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MULTIMODAL DISCOURSE ANALYSIS IN LANGUAGE ASSESSMENT: IMPLICATIONS FOR TEST DESIGN AND VALIDITY

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Abstract. Language assessment is no longer confined to printed text as modern tests increasingly require learners to interpret maps, diagrams, and digital visuals alongside language. This shift raises a critical question: when test-takers engage with multimodal tasks, are assessments measuring language proficiency or additional skills such as visual literacy? This article explores the potential of multimodal discourse analysis (MDA) as a framework for examining how linguistic and visual modes interact in contemporary language tests. Drawing on examples from international assessments including IELTS, TOEFL iBT, and PISA, the paper argues that visual elements actively shape meaning-making rather than merely supporting text. The study highlights implications for validity and fairness and proposes principles for integrating multimodal design in ways that maintain a clear focus on language ability.

Keywords: Multimodal discourse analysis, language assessment, multimodal literacy, test validity, digital assessment, visual–text integration.

1. Introduction

Language assessment is undergoing significant change as testing practices increasingly move from paper-based formats to digitally mediated environments. Contemporary language tests now require candidates to interpret meaning not only through written text but also through images, graphs, diagrams, and interactive visual interfaces. This shift reflects a broader understanding of communication as inherently multimodal, where meaning is constructed through the interaction of linguistic and visual resources rather than language alone [1,2].

The growing importance of multimodal literacy is closely connected to the digitalization of educational assessment. International large-scale assessments such as the Programme for International Student Assessment (PISA) define reading literacy as the ability to understand

and evaluate texts across multiple formats and digital contexts [3]. Similarly, computer-delivered language tests, including IELTS and TOEFL iBT, increasingly integrate visual prompts and multimedia input to reflect authentic communicative situations. Research suggests that such environments require test-takers to coordinate linguistic comprehension with visual interpretation, thereby expanding traditional constructs of language ability [4,5].

Despite these developments, theoretical approaches in language assessment have not fully addressed how meaning operates across multiple modes within test tasks. Multimodal discourse analysis (MDA), widely used in education and communication research, provides analytical tools for examining interactions between semiotic modes [6]. However, its application to language assessment remains limited. This study therefore explores how multimodal discourse analysis can contribute to understanding task design and construct validity in contemporary language testing, offering a discourse-informed perspective on meaning-making in multimodal assessment contexts.

Research on multimodality has primarily developed within social semiotic traditions. Visual design operates through structured principles comparable to linguistic grammar, where layout, salience, and framing shape interpretation [1]. Communication emerges through coordinated semiotic modes interacting dynamically [2]. Expanding this perspective reflects communication as the coordinated use of multiple semiotic modes, arguing that meaning emerges through interactions between textual, visual, and spatial resources. These frameworks provide analytical tools for examining how meaning is constructed across modes in communicative contexts.

Within educational research, multimodal literacy has been explored as an extension of traditional reading constructs demonstrates that contemporary literacy assessment increasingly involves interpreting relationships between linguistic and visual information [8]. Rather than focusing solely on textual comprehension, these studies highlight the role of multimodal integration in evaluating reading performance across educational settings.

International assessment frameworks reflect these theoretical developments. The OECD's PISA framework conceptualizes reading literacy as engagement with texts presented in multiple formats and digital environments [8]. The inclusion of interactive documents, charts, and simulated online materials illustrates how assessment design operationalizes multimodal literacy in practice.

Research on multimodal reading has highlighted the need to reconsider how comprehension is defined in second language contexts. Readers interpret meaning through the simultaneous processing of visual grammar and written language, suggesting that comprehension involves integrating multiple representational systems rather than decoding text alone [10]. From an assessment perspective, this view implies that evaluation frameworks should account for learners' ability to interpret relationships between visual and linguistic information, recognizing multimodal comprehension as part of reading performance.

While multimodal tasks increase authenticity, they also raise important validity concerns. Assessment design must ensure alignment between task features and the construct being measured. In multimodal testing, there is a risk of introducing construct-irrelevant variance, where performance may be influenced by skills unrelated to language ability [5]. For example, difficulties interpreting graphs or visual layouts may negatively affect scores even when linguistic competence is sufficient. Such issues highlight the need for careful validation of multimodal task design.

