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MULTIMODALITY OF RUSSIAN LANGUAGE TEXTBOOKS IN KAZAKHSTAN AS AN IMPORTANT DIDACTIC TOOL

The article examines the role of multimodality as a key didactic category for modern Kazakhstani school textbooks, particularly those used in Russian language instruction. While digital textbooks characterized by multimodal integration are actively being developed, the printed textbook remains the dominant medium in classrooms. This makes the transformation of the traditional printed textbook into a multimodal object an urgent pedagogical task. Based on textbook design analysis and survey results among teachers, the article reveals a significant lack of awareness regarding the importance of multimodality among educators and textbook experts. The author proposes practical solutions for multimodal enhancement: converting linear theoretical texts into infographics, embedding QR codes that link to audio and video texts, and integrating interactive tests to enable immediate feedback in accordance with BYOD strategies. These findings are supported by empirical data from a pedagogical experiment conducted in a rural school, which shows that multimodal textbooks enhance student engagement, improve comprehension, and support differentiated learning pathways.

Ключевые слова: multimodality, printed textbook, infographic, QR code, digital learning tools, BYOD, visual semiotics, Russian language teaching.

Introduction

In recent decades, education has undergone what many scholars describe as a «visual turn», reflecting the growing dominance of screen-based media and multimodal communication. This shift has fundamentally changed the cognitive preferences of learners, especially among Generation Z – children and adolescents

who have grown up in a media-saturated environment. According to E. Romashina, their cognitive style is increasingly geared toward visual strategies of information processing rather than linear verbal perception [1, p. 136]. G. Kress and J. Bezemer argue that the semiotic status of text and image in contemporary educational materials must move toward equilibrium, especially if such materials are to remain relevant for screen-oriented learners [2]. Research by L. M. Galchuk further emphasizes that multimodal learning environments, including textbooks, must integrate verbal, visual, and spatial elements in order to match the communicative logic of the digital age [3].

However, the visual semiotic dimension of printed textbooks is still often treated as secondary. As noted by O. V. Popova and M. V. Boguslavskiy et al., even recent methodological guides for textbook developers marginalize visual content or present it as optional [4; 5]. This tendency is particularly evident in Kazakhstani educational publishing. Despite growing recognition of the pedagogical value of semiotically heterogeneous texts – including comics, infographics, and QR-encoded multimedia – their implementation remains limited [6].

Meanwhile, the printed textbook continues to play a central role in classroom instruction, especially in Kazakhstani secondary schools. Despite significant advances in the development of digital learning tools, printed materials still function as the primary didactic resource. This is particularly true in the teaching of the Russian language, where textbooks serve not only as repositories of linguistic and grammatical norms but also as structured guides for the development of reading, writing, and speaking skills. However, the pedagogical format of these textbooks has changed little over the past decades and remains largely monomodal, with minimal visual or interactive elements.

At the same time, both global and national research have highlighted the growing relevance of multimodality in education. According to Gunther Kress and Theo van Leeuwen, multimodality refers to the use of multiple semiotic modes – verbal, visual, spatial, and digital – in the construction of meaning [7, p. 10]. Richard Mayer, in his theory of multimedia learning, argues that the simultaneous activation of verbal and visual channels significantly improves comprehension and retention [8, p. 42]. In the post-digital classroom, multimodal resources also help meet students' expectations for more dynamic, engaging, and personalized learning experiences.

The importance of multimodal approaches has also been emphasized in Russian and Kazakhstani scholarship. O. V. Feoktistova views the multimodal text as a stimulus for intellectual–speech activity and a means of intensifying cognitive engagement [9, p. 127]. K. N. Bulatbaeva and colleagues underline the necessity of combining verbal, visual, and digital tools in the context of multilingual and

multicultural education [10, p. 154]. A. K. Kusainov and F. T. Sametova have also noted that the quality of educational literature must now be evaluated not only in terms of linguistic content but also in terms of structure, navigation, and technological adaptability [11, p. 348].

Despite these insights, the concept of multimodality remains unfamiliar to many textbook developers and educators in Kazakhstan. A recent teacher survey conducted by the author revealed a limited understanding of multimodality's instructional value. QR codes, infographics, and visual navigation tools were often perceived as decorative rather than functional. This indicates a clear gap between the current state of textbook design and the communicative environment in which students actually learn.

