and visual elements of the badges. Meanwhile, given the use of linguistic and non-linguistic elements, the college badge genre provides a medium for communicating messages through which social and education agenda are set (El Refaie, 2009). Hence, the use of the combination of words and other modalities is what is termed as multimodal resources.

1.1. Multimodal Discourse Analysis

Multimodal Discourse Analysis is the use of combination of words with other modalities, such as pictures, films, video images and sounds. It considers how multimodal texts are designed and how semiotic tools such as colour, framing, focus and position of elements contribute to the meaning of these texts. Moreover, verbal language deals basically with oral and written forms of expression while the nonverbal (visual) focusses on genres, that is, body language, facial expressions, colour, size etc. According to Lim (2004:12) "we live in a multimodal society, which makes meaning through the co-employment of semiotic

resources”. Nowadays, multimodal communication, instead of monomodal communication has become the mainstream of communication of human beings. As such majority of newspapers and magazines add visual images concerned with the contents of newspaper and magazines articles. These visuals such as pictures, photos, and caricatures, etc. are adopted to transmit the information of newspaper and magazine articles. Multimodality is one of characteristics embedded in these pieces of discourse.

Numerous articles have been written about political cartoons in relation to multimodal discourse analysis. Also, related studies have looked at how cartoons have been utilized to transmit messages. Scholarly interest in cartooning as a tool for semantic negotiation in civic involvement has come from various directions. Some of them are: Abubakar’s (20250). “Representation of Face Spoiling in Daily Trust Newspaper: A Multimodal Discourse Perspective in Insecurity Cartoons”, Abubakar’s (2024). “A Multimodal Discourse Analysis of Cartoons Used in Daily Trust Newspaper”, Abubakar & Ibrahim’s (2024). “Representational Meaning of Action and Reaction Processes of Insecurity Cartoons Used in *Daily Trust Newspaper*: A Multimodal Approach”. Abubakar & Chamo’s (2024). “Violation of the Grice’s Maxims in Nigerian Newspaper Cartoons: A Pragmatic Approach”, Abubakar’s (2024). “A Multimodal Discourse Approach to Cartoons as Representation of Insecurity in Northern Nigeria”, Abubakar, (2024). A Multimodal Discourse Analysis of Images of Banditry in Daily Trust Newspaper Cartoons, Chamo, I.Y. & Abubakar, U.U. (2024). A Multimodal Discourse Analysis of Verbal and Visual Meaning Making of Daily Trust Newspaper Insecurity Cartoons, Abdullahi-Idiagbon (2013) examined the relevance of multimodal discourse analysis to the interpretation of meanings embedded in political campaign adverts, Lim (2017) investigated the teachers’ use of gestures in the classroom

for meaning-making, Ariyo (2017) studied the multimodal features of some selected cartoons from *Tell* news magazine, Ejikeme (2019) investigated the nature of discourse strategies employed in selected MTN print advertisements in socio-cultural domain, Ayik, & Costu (2021) investigated effects of multimodal science texts design on meaning-making of science content on pedagogical perspectives, Akande (2002) studied how meaning is produced in Nigeria political cartoons published in three magazines during 1993-1996, Medubi (2003) explored the interrelationship between language and ideology in Nigerian political cartoons, Jimoh (2010) examined the roles played by editorial cartoons in the democratization process in Nigeria, Adejuwon & Alimi (2011) conducted research on cartoons as illustration: (of) political process in Nigeria, Sani, et-al (2012) studied how political cartoons are used as a vehicle of setting social agenda in Nigerian Newspapers to reorient and shape the public opinion through recurrent depictions mirroring current socio-political issues, Yang and Zang (2014) studied the representational meaning of English editorials in *The Economist*, Barker (2016) studied upon the evolution of editorial cartoon as a genre of socio-political commentary, Amore & Atoloye (2016) conducted research on some cartoons connected with Nigeria's 2015 General Elections with a view to identifying the way verbal and non-verbal meaning is communicated through them. Though most of the works focused on Multimodal Discourse Analysis however none of them focusses on the direction with the current study due to limitation and scope of the area of the study.

Hence, this paper is restricted to integrating artificial intelligence into Multimodal Discourse Analysis of the institutional identities on badges of colleges of education in Kano state.