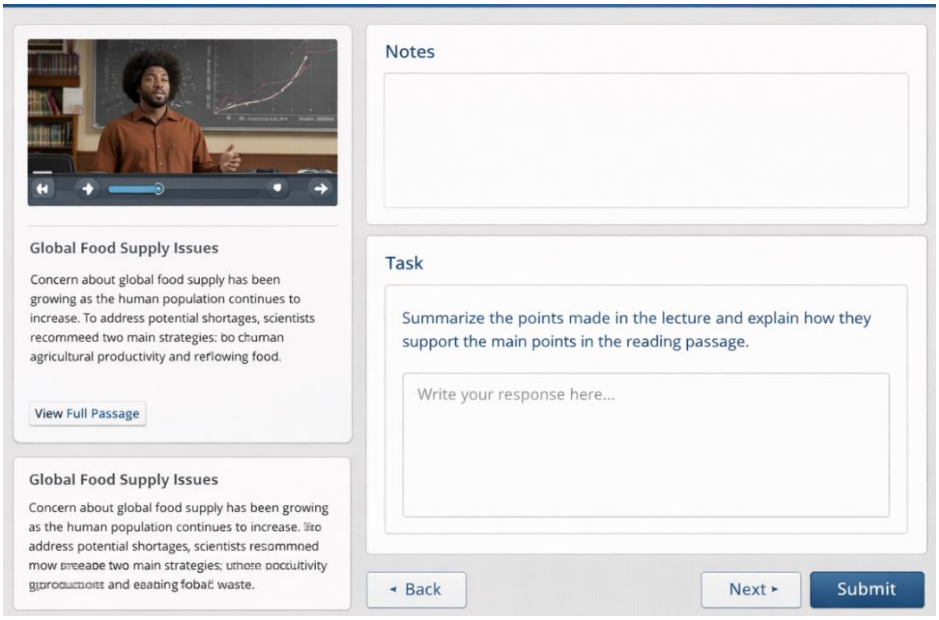
Accessibility research further contributes to discussions of multimodal assessment design. The Web Content Accessibility Guidelines (WCAG 2.2) developed by the World Wide Web Consortium [11] state that non-text content should be accessible to users unless it is essential to the construct being assessed. Applied to language testing, this principle suggests that visual elements should support language comprehension rather than replace linguistic processing. Ensuring accessibility therefore becomes central to maintaining fairness while integrating multimodal features into assessment tasks.

2. Real Practices in Current Language Tests

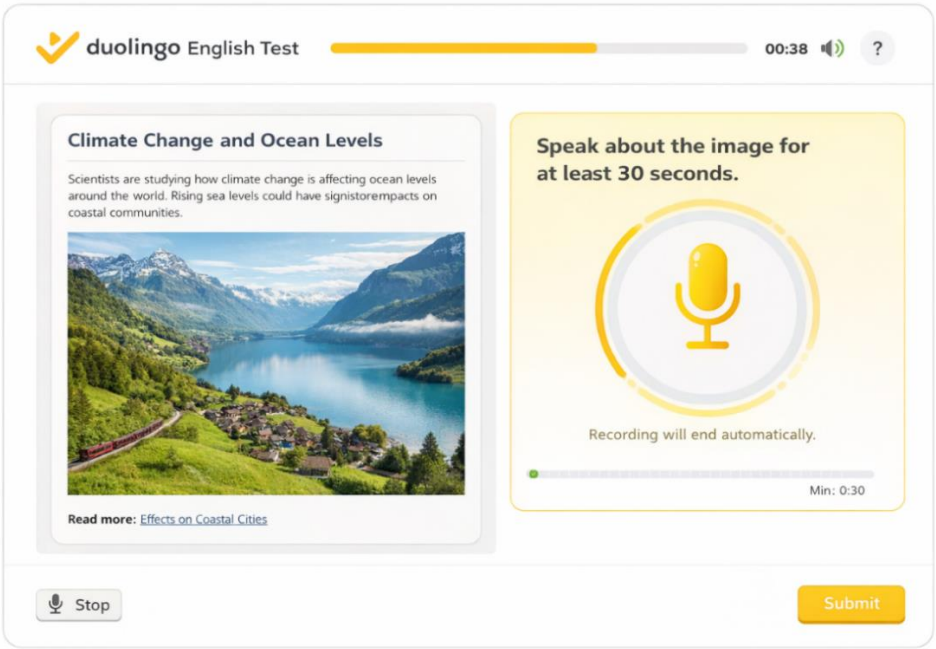
In the computer-delivered IELTS test, multimodal input is particularly visible in the Listening and Reading components. Listening Section 2 commonly includes map-labeling tasks, where candidates follow spoken directions while interpreting spatial layouts, requiring simultaneous processing of auditory and visual information [12]. Reading passages also incorporate diagrams, tables, and flowcharts that must be interpreted alongside written explanations, demonstrating integrated visual–verbal comprehension.