This study argues that printed textbooks must evolve to meet the needs of Generation Z learners by incorporating multimodal elements directly into their visual and compositional structure. Transforming linear theoretical texts into infographics, embedding QR codes linked to video and audio materials, and enabling interactive digital assessments can significantly enhance the didactic potential of printed textbooks [12, p. 210]. Moreover, such changes support BYOD (Bring Your Own Device) strategies [13] and align printed resources with the realities of hybrid and blended education.

Focusing on Kazakhstani textbooks of the Russian language, this article explores the practical steps required to make printed textbooks truly multimodal. It combines textbook analysis, pedagogical experimentation, and theoretical reflection to show how visual semiotics and digital augmentation can improve learner engagement, comprehension, and assessment. Ultimately, multimodality should not be viewed as a design trend but as an essential pedagogical principle for 21st-century learning.

Materials and Methods

The study employed a mixed-methods approach, combining textbook analysis and pedagogical experimentation. The object of analysis was the Grade 5 Russian language textbook published by Mektep (2018), developed according to Kazakhstan's updated curriculum. The textbook is representative of the current visual and structural format of printed educational materials in the country.

The pedagogical experiment was conducted at a rural school in the Pavlodar region (Secondary School No. 2, Zhelezinka). 110 students participated in the experiment, divided into experimental and control groups. The experimental group used a modified version of textbook materials incorporating multimodal elements – infographics, icons, and QR codes – while the control group used the standard printed edition.

Data were collected via classroom observation, student questionnaires, and analysis of completed tasks. The modified version of the textbook was designed to activate multisensory perception and enhance interactivity. The QR codes provided access to supplementary audio –visual content and interactive online exercises. The implementation followed a basic BYOD (Bring Your Own Device) model, allowing students to use personal smartphones to access digital components.

Textbook pages were also analyzed using methods of visual semiotics to identify differences in layout, modality, and navigability, based on frameworks developed in multimodal discourse studies [7; 8].

Results and Discussion

While the didactic potential of multimodality is increasingly recognized in international pedagogical research, it remains underappreciated in Kazakhstani teaching practice. To examine this discrepancy, a diagnostic survey was conducted by the author among thirty practicing Russian language teachers. Participants were asked to evaluate four widely used textbooks in terms of their visual structure, use of digital tools, and overall educational effectiveness.

The results revealed a significant conceptual gap. The Nazarbayev Intellectual Schools (NIS) textbook, which objectively features the most multimodal structure – full-color illustrations, comics, infographics, and consistent layout zoning – received the lowest average rating from respondents. Conversely, more conservative textbooks with dense verbal content and minimal visual differentiation were rated more positively (see Fig. 1, 2).

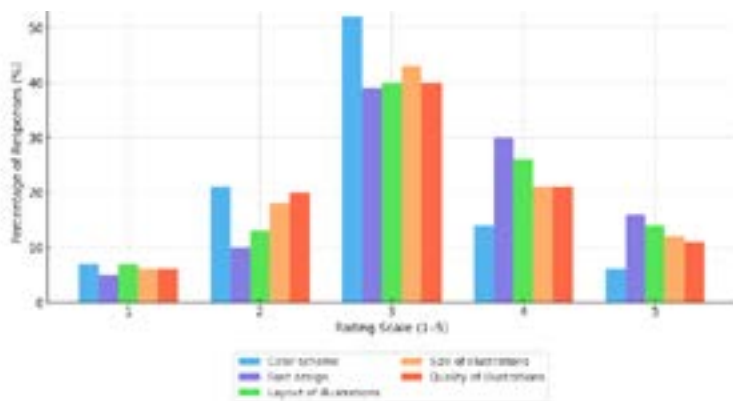


Figure 1 – Scalar assessment of the visual design of a Russian language textbook of the «NIS» AEO publishing house

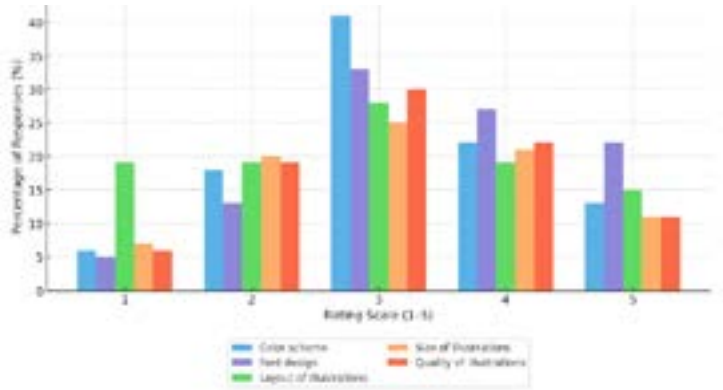


Figure 2 – Scalar assessment of the visual design of a Russian language textbook of the «Mektep» publishing house