2.0 Methodology

The focus of this paper is to conduct a multimodal discourse analysis of some Kano State colleges of education badges using AI tools. This research uses purposive sampling technique to arrive at the sampled badges and observation for data collection. The data for this research were sourced from the college badges of some state-owned colleges of education in Kano state. A total number of three (3) badges were purposefully selected. This is because like other multimodal resources, college badges are embellished with different multimodal resources which are meaning making strategies in communication. The data were analysed using Multimodal Discourse Analysis (MDA) of Kress and van Leeuwen (2006) which combines both verbal and visual linguistic elements. The method of analysis involves in depth interpretation of the objects and other semiotic resources in the badges at the representational, interactive and compositional levels.

2.1 Theoretical Background

The construction of meaning in any society involves not only the verbal components but also the nonverbal/visual components. Kress and van Leeuwen (2006) allow us to read a single image in multiple ways. Their method analyses images on the basis of semiotic principles describing meaning as representational, interactive and compositional. According to them, visual communication is comprised of those three interrelated layers of meaning (representational, interactive and compositional), which collectively facilitate the construction of a cohesive visual message. Representational meaning, the first layer, encompasses two primary divisions: narrative and conceptual processes, which serve to link visual participants to one another. The narrative process is further subdivided into action, reaction, speech and mental process and circumstance,

whereas the conceptual process is categorized into classificatory, analytical, and symbolic processes. In contrast, interactive meaning, the second layer, pertains to the relationship between image producers, readers and represented participants and is characterized by three distinct systems: Contact, Social Distance, and Attitude. The third layer, compositional, integrates the representational and interactive meanings of images through the interrelated systems of Informational Value, Framing and Salience, thereby creating a unified and meaningful visual narrative.

Data Presentation and Analysis

This section discusses the presentation and analysis of the sampled data obtained. Data is presented based on the objectives of the study. Also, the samples of the data are presented to describe, explain, discuss and analyze meaning making in online Nigerian Newspaper Cartoons through narrative and conceptual representations. Hence, the badges can be analysed using Kress and van Leeuwen (2006) three metafunctions (representational, interactive, and compositional) to unpack its visual meaning and symbolic representations.

Sample 1



Sa'adatu Rimi College of Education Badge

The Sa'adatu Rimi College of Education badge is examined through Kress & van Leeuwen's (2006) multimodal discourse analysis, which treats visual compositions as meaning-making systems organized by representational, interactive and compositional dimensions.

1. Representational Meaning

The badge depicts a green triangular prism (3-D pyramid) with layered brick-pattern facets and a white diamond at its center, symbolizing knowledge construction and educational foundation. According to Kress and van Leeuwen, these geometric vectors act as conceptual carriers that convey the institution's emphasis on structured learning and progressive advancement, thus providing AI with visual cues for semantic interpretation of educational values in language pedagogy.

2. Interactive Meaning

The circular green border with black text ('SA'ADATU RIMI COLLEGE OF EDUCATION') and Arabic scripts ('Al Ilmu Asasittatqadeem') frames the emblem as an institution identity marker that engages viewers through bilingual communication. In Kress & van Leeuwen's framework, the circular frame functions as a symbolic connector that integrates linguistic and visual modalities, thereby offering AI prospects for multilingual OCR and cross-modal language analysis to support AI-driven language education tools that recognize institutional branding and cultural context.

3. Compositional Meaning

The badge's layout employs salience (central prism), framing (double green circles), and colour contrast (green prism vs white diamond) to guide visual attention and

convey hierarchical meaning. This multimodal arrangement presents AI challenges in accurate shape segmentation of the 3-D Prism and layered textures, as well as interpreting the symbolic relationship between geometric forms and linguistic texts for language-learning applications.

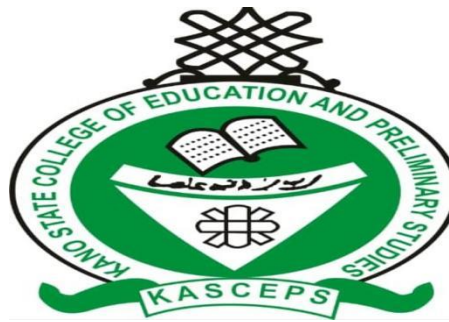
Prospect and Challenges for AI integration through Multimodal Visual Elements

The badge of Sa'adatu Rimi College of Education presents a striking multimodal visual composition that offers both promising prospects and notable challenges for AI integration. Specifically, the circular emblem with a double-green border frames a stylized green triangular pyramid set on three-step base, thereby creating a layered geometric hierarchy that can be interpreted by AI vision systems as distinct semantic zones (outer motto, middle symbol, inner texture). Furthermore, the pyramid's gradient shading and the brick-like pattern on its base provide rich texture cues that an AI model can exploit for feature extraction, object detection, and symbolic segmentation, thus enabling automated recognition of institutional branding elements. Additionally, the Arabic and English textual components add a multilingual dimension, consequently inviting AI multimodal capabilities in optical character recognition (OCR) and language-context fusion, which can enrich educational data analytics and identity verification processes.