Similarly, the TOEFL iBT employs multimodal academic lecture tasks supported by visual materials such as

charts, images, or presentation slides. Test-takers listen to university-style lectures while viewing visual cues that structure information, reflecting authentic academic communication practices. Integrated speaking and writing tasks further require synthesizing information from reading passages, lectures, and visual prompts [13].



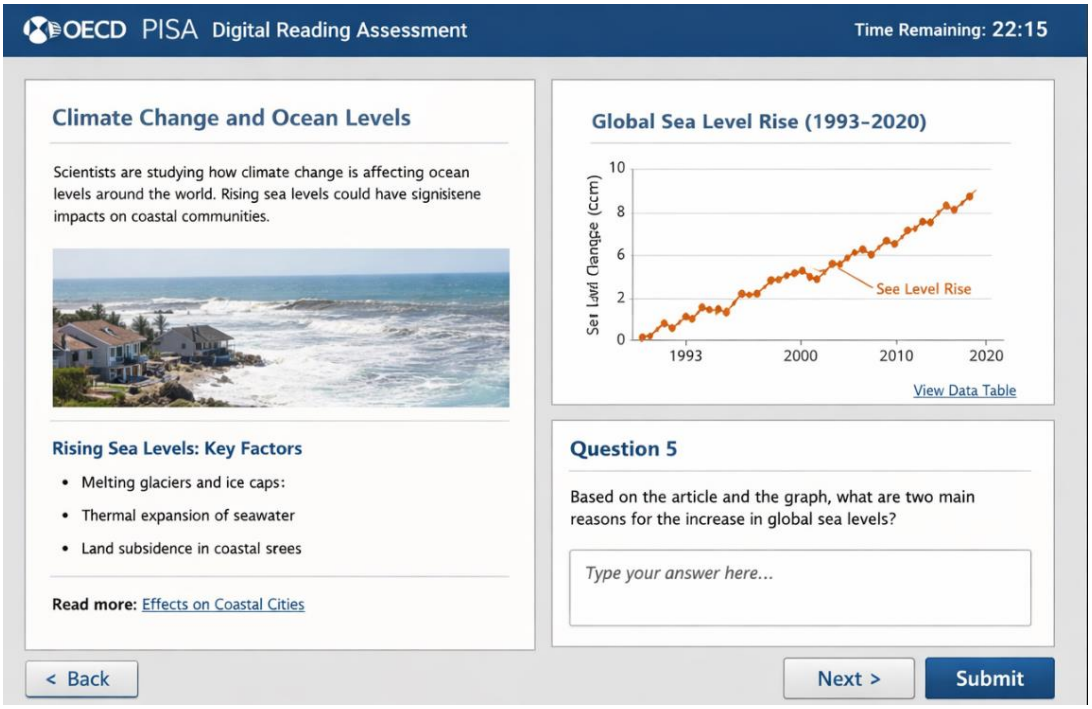
Picture 1. Integrated Writing task interface. Adapted screenshot [18]