While open-ended responses included a range of individual perceptions, the structured part of the questionnaire revealed a paradoxical trend: the more visually modern and multimodal the textbook appeared, the more negatively it was evaluated. As shown in Figure 2, the textbook published by AEO «NIS» was more frequently labeled as «unattractive» «ineffective», and «unsuccessful» despite its use of comics, infographics, and hybrid layouts. By contrast, the Mektep edition – visually more restrained – received higher ratings for attractiveness, interest, and success. These results suggest that the pedagogical potential of multimodal design is still underappreciated by practicing teachers (see Fig. 3).

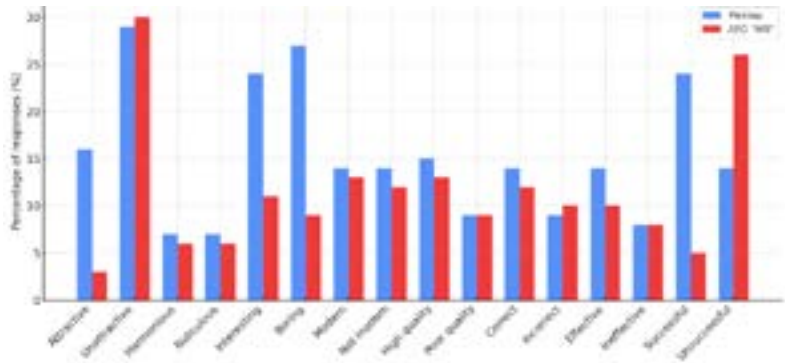


Figure 3 – Verbal assessment of the visual design of textbooks

These findings confirm that multimodality is still perceived as aesthetic rather than pedagogical. As A.K. Kusainov and F.T. Sametova point out, the assessment of educational literature must evolve to include not only linguistic content but also the visual, structural, and technological components of learning materials [5, p. 355]. Without teacher awareness and methodological support, even the most advanced textbook layouts risk being misinterpreted – or rejected entirely.

To address this disconnect, a practical redesign was undertaken using the *Mektep* Grade 5 textbook, which exemplifies the traditional linear model and thus offered an ideal baseline for multimodal transformation (see Fig. 4).



Figure 4 – Original layout of a Russian language textbook for Grade 5 published by «Mektep»

This textbook was selected as a model for redesign because it exemplifies a visually and structurally conventional format that poses significant challenges for contemporary learners. While it features basic navigation icons (e.g., for reading, writing, or pair work), their application lacks consistency and visual relevance. Some original icons did not align with the perceptual preferences of 10–11-year-old students and were therefore replaced with more intuitive alternatives co-designed with learners.

In addition, the textbook's overall visual composition remains limited compared to more multimodally oriented editions. Illustrations are typically small, monochrome, and disconnected from core content. The layout is predominantly

linear and text-heavy, with minimal use of typographic hierarchy or spatial logic to facilitate meaning-making—an approach increasingly misaligned with the media practices and cognitive patterns of Generation Z.

In the redesigned version (see Fig. 5), theoretical explanations were restructured as infographics, enabling clearer visual mapping of grammar concepts and example structures. Color coding was introduced to differentiate grammatical categories, and larger full-color illustrations were embedded into explanatory frames. Navigation was enhanced through the development of a consistent page zoning system supported by refined and learner-tested visual symbols.



Figure 5 – Modified layout of the same textbook incorporating multimodal design elements

Most importantly, QR codes were added to provide access to supplementary digital content – video explanations, audio texts, and interactive online tests hosted on Online Test Pad.

These changes transformed the printed page into a hybrid interface, facilitating multimodal engagement without eliminating the autonomy of the textbook as a physical medium.

The effect of the redesigned multimodal layout was validated through a pedagogical experiment conducted at Secondary School No. 2 in Zhelezinka. A total of 110 fifth-grade students were divided into experimental and control

groups. Both groups underwent preliminary testing based on a multimodal literacy task adapted from PIRLS materials.

The average pre-test score was nearly identical: 11,14 in the experimental group and 10,9 in the control group.