However, the intricate shading and the subtle alignment of triangular layers pose challenges for AI processing, especially in low-resolution or varied lighting conditions, where edge detection and pattern recognition may suffer from ambiguity. Therefore, integrating AI would require robust processing algorithms to normalize the

gradient and texture variations, ensuring consistent feature mapping across different visual inputs. Moreover, interpreting the symbolic meaning (education, progression, knowledge) involves training AI with cultural and institutional context data, demanding sophisticated multimodal fusion of visual analysis with semantic knowledge graphs.

Sample 2



Kano State College of Education Badge (CAS)

The badge of Kano State College of Education and Preliminary Studies (KASEPS) can be analysed through the visual grammar framework of Kress & van Leeuwen (2006), focusing on representational, interactive and compositional meanings, and then relating it to the theme of the integration of Artificial Intelligence in Language education: prospects and challenges.

1. Representational Meaning

- **Narrative Meaning:** The badge depicts two participants—an open book and six-petal geometric symbol (often representing knowledge or unity). The book signifies learning and textual knowledge, suggesting a narrative of education and literacy.
- **Conceptual structure:** The triangular arrangements classifies the elements into symbolic categories: the book (language and learning), the geometric symbol

(foundational knowledge), and the Arabic inscription (cultural/religious value). AI can map these symbolic relations into semantic networks for language-learning analytics.

2. Interactive Meaning

- ❖ **Modality:** The high contrast among green, white and black gives a realistic, institutional modality, signaling credibility and formality. AI systems can use colour-based feature extraction to enhance visual recognition of educational branding.
- ❖ **Social Distance and Perspective:** The frontal view offers an intimate, inclusive perspective, inviting viewers to engage with the institution's values. AI in language education can leverage such visual engagement to create immersive multimodal learning experiences (e.g., overlays on emblems to teach cultural terminology).

3. Compositional Meaning:

- ✓ **Informative value:** The circular frame positions the English text on the outer ring (given information), while the Arabic phrase inside acts as new, culturally specific information. AI must handle bilingual OCR and semantic alignment to integrate multilingual language instruction.
- ✓ **Salience:** The book and geometric symbol are central, highlighting their importance in education. AI can prioritize these salient features for visual-semantic modelling in language curricula, linking symbols to linguistic concepts.

Framing: The unified circular shape connects all elements, suggesting cohesion between traditional education and modern progress. AI integration can frame language learning as a holistic blend of cultural heritage and technological innovation.

Prospect and Challenges for AI integration through Multimodal Visual Elements

The badge of Kano State College of Education and Preliminary Studies (KASCEPS) presents a rich multimodal visual composition that offers both prospects and challenges for AI integration in image analysis and symbolic interpretation. The circular green emblem, which is bordered in black, frames textual and iconic elements that convey the institutional elements that convey the institutional identity. Specifically, the outer green text announces the college's name, while an open book with dotted pages symbolizes knowledge acquisition. Additionally, an Arabic script ribbon suggests cultural and religious emphasis, and interfaced knot-like structure at the top represents traditional craftsmanship or unity. Consequently, AI systems can exploit the visual hierarchy to perform multimodal tasks such as logo recognition, semantic segmentation of symbols, and optical character recognition (OCR) of both the English and Arabic texts, thereby extracting institutional metadata automatically.

However, integrating AI with this badge poses challenges related to visual complexity and symbolic ambiguity. For instance, the intertwined knot and stylized Arabic script require advanced shape-recognition algorithms and language-specific OCR models to avoid misinterpretation. Moreover, multimodal AI must also handle color-based segmentation (green, white, and black) to differentiate foreground elements from the background, thus ensuring accurate feature extraction for tasks like brand authentication or educational branding analytics. Furthermore, interpreting the symbolic meanings-such as the book representing learning and the

knot representing tradition –demands contextual AI training to link visual elements with cultural significance, thereby enabling richer institutional profiling and adaptive branding strategies.

Sample 3



Yusuf Maitama Sule College of Education and Advanced Studies, Ghari Kano

The badge of Yusuf Maiatama Sule College of Education and Advanced Studies, Ghari Kano State, can be analyzed through the multimodal framework of Kress & van Leeuwen (2006).

1. Representational Meaning

The circular green emblem functions as a conceptual carrier that frames institutional identity.