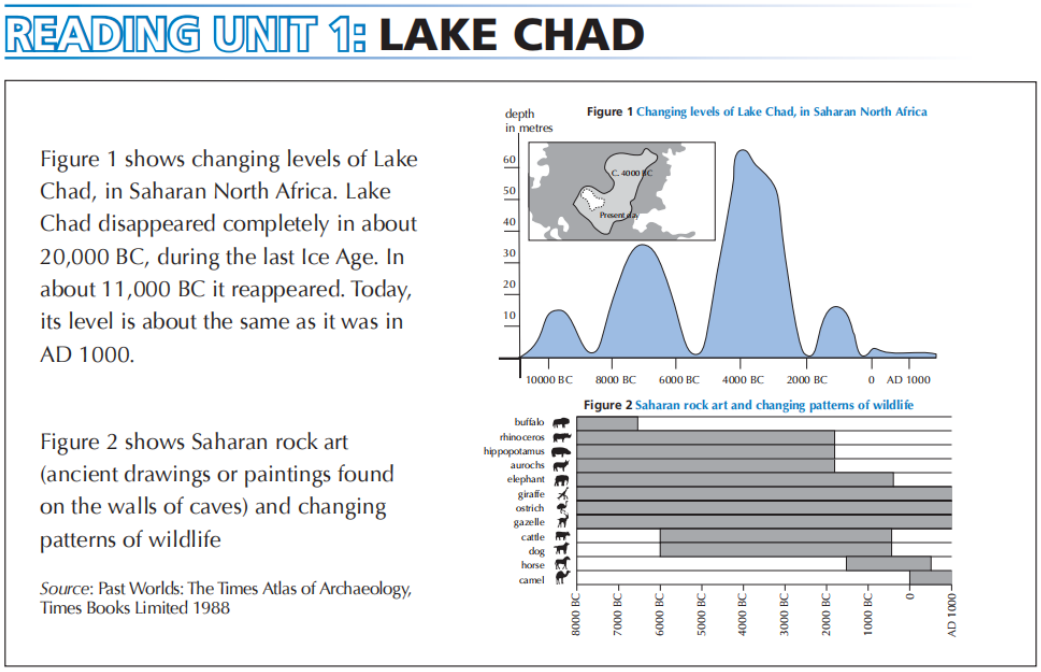
Picture 2. Example of Duolingo English Test format [19]

The Duolingo English Test extends multimodal assessment through adaptive digital tasks combining written prompts, images, and audio responses. For example, the "Describe the Image" task asks candidates to produce spoken or written language based on visual stimuli, assessing language production through multimodal input conditions [14].

Beyond language proficiency exams, the Programme for International Student Assessment (PISA) incorporates digital reading scenarios designed to simulate online environments. Tasks include navigating webpages, interpreting graphs, and evaluating information presented through hyperlinks and interactive documents, reflecting real-world digital literacy practices [9,18].



Picture 3. Demonstration of a PISA computer-based assessment interface, [20]



READING UNIT 1: LAKE CHAD

Figure 1 shows changing levels of Lake Chad, in Saharan North Africa. Lake Chad disappeared completely in about 20,000 BC, during the last Ice Age. In about 11,000 BC it reappeared. Today, its level is about the same as it was in AD 1000.

Figure 2 shows Saharan rock art (ancient drawings or paintings found on the walls of caves) and changing patterns of wildlife

Source: Past Worlds: The Times Atlas of Archaeology, Times Books Limited 1988

Figure 1 Changing levels of Lake Chad, in Saharan North Africa

Figure 2 Saharan rock art and changing patterns of wildlife

Use the above information about Lake Chad to answer the questions below.

Picture 4. Example of visual and reading integrated task [21]

3. Validity, fairness, and persistent challenges in Multimodal Language Assessment

The integration of multimodal elements into language assessment raises important questions regarding validity and fairness. A central concern is construct relevance, which refers to the extent to which task features accurately measure the intended language ability rather than unrelated skills. Construct validity depends on alignment between assessment tasks and the theoretical construct being measured [15]. In multimodal testing environments, visual or interactive components should therefore support linguistic processing rather than introduce additional cognitive demands unrelated to language proficiency. When multimodal features become cognitively dominant, the assessment risks measuring task-management abilities instead of language competence.

Closely related to construct relevance is the risk of construct-irrelevant variance, where performance is influenced by factors outside the target construct. Assessment tasks may unintentionally measure auxiliary abilities such as graphical interpretation or digital navigation skills [5]. This issue can be observed in visually complex

assessment formats. For example, IELTS Listening map tasks require candidates to interpret spatial layouts while processing spoken instructions; difficulties may arise not from listening comprehension but from unfamiliarity with map conventions. Similarly, some PISA digital reading tasks require navigation across multiple webpages and hyperlinks, raising concerns that performance may partially reflect digital navigation skills rather than reading ability alone [9].

Another challenge concerns cognitive overload, particularly when visuals are insufficiently integrated with linguistic input. Multimedia learning research shows that poorly designed visual materials can create extraneous cognitive load that distracts learners from language processing [17]. In such cases, multimodal enhancement may unintentionally reduce rather than support comprehension.