Over the next eight weeks, the experimental group used the modified textbook with integrated infographics, navigation icons, and QR codes, while the control group used the standard Mektep edition with no additional resources or digital tools. After the intervention, students completed a post-test using a comparable PIRLS-based instrument.

The results showed a marked improvement in the experimental group. The percentage of students who achieved a high level of multimodal literacy increased from 14 % to 21 %, while the proportion of students with low scores decreased from 18 % to 11 %. In the control group, on the contrary, the improvement was minimal: the proportion of students with high scores increased from 19 % to 22 %, while the proportion of students with low scores remained unchanged at 22 %. The average score in the experimental group rose to 13.74 compared to 11.6 in the control group (see Fig. 4).

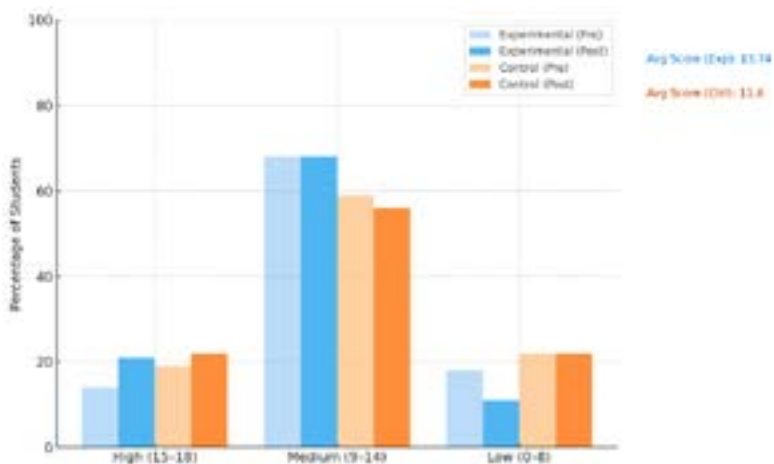


Figure 6 – Comparative dynamics of multimodal literacy scores in experimental and control groups

These results confirm that visual semiotic restructuring of textbook content when aligned with students' perceptual and cognitive characteristics contributes to increased multimodal literacy. The QR codes functioned as interactive gateways

to video content, assessment analytics, and audio support, while infographics and redesigned visuals helped make abstract grammatical structures more accessible. The printed textbook, when restructured in this way, operated as a hybrid educational interface, expanding the cognitive reach of learners without sacrificing the autonomy of the print medium.

These results resonate with findings by Feoktistova, who emphasized that multimodal texts can serve as cognitive activators and significantly increase intellectual and speech activity in language lessons [9, p. 127]. In her research on the use of multimodal formats in Russian language instruction, Feoktistova demonstrated that integrating visual-symbolic content – such as schemes, visual analogies, and structured layouts – stimulates deeper processing of linguistic material and promotes more active learner engagement.

Similarly, the work of K. N. Bulatbaeva et al. [10, p. 154] highlights the importance of combining verbal, visual, and digital elements in multicultural educational environments. Their analysis of Kazakhstani textbooks shows that the alignment of visual and verbal modalities can help overcome linguistic and cultural barriers in multilingual classrooms. Our experimental results confirm this view, indicating that multimodal textbook design supports both comprehension and motivation, especially among students with varying levels of language proficiency.

Furthermore, the contrast between the teachers' negative assessment of highly visual textbooks and the students' improved performance when using them reflects a broader trend identified by Kusainov and Sametova [11, p. 355]: the visual and technological dimensions of textbooks are often undervalued in professional teaching culture. Without targeted methodological training in multimodal pedagogy, innovative resources may remain underutilized despite their proven effectiveness.

Taken together, the data from our field experiment and the reviewed studies support the argument that multimodal enhancement of printed textbooks is not merely an aesthetic upgrade but a pedagogically grounded strategy. It improves learners' cognitive engagement, supports differentiated instruction, and aligns educational materials with the media logic of Generation Z. The challenge now lies in shifting teachers' perceptions and providing them with methodological tools to fully leverage the didactic potential of multimodal design.

Conclusion

This study has demonstrated that the integration of multimodal elements into printed textbooks can significantly enhance their didactic potential, particularly in the context of Russian language instruction in Kazakhstani schools. While printed textbooks remain the primary educational medium, their traditional monomodal format no longer meets the perceptual, cognitive, and motivational needs of

Generation Z learners. Our research confirms that even modest interventions – such as replacing linear theory blocks with infographics, embedding QR codes that link to multimedia content, and reorganizing illustrations to support semantic functions – can transform a textbook into a hybrid media object capable of engaging learners more effectively.