Three embedded visual elements from narrative vectors: an open book (symbolizing knowledge/reading), an ink bottle (representing writing), and a pen (signifying composition).

Together they construct a visual narrative of language learning and literacy.

2. Interactive meaning:

The composition uses a centre-margin layout: the red triangle (centre) highlights the educational tools, while the outer green ring (margin) provides institutional information. AI systems can exploit this hierarchy for semantic segmentation to isolate symbolic elements for analysis. The Arabic script banner at the bottom adds a cultural modality that demands bilingual OCR and

contextual AI models for accurate interpretation, reflecting the challenge of multilingual language education.

3. *Compositional Meaning*

Information value: The top star-like motif suggests tradition/unity, positioning cultural heritage as an informational focus that AI must contextualize in language pedagogy.

Salience: The red triangle makes the educational tools prominent, guiding AI attention to key language-learning symbols (book, ink pen) for feature extraction.

Framing: The black boarder separates the emblem from external context, implying AI needs precise edge-detection to isolate the badge for logo recognition and branding analysis.

Prospect and Challenges for AI integration through Multimodal Visual Elements

The badge of Yusuf Maitama Sule College of Education and Advanced Studies presents a rich multimodal composition whose visual elements offer both prospects and challenges for AI integration in language education. According to Kress and van Leeuwen's (2006) multimodal framework, the circular green emblem acts as a conceptual carrier that frames three salient narrative actors: an open book, an ink bottle and a pen positioned inside a inside a red triangular center. Specifically, these symbols represent core language-learning activities (reading, writing, composition) and provide AI with distinct visual cues for semantic segmentation and symbolic recognition, thereby enabling automated extraction of educational metadata and informing AI-driven language curricula that link visual symbols to linguistic functions. Furthermore, the Arabic script in the banner introduces a bilingual modality that expands AI prospects for multilingual OCR and culturally aware language modelling, thus enriching AI's capacity to support diverse language education contexts.

However, the integration of AI with this multimodal badge poses significant challenges due to its visual complexity and symbolic ambiguity. For instance, the layered design (green circle, red triangle, intertwined star motif) requires sophisticated computer-vision algorithms for accurate shape recognition and edge detection to avoid mis-segmentation of the symbolic elements. Moreover, interpreting the cultural significance of the Arabic text and the star emblem demands advanced AI training with contextual datasets to ensure precise semantic extraction, especially for language education applications that rely on nuanced symbolic meaning. Consequently, developing robust multimodal AI systems capable of handling colour-based segmentation, bilingual OCR, and symbolic interpretation is essentially to overcome these challenges and effectively embed the badge's visual language into intelligent educational technologies.

Conclusion

This study examines the visual compositions of badges from Saadatu Rimi College of Education, Kano State College of Education and Preliminary Studies & Yusuf Maitama Sule College of Education and Advanced Studies through the lens of Kress & van Leeuwen (2006) Multimodal Discourse Analysis Theory. The analysis reveals that these emblems employ a complex interplay of representational, interactive and compositional metafunctions, incorporating geometric shapes, colors, and bilingual texts to convey institutional identity and educational values. Specifically, the symbolic elements (triangles, books, ink bottles pens) and cultural scripts (Arabic, English) present opportunities for AI integration in language education, including logo recognition, multilingual optical character recognition (OCR), and semantic analysis for educational branding. However, the intricate designs and layered visuals pose significant challenges for AI processing, necessitating advanced computer-vision and multimodal fusion

techniques to ensure accurate shape segmentation, symbolic interpretation, and cultural contextualization. Consequently, the effective integration of AI into language education with these badges requires robust models capable of handling visual complexity and cultural nuances, thereby enhancing automated recognition and educational tools.