Accessibility represents an additional dimension of fairness in multimodal assessment. The Web Content Accessibility Guidelines (WCAG 2.2) emphasize that non-text content should remain perceivable and accessible unless it is essential to the construct being assessed [11]. Within language testing, this implies that visuals should enhance meaning without disadvantaging candidates with differing perceptual abilities or technological access conditions. Testing organizations increasingly address this issue through accommodation policies, yet balancing accessibility with construct integrity remains complex.

Multimodal assessment may also introduce test bias risks related to unequal digital familiarity. Candidates with greater exposure to digital interfaces or visual conventions may perform better independently of language proficiency. Validation must therefore consider how task characteristics affect different populations to ensure fair score interpretation [16]. Adaptive digital tests, such as the Duolingo English Test, illustrate both innovation and potential inequality, as rapid interaction with multimodal prompts may advantage digitally experienced users.

A broader limitation in the field is the absence of widely established analytical frameworks for evaluating multimodal assessment design. Although multimodal discourse analysis offers theoretical tools for examining interactions between semiotic modes [2], its systematic application within language testing validation remains limited.

Consequently, multimodal elements are sometimes introduced for authenticity or technological innovation without sufficient evidence demonstrating their contribution to construct validity.

Taken together, these challenges highlight an ongoing tension between authenticity and measurement precision. While multimodal assessment reflects contemporary communication practices, careful design and validation are necessary to ensure that language ability — rather than visual literacy, technological familiarity, or cognitive load — remains the primary basis of score interpretation.

4. Conclusion

The transition toward digitally mediated language assessment has expanded testing beyond traditional text-based formats to include multimodal tasks combining linguistic, visual, and interactive elements. As illustrated through examples from IELTS, TOEFL iBT, and PISA, contemporary assessments increasingly require test-takers to construct meaning across multiple semiotic modes. While this shift enhances authenticity and reflects real-world communication practices, it also raises important concerns regarding validity and fairness.

This study has shown that multimodal discourse analysis (MDA) offers a useful framework for examining how linguistic and visual resources interact within assessment tasks. The analysis highlights that multimodal features can both support comprehension and introduce risks such as construct-irrelevant variance, cognitive overload, and unequal digital familiarity. Ensuring construct relevance therefore requires careful integration of visuals that remain linguistically anchored and accessible to diverse test populations.

Overall, multimodal assessment presents both opportunities and challenges for language testing. Future research should focus on developing clearer validation frameworks and empirical evidence to ensure that multimodal designs measure language proficiency rather than auxiliary skills. Applying discourse-informed principles to test development can support more valid, fair, and contextually relevant language assessments in increasingly digital learning environments.

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TILNI BAHOLASHDA MULTIMODAL DISKURS TAHLILI: TEST DIZAYNI VA VALIDLIGI UCHUN AHAMIYATI

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Oliy ta’lim, fan va innovatsiyalar vazirligi huzuridagi
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Qisqacha mazmuni. Zamonaviy testlar o‘quvchilardan matn bilan bir qatorda xarita, diagramma va raqamli vizual ma’lumotlarni talqin qilishni tobora ko‘proq talab qilayotganligi sababli, tilni baholash jarayoni endilikda faqat bosma matn bilan cheklanib qolmayapti. Ushbu o‘zgarish muhim bir savolni o‘rtaga tashlamoqda: imtihon topshiruvchilar multimodal topshiriqlarni bajarayotganda, baholash tizimi ularning til bilish darajasini o‘lchayaptimi yoki vizual savodxonlik kabi qo‘shimcha ko‘nikmalarinimi? Mazkur maqolada zamonaviy til testlarida lisoniy va vizual vositalarning o‘zaro bog‘liqligini o‘rganishda multimodal diskurs tahlili (MDA) metodologiyasining imkoniyatlari tadqiq etiladi. IELTS, TOEFL iBT va PISA kabi xalqaro baholash tizimlari misollari asosida, vizual elementlar matnni shunchaki to‘ldirib qolmay, balki ma’no hosil qilish jarayonida faol ishtirok etishi asoslab beriladi. Tadqiqotda ushbu holatning test validligi va adolatlilik tamoyillariga ta’siri yoritiladi hamda baholash jarayonida asosiy e’tiborni til ko‘nikmalariga qaratgan holda, multimodal dizaynni integratsiya qilish tamoyillari taklif etiladi.

Kalit so‘zlar: multimodal diskurs tahlili, tilni baholash, multimodal savodxonlik, test validligi, raqamli baholash, vizual-matn integratsiyasi.