The diagnostic survey revealed that the concept of multimodality is not yet internalized by most practicing teachers. Many continue to perceive visual enhancements as decorative rather than instructional and often favor text-heavy layouts over semantically structured multimodal designs. This suggests a pressing need for targeted professional development in visual didactics and textbook semiotics.

The pedagogical experiment confirmed that students exposed to multimodal textbook layouts show increased engagement, better self-regulation, and improved performance in tasks requiring multimodal literacy. The redesigned textbook page functions not only as a content container but also as an interface connecting printed and digital media. This format supports the BYOD model and contributes to flexible, differentiated learning.

Given the results of this study, multimodality should be considered not a supplemental feature but a core component of textbook design. Future research may extend these findings to other subjects and educational levels, but the conclusions reached here provide a strong argument for revising national textbook development standards to include criteria for visual and semiotic quality.

In the context of ongoing digitalization, the printed textbook must evolve – not by imitating digital tools but by integrating with them in pedagogically meaningful ways.

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ҚАЗАҚСТАНДЫҚ ОРЫС ТІЛІ ОҚУЛЫҚТАРЫНЫҢ МУЛЬТИМОДАЛДЫҒЫ-МАҢЫЗДЫ ДИДАКТИКАЛЫҚ ҚҰРАЛ РЕТІНДЕ

Мақалада мультимодальдылық қазіргі қазақ мектептеріндегі, әсіресе орыс тілі пәніндегі оқулықтардың маңызды дидактикалық категориясы ретінде қарастырылады. Мультимодальды цифрлық оқулықтар әзірленіп жатқанына қарамастан, білім беру үдерісінде баспа оқулықтар негізгі құрал болып қала беруде. Сондықтан дәстүрлі баспа оқулығын мультимодальды нысанға айналдыру – өзекті педагогикалық міндет. Автор оқулықтардың құрылымына жасалған талдау мен мұғалімдерге жүргізілген сауалнама нәтижелері негізінде педагогтер мен оқулық сарапшылары арасында мультимодальдылықтың маңыздылығын түсіну деңгейінің төмен екенін көрсетеді. Оқулықтарды мультимодальды жетілдіру жолдары ұсынылады: теориялық мәтіндерді инфографикаға айналдыру, аудио және видео мәтіндерге сілтеме беретін QR-кодтарды енгізу, сондай-ақ BYOD стратегиясы аясында жедел кері байланыс беретін интерактивті тапсырмаларды қосу. Аталған ұсыныстар ауыл мектебінде өткізілген педагогикалық эксперимент нәтижелерімен дәлелденген: мультимодальды оқулықтар оқушылардың оқу белсенділігін арттырып, түсіну деңгейін жақсартады және жекелендірілген білім беру траекторияларын қолдайды.

Кілтті сөздер: мультимодальдылық, баспа оқулығы, инфографика, QR-код, цифрлық оқу құралдары, BYOD, визуалды семиотика, орыс тілін оқыту.

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МУЛЬТИМОДАЛЬНОСТЬ КАЗАХСТАНСКИХ УЧЕБНИКОВ ПО РУССКОМУ ЯЗЫКУ КАК ВАЖНЫЙ ДИДАКТИЧЕСКИЙ ИНСТРУМЕНТ

В статье рассматривается роль мультимодальности как ключевой дидактической категории современных казахстанских учебников русского языка. Несмотря на активную разработку цифровых мультимодальных учебников, роль основного средства обучения остается за печатными изданиями. Это делает преобразование традиционного печатного учебника в мультимодальный объект актуальной педагогической задачей. На основе анализа визуального оформления учебников и результатов анкетирования учителей автор выявляет низкий уровень осведомлённости педагогов и специалистов об образовательной значимости мультимодальности. Предлагаются практические решения: преобразование линейных теоретических текстов в инфографику, встраивание QR-кодов со ссылками на аудио- и видеоматериалы, а также включение интерактивных заданий с мгновенной обратной связью в рамках стратегии BYOD. Выводы подтверждаются эмпирическими данными педагогического эксперимента: мультимодальные учебники повышают учебную вовлечённость, улучшают понимание и поддерживают дифференцированные траектории обучения.

Keywords: мультимодальность, печатный учебник, инфографика, QR-код, цифровые образовательные ресурсы, BYOD, визуальная семиотика, обучение русскому языку.

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