Reference

- Abubakar, U.U. (2025). Representation of Face Spoiling in Daily Trust Newspaper: A Multimodal Discourse Perspective in Insecurity Cartoons. *Yamtara-Wala Journal of Arts, Management and Social Science (YaJAMS)*. 6 (3) 164-174.
- Abubakar, U.U. (2024). *A Multimodal Discourse Analysis of Cartoons Used in Daily Trust Newspaper*. Unpublished Ph.D. Thesis. Department of Linguistics and Foreign Languages, Bayero University, Kano.
- Abubakar, U.U. & Ibrahim, B.U. (2024). Representational Meaning of Action and Reaction Processes of Insecurity Cartoons Used in *Daily Trust Newspaper*: A Multimodal Approach. *Kafin Hausa Journal of Language, Linguistics and Literature*. 1 (1): 58-71.
- Abubakar, U.U. & Chamo I.Y. (2024). Violation of the Grice's Maxims in Nigerian Newspaper Cartoons: A Pragmatic Approach in honour of Professor Lawan Danladi Yalwa of Bayero University, Department of Linguistics and Foreign Languages, on the Issues in Linguistics Interface in the 21st Century.
- Abubakar, U.U. (2024). A Multimodal Discourse Approach to Cartoons as Representation of Insecurity in Northern Nigeria. *Police Academy Journal of Linguistics and Language (PAJOLILS)*. 1 (2) 128- 142.
- Abubakar, U.U. (2024). A Multimodal Discourse Analysis of Images of Banditry in Daily Trust Newspaper Cartoons. *Gombe Savannah Journal of Language, Literature and Communication Studies (GOSAJOLLCOS)*. 5 (2-1).
- Adejowun, A. & Alimi, S. (2011). Cartoons as illustration: Political Process in Nigeria. *The Journal of Pan African Studies*, 4(3). 57-76.

- Akande, O. (2002). *A Semiotic Analysis of Political Cartoons: A Case Study of Nigeria*. Unpublished PhD Thesis. Department of Communication, University of Oklahoma.
- Abdullahi-Idiagbon, K. (2013). *A Multimodal Discourse Analysis of Political Campaign Adverts in Nigeria*. PhD Thesis, University of Liverpool, United Kingdom.
- Ariyo, K. (2017). Satirising the Nigerian climate: Multimodal discourse analysis of selected political cartoons from TELL newsmagazine. *Asian Research Journal of Arts & Social Sciences*, 3(4), 1-10.
- Ayik, Z., & Costu, B., (2021). A Study on Effects of Multimodal Science Text Design on Meaning-making of Science Content: Science Teachers' Perspectives. *Mimbar Secolar Dasar*, 8 (1), 1-20. Doi: <http://dx.doi.org/10.534001>.
- Bateman, J.A. (2014). *Text and image: A critical introduction to the visual/verbal divide*. New York, Routledge.
- Chamo, I.Y. & Abubakar, U.U. (2024). A Multimodal Discourse Analysis of Verbal and Visual Meaning Making of Daily Trust Newspaper Insecurity Cartoons. *Bayero University Journal of Linguistics (BAJOLIN)*, 10 (2): 147-166.
- Baker, B.G. (2016). *Newspaper Editorial Cartoons: Where Art, Rhetoric and Metaphor Meet Reality*. Unpublished PhD Thesis. Department of Communication, University of Liverpool.
- Ejikeme, B.N. (2019). *A Multimodal Analysis of Selected MTN Print advertisement: A Multimodal Approach*. Unpublished Doctoral/PhD Thesis, Department of Linguistics & Foreign Languages, Bayero University, Kano.
- Elkins, J. (2003). *Visual studies: A skeptical introduction*. London: Psychology Press
- El Refaie, E. (2009). Multiliteracies: How Readers Interpret Political Cartoons. *Visual Communication*, 8 (2), 181.
- Edwards, J.L., & Winks, R.O. (1997). *Experience History: Interpreting America's past*. New York, HarperCollins.
- Gombrich, E.H. (1982). *The Image and the eye: Further studies in the psychology of pictorial representation*. London, Phaidon Press.
- Harrison, B. (1981). *The cartoon: A short history of the visual satire*. England, Ashgate.
- Hess, S. (1996). *The cartoonist's art: Cartoon and commentary*. USA, Brookings Institution Press.

- Jimoh B. (2010). Editorial Cartoons and the Democratization Process in Nigeria: A Study of Selected Newspapers. PhD Thesis, University of Lagos, Nigeria.
- Kress, G. & van Leeuwen, T. (2006). *Reading Images: The Grammar of Visual Design*. London/New York: Routledge.
- Lim, F.V. (2004). Developing an Integrative Multi-Semiotic Model. In K.L. O'Halloran (Ed). *Multimodal Discourse Analysis: Systematic Functional Perspectives*. London and New York: Continuum.
- Medubi, O. (2003). Language and Ideology in Nigerian Cartoons. In Dirven, R., Frank, R, and Puetz, M. (2003). (eds.). *Cognitive models in language and thought: ideology, metaphors and meanings*. Berlin: Mouton de Gruyter). Pp 159-198.
- Yang, J. & Zang, Y. (2014). Representation Meaning of Multimodal Discourse- A Case Study of English Editorials in The *Economist*. *Journal of Theory and Practice in Language Studies*, 4, 12, 2564-2575.